Electoral Imbalances and their Consequences*

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Abstract

It is widely believed that competitive elections are required for good democratic performance. Many races, however, see little electoral competition, due to asymmetries in voters' evaluation of candidates' quality (due, for example, to incumbency) and party labels (due, for example, to ideology). We study the consequences of both types of imbalances in a unified theoretical framework building on the notion that voters are rationally ignorant and need to pay costly attention to learn about candidates. Our paper rationalizes key empirical regularities such as the existence of large incumbency spending and electoral advantages or the heterogeneous effect of incumbency. Further, we highlight that properly accounting for voter attention is critical to interpreting empirical estimates of key determinants of electoral success, the sources of the incumbency advantage, and the causal effect of incumbency status. We also show that while depressing electoral competition, imbalances nonetheless improve voter welfare.

Keywords: Electoral Imbalances, Incumbency Advantage, Electoral Campaigns.

Supplementary material for this article is available in the appendix in the online edition.

The good functioning of democracy, it is widely believed, requires competitive elections (e.g., Schumpeter, 1942). In practice, however, many electoral races experience little competition. Incumbents, for instance, tend to enjoy large margins of victory (see Figure 1a for the U.S. House) and high probabilities of reelection across a wide spectrum of offices and political systems.[1] Even open races often result in lopsided elections. In U.S. House elections between 1968 and 2014, the average elected candidate won the two-party vote (Republican v Democrat) by more than 13% (Figure 1b).

(a) Incumbent's margin (b) Elected candidate's margin in open races

Figure 1: Winning margins in House of Represenative elections in the U.S.

Winning margin is defined as the two-party share of the winning candidate minus 50. For details on the construction of these figures, see Supplemental Appendix H.

Scholars have devoted considerable attention to understanding why elections are so rarely competitive. Overall, two key empirical findings emerge. First, asymmetry in voters' opinions of candidates—for instance due to a candidate's incumbency—translates into a sizeable electoral advantage (e.g., Gelman and King, 1990; Cox and Morgenstern, 1993; Ansolabehere et al., 2000). Second, the impact of asymmetry in the voters' evaluations of party labels is more moderate. Greater partisan alignment between a candidate and the electorate carries electoral benefits, but their magnitude is limited, as evident from aggregate-level analysis using redistricting (e.g., Abramowitz,

[1]The electoral advantage enjoyed by incumbents has been documented at all levels in the U.S. (Ansolabehere and Snyder, 2002) as well as in Japan (Hayama, 1992; Shin, 2011), the U.K. (Katz and King, 1999), and Australia (Horiuchi and Leigh, 2009).

1983; Niemi and Winsky, 1992; Gelman and King, 1994). While the literature has established several stylized facts, important questions remain unanswered. How do these well-documented asymmetries produce an electoral advantage? What are their consequences for voter welfare? Do different types of asymmetries produce different effects? How do these asymmetries interact with other dimensions of heterogeneity among candidates, such as campaign funds?

In this paper, we develop a theoretical framework to assess the consequences of ex-ante electoral asymmetries. Unlike previous theories which focus almost exclusively on candidates' behavior, our work builds on the idea that the electorate is 'rationally ignorant' (Downs, 1957; Page and Shapiro, 1992). Voters must pay costly attention during campaigns to learn about candidates (as in Prato and Wolton, 2016a). We study how voters' strategic choice of attention and the resulting electoral outcomes are shaped by reputational imbalance—defined as the electorate's higher ex-ante evaluation of a candidate's quality—and partisan imbalance—defined as a higher ex-ante evaluation of a candidate's party label.

We find that electoral campaigns exacerbate reputational imbalance generating a sizeable electoral advantage, but mitigate partisan imbalance leading to a positive but limited electoral benefit, in line with the broad patterns documented in the empirical literature. Our framework also helps to organize and explain a host of established empirical facts such as the incumbency spending advantage or heterogeneity in the incumbency advantage across different types of office and district. We further show that researchers need to account for voter attention when interpreting estimates of the main determinants of electoral outcomes (such as candidates' quality or experience), the sources of the incumbency advantage, or regression discontinuity estimates of the causal effect of incumbency status.

Our baseline model features a representative voter (to whom we reserve the pronoun 'she') and two candidates (1 and 2). A candidate is either 'congruent' or a 'party loyalist,' and his type is his private information. The voter prefers congruent politicians who always provide a high payoff and holds initially a higher opinion of candidate 1 (for example, due to his status as incumbent). The voter's payoff from a party loyalist depends on her evaluation of the candidate's party label, modeled as a 'partisan swing' which is more likely to favor candidate 1 (e.g., the voter leans Democrat). Absent additional information, the voter always follows the partisan swing. However, during the electoral campaign, the voter can learn candidates' types. As in Prato and Wolton (2016a), electoral

communication requires attention by the voter and campaign expenditures by the candidate. In addition, we suppose that candidate 1 is more effective (all else equals) at reaching the voter (e.g., due to franking privileges). Attention and expenditures are complement and positively correlated with the probability of learning the candidate's type.

Candidates engage in informative campaign expenditures only if they expect the voter to pay attention to their message. As such, there always exists an uninformative equilibrium with no information revelation. Informative campaigns, however, always yield higher voter welfare. Voter's choice of attention depends on the probability of an 'electoral mistake'—electing a party loyalist on the basis of the partisan swing when a congruent candidate is in the race—that is affected in subtle ways by electoral imbalances.

In the case of reputational imbalance, the leading candidate 1 is more likely to be congruent compared to the trailing candidate 2. Since the partisan swing is unrelated to candidate-specific characteristics, the voter can make two electoral mistakes: she can fail to identify a congruent candidate 1 and elect a loyalist candidate 2 based on the partisan swing, or she can fail to identify a congruent candidate 2 and elect a loyalist candidate 1 again based on the partisan swing. Due to reputational imbalance, failing to elect a congruent candidate 1 is more likely, and the voter thus pays more attention to the leading candidate 1. Anticipating a more attentive electorate, and thus a higher return on campaign expenditures, candidate 1 outspends candidate 2. Consequently, the voter is always more likely to learn candidate 1's type. This is the *exacerbating* effect of the electoral campaign: modest levels of reputational imbalance bring about an attention and spending advantage, which generate a sizeable electoral advantage for the leading candidate.

These results help to organize empirical evidence on the sources of the incumbency advantage—i.e., the increase in winning probability that a candidate enjoys when running as an incumbent with better reputation (as documented by Carson et al., 2007; Hirano and Snyder, 2009) compared to competing in an open race. They provide a rationale for why the incumbency advantage cannot be fully explained by incumbents' higher quality (see Erikson and Titiunik, 2015; Hall and Snyder, 2015) and spending advantage (see Gerber, 1998). In our framework, a significant part of the incumbency advantage is caused by the incumbent's *attention advantage*.

Further, our conclusions indicate that estimates of the marginal effect of key determinants of electoral outcomes such as candidate quality and campaign spending are upwardly biased when

researchers fail to account for the mediating effect of voter attention. Only 'equilibrium effects'—which do not distinguish between direct and mediating effects—can be properly identified.

Finally, our findings offer a novel way to assess recent estimates of the incumbency status advantage (the causal effect of incumbency status on electoral success) using regression discontinuity (RD) designs. The incumbency status advantage can be assimilated to the leading candidate 1's higher communication effectiveness (due, e.g., to franking privileges, media exposure). We show that even if RD designs completely parse out reputational imbalance, these estimates would still include the incumbent's attention advantage. As such, RD designs cannot identify the direct causal effect of holding office.

Turning now to partisan imbalance, the voter's most likely electoral mistake in this case is to wrongly elect a loyalist candidate 1, since the partisan swing favors him with high probability. Other things equal (e.g., reputational imbalance, communication effectiveness), the voter then pays more attention to the trailing candidate 2, who then engages in greater campaign spending. The voter is thus more likely to learn the trailing candidate 2's platform, and the electoral benefit generated by partisan imbalance is limited. This is the *mitigating* effect of electoral campaign.

Due to the mitigating effect, the leading candidate 1's electoral gain is smaller than the underlying level of partisan imbalance, albeit always positive. This result, we show, implies two interesting comparative statics: (i) incumbents' vote share increase with the partisan alignment between them and their constituents, but (ii) incumbents' personal vote (i.e., the fraction of their vote explained by their reputation) is higher in district whose partisanship leans towards the *other* party. Both are consistent with empirical patterns uncovered in Ansolabehere et al. (2000).

Our paper also challenges the widely held belief that more electoral competition always benefits a moderate median voter concerned about selecting high-quality candidates. Both reputational and partisan imbalances decrease electoral competition by improving the standing of the leading candidate. However, imbalances always increase the (ex-ante) probability that a congruent politician is elected. A decline in electoral competition can thus increase the performance of the electoral process. We obtain a similar result for the incumbency status advantage. Greater communication effectiveness by the leading candidate increases voter welfare even if the trailing candidate becomes correspondingly less effective at reaching the voter. The incumbency status may well be an un-

fair advantage for a candidate (Fiorina, 1977), but an instrumentally beneficial advantage for the electorate.

1 Formal literature on electoral imbalances

Most existing formal contributions on electoral imbalances examine the source of the incumbency advantage. Specifically, existing contributions show how the incumbency advantage can originate from selection effects and the scare-off of talented challengers (Ashworth and Bueno de Mesquita, 2008)[2] or risk aversion on the part of voters who value incumbents' existing record over challengers' untested abilities (Bernhardt and Ingerman, 1985). Others have analyzed how the incumbency advantage varies with the nature of the voter's screening problem (Kartik and Van Weelden, 2015) or the intrinsic quality of the incumbent (Gordon and Landa, 2009). None of these articles incorporate campaign expenditures, and thus cannot explain the incumbency spending advantage. While a few models with persuasive electoral advertising can link incumbents' greater ability to raise campaign funds to a sizable electoral advantage (Meirowitz, 2008; Pastine and Pastine, 2012), our paper is unique in explaining the incumbency spending advantage in an environment with informative electoral advertising and no competitive edge in fund-raising.

Fewer theoretical contributions analyze the consequence of partisan imbalance in a non-spatial setting.[3] Among those, Ashworth and Bueno de Mesquita (2006) study a legislator's allocation of effort between policy-making and constituency service. As in our paper, partisan imbalance can benefit the voter by increasing the provision of constituency service. They do not consider, however, the consequences of partisan imbalance on electoral outcomes.

[2]Despite initially favorable evidence (Cox and Katz , 1996; Levitt and Wolfram, 1997), the empirical importance of the scare-off has recently been called into question by Hall and Snyder (2015).

[3]It is well known that in a Downsian framework, partisan imbalance can induce candidates to take more extreme positions (Wittman, 1983; Bernhardt and Ingerman, 1985; Groseclose, 2001; Aragonés and Palfrey, 2002).

Existing papers almost exclusively consider only one type of imbalance in isolation[4] and focus on candidates' incentives, limiting voters' role to casting a vote. In turn, our paper provides a unified framework and explicitly considers voters' strategic choice of attention. Following Dewatripont and Tirole (2005) and Hafer and Landa (2007), in our model, receivers' information is endogenous to their attention *and* to senders' communication effort. While Prato and Wolton (2016a) are the first to adapt this modeling approach to electoral campaigns, their analysis of the relationship between voter interest in politics and attention to campaigns assumes perfect symmetry between candidates, and is thus completely silent about the role of electoral imbalances, as well as the resulting empirical implications. Other models of electoral campaigns are unidirectional: with either candidates informing voters (e.g., Prat, 2002; Coate, 2004; Ashworth, 2006; Dewan and Hortala-Vallve, 2016; Prato and Wolton, 2016b) or voters learning about candidates (e.g., Martinelli, 2006; Svolik, 2013; Hortala-Vallve and Larcinese, 2016).

2 The model

We analyze a one-period, three-player game with two candidates (1 and 2, from party 1 and 2, respectively) and a representative voter. Candidates compete for an elected office which they value. Before the campaign, each candidate $j \in \{1, 2\}$ privately observes his type $t_j \in \{c, l\}$, where c stands for congruent and l for party loyalist. The commonly known ex-ante probability that candidate j is congruent is q_j. At the end of the campaign, the voter elects one of the two candidates ($e \in \{1, 2\}$).

The voter does not know candidates' type, but can learn it during the electoral campaign (for evidence that campaigns are informative, see Alvarez, 1997, and Peterson, 2009). The likelihood that the voter learns candidate j's type t_j depends on her attention to j's campaign (x_j), as well as j's *informative* campaign expenditures (y_j). Both spending and attention are costly. For candidate j, the cost corresponds to the forgone alternative uses of his "war chest" (Schuster, 2016), and the time devoted to fund-raising for political advertising or attending campaign meetings with constituents; it is parametrized by the function $C(y) = y^{2+\lambda}/(2+\lambda)$, $\lambda > 0$. For the voter, the cost captures cognitive constraints, the forgone benefit of alternative use of her time, and more

[4] Ashworth and Bueno de Mesquita (2008) is an exception, but the authors limit their analysis to the effect of partisan imbalance on selection and the trailing candidate's electoral fortune.

generally, the well documented "drive for cognitive economy" displayed by humans when performing a variety of intellectual tasks (Allport, 1954; McGure et al. 2010); it is parametrized by the function $C_v(x_j) = x_j^{2+\lambda}/(2+\lambda)$.[5] The probability that the voter learns candidate j's type at the end of the campaign is

$$\rho_j x_j y_j,$$

where the *communication effectiveness* $\rho_j \in (0,1]$ captures additional sources of variation in the strength of a campaign (such the availability of franking privileges or the effective use of social media).

The voter obtains a payoff of 1 when the elected politician is congruent. When the elected politician is a loyalist, the voter's payoff is $u_v(\theta, e)$, where θ is a partisan swing affecting the voter's evaluation of party labels.[6] The partisan swing θ is realized after the electoral campaign, but before the voter's electoral decision (as in many formulations of the probabilistic voting models—e.g., Lindbeck and Weibull, 1987). For ease of exposition and tractability, we assume that the swing favors either candidate 1 or candidate 2. We thus suppose that $\theta \in \{1,2\}$ and $u_v(1,1) = u_v(2,2) = \xi > 0$, while $u_v(1,2) = u_v(2,1) = 0$. It is common knowledge that $Pr(\theta = j) = \pi_j,\ j \in \{1,2\}$. Throughout, we assume that the voter prefers congruence over party loyalty ($\xi < 1$), but absent any additional information, her preferences over party labels drive her comparative assessment of candidates ($\xi > q_1$).[7] The voter's utility also includes the cost of attention (x_1 and x_2) described above and assumes the following form (with $\mathbb{I}_{\{t_e=c\}}$ the indicator function equals 1 if the elected politician is congruent):

$$U_v(e, x_1, x_2) = \mathbb{I}_{\{t_e=c\}} + \left(1 - \mathbb{I}_{\{t_e=c\}}\right) u_v(\theta, e) - C_v(x_1) - C_v(x_2) \tag{1}$$

[5]The choice of a specific cost function is for simplicity: most of our results carry through under more general assumptions. In the Appendix, we prove Proposition 1 as well as several of our other main results (e.g., Properties RI.1-RI.3) under more general assumptions.

[6]For a similar formulation of the voter's payoffs, albeit with a different justification, see Galasso and Nannicini (2011).

[7]The last inequality is only a sufficient condition for all our results to carry through. A necessary condition is that the voter always bases her electoral decision on the payoff from the partisan swing $u_v(\theta, j)$ when she does not learn candidates' type.

A candidate's payoffs are normalized to 0 when out of office and 1 when in office. As described above, candidate $j \in \{1, 2\}$ can also incur costly campaign expenditures (y_j) to inform the voter. Candidate j's utility can thus be expressed as:

$$U_j(y_j) = \mathbb{I}_{\{e=j\}} - C(y_j) \tag{2}$$

To summarize, the timing of the game is as follows:

1. Nature draws candidates' types $(t_1, t_2) \in \{c, l\}^2$, each privately observed.
2. The electoral campaign takes place. Candidates 1 and 2 and the voter choose, respectively, campaign expenditures and attention y_1, y_2, and (x_1, x_2). With probability $\rho_j x_j y_j$, the voter observes candidate j's type, otherwise she does not learn anything.
3. The partisan swing $\theta \in \{1, 2\}$ is realized, and the voter elects candidates $e \in \{1, 2\}$.
4. The game ends and payoffs are realized.

The equilibrium concept is Perfect Bayesian Equilibrium (PBE). We assume that the voter tosses a fair coin when indifferent (see the Appendix for a formal definition).

Finally, we define reputational and partisan imbalances as follows. Reputational imbalance corresponds to the voter's a priori favorable evaluation of one candidate over the other. We thus assume $q_1 = \frac{1+\phi}{2}$ and $q_2 = \frac{1-\phi}{2}$ so $\phi \geq 0$ measures the level of reputational imbalance in favor of candidate 1.[8] Partisan imbalance corresponds to the voter's a priori favorable evaluation of one candidate's party label over the other. Hence, we assume $\pi_1 = \frac{1+\delta}{2}$ and $\pi_2 = \frac{1-\delta}{2}$, so $\delta \geq 0$ measures the level of partisan imbalance in favor of party 1. We also assume that candidate 1's communication is no less effective than his opponent's: $\rho_1 \geq \rho_2$. Consistently with these assumptions, throughout we refer to candidate 1 as the *leading candidate* and his opponent (2) as the *trailing candidate.*

Discussion

Our model's main assumption is that swing voters are uncertain about their representative's willingness to put their interest ahead of party consideration. Absent information about candidates'

[8] All our results hold for $q_1 = q + \phi/2$ for q not too large (but strictly greater than 1/2).

characteristics, they rely on party cues and evaluate candidates based on how how well they believe the candidate's *party* will be able to promote their interests.

Several factors can generate reputational imbalance: seniority, leadership status, prior personal and professional accomplishments, or endorsements by celebrities (cf. Garthwaite and Moore, 2013). A well-studied source of reputational imbalance is a candidate's incumbency status. Due to selection (Zaller, 1998; Ashworth and Bueno de Mesquita, 2008) and other effects, incumbents tend to be more productive and of higher quality than challengers (Erikson, 1971; Carson et al., 2007; Cox and Katz, 1996; Hirano and Snyder, 2009).

In contrast, partisan imbalance arises from the fact that parties are informative labels (Downs, 1957; Aldrich, 1995; Snyder and Ting, 2002) associated with well-defined policy positions on certain issues. Absent any candidate-specific knowledge, a party affiliation is likely to predict a candidate's position on (for example) gun controls, reproductive rights, funding of religious education, or minimum wage. The function $u_v(\theta, j)$ thus corresponds the voter's payoff from the policy bundle traditionally associated with party $j \in \{1, 2\}$. Crucially, the electoral appeal of these policy bundles is (i) largely beyond candidates' control and (ii) partially—but not fully—anticipated, in light of voters' partisan leaning (e.g., due to the partisan composition of the candidates' constituency).

Our approach to electoral campaigns has five important features. First, in line with the concept of rational ignorance (e.g., Downs, 1957), the voter needs to pay costly attention to become informed. Second, campaign spending facilitates information acquisition by increasing the effectiveness of voter attention (that is, voter attention and candidates' campaign expenditures are complement). Third, the voter can pay a different level of attention to each candidate. Fourth, the voter does not observe the level of campaign expenditures. Fifth, a potentially large electorate is modeled as a unique agent, thereby abstracting from coordination issues and free-riding in information acquisition.

Only the first feature is crucial. While in the baseline model we focus exclusively on informative expenditures, Appendix G.1 illustrates that the model's key results continue to hold in an environment with persuasive campaign spending (i.e., where some impressionable voters can be directly swayed by expenditures). Our main insights are also immune to assuming weaker forms of comple-

mentarity between spending and attention.[9] Moreover, the paper's key findings continue to hold in a model in which learning is not fully directed and paying attention to candidate j's campaign is also informative about his opponent $-j$ (see Appendix G.2 for more details). Our model can easily be extended to the voter observing whether candidates have incurred some (minimum) level of expenditures (the extensive margin) as long as she does not learn the total amount spent (the intensive margin) consistently with reporting requirement in the United States.[10] Finally, Prato and Wolton (2016a) show that the assumption of a representative voter plays no substantive role (despite the possibility of free-riding in a large electorate).

3 Preliminary results

The voter's preference for congruent politician over party loyalist for all values of the partisan swing implies that a party loyalist cannot improve his electoral chances when he advertises his type. Consequently, in equilibrium only congruent candidates incur informative campaign expenditures. This result, it should be noted, follows from the stark assumption that campaign spending is purely informative. In Appendix G.1, we study a framework in which a candidate's spending also "sways" voters in his favor. Both types then incur strictly positive campaign expenditures, with congruent types outspending party loyalists.[11]

Voter attention, in turn, is driven by the possibility of detecting a congruent candidate. Due to the complementarity in the probability that the voter learns a candidate's type, there always exists an 'uninformative equilibrium' in which candidates never incur any informative expenditures and the voter pays no attention to the campaign. In this equilibrium, the voter always chooses a candidate based on the partisan swing. This equilibrium, however, is dominated in terms of voter

[9]Even under the extreme assumption of no complementarity—that is, the probability of learning is $\rho_j(x_j + y_j)$, most of our results would go through, with the important exception of the spending advantage under pure reputational advantage.

[10]For example, candidates' expenditures between October 20 and November 28, 2016 were reported to the FEC on December, 8 2016.

[11]Somewhat consistent with this prediction, Prato and Wolton (2016b) shows a positive empirical correlation between advertising and the provision of outlays to a legislator's district.

welfare by an 'informative equilibrium' in which both candidates' spending when congruent and voter attention are strictly positive. In what follows, we detail the property of the informative equilibrium.[12]

Our first result characterizes the voter's choice of attention and candidates' campaign expenditures in the informative equilibrium for all levels of reputational (ϕ) and partisan (δ) imbalances.

Proposition 1. *There always exists an informative equilibrium which is unique. In this equilibrium,*
(i) loyalist candidates do not incur campaign expenditure: $y_j^*(l) = 0,\ j \in \{1,2\}$
(ii) congruent candidates' campaign expenditures and the voter's levels of attention are determined by the unique solution to the following system of equations:

$$y_1^*(c)^{1+\lambda} = \rho_1 \frac{\left[1 - \delta + \frac{1-\phi}{2}\frac{\delta}{2} y_2^*(c) x_2^*\right]}{2} x_1^* \tag{3}$$

$$y_2^*(c)^{1+\lambda} = \rho_2 \frac{\left[1 + \delta - \frac{1+\phi}{2}\frac{\delta}{2} y_1^*(c) x_1^*\right]}{2} x_2^* \tag{4}$$

$$(x_1^*)^{1+\lambda} = \rho_1 \left(\frac{1+\phi}{2}\right)^2 \frac{1-\delta}{2}(1-\xi) y_1^*(c) \tag{5}$$

$$(x_2^*)^{1+\lambda} = \rho_2 \left(\frac{1-\phi}{2}\right)^2 \frac{1+\delta}{2}(1-\xi) y_2^*(c), \tag{6}$$

Proof. All proofs are in the Online Appendix. □

While a party loyalist does not incur campaign expenditures, a congruent candidate equalizes the marginal cost of spending ($C'(y_j^*(c)) = y_j^*(c)^{1+\lambda},\ j \in \{1,2\}$) with the marginal benefit. The marginal benefit corresponds to the increase in the probability that the voter learns his type and elects him (taking into account that she might also learn his opponent's).

Voter attention towards candidate $j \in \{1,2\}$ equates marginal cost ($C_v'(x_j^*) = (x_j^*)^{1+\lambda}$) to marginal benefit, which captures the gain from avoiding an electoral mistake and can be decomposed as follows:

[12]There also exist "semi-informative equilibria" in which only one candidate incurs informative campaign expenditures. All our comparative statics on the behavior of voter and the candidate engaged in communication hold in these equilibria (see the Appendix). Our focus on the (fully) informative equilibrium guarantees that primitive asymmetries among candidates, rather than asymmetries induced by equilibrium selection, are driving our results.

- the probability of having a meaningful electoral choice. That is, j and only j is congruent (probability $q_j(1-q_{-j})$, with $q_1 = \frac{1+\phi}{2} = 1 - q_2$);
- the probability of choosing the wrong candidate when uninformed, which is determined by the partisan swing (probability π_{-j}, with $\pi_1 = \frac{1+\delta}{2} = 1 - \pi_2$);[13]
- the payoff gain from detecting a congruent candidate over following the partisan swing $(1-\xi)$.

The first and second terms, which depend on reputational and partisan imbalances, play a critical role in the analysis to which we now turn.

4 The consequences of reputational imbalance

In this section, we study the effect of reputational imbalance, fixing the level of partisan imbalance to zero ($\delta = 0$, which implies $\pi_1 = \pi_2 = 1/2$) and unless otherwise specified, keeping campaign effectiveness constant. We first establish our main comparative statics and then discuss their positive and normative implications.

4.1 Voter attention, candidate spending, and electoral outcomes

Our first three results detail the impact of reputational imbalance on voter attention, campaign spending, and electoral outcomes.

Property RI.1. *The voter pays more attention to the leading candidate* 1 *than to the trailing candidate* 2*:* $x_1^* - x_2^* > 0$*. This difference is strictly increasing with reputational imbalance.*

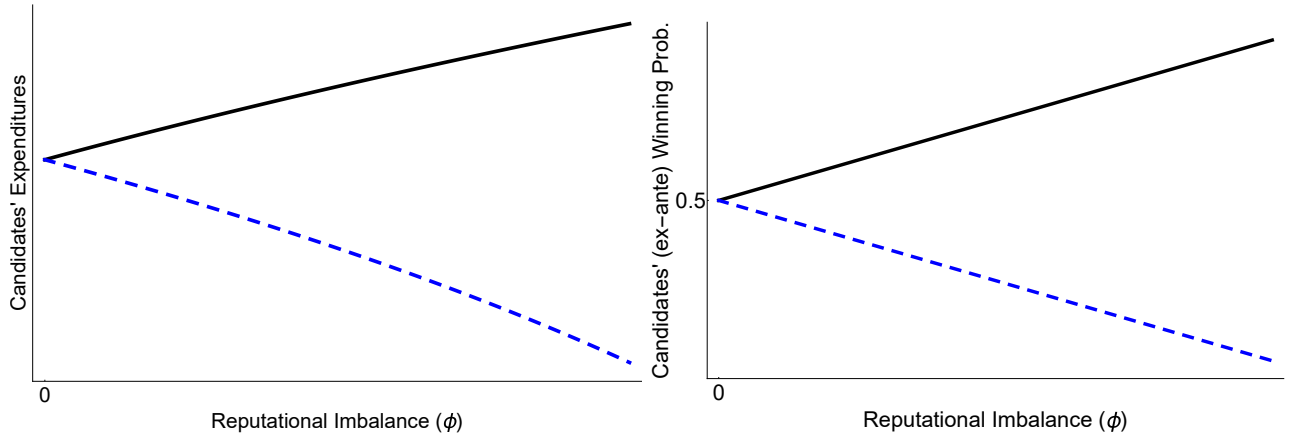
Property RI.2. *The leading candidate* 1 *incurs higher campaign expenditures than the trailing candidate* 2*:* $y_1^*(c) - y_2^*(c) > 0$*. This difference is strictly increasing with reputational imbalance.*

Property RI.3. *The leading candidate* 1*'s (ex-ante) winning probability is strictly greater than* $1/2$*, and strictly increasing with reputational imbalance.*

[13] Under our assumption that the partisan swing is sufficiently large ($\xi > q_1 \Leftrightarrow \phi < 2\xi - 1$), the voter always elects the candidate favored by the partisan swing when she does not learn any candidate's platform.

As explained above, the voter pays attention to avoid an electoral mistake: electing a loyalist candidate $j \in \{1, 2\}$ when his opponent is congruent. Since candidate 1 is more likely to be congruent than candidate 2, the most likely electoral mistake is to fail to elect a congruent candidate 1. The voter thus pays more attention to the leading candidate 1 who benefits from an 'attention advantage' (Property RI.1).

Since voter attention increases the return on campaign spending, due to his attention advantage, the leading candidate 1 outspends the trailing candidate 2. The leading candidate thus also enjoys a spending advantage (Property RI.2 and Figure 2a).[14]



(a) Candidates' equilibrium expenditures (b) Candidates' ex-ante winning probability

Figure 2: Equilibrium with reputational imbalance

The plain dark (dashed blue) line corresponds to the leading (trailing) candidate's equilibrium expenditures (Figure 2a) and ex-ante winning probability (Figure 2b). Parameter values: $\xi = 3/4$, $\lambda = 3$.

By the previous reasoning, the leading candidate is more likely to win than the trailing candidate for three reasons (abstracting for now from asymmetries in campaign effectiveness): (i) he is more likely to be congruent, and the voter is more likely to detect a congruent candidate 1 due to (ii) the

[14]Since reputational imbalance has opposite effects on the leading and trailing candidates' spending, it is a priori unclear how total campaign expenditures vary with ϕ. In Lemma C.2 in the Appendix, we show that, in line with empirical evidence, campaign expenditures are highest in ex-ante competitive races (that is, races with little or no reputational imbalance) whenever the cost function $C(\cdot)$ is sufficiently convex (so 1's campaign expenditures do not increase too fast as ϕ increases).

attention and (iii) spending advantages. The electoral campaign has an exacerbating effect—(ii) and (iii)—which translates reputational imbalance into a significant electoral advantage (Property RI.3 and Figure 2b).

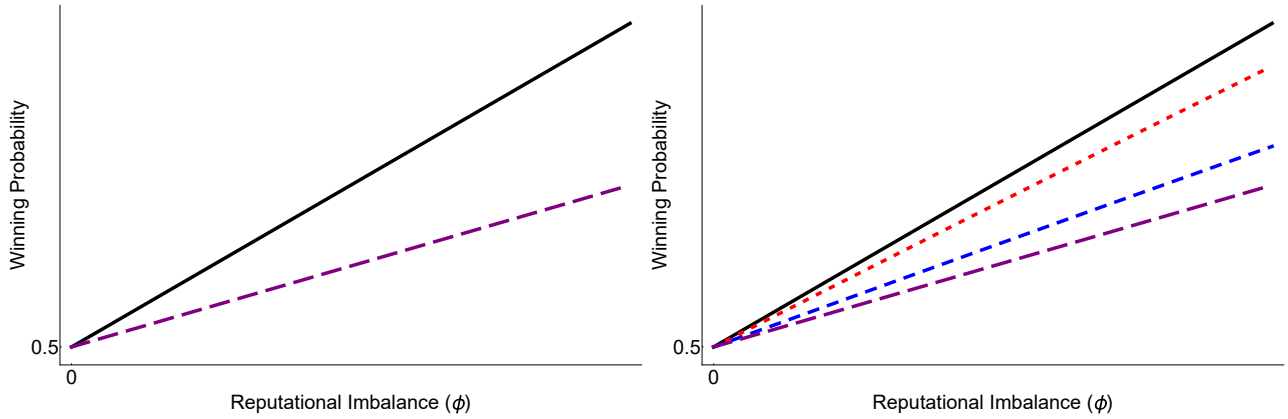
As noted above, the leading candidate can be understood as the incumbent. Further, following the definition advanced by Erikson (1971), Ashworth and Bueno de Mesquita (2008) or Hirano and Snyder (2009), we can relate the 'incumbency advantage' to the expected difference between the probability that candidate j wins the election as an incumbent (i.e., $\phi > 0$) and the probability he wins an open seat election (i.e., $\phi = 0$). Properties RI.1-RI.3 are then consistent with several important empirical findings: (i) the incumbency spending advantage (Green and Krasno, 1990; Jacobson, 1990; Gerber, 1998),[15] (ii) the positive correlation between incumbent's quality (here congruence) and the incumbency advantage (Carson et al., 2007), (iii) the positive correlation between campaign effort and reputation shocks (Bidwell et al., 2016).

An important contribution of this paper is to clarify the various mechanisms explaining these empirical patterns. While candidate's quality plays a critical role, it is not the unique channel. Higher (expected) congruence only explains part of candidate 1's electoral advantage. Indeed, the exacerbating effect of campaigns has a significant impact on his winning probability (compare in Figure 3a the top solid line representing the equilibrium winning probability and the bottom dashed line representing the counterfactual winning probability absent the exacerbating effect). While the need of accounting for quality differences has long been recognized, our theory rationalizes empirical evidence that the incumbency advantage cannot be fully explained by incumbents' better reputation (Hall and Snyder, 2015; Erikson and Titiunik, 2015).

Indeed, reputational imbalance is exacerbated by the spending advantage (even absent a fund-raising edge to the incumbent) and our newly discovered attention advantage. To illustrate the relative impact of these two channels, we decompose in Figure 3b the exacerbating effect into spending and attention advantages.[16] Figure 3b suggests that the exacerbating effect of campaign is

[15]While measures of incumbent spending advantage consider total campaign expenditures, Schuster (2016) shows that this advantage is still present when restricting the sample to advertising expenditures.

[16]Due to the complementarity in communication, our counter-factual analysis is only a close approximation of a decomposition.



(a) Exacerbating effect (b) Decomposing the exacerbatinge effect

Figure 3: Counterfactual analysis

The dark solid line corresponds to the leading candidate's ex-ante equilibrium winning probability. The long-dashed purple line corresponds to candidate 1's winning probability when campaign expenditures and attention are left at their no imbalance level ($\phi = 0$). The dashed blue line corresponds to candidate 1's winning probability when voter's levels of attention are held constant at their no imbalance level. The dotted red line corresponds to his winning probability when campaign expenditures are held constant at their no imbalance level. Parameter values: $\xi = 3/4$, $\lambda = 3$.

caused in a significant part by the leading candidate's attention advantage rather than his spending advantage. The next property formally establishes that the attention advantage is "large," in the sense that it always dominates the spending advantage. To understand this result, observe that voter attention directly depends on reputational imbalance, whereas campaign expenditures depend on ϕ only through voter attention.[17] As a result, candidates' campaign expenditures are less responsive to reputational imbalance than voter attention.

Property RI.4. *The effect of candidate* 1*'s greater campaign expenditures on his winning probability is strictly lower than the effect of greater level of attention towards him.*

By highlighting the role of voter attention, our theory also generates new predictions regarding the size of the incumbency advantage in different environments: Fixing an incumbent's reputation (ϕ), as communication effectiveness increases, both the attention and incumbency advantages increase.

[17] Absent partisan imbalance ($\delta = 0$), congruent candidates' marginal benefit of campaign expenditures only depends on reputational imbalance through voter attention: Equation 3 and Equation 4 become $y_j^*(c)^{1+\lambda} = \frac{x_j^*}{2},\ j \in \{1, 2\}$.

Property RI.5. *Suppose $\rho_1 = \rho_2 = \rho$. As communication effectiveness (ρ) increases, equilibrium voter attention and incumbency advantage increase.*

To perform a *prima facie* assessment of Property RI.4, we consider the relationship between news coverage (mentions in media outlets) and the size of the incumbency advantage for various elected offices in the United States.[18] Differences in coverage can be a function of greater communication effectiveness (e.g., media congruence as in Snyder and Strömberg, 2010) or greater attention (e.g., higher demand for news) and the coarseness of the data does not allow to distinguish between the two. However, Property RI.4 shows that the particular mechanism matters little for our theoretical prediction. As Figure 4 illustrates, we observe a positive correlation between news mention and incumbency advantage.

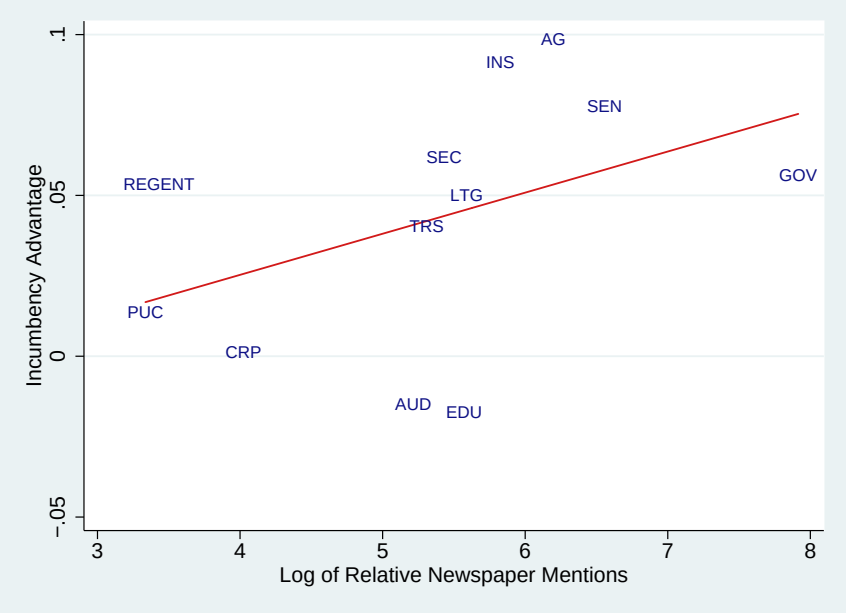


Figure 4: Incumbency Advantage and News Coverage

Data cover 18 states over the period 1990-2000. The solid line corresponds to the fitted regression line. The offices included in the analysis are: Attorney General (AG), Auditor (AUD), Corporation Commissioner (CRP), Education Commissioner (EDU), Governor (GOV), Insurance Commissioner (INS), Lieutenant Governor (LTG), Public Utility Commissioner (PUC), Regent (REGENT), Senator (SEN), Secretary of State (SEC), and Treasurer (TRS). For more details on the construction of this figure, see Appendix H.

[18] To perform this preliminary test, we use data kindly provided by Jim Snyder.

4.2 Implications for empirical research on incumbency

The critical role played by voter attention as highlighted in Property RI.4 has important implications for both the *estimation* of the incumbency advantage as well as the *identification* of the various mechanisms which can produce it. To measure the incumbency advantage, researchers have generally tried to estimate the following model, with minor variations meant to overcome limitations in data availability (see the major contributions by Green and Krasno, 1988; Gelman and King, 1990; Cox and Katz, 1996; Carson et al., 2007).[19]

$$V = \beta_0 + \beta_1 Quality + \beta_2 Money + \beta_3 Incumbent + \eta, \tag{7}$$

where V is a candidate's vote share, $Quality$ is a proxy for his perceived quality, $Money$ is his campaign spending, and $Incumbent$ is a dummy equal to one if the candidate is an incumbent. To relate this procedure to our model, we interpret candidate 1's ex-ante winning probability (i.e., before candidates 1 and 2's types have been realized) as the theoretical proxy of observed vote shares (in our set-up with a representative voter, realized vote share is always zero or one).

Our theory identifies two issues for estimates based on Equation 7: (i) the absence of a proxy for attention and (ii) the inclusion of $Money$. First, by Properties RI.1 and RI.2, the effect of voter attention is incorrectly attributed to either $Money$ or $Incumbent$. Property RI.4 suggests that this omitted variable bias can be quite large and affects both estimates of the incumbency advantage and the effect of spending (as estimated by Green and Krasno, 1988). Researchers, however, cannot simply control for voter attention. The reason is that voter attention is a mediator, and its introduction in Equation 7 can bias the estimates of the treatment variables $Incumbent$ and $Quality$ (for a discussion, see Imai et al., 2011 and Acharya et al., 2016). Moreover, the same issue also affects the estimation of the effect of $Money$, since candidates' spending decisions are, at least in part, a direct consequence of their relative reputation (Property RI.2). Hence, the estimates of the other variables are likely misidentified by the inclusion of $Money$ in Equation 7.

Observe that the bias induced by omitting voter attention can be corrected by an instrumental variable approach only if the instrument is uncorrelated with candidates' reputation *and* voter

[19] For example, one of the key contributions of Gelman and King (1990) is to use the candidate's past vote share as a proxy for $Quality$.

attention. To illustrate the severity of these exclusion restrictions, consider candidates' wealth, used in Gerber (1998). Since wealth is negatively correlated with the cost of fund-raising (which in our model is tantamount to assuming $\rho_1 > \rho_2$), our theory implies that (everything else constant) the voter would pay more attention to the candidate with the lowest cost of fund-raising, again leading to conflating the effects of spending and attention.

These observations indicate that the marginal effect of any determinant of electoral outcomes which affects voter attention (such as electoral spending, candidate quality, status, or fund-raising ability) cannot be identified without properly accounting for the mediating effect of the electorate's strategic choice of attention. Empirical researchers thus can only recover unbiased estimates of 'equilibrium effects' (which do not distinguish between direct and mediating effects) by using, for example, plausibly exogenous changes in regulation. Recent examples include Barber (2016) and Hall's (2016) analysis of state-level changes in contribution limits to determine the total effect of money in politics. By isolating the mediating effect of voter attention, our results then suggest that exploiting variation in effectiveness of communication (e.g., by using the media congruence data collected by Snyder and Strömberg, 2010) can help to partially recover the direct effect.

Our theory has also implications for the identification of the 'incumbency status advantage,' which we define as the causal effect of incumbency on a politician's electoral success. Recent works have used regression discontinuity (RD) designs to identify this quantity. As discussed extensively in the literature (e.g., Caughey and Sekhon, 2011; Grimmer et al., 2011; Eggers et al., 2015), focusing on close elections approximates an environment in which incumbency is randomly assigned, and thus identifies the causal effect of incumbency on electoral outcomes. In our setting, this corresponds to the case when $\phi = 0$. Our analysis, however, suggests that this approach does not yield unbiased estimates of the incumbency status advantage. Interpreting the incumbency status advantage as higher effectiveness in communication ($\rho_1 > \rho_2$), our next result shows that the voter pays more attention to the leading candidate who outspends his opponent.

Property RI.6. *Suppose $\phi = 0$ and $\rho_1 > \rho_2$. The voter pays more attention to the leading candidate* 1 *and candidate* 1 *incurs higher campaign expenditures than candidate* 2.

Property RI.6 shows that even if RD designs fully parse out quality differences between incumbents and challengers ($\phi = 0$), these estimates necessarily capture both the direct effect of the

incumbency status advantage ($\rho_1 > \rho_2$) and the mediating effects of greater attention and spending by the leading candidate. Hence, the direct causal effect of incumbency cannot be identified solely with an RD design.[20]

4.3 Reputational imbalance and political selection

To conclude our analysis of reputational imbalance, we now look at its consequences for voter welfare. A common theme in the literature is that competitive elections are a sign of good democratic performance, at least in a common value environment.[21] Our framework suggests that this claim needs to be qualified. Reputational imbalance decreases the competitiveness of the election (Property RI.3), but has a positive effect on the performance of the electoral process, as measured by the probability a congruent politician is elected. A similar result obtains when we look at the effect of greater communication effectiveness.

Property RI.7. *(i) When $\rho_1 = \rho_2 = \rho$, the probability a congruent politician is elected strictly increases with candidates' communication effectiveness*
(ii) The probability that a congruent politician is elected strictly increases with reputational imbalance.

Property RI.7.i implies that an increase in communication effectiveness improves the voter's ability to detect congruent politicians. While intuitive, it provides a novel rationale for the negative relationship uncovered in Snyder and Strömberg (2010) between media congruence (arguably a proxy for communication effectiveness) and the probability that a legislator votes with her/his party.

Property RI.7.ii is more subtle. Recall that our definition of reputational imbalance implies that the average quality of candidates is unaffected by the underlying level of reputational imbalances

[20]This issue worsens whenever the empirical strategy does not properly parse out quality differences (i.e., $\phi > 0$) either because researchers do not properly approximate the $50 - 50$ threshold (see Hyytinen et al., 2017 for empirical evidence) or the electorate holds systematically different *opinions* of incumbents and challengers at the threshold (Eggers, 2017; Fowler, 2017).

[21]When candidates can campaign on common good or divisive issues, others have shown that higher degree of electoral competition can harm the electorate (e.g., Lizzeri and Persico, 2005).

($q_1 + q_2 = 1$). Nonetheless, reputational imbalance (ϕ) strictly improves voter welfare (which is proportional to the probability a congruent candidate is elected). To understand this result, observe that voter attention is only valuable when a congruent candidate faces a party loyalist. When it comes to the leading candidate 1, this probability is $q_1(1-q_2) = \left(\frac{1+\phi}{2}\right)^2$. It is increasing and convex in the level of reputational imbalance. When it comes to the trailing candidate 2, the probability of the pivotal event is $q_2(1-q_1) = \left(\frac{1-\phi}{2}\right)^2$. It is decreasing and convex in the level of imbalance; hence, it does not decrease too fast. Because the voter conditions her attention on particular electoral races, the increase in the likelihood of detecting a congruent candidate 1 more than compensates for the decrease for candidate 2.[22]

Our theoretical framework can also be used to identify the welfare consequences of the incumbency status advantage. This quantity has long concerned political scientists, owing to its interpretation as evidence of an "unfair advantage" in electoral races (e.g., Fiorina, 1977). Suppose that in an open race both candidates have the same communication effectiveness ($\rho_1 = \rho_2 := \rho^o$), whereas incumbency implies that the leading candidate1's communication effectiveness—denoted ρ_1^i—is greater than 2's—denoted ρ_2^i. The next property shows that even if the incumbency status advantage reduces average effectiveness, it can have a positive effect on the probability that the voter elects a congruent politician (thus on her welfare).

Property RI.8. *Suppose $\phi = 0$. The incumbency status advantage strictly increases the probability a congruent politician is elected whenever $\frac{\rho_1^i+\rho_2^i}{2} \geq \rho^o$.*

The key intuition behind this result is that the voter only cares about the congruence of the election winner. Since the incumbency status advantage improves one candidate's communication effectiveness (candidate 1's), communication is on average less likely to be wasted. Property RI.8 has no implications regarding the fairness of the incumbency status advantage. It does, however, indicate that this advantage can be instrumentally beneficial to the electorate.

[22]It is important to stress that in this model voter welfare depends entirely on the quality of selection, as there is no effort or other forms of endogenous valence, which one can reasonably expect to go down—at least on average—as the election becomes more lopsided.

5 The consequences of partisan imbalance

In this section, we study the effect of partisan imbalance, fixing the level of reputational imbalance to zero ($\phi = 0$), which implies $q_1 = q_2 = 1/2$. We also assume that $\rho_1 = \rho_2$. Observe that, in this formulation, partisan imbalance only refers to the voter's evaluation of party label controlling for difference in candidates' quality. This everything-else-equals claim is important to interpret our results (see footnote 23 for a discussion). We first establish our main comparative statics and then detail the welfare consequences of partisan imbalance.

5.1 Voter attention, candidate spending, and electoral outcomes

Our first three results consider how partisan imbalance affects voter's choice of attention, campaign spending, and electoral outcomes.

Property PI.1. *The voter pays more attention to the trailing candidate* 2 *than to the leading candidate* 1*:* $x_2^* - x_1^* > 0$*. This difference is strictly increasing with partisan imbalance.*

Property PI.2. *The leading candidate* 1 *incurs lower campaign expenditures than the trailing candidate* 2*:* $y_2^*(c) - y_1^*(c) > 0$*. This difference is strictly increasing with partisan imbalance.*

Property PI.3. *The leading candidate's (ex-ante) winning probability is strictly greater than* $1/2$*. However, the difference in ex-ante winning probabilities between the leading and trailing candidates is strictly lower than* δ*.*

Absent any additional information, the voter's electoral decision is based on the partisan swing. Since the partisan swing favors candidate 1, the risk of wrongly electing a loyalist candidate 1 is higher than wrongly electing a loyalist from party 2. Consequently, the voter pays more attention to the trailing candidate 2 (Property PI.1).

As a result of greater voter attention, the trailing candidate 2 has greater incentive to incur campaign expenditures. Unlike reputational imbalance, candidates' marginal benefit from campaign expenditures depends directly on partisan imbalance (see Equation 3 and Equation 4 when $\delta > 0$). With partisan imbalance, a congruent candidate 1's electoral chances are high even in the absence of successful communication. His marginal benefit from spending is thus low. In contrast, candidate 2's chances are more critically linked to successful communication. His marginal benefit from spending

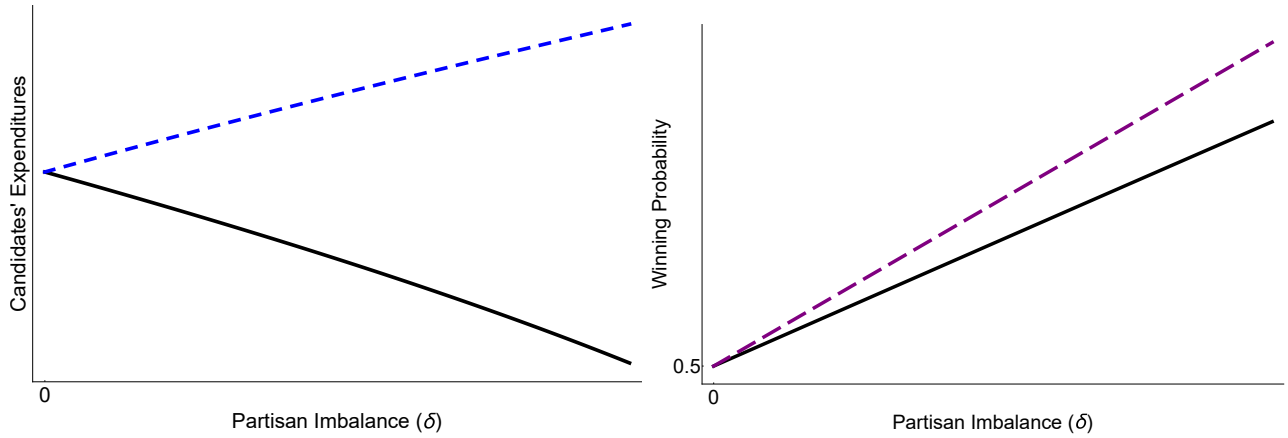
is thus high. As a result, the leading candidate's campaign expenditures are always lower than his opponent's (Property PI.2 and Figure 5a).[23]

Overall, partisan imbalance always generates an electoral advantage for the leading candidate 1 (his ex-ante winning probability is strictly greater than 1/2). However, since the trailing candidate 2 outspends his opponent and the voter pays more attention to candidate 2 (she is thus more likely to learn candidate 2's type), the difference in (ex-ante) winning probabilities is always smaller than the underlying level of partisan imbalance (δ). This is the *mitigating effect* of electoral campaigns. This result is illustrated in Figure 5 where the leading candidate's equilibrium ex-ante winning probability (solid dark line) is below the winning probability absent the mitigating effect (dashed purple line).

The analysis of the consequences of partisan imbalance suggests an important dimension of heterogeneity in the data. Ceteris paribus (that is, in the absence of reputational imbalance and asymmetries in communication effectiveness or fund-raising ability), (i) campaign expenditures should be negatively correlated with partisan imbalance (Property PI.2), and (ii) voters should know more about the trailing candidate than about the leading candidate (Properties PI.1 and PI.2).

Further, Property PI.3 implies that the electoral consequences of changing the partisan composition of a single electoral district are limited (assuming it has only marginal effect on the pool of candidates). This conclusion is consistent with the empirically documented small aggregate impact of partisan redistricting—arguably, a major source of partisan imbalance (Grofman, 1990; Gül and

[23]Recall that we are abstracting from asymmetries in communication effectiveness ($\rho_1 = \rho_2$) and reputation ($q_1 = q_2$). These assumptions play an important role in determining attention and spending levels in Properties PI.1 and PI.2. When $\rho_1 > \rho_2$ or/and $q_1 > q_2$, the leading candidate 1 outspends his opponent and receives more attention for some strictly positive δ's. The comparative statics, however, continue to hold. Spending by and voter attention towards the trailing candidate (resp. the leading candidate) increase (resp. decrease) with δ (see the Appendix). This also implies that our results would hold even if partisan imbalance affected both the voter's evaluation of party 1 (π_1) and of candidate 1 (q_1), as long as π_1 increases with partisan imbalance sufficiently fast compared to q_1.



(a) Candidates equilibrium expenditures (b) Candidates' ex-ante winning probability

Figure 5: Equilibrium with partisan imbalance

The solid dark (dashed blue) line corresponds to the leading (trailing) candidate's equilibrium expenditures (Figure 5a) and ex-ante winning probability (Figure 5b). In Figure 5b, the dark solid line corresponds to the leading candidate's ex-ante equilibrium winning probability; the dashed purple line corresponds to the leading candidate's ex-ante winning probability absent the mitigating effect of campaign. Parameter values: $\xi = 3/4$, $\lambda = 3$.

Pesendorfer, 2010)—on electoral outcomes (Gelman and King, 1994; Niemi and Abramowitz, 1994). Gelman and King argue that this moderate effect is due to the uncertainty associated with the redistricting process. Our paper provides an alternative explanation based on voter's strategic response to partisan imbalance. This theoretical contribution generates a novel and testable district-level predictions: increasing a district's share of Republican voters by 1% should result in an increase in the Republican candidate's vote share of strictly less than 1%.

5.2 Partisan imbalance and political selection

Partisan imbalance reduces the competitiveness of an election (Property PI.3). Under the commonly held belief that competition is necessary for good democratic performance, one should expect a negative effect on voter welfare. Our next result shows that this claim again needs to be qualified.

Property PI.4. *The probability that a congruent candidate is elected increases with partisan imbalance.*

An increase in partisan imbalance has two first-order effects on campaign spending: it decreases the leading candidate's expenditures and increases the trailing candidate's. This, in turn, generates two second-order effects: (i) the leading candidate 1's marginal benefit of campaign expenditures

increases (there is a greater chance that electoral communication—rather than the partisan swing—determines the outcome of the election) and (ii) the trailing candidate's marginal benefit of campaign expenditures increases as well, due to the reduction in his opponent's spending. Consequently, the leading candidate's campaign spending is less responsive to partisan imbalance than the trailing candidate's, and the voter is on average more likely to detect congruent candidates.

Property PI.4 implies that partisan redistricting does not necessarily harm the electorate. Moving to a more neutral process (as advocated by several organizations, e.g. Redrawing the Lines) might have negative unintended consequences depending on the initial level of reputational imbalance and communication effectiveness. While not arguing against non-partisan redistricting, this paper shows that the effect of such policy should be carefully evaluated.

6 Combining reputational and partisan imbalances

The previous sections analyze reputational and partisan imbalances separately. Here, we briefly discuss the joint consequences of both imbalances.

In the Appendix, we show that electoral campaigns mitigate the effect of partisan imbalance even in the presence of reputational imbalance. As a consequence, the probability that the voter detects a congruent candidate 1 is lower with partisan imbalance than without. If one interprets the voter's ex-post evaluation of a candidate as his 'personal' vote share (i.e., the vote share not caused by partisan imbalance), our theory predicts that 1's personal vote decreases with partisan imbalance. However, the leading candidate's *winning probability* increases with partisan imbalance (Property RI.3 holds in this setting). These two results, which point at an important dimension of heterogeneity in the effect of incumbency, are consistent with Ansolabehere et al.'s (2000) main findings.

Our analysis also highlights how the two types of imbalance, while having a similar effect on the electoral process, operate through theoretically distinct channels. The beneficial effect of reputational imbalance is primarily driven by voter attention (the upward change in her attention towards the leading candidate dominates her reduction in attention towards the trailing candidate), whereas the positive impact of partisan imbalance mainly operates via candidates' behavior (can-

didate 1's spending is less responsive than candidate 2's). Consequently, both imbalances have a complementary beneficial effect on the probability the voter elects a congruent politician.

7 Conclusion

This paper provides a unified theoretical framework to study the consequences of reputational and partisan imbalances. Our theory helps organize and explain several empirical regularities such as the existence of an incumbency spending advantage and the observed heterogeneity in an incumbent's winning probability and personal vote. It also provides a rationale for the previously unexplained difference between the significant electoral premium associated with better reputation and the limited benefit of partisan imbalance. Our results also suggest novel testable empirical predictions regarding the effect of redistricting, the size of the incumbency advantage in different campaign environments, or candidates' campaign spending as a function of partisan imbalance.

These various empirical patterns, we show, are primarily driven by voters' strategic choice of attention. While a few recent papers (e.g., Ashworth and Bueno de Mesquita, 2014; Prato and Wolton, 2016a) have criticized the behavioral political science literature for understating the impact of candidates' behavior on voters' attitude, this paper shows that the criticism goes both ways. Voters do not simply cast a vote. The electorate's attention to campaign messages has a stronger impact on candidates' behavior than previously recognized. This conclusion has critical consequences for empirical analysis of key determinants of electoral outcomes (e.g., candidates' quality) since any resulting estimate is likely to suffer from severe omitted variable bias. Moreover, voter attention can be a powerful mechanism behind various recent estimates of the incumbency advantage, the incumbency status advantage, as well as the effect of campaign spending.

Our theoretical framework also serves to reassess the normative claim that competitive elections are necessary for the good functioning of democracy. While reducing electoral competitiveness, electoral imbalances have a positive effect on political selection. In our setting, more competition does not always benefit the electorate.

Our theory assumes a common value policy and unmediated communication between candidates and the electorate. Future research would do well to study the performance of the electoral process

in ideological domains and to account for the important role of the media when voters face significant cognitive constraints.

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