Electoral Competition through Issue Selection

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Abstract

Politics must address multiple problems at once, and one would hope that political competition constrains parties to adopt priorities that reflect the voters’ true concerns. However, parties can actually manipulate voter priorities in the election by emphasizing issues selectively during the political campaign. This phenomenon, known as priming, should allow parties to cut down their investment in solving the issues that they intend to mute.

We develop a model of endogenous issue ownership in which two vote-seeking parties (i) invest to attract voters with “better” policy proposals and (ii) choose a communication campaign to focus voter attention on specific issues. We identify novel feedbacks between communication and investment. In particular, we find that stronger priming effects can backfire and constrain parties to invest more resources in all issues, including the ones they would otherwise intend to mute. We also identify under which conditions parties prefer to focus on their “historical issues” or to engage in issue stealing. Typically, the latter happens when priming effects are strong, and historical reputations differentiates parties less.

Keywords: party strategy, salience, issue selection and ownership, priming.
JEL codes: D72, H11
1 Introduction

‘The critical difference among elections is the problem concern of the voters, not their policy attitudes’ A. Petrocik

Electoral debates focus upon key issues that, once elected, each candidate commits to tackle during the legislature. A central part of a candidate’s electoral campaign is to emphasize some issue that poses a problem, and how he or she intends to resolve this problem. To decide for which candidate to vote, the core of the electorate then evaluates each candidate’s set of proposals, and whether each candidate’s main issues accord with their own priorities. This description of political competition would represent an ideal contractual arrangement between politicians and voters in liberal democracies, as long as the candidates’ choice of issues conforms with the voters’ sense of priorities.

A reasonable suspicion, however, is that political campaigns also aim at modifying the voters’ sense of priorities. In that case, candidates face perverted incentives: instead of conforming with voter concerns, each candidate will try to shift voter priorities to his or her advantage. This incestuous relationship between party strategy and voter priorities makes the problem of political competition both intriguing and potentially problematic.

There is ample evidence of this potential problem: sometimes, like in the movie “Wag the dog”, issues seem to be fabricated to divert the voters’ attention away from otherwise important problems. Typical such decoys include immigration (raised e.g. by French President Sarkozy in 2011) or criminality (raised e.g. by presidential candidate Bush in 1988). Yet, this diversion strategy is far from systematic. The exact opposite strategy may even be chosen: although illegal immigration was perceived as “important” or “very important” by 60% of the voters in January 2008 (Fortune magazine poll), both candidates McCain and Obama muted this issue during the presidential campaign. Similarly, although “drugs” was the most cited issue in August 1991 (Washington Post opinion poll), both Clinton and Bush muted it during the 1992 campaign.¹

Our main contribution is to show how political competition is modified by the candidates’ (or parties – we use the two terms interchangeably) capacity to influence the voters’ sense of priorities. This capacity has been termed priming in the literature. We find that higher priming effectiveness produces two opposite effects: first, it softens competition on the issues muted by the parties. This allows candidates to invest fewer resources in

¹The issue “drugs” being muted, it lost importance in opinion polls throughout the 1992 campaign. This pattern prevails in most campaigns: muted issues lose salience, whereas the opposite happens for the main campaign themes – we return to these “priming effects” below.
addressing the problems related to these issues, to the benefit of the political class but at the expense of the voters. We call this the attention-shifting effect of the campaign. Yet, we also identify a second, novel, effect that goes in the opposite direction: if parties have a strong influence on voter perceptions, they cannot afford to have low-quality proposals on any issue that will, or could, become central in the upcoming campaign. That is, high priming effectiveness may trap parties in facing steep incentives to provide very high-quality solutions for all issues, at their expense, and to the benefit of voters. We call this the homogenization effect of the campaign.

These two opposite effects also influence which issue(s) each party will select as its main focus during the campaign. Petrocik’s (1996) theory of issue ownership implies that parties should focus on the issues in which they have a reputational advantage. However, the parties’ ownership of an issue can be quite unstable over time. Think for instance of the US presidential campaign of 2000: despite being traditional Democratic issues, education and social security were key elements in Bush’s campaign. The converse holds for the 1996 campaign, during which criminality —traditionally a Republican issue— turned out to be a major asset in Clinton’s campaign.²

Our findings are that, when competition is soft (this requires that priming effectiveness is not too large), each party specializes in the issues in which it has an advantage. In this case, issue ownership theory gets validated by the parties’ equilibrium strategy. However, when competition gets stiffer (this happens when priming effects are large), parties begin attacking each other on all issues. Which party ends up dominating which issue then becomes less predictable, which leads to issue stealing. In other words, our formal model identifies why and when the issue ownership theory is a good predictor of the issues chosen by each party, and offers novel predictions for the other cases.

1.1 Contribution to the literature

Our contribution builds on several strands of the literature: the issue ownership literature and the one on priming. With respect to the latter, our main contribution is to propose a simple modelling approach of the effects of priming. Finally, we delve into additional detail about how we combine the insights from these different literatures to build our model.

²Holian (2004, p97) details “how the Clinton campaign and, in turn, the administration turned a long-time Democratic weakness into a non-issue in 1992, and ultimately a rhetorical strength by the 1996 campaign.”
Instability of issue ownership

The malleability of voters’ priorities (Smith 1985a; Smith 1985b, Page and Shapiro, 1992) spurred intensive research into the parties’ incentives to select specific issues for the campaign. The influential work by Riker (1993) is best summarized by the dominance principle—when one party dominates on a particular issue, the other party abandons the issue—and by the dispersion principle—when neither party dominates, both parties abandon the issue. The behavioral prescriptions of these principles permits each party to emphasize its strengths and highlight the contender’s Achille’s heel. On the other hand, Riker does not identify what allows a party to “dominate” on an issue.

Petrocik’s (1996) issue ownership theory fills this gap, associating a party dominance with its “reputation for greater competence in handling the issue”. Hence, the Democrats should be expected to exacerbate the importance of “education” and “healthcare” during presidential campaigns. Similarly, the GOP should focus on foreign and security issues, such as “terrorism” or “immigration”.

However, reputation advantages are not always good predictors of actual campaign choices. For instance, “criminality” – a core Republican issue – turned out to be a major asset in Clinton’s 1996 campaign (Holian 2004; Damore 2004). In a similar way, past reputation cannot explain the large emphasis placed by Bush on the issue “education” during the 2000 presidential campaign. In this regards, Damore (2004) admits that “the 2000 campaign is an outlier that does not comport with my theoretical expectation”; Petrocik et al. (2003) hold that “the 2000 election was an outlier” and, in a similar fashion, Aldrich et al. (2004) state that “the tradition of the issue ownership approach therefore had nothing to say about many of the voters’ major concerns in the 2000 election.”

These facts, reinforced by empirical work on issue ownership (see e.g. Ansohalabere and Iyengar 1994; Sides 2006; Sigelman and Buell 2004; Popper and Wonn 2008; Walgrave et al. 2009) undoubtedly invoke a non negligible degree of instability in the association between parties and issues across elections. This challenge to the theory of issue ownership still begs for theoretical elucidation.

The 2000 presidential campaign is a good illustration of our contribution. Throughout the campaign, Bush emphasized his policy proposals to handle primary and secondary education in the US: the No Child Left Behind (NCLB) plan. This proposal received substantial support: according to Gallup Polls, 75% of the independent voters and 50% Republicans aired more ads than the Democrats targeting the issue “education” (Annenberg Report, 2000). Moreover, the Republican manifesto mentions the word “education” 47 times, and the issue “education” precedes any mention of other key Republican issues such as taxes and foreign policy.
of the registered democrats were “favorable” to the NCLB plan. This success wiped out the Democrats’ reputation advantage on the issue. This opinion swing epitomizes our contribution: we shall argue that voters care about policies, not history.

While past commitments to address an issue do create comparative (dis)advantages, parties can engineer policy proposals to invert the parties' historical standing. Issue ownership should thus be seen as endogenous: policy innovation can overcome reputation disadvantages, thereby allowing parties to ultimately dominate on issues that historically belong to the campaign contender(s). Our theory identifies conditions under which the electoral outcome is Issue Specialization—the parties keep focusing on their historical issues—or Issue Stealing, as did Bush and Clinton in the above examples. The electoral outcome crucially depends on the effectiveness of priming.

The effect of priming on competition

There is ample evidence that voter priorities can be influenced by party advertisement. The claim that the media may not be successful in telling people what to think, but they are successful in telling them what to think about (Cohen, 1963), first corroborated by McCombs and Shaw (1972), got strong support in a vast experimental and empirical literature in psychology, political psychology and political science (Kahneman and Tversky 1979, 1981, 1984; Iyengar 1990; Iyengar et al. 1982; Iyengar and Kinder 1987; Sheafer and Weimann 2005. For a critique, see also Levy 2009). This pattern that advertisement can influence the voters' ranking of issue salience is termed priming.

Priming stems from two related findings in psychology. First, the more an issue is emphasized in the media, the more accessible it becomes in the memory of an individual. Second, the more an issue is accessible in the memory of an individual, the more it dominates judgment, including political ones. In the context of an electoral campaign, priming effects imply that voters attach larger salience to the issues that are emphasized more.4

The ability of self-interested players to prime citizens evokes the “sinister possibility” that political elites “might determine what the public takes to be important” (Iyengar et al. 1982, p. 848). Accordingly, in the context of issue ownership, candidates might dictate that the only important issues are the ones they own. In a feedback loop, therefore, stronger priming effects end up reinforcing issue ownership.

Our contribution in this respect is simply to offer a tractable functional form for the

4A question is which of the media or the parties select which information the voters receive. It was found that the media generally reflect, rather than affect, party agenda (Brandenburg, 2003; Bartels, 1996). Also, priming effects are maximal when both the parties and the media emphasize the same issues.
effects of priming on issue salience. This functional form relies on a parameter for priming effectiveness, which is found to influence the likelihood to observe a particular electoral equilibrium. In stark contrast to common perceptions, a strong ability to manipulate electoral priorities is found to be harmful for candidates and potentially good for voters.

In a nutshell, this happens because effective priming causes electoral competition to become stiffer. The logic behind this result can be summarized as follows: (1) when priming is effective, the salience of the emphasized issues is large. (2) High-salience issues become unavoidable. (3) Parties must draft even better policies in these issues, which lower their equilibrium rents and deliver more policy innovation to the voters. (4) Finally, when competition intensifies, ex-ante reputation advantages are no longer sufficient to grant the ownership of an issue, and parties attack each other on the issues. To summarize, stronger priming implies stiffer competition, more policy innovations, and issue stealing.

Modeling approach

Our model explicitly takes account of the parties’ drafting of a political platform and quantifies the effects of priming. We separate these two dimensions of political competition in two different stages of the electoral game. There are two parties: A and B. In the first stage, each party invests resources to draft proposals for each of three issues. Party A (respectively B) has an advantage in issue a (resp. b). This means that A faces comparatively lower investment costs to address problems in issue a and higher costs in issue b. Yet, party A can “steal” issue b by increasing its investment in that issue. Finally, they have equal competence on issue c.

In the second stage, both parties decide how to allocate their advertisement time across issues. Emphasizing an issue makes it more salient in the public opinion. Unsurprisingly, each party advertises the issue in which it dominates its opponent the most. However, a party, say A, might actually decide to invest a lot in issue b or c, and dominate in that issue. Moreover, as explained above, the parties’ capacity to prime voters in the second stage has non-trivial effects on their incentives in the first stage.

The paper proceeds as follows: Section 2 introduces the model. Section 3 focuses on the voting stage and explains how voters compare platforms. Section 4 solves the communication stage, and Section 5 the policy quality stage. Both Sections 4 and 5 provide real world illustrations of our main results. Section 6 concludes and provides directions for future research. Most proofs are relegated to the appendix.
2 The Model

Two office-motivated parties, denoted by $P \in \{A, B\}$, compete for votes in an election. For the sake of tractability, the policy space is restricted to three dimensions: each voter is concerned by up to three issues $k \in \{a, b, c\}$. The electoral game has three stages: (1) each party drafts a platform with proposals for each issue. A proposal is identified by its quality, $q^P_k$. A platform is a vector of qualities: $q^P \equiv \{q^P_a, q^P_b, q^P_c\}$. (2) Given the two parties’ platforms, each party decide how much communication time $t^P_k$ to allocate to each issue. (3) On election day, each voter casts her ballot for the party who proposes the highest weighted average quality. As detailed below, the weights used to compute average quality are given by each voter’s salience weights $s^i_k \in [0, 1]$. This parametrization builds on Belanger and Meguid’s (2008) empirical finding that a voter $i$’s decision is more impacted by party ownership in issue $k$, the more importance she gives to the issue in question (p479).

Our setup contrasts with the classical Downsian approach to political competition. In a Downsian context, party choices would be driven by the party’s preferences over issues and by the divisiveness of each issue. We voluntarily abstract from these ideological cleavages to focus on policy innovations. Put differently, we focus on the common value (vertical differentiation) rather than on the ideological divisiveness (horizontal differentiation) dimension of policies. Finally, our setup assumes symmetric information and full commitment. That is, all policy qualities are observable at the election stage and, when elected, a party actually implements the policies developed at stage 1. In this was, we reduce the gap between pre- and post-electoral considerations.

Stage 1: proposal quality. At stage 1, both parties simultaneously invest resources to produce policy innovations that increase their proposals’ quality on each issue, $q^P_k$. The investment cost of delivering a proposal of quality $q^P_k (\geq 0)$ is quadratic in quality and

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5 The timing between stages 1 and 2 can be reversed or actions made simulateneous without affecting any of the pure strategy equilibrium results. In a mixed strategy equilibrium, parties would always reoptimize their communication campaign in light of their realized relative performance on each issue, which makes this timing most meaningful.

6 Amoros and Puy (2007) consider two ideological candidates who compete in two issues by allocating an advertising budget. They show that either dialogue or issue-emphasis divergence may arise during a political campaign. Colomer and Llavador (2011) propose a model in which parties must choose one issue for the campaign, along with the Downsian position they defend. At the end of the campaign, voters base their vote on exactly one issue as well. Glazer and Lohmann (1989), and Morelli and Van Weelden (2011 and 2012) consider a framework in which the incumbent can work on ideological issues respectively to close the issue or to signal her type. They identify conditions under which parties overprovide effort in divisive issues. Finally, Aragones and Sánchez-Pagés (2010) highlights how an incumbent reacts to the emergence of an exogenously important issue, showing that for a high enough level of issue salience, the incumbent forgoes reelection and guarantees to himself a good payoff in terms of policies during the legislature.
decreasing in the party’s reputation on the issue, $\theta_k^P (\geq 0)$:

$$C_k^P (q_k^P) = \frac{(q_k^P)^2}{\theta_k^P}.$$ 

Quality zero represents the status quo: a party investing zero on an issue cannot propose any innovation over the status quo. Summing across issues, the total cost of drafting the party manifesto is: $C^P (q^P) = \sum_k (q_k^P)^2 / \theta_k^P$.

Reputation represents the party’s cost of producing articulate proposals that voters support and that the party can commit to implement if elected. It can find its roots in the ideological commitment, or in the expertise of the party’s staff, which implies that the parties’ ability to develop novel proposals typically differ across issues. In particular, we assume that $\theta_a^A > \theta_a^B$ and $\theta_b^A < \theta_b^B$; party A enjoys a reputation advantage on issue a and party B on issue b. We also assume that $\theta_c^A = \theta_c^B$; both parties are equally good at tackling issue c. Throughout, we focus on the symmetric case, in which $\theta \equiv \theta_a^A = \theta_b^B > 1$, $\theta_a^B = \theta_b^A = 1$ and $\theta_c^A = \theta_c^B = \theta_c \geq 0$. Notice that we do not make any assumption on the value of $\theta_c$, which can be zero (in which case this issue disappears from the election), larger or smaller than 1, and larger or smaller than $\theta$.

**Stage 2: the communication campaign.** Parties allocate their communication time to draw the voters’ attention towards the issue(s) of their choosing. Let $t_k^P (\geq 0)$ denote the amount of time (or the amounts of advertisement) that party $P$ devotes to campaigning on issue $k$. Throughout the campaign, the total amount of campaigning time devoted to issue $k$ is:

$$t_k = t_k^A + t_k^B.$$

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7 A colleague in academia (who asks to remain anonymous) told us about his own experience in the US Congress: each party assigns staff to different Congressional Committees. Typically, each party develops more experience in, and assigns its best experts to, the committees that it considers a long-standing priority. While the most powerful committees are always a priority for both parties, priorities can be significantly different in other committees (or issues). Priority committees benefit from their more qualified and motivated staff. Over time, parties thus end up with different skills on each issue. Our colleague worked for the committee on Science, Space and Technology. This committee was considered a more important priority for the Democratic than for the Republican party. As a result, and despite a smaller staff due to their minority in Congress, Democrats became more active and could draft more advanced proposals during that term. In our model, investment is represented by the size and quality of the staff, and the money spent on the issue, whereas $\theta$ can be seen as the accumulated expertise of the available staff and Congressmen.

8 Belanger and Meguid find (2008, pp482 and 487) that only 15% of the voters consider that a same party dominates on all issues. Such voters should be considered as pure partisans, whose voting behavior is not influenced by the mechanisms we identify. Instead, the voting decisions of the remaining 85% are found to strongly depend on the relationship between issue ownership and issue salience.
Normalizing total campaigning time to 1 and assuming that each party controls half of the total campaigning time, each party’s time constraint is:

\[ t^A \equiv \sum_k t^A_k = \frac{1}{2} = \sum_k t^B_k \equiv t^B. \]

The role of the communication campaign is to influence the voters’ salience weights. The more parties communicate on issue \( k \), the more this issue will become weigh in the voters’ decision at stage 3. The process through which communication affects the salience of an issue has been termed *priming* by political psychologists (see the introduction for more detail). While we want to study how priming shapes party behavior, microfounding such psychological processes beyond the scope of this paper.\(^{10}\) We thus choose to focus on a simple reduced form, in which the parties’ communication strategy influences the weights \( s^i_k \), but voters perfectly observe proposal qualities \( q^i_k \).

Formally, prior to the electoral campaign, each voter has initial weights \( \sigma_k^i (\geq 0) \), with \( \sum_k \sigma_k^i = 1 \). At the end of the campaign, these weights become:

\[ s^i_k = \beta t_k + (1 - \beta) \sigma_k^i. \]

The salience weight \( s^i_k \) is thus a convex combination of the (party-controlled) campaigning times \( t_k \), and of the voter’s prior weights \( \sigma_k^i \). In that convex combination, \( \beta \) is the relative influence of the electoral campaign and \( (1 - \beta) \) that of the prior. The parameter \( \beta \) thus captures priming effectiveness, that is the parties’ capacity to manipulate voters. To fix ideas, Bartels (1996) finds that priming can increase issue salience by 40 to 100\%. If a voter’s initial weights are \( \{1/3, 1/3, 1/3\} \), this yields an estimate of \( \beta \) that lies between 0.2 and 0.5.\(^{11}\)

**Stage 3: voting stage.** At the beginning of stage 3, voters observe the quality of all party proposals and the communication campaign of the two parties. A voter \( i \) is characterized by the salience weight \( s^i_k (\geq 0) \) she assigns to issue \( k \), with \( \sum_k s^i_k = 1 \). To identify which

\(^9\)The model directly extends to endogenous campaigning budgets and advertisement times. When facing identical fundraising opportunities, the outcome is always that the two parties choose the same allocation of spending between quality and advertisement, which implies that \( t^A = t^B \) in equilibrium.

\(^{10}\)One potential microfoundation could be that voters are imperfectly informed and face inspection costs to assess party proposals. Additional campaigning time on an issue would reduce inspection costs, and lead to an overweighting of that issue in the voter’s decision. However, including information asymmetries in this way would both complicate the analysis and blur the mechanism we identify: these do not depend on information asymmetries.

\(^{11}\)Solving for \( \mu/3 = \beta + (1 - \beta) / 3 \), when \( \mu \) is respectively set to 1.4 and 2.
party she will support, voter $i$ compares the relative merits of each party’s proposal on each issue. She votes for party $A$ iff:

$$
\sum_k s_k^i q_k^A \geq \sum_k s_k^i q_k^B, \text{ or }
\sum_k s_k^i \Delta_k \geq 0, \text{ with } \Delta_k \equiv q_k^A - q_k^B,
$$

(2)

where $\Delta_k$ is $A$’s quality advantage on issue $k$. Importantly, note that within each issue all voters value quality in the same way: in our setup, a voter’s party attachment is endogenous and depends on the match between the voter’s concerns (the salience weights) and the parties’ ability to resolve the problems present in their issue(s) of concern (the quality of their proposals).

**Party objectives and voter distribution.** Each party thus has six control variables (three quality choices and three campaigning time choices) to maximize its probability of winning net of investment costs:

$$
\Pi_P(q, t) = \pi_P(q, t) - C_P(q),
$$

(3)

where $q \equiv \{q_a^A, q_b^A, q_c^A, q_a^B, q_b^B, q_c^B\}$ and $t \equiv \{t_a, t_b, t_c\}$. Party $A$ wins if the pivotal voter, given her posterior salience weights, prefers the manifesto of $A$ to that of $B$.

Given a distribution $f$ of the pivotal voter’s salience weights, this happens with probability:

$$
\pi^A(q, t) = \int_{s_a} \int_{s_b} 1\left[ \sum_k s_k \Delta_k \geq 0 \right] f(s_a, s_b, s_c) \, ds_b ds_a, \text{ s.t. } s_c = 1 - s_a - s_b
$$

(4)

The indicator function $1[\sum_k s_k \Delta_k \geq 0]$ has value 1 when the pivotal voter prefers $A$ to $B$ in (2) and 0 otherwise.

We assume a uniform distribution of the pivotal voter’s ex-ante salience weights over the simplex of admissible preferences:

$$
S_\sigma \equiv \left\{ (\sigma_a, \sigma_b, \sigma_c) : \sigma_k \geq 0, \sum_k \sigma_k = 1 \right\}
$$

(5)

The density of ex-ante weights within that simplex is therefore: $f_\sigma(\sigma_a, \sigma_b, \sigma_c) = 2$,

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12 Two interpretations are mathematically equivalent: either one imagines a winner-takes-it-all system. The distribution of the pivotal voter’s salience weights must then be understood as random. Alternatively, one may consider a proportional representation system, in which case we can assume away aggregate uncertainty, and $f$ denotes the overall distribution of salience weights across the electorate. We follow the former interpretation in the paper.
Figure 1: Initial distribution of voters’ weights. The expected voter location is given by the intersection between all the baricentric coordinates of the simplex.

Figure 2: Final distribution of voters’ weights: the expected voter location changes and the density reduces.
\[ \forall (\sigma_a, \sigma_b, \sigma_c) \in S_\sigma. \] Figure 1 illustrates this graphically.

However, as explained above, voters are primed by the parties’ communication campaign (see (1)). From (5), it is straightforward to derive the set of admissible final salience weights, \( S_s(t, \beta) \):

\[
S_s(t, \beta) \equiv \{(s_a, s_b, s_c) : \beta t_k \leq s_k \leq \beta t_k + 1 - \beta, k = a, b, c\},
\]

which is a smaller triangle within the unit simplex. The size of this triangle is smaller the larger is \( \beta \). In other words, a consequence of more effective priming (higher \( \beta \)) is to reduce the uncertainty surrounding the set of admissible salience weights. This is illustrated in Figure 2.

At the time of the election, the density of the pivotal voter’s weights has thus increased to \( f_s(s_a, s_b, s_c) = \frac{2}{(1-\beta)^2} \), over a smaller set \( S_s(t, \beta) \).

**Equilibrium concept.** We focus on the subgame perfect equilibria of this game: at stage 3, voters cast their ballot on the party that maximizes their utility, given salience weights \( s_i^k \). The winning party is the one preferred by the pivotal voter. At stage 2, each party chooses the communication strategy that maximizes its probability of winning given the vector of qualities realized at stage 1. At stage 1, parties choose the vector of qualities that maximize (3) given expected advertisement strategy at stage 2 and voting behavior at stage 3.

### 3 The Voting Stage

Given the voters’ decision rule (2), we can compute the winning probabilities of each party at stage 3. These depend on the parties’ proposal qualities. There are three cases to consider: in case \( \mathbf{A} \), party \( A \) dominates \( B \) in all issues. In case \( \mathbf{B} \), \( B \) dominates. In case \( \mathbf{U} \), for Undominated, none of the parties dominates in all issues.
Case A. Party A proposes a higher quality on all issues:

\[ \Delta_k \geq 0, \forall k \text{ with at least one strict inequality.} \]

In that case, all voters prefer A to B and A's winning probability is 1 independently of the parties' communication strategies. Further increases of proposal quality by party A can, of course, not further increase A's winning probability.

Case B. Party A proposes a lower quality on all issues:

\[ \Delta_k \leq 0, \forall k \text{ with at least one strict inequality.} \]

In that case, all voters prefer B to A and A's winning probability is 0. In this case, a marginal decrease in quality by A cannot decrease its winning probability, and the communication strategy has no effect.

Case U. None of the parties proposes higher quality on all issues:

\[ \min_k \Delta_k < 0 < \max_k \Delta_k. \]

In that case, a voter who assigns salience weight 1 to the former issue strictly prefers B to A, and conversely for a voter who assigns weight 1 to the latter issue. This is the case for which we need further calculations to derive each party’s winning probabilities.

Let us focus for the time being on the most intuitive situation, in which A's quality advantage is positive and strongest in a, and that of B is positive and strongest in b: \( \Delta_a > \max(0, \Delta_c) \) and \( \Delta_b < \min(0, \Delta_c) \). By (2), voter \( i \) prefers A to B if, given her weighting of issues \( s^i_k \), she prefers A’s platform: \( \sum_k s^i_k \Delta_k \geq 0 \). These are the voters who value issue a sufficiently more than issue b. Indeed, exploiting the fact that \( \sum_k s^i_k = 1 \), (2) can be re-written as:

\[ s^i_a [\Delta_a - \Delta_c] + s^i_b [\Delta_b - \Delta_c] + \Delta_c \geq 0. \]

The voters who vote for A at stage 3 are therefore:

\[ \left\{ i : s^i_a \geq s^i_b \frac{\Delta_a - \Delta_c}{\Delta_a - \Delta_c} - \frac{\Delta_c}{\Delta_a - \Delta_c} \right\}. \]

In other words, A and B voters are separated by a cutoff line. Importantly, parties can both influence the position of this cutoff line—by varying their qualities—and the distribution
Figure 3: The regular line, depicted for $\Delta_a = -\Delta_b$ and $\Delta_c = 0.1$, determines the vote share of party $A$ and $B$. On panel $a$, the dashed line describes the effect of an increase in $\Delta_b$. On panel $b$, the dashed line describes the effect of an increase in $\Delta_c$.

Figure 4: Panel $a$, $b$ and $c$ shows the change in voters’ weights distribution. The black(gray) point identifies the location of the expected voter after(before) the communication stage.
of the voters’s salience weights –by varying their advertisement times:

1. higher policy quality by party A and lower policy quality by party B always enlarges
the set (6) by moving the cutoff line “down” and “right” in Figure 3. Yet, policy
quality cannot affect the distribution of issue weights.

<< INSERT FIGURE 3 ABOUT HERE >>

2. increasing the share of campaigning time dedicated to communicating about issue
a rather than issue b moves the distribution of salience weights “up” and “left” in
Figure 4a. Figures 4b and c illustrate the effects of more communication time on
issues b and c respectively. In contrast with policy quality, communication cannot
affect the position of the cutoff line.

<< INSERT FIGURE 4 ABOUT HERE >>

Combining these two effects, A’s winning probability can be computed as:

\[ \pi^A = \int_{s_a=\beta t_a}^{s_a=1} \int_{s_b=\beta t_b}^{s_b=1} f_s(s_a, s_b) \, ds_b \, ds_a, \]  

(7)

where \( f_s(s_a, s_b) = \frac{2}{(1-\beta)^2} \) for all \( s_a \in [\beta t_a, \beta t_a + 1 - \beta] \) and \( s_b \in [\beta t_b, \beta t_b + 1 - \beta] \), \( s_c = 1 - s_a - s_b \), and \( f_s(s_a, s_b) = 0 \) otherwise.

**Remark 1** The voters who support party A in (6) would actually turn to supporting party
B if quality differentials were reversed: the zones A and B in Figure 3 would be swapped.
Expressed differently, if salience weights can be interpreted as the voters’ proximity to
parties, the base for a party actually depends on the proposals set out by each party in
each issue. Thus, whether or not the voting base of each party matches the parties’ initial
reputation advantage will depend on realized quality differentials in each issue.

**Remark 2** If they invest the same (strictly positive) amount in each issue, parties main-
tain their initial advantage. On issue a for instance, party A delivers strictly higher policy
quality than B if both invest the same amount in that issue. Conversely, a party must
invest strictly more resources than its competitor to “steal” an issue.
4 The Communication Stage

At stage 2, each party already crafted its proposals and quality costs are therefore sunk. Parties observe qualities and choose a vector of campaigning times $t_k^P$: parties “prime” voters. Since quality costs are sunk, they maximize their winning probability (results are identical if parties must allocate an endogenous advertising budget across issues). We study the problem of party $A$ in Case U defined above: in the other cases, communication does not affect vote shares. The analysis is symmetric for party $B$.

Since $t_A = t_B = 1/2$, voters will be exposed to as many arguments from party $A$ as from party $B$. Consider the problem of party $A$: it chooses a vector $t_A^A(q) \equiv \{t_a^A, t_b^A, t_c^A\}$ subject to its communication time constraint, $\sum_k t_k^A = 1/2$. Its purpose is to maximize the winning probability given the choice of qualities $q$ made at stage 1. That is,

$$t_A^A(q) = \arg \max_{t_A^A} \pi_A^A(q, t_A^A, t_B^A)$$

s.t. $t_k^A \geq 0$ and $\sum_k t_k^A \leq 1/2$ for $k \in \{a, b, c\}$.

Remember that the communication strategy is meant to attract the voters’ attention towards specific issue(s) – see (1). It is straightforward to check that each party maximizes its winning probability by concentrating all its campaigning time on a single issue, the one in which its quality advantage is maximal:

**Proposition 1** Independently of $\beta$, each party concentrates all its campaigning time on the issue in which it has the largest quality advantage. That is:

$$(t_a(q), t_b(q), t_c(q)) = \begin{cases} 
(1/2, 1/2, 0) & \text{if } \Delta_a > \Delta_c > \Delta_b \text{ or } \Delta_a < \Delta_c < \Delta_b \\
(1/2, 0, 1/2) & \text{if } \Delta_a > \Delta_b > \Delta_c \text{ or } \Delta_a < \Delta_b < \Delta_c \\
(0, 1/2, 1/2) & \text{if } \Delta_b > \Delta_a > \Delta_c \text{ or } \Delta_b < \Delta_a < \Delta_c 
\end{cases} \quad (8)$$

where $\Delta_k \equiv q_k^A - q_k^B$ for $k \in \{a, b, c\}$.

To illustrate this result imagine that both $A$ and $B$ invested the same amount $\bar{C}$ in all three issues, which implies that $A$ (respectively $B$) has higher quality on $a$ (respectively $b$): $q_a^A > q_a^B$ and $q_b^B > q_b^A$. This also implies that they tie on issue $c$: $q_c^A = q_c^B$. Expressed in terms of quality differentials, we have: $\Delta_a > 0 = \Delta_c > \Delta_b$. From the first line in (8) party $A$ only wants to communicate on issue $a$, and party $B$ only on issue $b$. None of the parties brings up $c$, simply because both of them can attract more votes by emphasizing
another issue.

Good illustrations of this case might be the US presidential campaigns of 1992 and 2008: in both campaigns, the Democratic candidate campaigned on domestic issues (Clinton emphasized his proposals for a new covenant to America, and for reducing the gap between rich and poor; Obama campaigned on his plans for a better social safety net) whereas both Republican candidates Bush and McCain campaigned on foreign issues (their higher ability to combat foreign threats). In parallel, a historically relevant campaign issue was muted during these campaigns: drugs in 1992 and immigration in 2008. In both cases, the reason for muting this issue is that none of the candidates could build a strong enough quality advantage on it before the election: the Office of National Drug Control Policy was established in 1988. In 1992, both candidates were agreeing that the office’s policy proposals should be followed. The situation on immigration in 2008 was similar: in 2005, the senators Ted Kennedy and John McCain jointly introduced the Secure America and Orderly Immigration Act. This bipartisan effort can be seen as a prior investment in quality by the Republican candidate. Obama’s proposals were neither clearly superior nor inferior to McCain’s, which meant that none of the candidates could build a strong enough advantage on this issue: both gained from muting it. Beyond such anecdotal evidence, Damore (2004) shows that neutral issues typically represent between 0 and 2% of the total campaigning time.

Note that this campaigning pattern does not depend on the absolute advantage of each candidate: imagine that $A$ invested even more on $a$ in the first stage: $(q_a^A)^2 / \theta_a^A > \bar{c}$. Then, emphasizing $a$ has a larger impact on its winning probability. But this does not affect its best response at the communication stage: it should still focus his communication campaign on issue $a$. Coming back to the electoral campaign of 1992, Bush kept campaigning on his higher ability to fight foreign threats, even though it was becoming increasingly clear that his success in the Iraq war would be insufficient to win the election.

Conversely, imagine that $A$ invested enough on $b$ to steal this issue from $B$: $\Delta_b > 0$. The ranking of quality differentials is now $\Delta_a > \Delta_b > \Delta_c = 0$. In this case, $A$ still communicates on $a$, since this is its strongest issue, but $B$’s best response is modified: it should communicate only about issue $c$, since it is now its best option to contain vote losses. This is the second line in (8). Considering each possible (set of) case(s), and discarding the non-generic outcomes in which $\Delta$ is equal across two or more issues, shows that only the three communication outcomes of Proposition 1 may emerge. Which is this issue depends on the parties’ relative qualities, which in turn depend on both the parties’ comparative
advantages and the amount each party has invested in each issue. This result contrasts with the literature in which parties cannot control how much they invest in each issue. Then, only history and past reputation may define a party’s strong and weak issues in the current election. In our model instead, policy quality and issue ownership are endogenous. The equilibrium outcomes in terms of policy quality are analyzed in the next section.

5 The Quality Stage

We can now check how parties prepare their manifestos in anticipation of the campaign: we turn to the first stage of the game, in which parties simultaneously select how much they invest in policy innovations to increase their platform quality.

There are up to three cases to consider (see Section 3): Case A is when $\Delta_k > 0$, $\forall k$. In this case, A’s winning probability is 1. Case B is when $\Delta_k < 0$, $\forall k$, and A’s winning probability is 0. Case U is when none of the parties dominates on all issues, and their winning probabilities take some value between 0 and 1. We focus on Case U for the time being, and show that it yields a unique candidate equilibrium in pure strategies. Cases A and B represent potential deviations. They are analyzed in Sections 5.2 and 5.3, where we show when the equilibrium is in mixed strategies.

In Case U, there is at least one issue $k$ in which A proposes a strictly better policy than B (that is: $\Delta_k > 0$) and at least one issue $k'$ in which B’s proposals are better than A’s (that is: $\Delta_{k'} < 0$). We focus for now on the intuitive case in which A’s quality advantage is positive and highest in $a$, and that of B is positive and highest in $b$: $\Delta_a > 0 > \Delta_b$ and $\Delta_a > \Delta_c > \Delta_b$. We only detail the problem of party A; the analysis is symmetric for party B.

Party A chooses the vector of policy qualities that maximize its objective function (3) given the anticipated equilibrium communication strategy of stage 2, $t_k(q)$, as identified in Proposition 1, and the voting behavior (7) that results. That is, it chooses a vector $q^A \equiv \{q^A_a, q^A_b, q^A_c\}$ such that:

$$q^A = \arg \max_{q^A_a, q^A_b, q^A_c} \pi^A(q^A, q^B; t_a(q), t_b(q), t_c(q)) - \sum (q^A_k)^2 / \theta_k^A$$

$$s.t. q^A_k \geq 0 \text{ for } k \in \{a, b, c\}.$$

This maximization problem is potentially intricate since the party must take into account how first-period quality choices influence second-period campaigning choices. Yet,
the nature of the best responses at the second stage simplifies this problem: the values $t_k$ were shown to be constant within each of the three cases identified in Proposition 1. We can thus focus on the simpler problem:

$$q^A = \arg \max_{q^A, q^B, q^C} \pi^A (q^A, q^B, t) - \sum_k (q^A_k)^2 / \theta^A_k$$

$$s.t. q^A_k \geq 0 \text{ for } k \in \{a, b, c\} ,$$

in which advertisement times $t$ are independent of $q$. Once the equilibrium quality choices from stage 1 are identified, we shall identify which case(s) in (8) can actually materialize in equilibrium.

As shown in Section 3, A’s probability of winning is the probability that, given her weighting of the three issues, the pivotal voter values A’s proposals more than B’s: $\sum_k s_k \Delta_k \geq 0$, where $\Delta_k$ denotes the quality differential in issue $k$, see (7). This implies that a marginal increase in quality by party $A$ or by party $B$ have exactly opposite effects on the parties’ electoral performance. Hence, the two parties face equal marginal benefits of quality provision.

The difference between the parties only stems from their different marginal costs, which depend on their reputation advantage. The next proposition shows that, whenever a pure strategy equilibrium exists, party $A$ must propose higher-quality policies than party $B$ in issue $a$ and conversely in issue $b$:

**Proposition 2** In a pure strategy equilibrium we must have that $q^A_a = \theta q^B_a$, $q^B_b = \theta q^A_b$ and $q^A_c = q^B_c$. Therefore,

$$\Delta_a = (\theta - 1) q^B_a > \Delta_c = 0 > (1 - \theta) q^A_b = \Delta_b.$$ 

By Proposition 1 this also implies that, in a pure strategy equilibrium, party $A$ wants to allocate all its campaigning time on issue $a$ and party $B$ only on issue $b$:

$$t^* = (t_a, t_b, t_c) = (1/2, 1/2, 0).$$

**5.1 The Homogenization and Attention-Shifting Effects**

To derive the exact equilibrium levels of quality, we must identify the effects of the communication stage on quality provision. As shown in Figure 3, priming affects salience weights in two different ways: first, the voters’ attention moves towards the issues chosen
by the parties. Second, voting weights become more homogeneous across voters. Here, we
discuss the impact of each of these effects on quality.

Since issue $c$ is muted at the communication stage, the salience of that issue is reduced.
In contrast, the salience of the other two issues, $a$ and $b$, is increased. As we show below,
this effect induces parties to soften competition on the neutral issue, which increases their
rents. We call this phenomenon the attention-shifting effect of the campaign. This is
exactly the parties’ purpose: parties want voters to focus on their main strengths, which
allows parties to reduce investment on the issues that are electorally less advantageous.

The second, unintended, consequence of the campaign is that the pivotal voter’s sali-
ence weights become more predictable. As a result, a marginal quality increase in any issue
has a larger impact on the party’s chances of winning the election. This makes competition
tougher in all issues. We call this the homogenization effect of the campaign: Lemma 1 isol-
ates the homogenization effect of quality provision by considering the out-of-equilibrium
campaign in which all issues are emphasized equally.

**Lemma 1** *For an exogenously set communication campaign $t = \{\frac{1}{3}, \frac{1}{3}, \frac{1}{3}\}$, all equilibrium qualities are monotonically increasing in priming effectiveness, $\beta$.***

Thus, the more parties can prime voters, the stiffer competition becomes, yielding
higher-quality proposals in all issues. Yet, in equilibrium, only issues $a$ and $b$ are em-
phasized, which triggers the attention-shifting effect. This further increases the parties’
incentives to provide high quality proposals in issues $a$ and $b$, but reduces incentives in
issue $c$. Together, the attention-shifting and homogenization effects have an ambiguous
impact on quality provision for the neutral issue.

How do these two effects eventually shape quality provision in the first stage? To-
gether, Proposition 3 and Corollary 1 show that this attention-shifting effect dominates
the homogenization effect on issue $c$:

**Proposition 3** *There is a unique candidate pure strategy equilibrium (PSE), in which*
quality levels are:

\[
\begin{align*}
q_{a}^{A, PSE} &= q_{b}^{B, PSE} = \theta \sqrt{\frac{1}{8(\theta - 1)} \left( 1 + \beta \right)} \\
q_{a}^{B, PSE} &= q_{b}^{A, PSE} = \sqrt{\frac{1}{8(\theta - 1)} \left( 1 + \beta \right)} \\
q_{c}^{A, PSE} &= q_{c}^{B, PSE} = \theta \beta \sqrt{\frac{1}{2(\theta - 1)} \left( 1 + \beta \right)}.
\end{align*}
\]

A PSE is thus necessarily symmetric, and such that all quality levels are strictly positive, unless \( \theta_c = 0 \).

Hence, there is a unique and symmetric potential equilibrium for Case U. A consequence of these symmetric quality levels is that \( \pi^A = \pi^B = 1/2 \) whenever that equilibrium exists. Within this candidate equilibrium, it is immediate to see that:

**Corollary 1** In a symmetric pure strategy equilibrium:

(i) the attention-shifting effect dominates the homogenization effect in the neutral issue \( c \) (\( q_c^P \) is strictly decreasing in \( \beta \)),

(ii) the more effective is priming, the higher is equilibrium quality in the other issues (\( q_a^P \) and \( q_b^P \) are strictly increasing in \( \beta \)).

The magnitude of the parties’ reputation advantages are also important to determine equilibrium quality provision. From Proposition 3, it is immediate to see that stronger reputation advantages (higher \( \theta \)) reduce quality provision in both a party’s “weak” and “neutral” issues: \( q_{b}^{A, PSE} \) and \( q_{c}^{A, PSE} \) are strictly decreasing in \( \theta \). On the other hand, the effect on a party’s strong issue is ambiguous. When \( \theta \) is close to one (comparative advantages are small), competition is very stiff, since the two parties are almost interchangeable. Slightly increasing \( \theta \), parties invest less in all three issues: competition is softened at the expense of voters. But when \( \theta \) becomes sufficiently large (larger than 2 in Figure 5), another effect dominates: each party can actually provide very high quality proposals at low cost. In that case, quality provision is increasing in \( \theta \). The following figure illustrates these effects for \( \beta = 1/3 \) and \( \theta_c = 0.5 \).
5.2 Issue Stealing

The above shows that there is a unique candidate for a pure strategy equilibrium. Yet, to check whether these strategies are indeed an equilibrium, we must consider two additional deviations. We focus on party A: first, it may be tempted to steal all issues from party B and deviate towards Case A. Second, party A may wish to deviate by cutting down investment in all issues, and reach Case B. A necessary condition for the candidate equilibrium of Proposition 3 to exist is therefore that it provides higher payoffs than any of these two potential deviations. We first check whether party A has an incentive to deviate from the strategy identified in Proposition 3 towards providing higher quality on all issues. The following lemma establishes that we only need to consider one such deviation:

**Lemma 2** Conditional on party A uniformly dominating party B (min_k Δ_k ≥ 0), party A maximizes its objective function by setting q_a^A = q_a^B + ε_a, q_b^A = q_b^B and q_c^A = q_c^B + ε_c, with ε_a, ε_c ≥ 0 and ε_a ε_c = 0.

**Proof.** For any \{q_a^A, q_b^A, q_c^A\} such that min_k Δ_k ≥ 0, the winning probability of party A is 1. Therefore, party A can only increase its payoff by reducing quality provision, subject to min_k Δ_k ≥ 0 and at least one Δ_k > 0. ■
We denote the quality levels derived in Lemma 2 with a superscript IS, for Issue Stealing. The payoff of party A when it plays along the strategy derived in Proposition 3 is:

$$\Pi^P (q^{PSE}, t) = \pi^A (q^{PSE}, t) - \sum_k \left( \frac{q_k^{PSE}}{\theta_k^P} \right)^2$$

$$= \frac{1}{2} - \frac{1 + \beta}{1 - \beta} \frac{\theta + 1}{8(\theta - 1)} - \frac{1 - \beta}{1 + \beta} 2(\theta - 1).$$

Conversely, the payoff of party A when it deviates to \(\left\{q^A_{a,IS}, q^A_{b,IS}, q^A_{c,IS}\right\} \equiv \left\{q^A_{a}, q^B_{a}, q^B_{c}\right\}\) is:

$$\Pi^A (q^{A,IS}, q^{B,PSE}) = 1 - \left(\frac{1 + \beta}{1 - \beta} \frac{1}{8(\theta - 1)}\right) \frac{1 + \theta^3}{\theta} - \frac{1 - \beta}{1 + \beta} \frac{\theta_c}{2(\theta - 1)}.$$  

The No issue stealing condition is that the former payoff is at least as large as the latter. We find that:

**Proposition 4** A necessary condition for the existence of a pure strategy equilibrium is that the parties’ reputation advantage \(\theta\) be sufficiently large:

$$\frac{\theta^2 - 1}{4\theta} \geq \frac{1 - \beta}{1 + \beta}.$$  

**Proof.** Direct from the constraint that the payoff in (9) must be no smaller than (10). □

As can be seen from Proposition 3, equilibrium quality differentials \(\Delta_a = |\Delta_b| = \frac{\theta - 1}{8} \frac{1 + \beta}{1 - \beta}\) are monotonously increasing both in the party’s reputation advantage \(\theta\) and in the effectiveness of priming \(\beta\). When condition (11) is not satisfied, i.e. when parties are insufficiently differentiated (\(\theta\) is too close to 1), parties give up their reputation advantage and compete “à la Bertrand” by trying to steal all issues from their competitor. To represent this graphically, Figure 6 sets \(\theta_c = 0\), so that \(q^P_c = 0\) in any equilibrium. PSE represents the optimal quality for party A and NISC the optimal quality for party B in a pure strategy equilibrium. To beat party B on all issues, party A must deviate from PSE to any point in the area denoted “\(\pi^A = 1\)” . By Lemma 2, locating just to the right of NISC dominates any other point in that area. The no-issue stealing condition is met in Figure 6a, because the parties’ comparative advantages is large (\(\theta = 3\)) and priming effects are moderate (\(\beta = 0.4\)). Heuristically, the points PSE and NISC are located sufficiently apart from one another. Jumping from PSE to NISC is then too costly: the pure strategy equilibrium exists and is the unique equilibrium. In Figure 6b, the parties’ comparative
Comparative Advantage: $\theta$

Policy Quality: $q$

Figure 5: Policy Quality provided by party A’s in all issues as a function of $\theta$, holding $\beta = \frac{1}{3}$ and $\theta_c = \frac{1}{2}$.

Figure 6: In both panels, we fix $\theta_c = 0$, so as to collapse one dimension, and $\beta = 0.4$. In panel a, the differential in political capital is high, and deviations from the pure strategy equilibrium qualities (PSE) are too costly. In panel b, the differential in political capital is low and parties optimally deviate from PSE strategy.
advantages is small ($\theta = 1.2; \beta$ is still 0.4). Then, quality differentials are small, and issue stealing becomes cheap. The PSE does not exist in that case.

If it happens in equilibrium, issue-stealing has three important consequences. First, this equilibrium cannot admit a pure strategy. It is relatively simple to check that the payoff structure satisfies the conditions identified by Dasgupta and Maskin (1986) to ensure that a mixed strategy equilibrium exists in that case. Thus, both parties must strictly mix over the levels of quality provision in all issues. Our conjecture is that the equilibrium is then similar to the one identified by Kovenock and Robertson (2010): party $A$ should propose strictly positive quality with probability 1 on $a$ and $c$, and with probability lower than one on $b$. The strategy of $B$ must be symmetric. Second, parties must earn zero rents in equilibrium: if party $A$ may expect strictly positive rents with some quality level, then party $B$ will want to deviate by slightly increasing its quality everywhere. This process of ever-increasing quality stops when the cost of quality provision exceeds the benefits of a higher winning probability, i.e. when the winning probability is equal to the total costs of quality provision. Third, since the equilibrium is in mixed strategy, there is a strictly positive probability that party $A$'s proposals are better than $B$'s on issue $b$, and conversely on issue $a$. In other words, the parties’ initial advantage need not translate in better proposals: there will be issue stealing and which party will campaign on which issue cannot be perfectly anticipated at stage 1.

5.3 Murphy’s Law of Campaigning

The second deviation to consider is whether party $A$ prefers to cut down on costs and let party $B$ dominate on all issues, at the expense of a zero winning probability. Again, the following lemma shows that we only need to consider one such deviation:

**Lemma 3** Conditional on party $B$ uniformly dominating party $A$ ($\max_k \Delta_k \leq 0$), party $A$ maximizes its objective function by setting $q_a^A = q_b^A = q_c^A = 0$.

**Proof.** Party $A$’s winning probability is always 0 in this case $B$. Cost minimization yields the result. ■

That is, the second deviation that party $A$ must consider is akin to withdrawing from the race, and earn zero surplus. This deviation increases the party’s surplus if the payoff
in (9) is negative. Checking when this payoff is non-negative, we identify the following Murphy’s Law of Campaigning:

**Proposition 5** A necessary condition for the pure strategy equilibrium to exist is that comparative advantages $\theta$ be large and priming effectiveness $\beta$ be small: $\Pi^P(q^{PSE}, t) \geq 0$, iff

$$\theta \geq \theta^*(\beta, \theta_c) = \frac{5 - 3\beta}{3 - 5\beta} + \frac{4(1-\beta)^2\theta_c}{(1+\beta)(3-5\beta)} \text{ and } \beta < 3/5.$$  

(12)

Proposition 5 sheds a new light on the effects of priming on political competition. As seen in Proposition 4, the incentive to engage in issue stealing decreases when priming becomes more effective. This accords well with the intuition that the parties’ ability to manipulate (prime) voters allows the two parties to soften competition and specialize in the issue that they typically own.

But Proposition 5 shows that the overall effect of priming effectiveness can actually be the opposite. Within the pure strategy equilibrium, higher priming effectiveness forces both parties to invest more in quality. This is the homogenization effect identified above. Party rents thus decrease and, by Proposition 5, the incentive to deviate from the PSE by pulling out of the race increases.

Importantly, the incentive to pull out does not imply that competition gets softer overall: if a party pulls out, the other party can dominate in all issues with very low policy qualities. In turn, this implies that the former party now also has an incentive to increase policy quality and steal all issues. This affects the strategy of the second party, and so on. In other words, we are back to the same kind of mixed strategy equilibrium as under issue stealing: paradoxically, the more voters can be manipulated, the more likely it is that the campaign will be competitive and unpredictable. This is precisely what we mean by Murphy’s Law of Campaigning.

Figure 7 illustrates the combined effects of the two conditions (11) and (12) when $\theta_c = 0$. The PSE exists when the parameters $(\beta, \theta)$ lie above both curves on that figure. That is, when comparative advantages are sufficiently large, and priming effects are not too strong. For such parameter values, competition is relatively soft, in the sense that parties can earn strictly positive rents, and they do not engage in issue stealing. Indeed, parties are so different (comparative advantages are so large) that issue stealing is too costly, and parties do not need to invest lots of resources to ensure a 50% probability of

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13 The participation constraint moves upwards (i.e. becomes more binding) when $\theta_c$ increases above 0. The reason is that, as parties become more productive on issue $c$, they must invest more in that issue, for no additional vote in equilibrium.
winning. When party differences fade away (i.e. \( \theta \to 1 \)) or when priming effects become too large (i.e. \( \beta \to 3/5 \)), the parties’ temptation to engage in issue stealing or to pull out of the race increase. As soon as the parameters \((\beta, \theta)\) are located beneath one of the two curves, the equilibrium must be in strictly mixed strategies. In that case, there is issue stealing and competition is so stiff that the parties’ expected rents fall to zero.

![Figure 7](the dog/Paper/MC8SE102.wmf)

Figure 7. Holding \( \theta_c = 0 \) and \( 0 \leq \beta \leq 0.6 \), the participation constraint is satisfied above

Finally, observe that there will be issue stealing (and zero rents) as soon as voters value sufficiently highly the parties’ proposals on unbiased issues. Indeed, if \( \theta_c \) increases, the locus of the participation constraint shifts upwards, meaning that there always exist a high enough value of \( \theta_c \) such that the Murphy’s Law of Campaigning applies.

6 Conclusions

We proposed a model of endogenous issue ownership in which parties have well identified ex ante comparative advantages across issues, which they can modify by investing in policy innovation. Later, during the political campaign stage, they can reap the fruits of that investment by priming voters. In this way, they artificially increase the salience of the issue(s) in which they invested and acquired a policy advantage. In contrast to common intuition, we find that when priming has a strong influence on the voters, the competitiveness of the election increases, and the initial comparative advantages are less important to determine which issue is owned by which party. In other words, initial issue ownership matters less when political advertisement becomes very effective. This result helps explain why issue ownership can become unstable.
The effects we identify are not always monotonic but two additional and empirically testable results emerge from our analysis. First, we find that stiff competition and issue stealing during the campaign become more likely when parties face higher investment costs to providing innovative policies on “neutral” issues (issue $c$ in the model). Second, the more different are the parties across issues, the less competitive the election becomes, and the less issue stealing should be observed.

Our contribution is more limited regarding welfare implications. The rule that voters use in the model when casting their vote cannot be considered as a welfare function, since it is affected by the voters’ weighting of issues, which are manipulable. While political advertisement has been found to effectively and significantly affect voting decisions, how they affect voter welfare after the election is another question. As a proxy for social welfare, we can only use the equilibrium policy quality levels in each issue. We find that issue stealing involves high expected quality levels (realized quality levels are however random) in all issues. Indeed, the threat of issue stealing forces parties to be more creative and offer new solutions to traditional problems. Conversely, issue specialization implies lower investments overall and larger party rents. Thus, on average, voters welfare should be expected to be higher under an issue stealing equilibrium than under issue specialization.

Note also that our model only focuses on valence issues, and neglects divisive issues. We want to argue that our approach usefully complements the analysis of divisive issues by, e.g. Colomer and Llavador (2011), Glazer and Lohmann (1989), or Morelli and Van Weelden (2011, 2012). Indeed none of these analyses studies the feedback effects between the advertisement campaign and equilibrium platform quality. Clearly, a model that combines the intuitions of both approaches would be richer, but at the expense of a significant increase in computational complexity. We also want to argue that divisive and valence issues coexist in electoral campaigns and target different audiences. Divisive issues are likely to affect more intensely the vote of partisan voters rather than independent voters. In contrast, swing voters and centrist voters are more sensitive to arguments about which policies will bring them a higher return. For instance: how to create more jobs? Which is the policy most likely to increase my disposable income? Which is the policy that will provide me with best protection against criminal activities? These swing voters are ones we have in mind in our model, and we believe that our model is well suited to explain the sometimes significant electoral swings that are observed across elections. As our examples illustrate, many of these swings happened after a party acquired a “valence advantage” in some important issue. Interestingly, our model implicitly predicts that each
voter will tend to remain more attached to a party if issue ownership remains stable across elections. The study of the relationship between partisanship and issue stealing is however left for future research.

Another potential limitation of the present analysis is the imposed symmetry of the model. Allowing for asymmetric comparative advantages for parties or a multiplication of issues would produce richer results. However, they would still stem from the same trade-offs as those identified in the symmetric case. Similarly, relaxing the assumption of a uniform distribution of the voters’ initial issue salience might make equilibrium results fit additional stylized facts. For example, one could think that exogenous shocks increase or reduce the salience weight of some issues. Then, the campaign would again become asymmetric, depending on which party has a reputation advantage on the “shocked” issue.

Finally, the selection of issues during electoral campaigns also calls for further research about the threat of entry by single-issue parties. This would provide a useful starting point to better analyze proportional elections.

References


7 Appendix

Proof of Proposition 1: Consider the maximization problem for party $A$. In the second stage of the game, party $A$’s FOCs are given by $\frac{\partial \pi^A}{\partial q^A_k} = \frac{\partial \pi^A}{\partial q^A_k} \geq 0$ for $k \in \{a, b, c\}$. Maximizing the payoff is therefore equivalent to maximizing the probability of winning. Suppose that $\Delta^a > \Delta^b > \Delta^c$. In that case, the set of voters who cast their ballot for party $A$ is given by (6). To maximize its probability of winning, $A$ must therefore increase $s^A_i (t^A_i)$ and reduce $s^B_i (t^B_i)$, which is achieved by focusing all its advertisement campaign on issue $a$, i.e. set $t^A_i = 1/2$. Conversely, party $B$ should focus all its advertisement campaign on issue $b$, i.e. set $t^B_i = 1/2$.

If instead $\Delta^b > \Delta^a > \Delta^c$, then party $A$’s probability of winning is decreasing in $s^A_i (t^A_i)$ and increasing in $s^B_i (t^B_i)$. Hence, $A$ must focus all its advertisement campaign on issue $b$, i.e. set $t^B_i = 1/2$, whereas party $B$ should focus its campaign on issue $a$ and set $t^B_i = 1/2$. Applying the same reasoning to all possible rankings of $\Delta^a, \Delta^b, \Delta^c$ yields the proposition.

Proof of proposition 2. Remember that the two parties’ payoffs are respectively:

$$\Pi^A(q^A, q^B, t^A, t^B) = \pi^A(q^A, q^B, t^A, t^B) - \sum_k \left(\frac{q^A_k}{\theta^A_k}\right)^2,$$

and:

$$\Pi^B(q^A, q^B, t^A, t^B) = 1 - \pi^A(q^A, q^B, t^A, t^B) - \sum_k \left(\frac{q^B_k}{\theta^B_k}\right)^2.$$

Moreover, $\theta^A_a = \theta^B_b \equiv \theta > 1 \equiv \theta^A_b = \theta^B_a$ and $\theta^A_c = \theta^B_c \equiv \theta_c$. It follows that the parties’ FOCs with respect to $q^A_a$ are:

$$\frac{d\Pi^A}{dq^A_a} = \frac{\partial \pi^A}{\partial q^A_a} - \frac{\partial \pi^A}{\partial q^A_a} \frac{2q^A_a}{\theta^A_a} = \frac{\partial \pi^A}{\partial \theta^A_a} - \frac{2q^A_a}{\theta^A_a} = 0,$$

$$\frac{d\Pi^B}{dq^B_a} = \frac{\partial \pi^B}{\partial q^B_a} - \frac{\partial \pi^B}{\partial q^B_a} \frac{2q^B_a}{\theta^B_a} = - \frac{\partial \pi^A}{\partial \theta^B_a} - \frac{2q^B_a}{\theta^B_a} = 0.$$

Thus, in equilibrium, $q^A_a = q^B_a = \frac{\theta}{2} \frac{\partial \pi^A}{\partial \theta^A_a}$, which implies $\Delta^c \equiv q^A_a - q^B_a = 0$.

Similarly, the parties’ FOCs with respect to $q^A_b$ are:

$$\frac{d\Pi^A}{dq^A_b} = \frac{\partial \pi^A}{\partial q^A_b} - \frac{\partial \pi^A}{\partial q^A_b} \frac{2q^A_b}{\theta^A_b} = \frac{\partial \pi^A}{\partial \theta^A_b} - \frac{2q^A_b}{\theta^A_b} = 0,$$

$$\frac{d\Pi^B}{dq^B_b} = \frac{\partial \pi^B}{\partial q^B_b} - \frac{\partial \pi^B}{\partial q^B_b} \frac{2q^B_b}{\theta^B_b} = - \frac{\partial \pi^A}{\partial \theta^B_b} - \frac{2q^B_b}{\theta^B_b} = 0.$$

Thus, in equilibrium, $q^A_b = \theta \frac{\partial \pi^A}{\partial \theta^A_a}$ and $q^B_b = \frac{1}{2} \frac{\partial \pi^A}{\partial \theta^A_a}$, which implies $q^A_b / q^B_b = \theta$. Recall that $\theta > 1$.

Hence, $\Delta^a \equiv q^A_a - q^B_a = (\theta - 1) q^B_a > 0$. Applying similar calculations to $q_b$ obtains $q^B_b = \frac{1}{2} \frac{\partial \pi^A}{\partial \theta^A_a}$ and $q^B_b = \frac{\theta}{2} \frac{\partial \pi^A}{\partial \theta^A_a}$. Therefore, $\Delta^b \equiv q^A_b - q^B_b = (1 - \theta) q^B_b < 0$.

Lemma 4 Let:

$$\alpha \equiv \frac{\Delta_c - \Delta_b}{\Delta_a - \Delta_c} (> 0) \text{ and } \gamma \equiv - \frac{\Delta_c}{\Delta_a - \Delta_c}$$

(13)
The parties’ winning probabilities can then be written as:

\[
\pi^A (q^A, q^B, q^C; t^A, t^B) = \begin{cases} 
1 & \text{if } \gamma + \alpha \beta t_b \leq \beta t_a - \alpha (1 - \beta) \\
1 - \frac{|(1-\beta) + \gamma + \beta (\alpha t_b - t_a)|^2}{\alpha (1+\alpha)(1-\beta)^2} & \text{if } \beta t_a - \alpha (1 - \beta) \leq \gamma + \alpha \beta t_b \leq \beta t_a \\
\frac{|(1-\beta) - \gamma + \beta (\alpha t_a - t_b)|^2}{(1+\alpha)(1-\beta)^2} & \text{if } \beta t_a \leq \gamma + \alpha \beta t_b \leq \beta t_a + 1 - \beta \\
0 & \text{if } \gamma + \alpha \beta t_b \geq \beta t_a + 1 - \beta 
\end{cases}
\]  

(14)

\[
\pi^B (q^A, q^B, q^C; t^A, t^B) = 1 - \pi^A (q^A, q^B, q^C; t^A, t^B)
\]

**Proof.** Using (2) and Proposition 2, the pivotal voter will vote for A at stage 3 if her weighting of issue a, denoted \(s_a\), is higher than the value defined by the separating line:

\[
s_a (t_a) = s_b (t_b) \alpha + \gamma.
\]

(15)

In this proof, we focus on the case in which \(\gamma + \alpha \beta t_b \leq \beta t_a\), which is depicted in Figure 7. We also impose that \(\gamma + \alpha \beta t_b\) is sufficiently large, such that \(\pi^B (\cdot)\) is strictly positive. Graphically, these conditions imply that the separating line cuts the simplex “from below”.

**Figure 8:** B’s probability of winning is given by the black area.

B’s winning probability is then the (strictly positive) mass of points with \(s_a (t_a) \leq \gamma + \alpha s_b (t_b)\). Knowing that, within the simplex \(S_s (t, \beta)\), the density is \(2 / (1 - \beta)^2\), B’s winning probability is
where: \( K \equiv \beta (t_a + t_b) + (1 - \beta) \) is origin of the downward sloping line \( s_a = K - s_b \) in Figure 7 and \( s_a^k \equiv \frac{\alpha K + \gamma}{1 + \alpha} \) is the value of \( s_a \) at the point of intersection between that line and the separating line (15). Remark also that \( s_b \equiv \frac{s_a - \gamma}{\alpha} \) is the inverse of the separating line. This integral represents the surface of the triangle \( \pi^B \) in Figure 7, multiplied by the density of the population within the simplex.

Substituting for \( K \) and \( s_a^k \) in (16) and executing the integral yields:

\[
\pi^B (\cdot) = \frac{(1 - \beta)^\gamma + \beta(\alpha_0 - a_k)}{\alpha(1 + \alpha)(1 - \beta)^2},
\]

where: \( \pi^B (\cdot) \) is the conditional density of the equilibrium population at the origin of the downward sloping line \( s_a = K - s_b \) in Figure 7.

The second value of \( \alpha \) in (14) is simply \( 1 - \pi^B (\cdot) \). The first, third, and fourth cases in (14) are the values of \( \alpha \) when the separating line respectively (i) passes entirely to the right of the simplex, (ii) cuts the simplex “from the left” and (iii) passes entirely above the simplex.

Proof of Lemma 1: To prove the lemma, we use the winning probabilities that result from Lemma 4 (see above in this appendix) when \( t_k = 1/3, \forall k \in \{a, b, c\}, \) solve for the equilibrium quality levels that would result, differentiate them with respect to \( \beta \).

Focusing on the same case as in Lemma 4, we have:

\[
\pi_B (q^A, q^B, q^C ; \frac{1}{3}, \frac{1}{3}) = \frac{(1 - \beta)^\gamma + \beta(\alpha_0 - a_k)}{\alpha(1 + \alpha)(1 - \beta)^2},
\]

where: \( \pi_B (\cdot) \) is the conditional density of the equilibrium population at the origin of the downward sloping line \( s_a = K - s_b \) in Figure 7.

The first order conditions defining the optimal levels of quality are therefore:

\[
\frac{\partial \pi_B}{\partial \alpha} \frac{\partial \alpha}{\partial q_a} \frac{\partial q_a}{\partial \alpha} = \frac{\partial \pi_B}{\partial \gamma} \frac{\partial \gamma}{\partial q_a} \frac{\partial q_a}{\partial \gamma} = 2q_a^B, \]

where \( \frac{\partial q_a}{\partial x} = -\frac{\partial q_B}{\partial x} \) for \( x = \alpha, \gamma \). Differentiating (18) yields:

\[
\frac{\partial \pi_B}{\partial \alpha} = \frac{(1 - \beta)^\gamma (1 - 2\gamma) - (1 + 2\gamma)(\frac{\delta - \gamma}{\alpha(1 + \alpha)(1 - \beta)^2})^2}{(1 + \alpha)^\gamma (1 - \beta)^2}, \quad \text{and} \quad \frac{\partial \pi_B}{\partial \gamma} = \frac{\alpha + \gamma - 2\beta + \alpha}{\alpha(1 + \alpha)(1 - \beta)^2}.
\]

Differentiating \( \alpha \) and \( \gamma \) and substituting, we find that in equilibrium, \( q_a^A \) must be equal to \( q_b^B \), and hence that \( \alpha = 1 \). From Proposition 2, we also have that \( \gamma = 0 \). After some manipulations, this yields:

\[
q_a^A / \theta = q_b^B / \theta = q_b^B = \sqrt{\frac{4 - (1 + \beta)^2}{2(1 - \beta)^2(1 - \theta)}} = q_b^B / \theta = q_b^A.
\]

This implies:

\[
\frac{\partial q_b^A}{\partial \beta} = \left( 1 - \beta \right)^{1/2} \frac{6(\theta - 1)(4 - (1 + \beta)^2)}{\left( 4 - (1 + \beta)^2 \right)^{3/2}} > 0.
\]

Next, we have:

\[
q_c^A \equiv \frac{2q_c}{\sqrt{4q_c^2 + \beta^2 - 4\beta + 3}(1 - \beta)\sqrt{3 - 2\beta - \beta^2}}.
\]
Differentiating and simplifying:

\[ \frac{\partial q_A}{\partial \beta} = \frac{8\theta_c}{\sqrt{6}\sqrt{\theta - 1(3 - 2\beta - \beta^2)^{3/2}}} > 0 \]

\[ \]

**Proof of Proposition 3:** To prove the proposition, we use the winning probabilities that result from Lemma 4 (see above in this appendix) when \( t_a = t_b = 1/2 \), and \( t_c = 0 \). Using the same reference case as in the proofs of Lemmas 1 and 4, we have:

\[ \pi^B(q^A, q^B; 1/2, 1/2) = \frac{\alpha(1-\beta) + \gamma + \beta(\alpha - 1)/2}{\alpha(1+\alpha)(1-\beta)^2}. \]  \( (20) \)

Note that the only difference between \( (20) \) and \( (18) \) in the proof of Lemma 1 is that the last term in the numerator is divided by 2 instead of 3. Derivations are thus similar and imply again that \( \alpha = 1 \) and \( \gamma = 0 \). In other words, any pure strategy equilibrium must be symmetric and such that: \( q_A^A/\theta = q_B^B/\theta = q_B^B/\theta = q_A^A/\theta \).

Using the equilibrium values of \( \alpha \) and \( \gamma \) to simplify \( \frac{\partial \pi^A}{\partial \alpha} \) and \( \frac{\partial \pi^A}{\partial \gamma} \) yields:

\[ \frac{\partial \pi^A}{\partial \alpha} = -\frac{1 + \beta}{4(1 - \beta)} \]  \( (21) \)

and

\[ \frac{\partial \pi^A}{\partial \gamma} = -\frac{1}{1 - \beta}. \]  \( (22) \)

The proposition follows from substituting these values into the FOCs and finding that the solution is unique.

**Proof of Proposition 5:** The participation constraint is violated if \( \Pi^A(\text{PSE}) < 0 \). From \( (9) \), this imposes that:

\[ \frac{1}{2} - \frac{1 + \beta}{1 - \beta} \frac{\theta + 1}{8(\theta - 1)} - \frac{1 - \beta}{1 + \beta} \frac{\theta_c}{2(\theta - 1)} < 0. \]

After some manipulations, this yields:

\[ \theta (3 - 5\beta) < 5 - 3\beta + 4\frac{(1-\beta)^2}{(1+\beta)^2}\theta_c. \]  \( (23) \)

This inequality always holds for \( \beta \geq \frac{1}{5} \). Conversely, for \( \beta < \frac{1}{5} \), simplifying \( (23) \) yields Proposition 5.

Differentiating the condition with respect to \( \beta \) shows that \( \theta^*(\beta, \theta_c) \), which is the lowest level of \( \theta \) compatible with the PSE, is increasing in \( \beta \) if either \( \beta > 1/3 \) or \( \theta_c < \frac{(1+\beta)^2}{(1-\beta)(1-3\beta)} \). Under these conditions, issue stealing is more likely the higher is priming effectiveness.