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ABSTRACT

Electoral Competition through Issue Selection*

Politics must tackle multiple issues at once. In a first-best world, political competition constrains parties to prioritize issues according to the voters' true concerns. In the real world, the opposite also happens: parties manipulate voter priorities by emphasizing issues selectively during the political campaign. This phenomenon, known as priming, should allow parties to pay less attention to 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 by constraining 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 differentiate parties less. JEL Classification: D72 and H11

Keywords: electoral competition, issue selection and ownership, party strategy, priming and salience

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1 Introduction

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

Electoral campaigns are characterized by a set of issues on which parties choose to focus their communication. A puzzle is how and why parties select these specific issues. 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 prior to the 2008 presidential campaign (Fortune magazine poll of January 2008), both candidates McCain and Obama muted this issue. 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] Also, and in contrast to common perceptions, the parties' ownership of an issue can be very unstable. Education and social security –traditionally Democratic issues– were key elements in the campaign of Bush in 2000. The same holds for criminality: traditionally a Republican issue, it turned out to be a major asset in Clinton's 1996 campaign.[2]

Our analysis embeds the strategic selection of issues during the campaign into a broader model in which parties can also invest resources to improve their policy proposals on each potential issue. In this way, we develop a theory of *endogenous issue ownership* that allows us to explain when and why there is *issue specialization –i.e.* parties keep focusing on the issues in which they already have a reputation advantage– or *issue stealing*, as did Bush and Clinton in the above examples. Our results identify novel feedback effects between the parties' capacity to manipulate voter attention towards specific issues during the campaign and their incentives to invest resources, and possibly acquire ownership, in each issue prior to the campaign. Two major effects stand out: the *attention-shifting effect* accords with the standard intuition that, the more parties can manipulate voter attention, the more they can soften political competition and increase their rents. In particular, it allows parties to

[1]The 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.

[2]Holian (2004) 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" (p97).

cut investment in the issues that are muted during the campaign. Yet, they also face a countervailing force, the *homogenization effect*: the abler parties are at manipulating voter attention, the more alike voters become. This increased homogeneity implies that more voters get swung by a marginal improvement in *any* policy proposal. This traps parties into investing more in all issues, which reinforces the competitiveness of the election.

These two effects combine with the parties' initial reputation advantages to determine the nature of the equilibrium. We focus on a symmetric situation in which each party, A and B, has a reputation advantage on one issue, respectively a and b, and no advantage on a neutral issue, c. This reputation advantage is best thought to depend on the party's historical performance on the issue, which Petrocik (1996) associates with "issue ownership" (see below). Yet, we want to argue that what actually matters for voters are *policy proposals*, not *history*. In our model, a reputation advantage reduces the party's cost of developing convincing proposals on the issue. What we find is that reputation advantages need not translate into ownership in terms of realized proposals: this depends on whether the equilibrium is associated with issue specialization or issue stealing.

Our model builds on several strands of the literature. The literature on *priming* explains how the political campaign can influence the voters' relative attention across issues, and consequently their voting behavior. The priming effect hypothesis can be summarized by Cohen's (1963) observation that *the media may not be successful in telling people what to think, but they are stunningly successful in telling them what to think about.* This claim has both been validated empirically, among others by McCombs and Shaw (1972), and experimentally (Kahneman and Tversky, 1979, 1981, 1984; Iyengar *et al.* 1982; Iyengar and Kinder 1987; Iyengar 1990. For a critique, see also Lenz 2009). The priming effect hypothesis relies on two related findings in the psychology literature. 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 in politics. In the context of an electoral campaign, priming effects imply that voters attach larger weights to the issues that are emphasized more.[3]

Knowing that they can build on such priming effects, parties develop an incentive to emphasize issues selectively. Riker's (1993) *dominance* and *dispersion principles* theorize these incentives. They respectively state that (i) when one party dominates in the volume

[3]A question is which of the media or the parties control the information accessible to voters. Clearly, priming effects are maximal when both the parties and the media decide to emphasize the same issues. Yet, it was also found that the media reflect, rather than affect, the parties' agenda (Brandeburg 2002)

of rhetorical appeals on a particular issue, the other party abandons appeals on that issue; (*ii*) when neither party dominates, both parties abandon the issue. Accordingly, each issue is either raised by exactly one party or abandoned. While the Riker principles provide a powerful explanation for why different parties focus on different issues, they do not specify what gives a party the ability to dominate in its rhetorical appeals. Petrocik's (1996) *issue ownership theory* identifies ability with the parties' reputation in handling each issue.[4] An implication, however, is that parties should seldom switch issues across elections. Petrocik et al. (2004) admits that the issue ownership theory could not explain why, during the 2000 presidential campaign, the Republican Party was, for instance, airing many more ads than the Democratic Party on the issue "education", commonly thought as owned by the Democrats.[5]

Yet, insisting on education was rational for Bush. The reason is that the Republican Party, even if weaker in terms of reputation, had developed its novel *No Child Left Behind* policy proposal. Not by chance, Bush's 2000 electoral campaign began by explaining his "vision to improve education". Shortly after being published, the NCLB plan received high support in the American electorate: according to Gallup Polls, 75% among the independent voters and 50% among democrats said to be favorable to the plan. Encompassing the possibility to develop novel proposals that go beyond a party's historical reputation is one of the building blocks of our theory.

To clarify the distinction between the parties' *investment* that helps them reshape their advantage on an issue, and the parties' *communication campaign* that they use to manipulate voter attention across issues, we separate the political game in distinct stages. In the first stage, parties decide how much they invest in developing novel proposals for each issue. This (costly) investment determines how voters compare the proposals of the two parties within each issue. In Riker's words, the party with the best proposal eventually dominates the issue. In the second stage, parties choose their advertisement strategy by strategically allocating campaigning time across issues. This allocation influences the voters' relative weighting of issues at the voting stage. In the third stage, having observed the quality of each party's proposals in each issue, and given her (manipulated) weighting of issues, each voter casts her ballot for the party with the best overall platform.

Our results identify the feedback effects between these three stages. The parties' deci-

[4]Many empirical works (see *a.o.* Sheafer & Weimann, 2005; Green & Hobolt, 2008; Belanger & Meguid, 2007) confirm that candidates generally focus on the issues on which they enjoy larger trust and found significant priming effects.

[5]Such issue switching behaviour has been termed "issue trespassing" (Damore, 2004) or "issue stealing" when trespassing is associated with a switch in dominance (Holian 2004, Sides 2006).

sion to *specialize* in the issues they "own" or to *steal* each other's issues is found to depend on how competitive the campaign gets, which in turn depends on the interactions between the attention-shifting and homogenization effects identified above, and on the magnitude of the parties' reputation advantages. Issue specialization is associated with low degrees of electoral competition which translates into positive rents for both parties. Surprisingly, this equilibrium is generally reached when priming effects are low. In contrast, when priming effects are stronger, competition stiffens, and parties must attack each other on all issues, which generates issue stealing in equilibrium. The parties' rents are minimal in that case. We also find that lower costs of providing novel proposals on the neutral issue triggers issue stealing in the other issues. The magnitude of the parties' reputation advantages has a monotonic effect on the competitiveness of the election: the larger are the parties' reputation advantages, the more likely are low competition and issue specialization. The reason is simply that beating the opponent on its own issues becomes too expensive. By contrast, when comparative advantages are less important, the parties' incentive to steal each other's issues becomes stronger. This is why issues like drugs or immigration may at times be the central theme of the campaign (this happens when one party has acquired a very strong advantage on the issue) or voluntarily muted (when the party's reputation advantage shrinks. This happened when drug policy was delegated to the White House Office of National Drug Control Policy in 1989, and when Obama and McCain supported the bipartisan McCain-Kennedy immigration bill in 2006).

Importantly, we find that the communication strategy chosen by the parties in the second stage of the game actually *always* follows the Riker principles. That is, parties always focus their communication on the issues that are best (or least damaging, depending on the cases) *ex post*. By *ex post*, we mean that their initial investment produced an actual advantage. What previous studies failed to identify is why *ex post* advantages may differ from *ex ante* reputations. This, we find, depends on subtle interactions such as the ones identified by our theory.

The paper proceeds as follows. In Section 2, we present the model and discuss its main assumptions. In Section 3, we focus on the voting stage and explain how voters compare platforms. Section 4 presents the equilibrium analysis of the communication stage, and Section 5 that of 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. The proofs that are not in the text can be found in 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 develops a manifesto with proposals about how to address each issue. A proposal is identified by its *quality*, q_k^P. A platform is a vector of qualities: $\mathbf{q}^P \equiv \left\{q_a^P, q_b^P, q_c^P\right\}$. (2) Each party decides how much *communication time* t_k^P it devotes to each issue during the electoral campaign.[6] (3) On election day, each voter casts her ballot on the party with the highest *weighted average quality*. As detailed below, a voter i is identified by her issue weights, σ_k^i.

This setup contrasts with the classical Downsian approach to political competition, which assumes that parties choose a position on a line. When applied to issue selection, party locational choices would be driven by the party's preferences over issues and by issue divisiveness.[7] We voluntarily abstract from such ideological cleavages and focus instead on the quality of policy proposals. To put it differently, we focus on the common value (vertical differentiation) rather than on the ideological valuation (horizontal differentiation) of policies. Finally, our setup assumes symmetric information and full commitment: all policy qualities are observable at the election stage and, when elected, a party actually implements the policies developed at stage 1. This reduces the gap between pre- and post-electoral considerations.

Stage 1: proposal quality. At stage 1, both parties simultaneously choose the quality of their proposals on each issue, q_k^P. The *investment cost* of delivering a proposal of quality q_k^P (≥ 0) is quadratic in quality and decreasing in the party's *reputation advantage* on the

[6] 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 want reoptimize their communication campaign in light of their realized relative performance on each issue. In that case, the timing chosen in the model is the most meaningful.

[7] 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 to push during 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 (2011a and b) consider a framework in which working on ideological issues allows the incumbent respectively to close an 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 faces 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.

issue, θ_k^P (≥ 0):

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

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

The parties' reputation advantage can be interpreted as the party's cost of committing to increasingly precise proposals or the expertise and dedication of the party's staff over an issue.[8] It 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 is better at solving problems on issue a and party B is better at solving problems 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 $\theta \equiv \theta_a^A = \theta_b^B > 1, \theta_b^A = \theta_a^B = 1$ and $\theta_c^A = \theta_c^B = \theta_c \geq 0$. Notice that we do not make any assumption on the value of θ_c, which can be zero (in which case this issue disappears from the game), larger or smaller than 1, and larger or smaller than θ.

Stage 2: the communication campaign. At the beginning of stage 2, parties observe the quality of all six proposals (two parties times three issues) and simultaneously decide the amount of campaigning time to spend in emphasizing each issue. Let t_k^P (≥ 0) denote the amount of time or money that party P devotes to campaigning on issue k. Throughout the campaign, the total amount of campaigning time devoted to issue k is:

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

Normalizing total campaigning time or advertising money to 1 and assuming that each

[8] 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 drafted better proposals than the Republicans on such scientific issues. In our model, *investment* is represented by the size and quality of the staff, and the money spent on the issue, whereas θ can be seen as the accumulated expertise of the available staff and Congressmen.

party controls half of the total campaigning time, each party's time constraint is:[9]

$$t^A \equiv \sum_k t_k^A = \frac{1}{2} = \sum_k t_k^B \equiv t^B.$$

A communication strategy allows each party to *set the agenda*, that is, to affect the informational environment under which voters prioritize issues at the voting stage.

Stage 3: voting stage. At the beginning of stage 3, voters observe the quality of all party proposals. A voter i is characterized by the eventual weights $s_k^i\,(\geq 0)$ she assigns to issue k, with $\sum_k s_k^i = 1$. To identify which party she will support, voter i compares the relative merits of each party's proposal along each issue. She votes for party A iff:

$$\begin{aligned} \sum_k s_k^i\ q_k^A &\geq \sum_k s_k^i\ q_k^B, \text{ or} \\ \sum_k s_k^i\ \Delta_k &\geq 0, \text{ with } \Delta_k \equiv q_k^A - q_k^B, \end{aligned} \tag{1}$$

where Δ_k is A's *quality advantage* on issue k. Importantly, note that *within* each issue every voter values quality in the same way: we abstract from the problem of ideological divisions and positioning within issues. Ideology will be endogenous, and depend on the matching between voter concerns and party proposals across issues.

The more an issue k is discussed during the campaign at stage 2, the higher will be the voters' weight s_k^i assigned to this issue at the time of voting. The process that leads voters to update beliefs when exposed to political communication has repeatedly been identified by political psychologists among others and is known as *priming* (see the introduction for more detail). Since our analysis does not aim at providing a theoretical rationale for the priming process, we simply assume a reduced form to capture its effects.

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

$$s_k^i = \beta t_k + (1-\beta)\,\sigma_k^i. \tag{2}$$

The posterior weight s_k^i is thus a convex linear combination of the (party-controlled) campaigning times t_k spent on each issue, and of the voter's prior weights σ_k^i. In that convex combination, β is the relative influence of the electoral campaign and $(1-\beta)$ that of the

[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.

prior. The parameter β thus captures the parties' capacity to manipulate, or "prime", voters.

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

$$\Pi^P(\mathbf{q},\mathbf{t}) = V^P(\mathbf{q},\mathbf{t}) - C^P(\mathbf{q}), \tag{3}$$

where $\mathbf{q} \equiv \{q_a^A, q_b^A, q_c^A, q_a^B, q_b^B, q_c^B\}$ and $\mathbf{t} \equiv \{t_a, t_b, t_c\}$. The vote share of A is the fraction of voters who, given their weighting of the three issues, prefer the manifesto of A to that of B:[10]

$$V^A(\mathbf{q},\mathbf{t}) = \int_{s_a^i}\int_{s_b^i} 1\left[\sum\nolimits_k s_k^i\ \Delta_k \geq 0\right]\ f\left(s_a^i, s_b^i, s_c^i\right) ds_b^i ds_a^i,\ \text{s.t. } s_c^i = 1 - s_a^i - s_b^i \tag{4}$$

The indicator function $1\left[\sum_k s_k^i\ \Delta_k \geq 0\right]$ has value 1 when the voter prefers A to B in (1) and 0 otherwise. Since there is no abstention in the model, we have $V^B = 1 - V^A$.

The distribution of voter preferences over issue weights, $\mathbf{s}^i$, is identified by the density function f_s, which depends on the distribution of ex-ante issue weights and on the political campaign, $\mathbf{t}$. We assume a uniform distribution of the ex-ante weights over the simplex of admissible preferences:

$$S_\sigma \equiv \left\{\left(\sigma_a^i, \sigma_b^i, \sigma_c^i\right) : \sigma_k^i \geq 0,\ \sum\nolimits_k \sigma_k^i = 1\right\} \tag{5}$$

The density of ex-ante weights within that simplex is therefore given by: $f_\sigma\left(\sigma_a^i, \sigma_b^i, \sigma_c^i\right) = 2$, $\forall\left(\sigma_a^i, \sigma_b^i, \sigma_c^i\right) \in S_\sigma$. Figure 1 illustrates this graphically.

However, as explained above, voters are primed by the parties' communication campaign (see (2)). From (5), it is straightforward to derive the set of admissible final weights, $S_s(\mathbf{t},\beta)$:

$$S_s(\mathbf{t},\beta) \equiv \left\{\left(s_a^i, s_b^i, s_c^i\right) : \beta t_k \leq s_k^i \leq \beta t_k + 1 - \beta, k = a, b, c\right\},$$

which is a smaller triangle within the unit simplex. The size of this triangle is smaller the larger is β. In other words, a consequence of more effective priming (higher β) is that voters end up with more homogeneous final weights $\mathbf{s}^i$ than their initial preferences σ^i would suggest. This is illustrated in Figure 2.

[10] Two interpretations are mathematically equivalent: either one imagines a winner-takes-it-all system. The distribution of voters must then be understood as a random position of the pivotal voter. Or one imagines a proportional representation system, in which case we can assume away aggregate uncertainty.

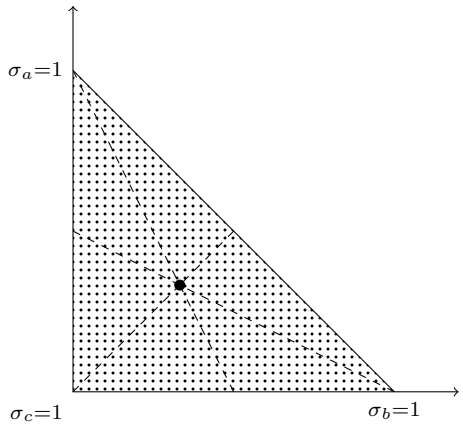


Figure 1: Initial distribution of voters' weights. The expected voter location is given by the intersection between all the baricentric coordinates of the simplex.

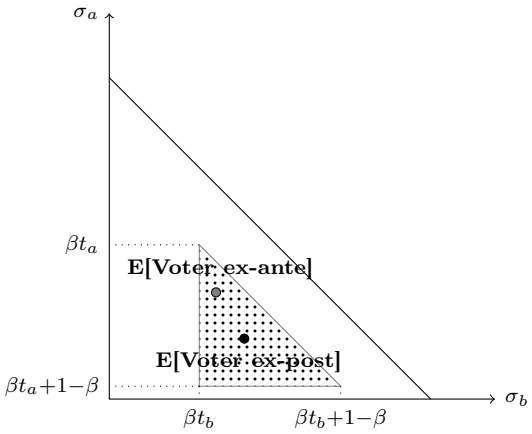


Figure 2: Final distribution of voters' weights: the expected voter location changes and the density reduces.

At the time of the election, the density of final weights has thus increased to $f_s\left(s_a^i, s_b^i, s_c^i\right) = \frac{2}{(1-\beta)^2}$, $\forall \mathbf{s}^i \in S_s\left(\mathbf{t}, \beta\right)$.

Equilibrium concept. We focus on the subgame perfect equilibria of this game: at stage 3, each voter casts her ballot on the party that maximizes her utility, given her posterior weighting s_k^i of each issue. At stage 2, each party chooses the communication strategy that maximizes its vote share given the vector of qualities realized at stage 1. At stage 1, parties choose the vector of qualities that maximize (3) given the expected advertisement strategy at stage 2 and the voting behavior at stage 3.

3 The Voting Stage

By aggregating each voter's decision rule (1), we can compute the aggregate vote share of each party given their actions in stages 1 and 2. There are three cases to consider: in case **A**, party A dominates B in all issues. In case **B**, B dominates. In case **S**, none of them dominates, and the electorate will be **S**plit.

Case A. Party A proposes a higher quality on each issue:

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

In that case, all voters prefer A to B and A's vote share is 1 independently of the parties' communication strategies. In this case, a marginal increase in quality by A cannot increase its vote share.

Case B. Party A proposes a lower quality on each issue:

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

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

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

$$\min_k \Delta_k < 0 < \max_k \Delta_k.$$

While abstracting from potential entry by new parties, we follow the latter interpretation in the paper.

In that case, a voter who assigns 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 vote share.

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: $\Delta_a > 0$,$\Delta_c > \Delta_b$. By (1) , the vote share of A is the mass of voters for whom the weighted average of quality differentials is larger than 0: $\sum_k s_k^i \ \Delta_k \geq 0$. These are the voters who value issue a sufficiently more than issue b. Indeed, exploiting the fact that $\sum_k s_k^i = 1$, (1) can be re-written as:

$$s_a^i \left[\Delta_a - \Delta_c\right] + s_b^i \left[\Delta_b - \Delta_c\right] + \Delta_c \geq 0.$$

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

$$\left\{ i : s_a^i \geq s_b^i \frac{\Delta_c - \Delta_b}{\Delta_a - \Delta_c} - \frac{\Delta_c}{\Delta_a - \Delta_c} \right\}. \tag{6}$$

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 of the voters's issue weights –by varying their advertisement times:

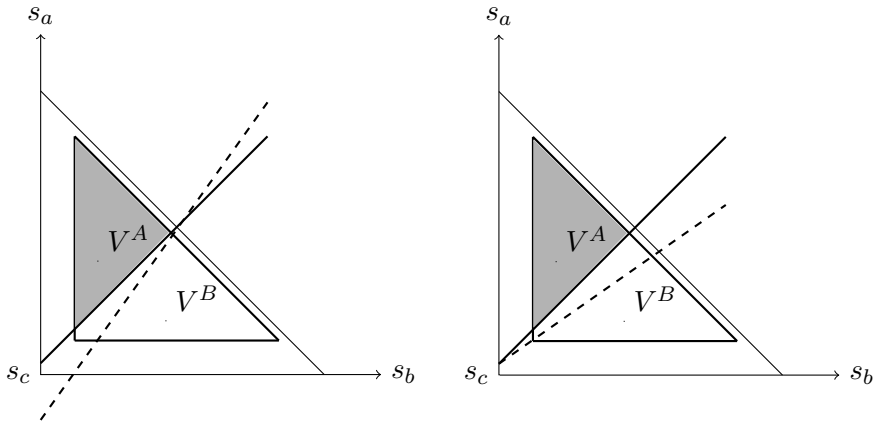
1. higher policy quality by party A and lower policy quality by party B always enlarges the set (6) by moving the cutoff line "down" and "right" in Figure 3. Yet, policy quality cannot affect the distribution of issue weights.

2. increasing the share of campaigning time dedicated to communicating about issue a rather than issue b moves the distribution of issue 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.

Combining these two effects, the vote share of A can be computed as:

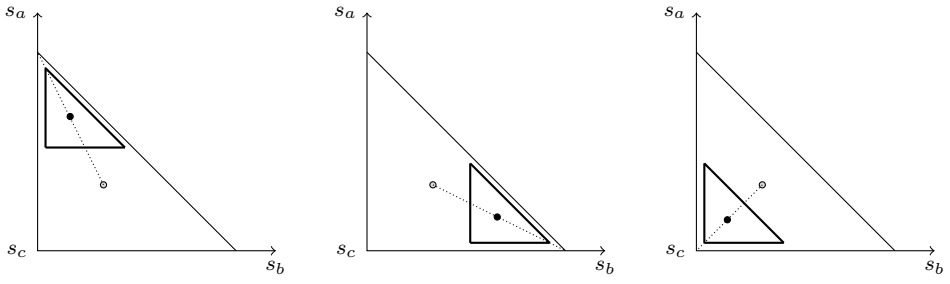
$$V^A = \int_{s_a = s_b \frac{\Delta_c - \Delta_b}{\Delta_a - \Delta_c} - \frac{\Delta_c}{\Delta_a - \Delta_c}}^{s_a = 1} \int_{s_b = 0}^{s_b = 1} f_s\left(s_a, s_b\right) \ ds_b \ ds_a, \tag{7}$$

where $f_s\left(s_a^i, s_b^i\right) = \frac{2}{(1-\beta)^2}$ 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 $f_s\left(s_a^i, s_b^i\right) = 0$ otherwise.



(a) Δ_c increases (b) Δ_b increases

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 Δ_b. On panel b, the dashed line describes the effect of an increase in Δ_c.



(a) Issue a (b) Issue b (c) Issue 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.

Remark 1 *The group of voters who support party A in* (6) *would actually turn to supporting party B if quality differentials were reversed. That is, the zones A and B in Figure 3 would be swapped. This means that, if* s^i *can be interpreted as a measure of voters' proximity to parties, the base for a party actually depends on the policies that each party delivers in each issue. Thus, whether or not the voting base of each party matches the parties' initial reputation advantage will depend on the quality differentials in each issue.*

Remark 2 *If they invest the same (strictly positive) amount in each issue, parties maintain 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 from its competitor.*

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 by telling them "what this election is about". Since quality costs are sunk, they maximize their vote share (our results remain unchanged if parties must allocate an endogenous advertising budget across issues). We study the problem of party A in **Case S** 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 $\mathbf{t}^A(\mathbf{q}) \equiv \{t_a^A, t_b^A, t_c^A\}$ subject to its communication time constraint, $\sum_k t_k^A = 1/2$. Its purpose is to maximize its vote share given the choice of qualities $\mathbf{q}$ made at stage 1. That is,

$$\begin{aligned} \mathbf{t}^A(\mathbf{q}) &= \arg\max_{\mathbf{t}^A} V^A\left(\mathbf{q}, t^A, t^B\right) \\ &\quad s.t.\ t_k^A \geq 0 \text{ and } \sum_k t_k^A \leq 1/2 \text{ for } k \in \{a,b,c\}. \end{aligned}$$

Remember that the communication strategy is meant to attract the voters' attention towards specific issue(s) – see (2). It is straightforward to check that each party maximizes its vote share by concentrating all its campaigning time on a single issue, the one in which its quality advantage is maximal:

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

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

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 $\bar{c} \equiv q_k^P/\theta_k^P$ 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 their strong 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 the Republican candidate campaigned on foreign issues (both Bush and McCain emphasized 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.

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: $q_a^A/\theta_a^A > \bar{c}$. Then emphasizing a has a larger impact on its vote share. 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 has an incentive only to communicate 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 share losses. This is the second line in (8). Considering each possible (set of) case(s), and discarding the non-generic outcomes in which Δ 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' strong and weak issues in the current election. In our model instead, although it also depends on past performance, policy quality and issue ownership are endogenous. The equilibrium outcomes in terms of quality are analyzed in the next section.

5 The Quality Stage

We are now in a position to 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 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 vote share is 1. **Case B** is when $\Delta_k < 0, \forall k$, and A's vote share is 0. **Case S** is when none of the parties dominates on all issues, and their vote shares take some value between 0 and 1. We focus on **Case S** for the time being, and show that it yields a unique candidate equilibrium in pure strategies. Cases **A** and **B** represent potential deviations that may produce another equilibrium, in mixed strategies. They are analyzed in Sections 5.2 and 5.3.

In **Case S**, 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 policy is 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 identical 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, $t_k(\mathbf{q})$, as identified in Proposition 1, and the vote shares (7) that result. That is, it chooses a vector $\mathbf{q}^A \equiv \left\{q_a^A, q_b^A, q_c^A\right\}$ such that:

$$\begin{aligned}\mathbf{q}^A &= \arg\max_{q_a^A, q_b^A, q_c^A} V^A\left(\mathbf{q}^A, \mathbf{q}^B; t_a(\mathbf{q}), t_b(\mathbf{q}), t_c(\mathbf{q})\right) - \sum\left(q_k^A\right)^2/\theta_k^A \\ &\quad s.t.\ q_k^A \geq 0 \text{ for } k \in \{a,b,c\}.\end{aligned}$$

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:

$$\begin{aligned}\mathbf{q}^A &= \arg\max_{q_a^A, q_b^A, q_c^A} V^A\left(\mathbf{q}^A, \mathbf{q}^B; \mathbf{t}\right) - \sum\left(q_k^A\right)^2/\theta_k^A \\ &\quad s.t.\ q_k^A \geq 0 \text{ for } k \in \{a,b,c\},\end{aligned}$$

in which advertisement times $\mathbf{t}$ are independent of $\mathbf{q}$. 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, the vote share of A is the mass of voters who, given their weighting of the three issues, value A's proposals more than B's: $\sum_k s_k^i\ \Delta_k \geq 0$, where Δ_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 result. Hence, the two parties face equal marginal benefits of quality provision.

The difference between the parties thus only stems from their 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* $q_a^A = \theta q_a^B$, $q_b^B = \theta q_b^A$ *and* $q_c^A = q_c^B$. *Therefore,*

$$\Delta_a = (\theta - 1)\, q_a^B > \Delta_c = 0 > (1-\theta)\, q_b^A = \Delta_b.$$

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:

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

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 voting weights in two different ways: first, the voters' attention moves towards the more debated issues. 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, voters eventually put less weight on that issue than their prior weights σ suggest, and more weight on the other two issues, a and b. 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: they want voters to focus on the parties' main strengths, and reduce investment costs on the issues that have less electoral value.

The second, unintended, consequence of the campaign is that the voters' attention weights become more similar. Since voters are exposed to the same elements of information during the campaign, the initial heterogeneity of voters' attention weights gets reduced. As a result, a marginal increase in quality in *any* issue can swing more voters at once. This makes competition tougher in all issues. We call this the *homogenization effect of the campaign*: Lemma 1 isolates 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* $\mathbf{t} = \{\frac{1}{3}, \frac{1}{3}, \frac{1}{3}\}$, *all equilibrium qualities would be monotonically increasing in* β.

Thus, the more parties can manipulate the voters' attention weights, the stiffer competition becomes. This homogenization effect implies that the parties' incentive to produce high-quality proposals increases in *all* issues. Yet, in equilibrium, only issues a and b are emphasized, which triggers the attention-shifting effect, which provides additional incentives to provide high quality proposals in issues a and b, but reduces the parties' incentives in issue c. The attention-shifting and homogenization effect thus have opposite effects on quality provision for the neutral issue.

How do these two effects eventually shape quality provision in the first stage? Together, 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:*

$$\begin{aligned} q_a^{A,PSE} &= q_b^{B,PSE} = \theta\sqrt{\frac{1}{8\left(\theta-1\right)}\frac{1+\beta}{1-\beta}} \\ q_a^{B,PSE} &= q_b^{A,PSE} = \sqrt{\frac{1}{8\left(\theta-1\right)}\frac{1+\beta}{1-\beta}} \\ q_c^{A,PSE} &= q_c^{B,PSE} = \theta_c\sqrt{\frac{1}{2\left(\theta-1\right)}\frac{1-\beta}{1+\beta}}. \end{aligned}$$

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 S**. A consequence of these symmetric quality levels is that $V^A = V^B = 1/2$ 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* β*),*
(ii) the stronger are priming effects, the higher is equilibrium quality in the other issues (q_a^P *and* q_b^P *are strictly increasing in* β*).*

The other major ingredient that we want to emphasize is the influence of the ex-ante reputation differences on equilibrium quality provision. From Proposition 3, it is immediate to see that stronger reputation advantages (higher θ) tend to 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 θ. On the other hand, the effect on a party's strong issue is ambiguous. When θ is close to one (comparative advantages are small), competition is very stiff, since the two parties are almost interchangeable. Slightly increasing θ, parties invest less in all three issues: competition is softened at the expense of voters. But when θ 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 θ. The following figure illustrates these effects for $\beta = 1/3$ and $\theta_c = 0.5$.

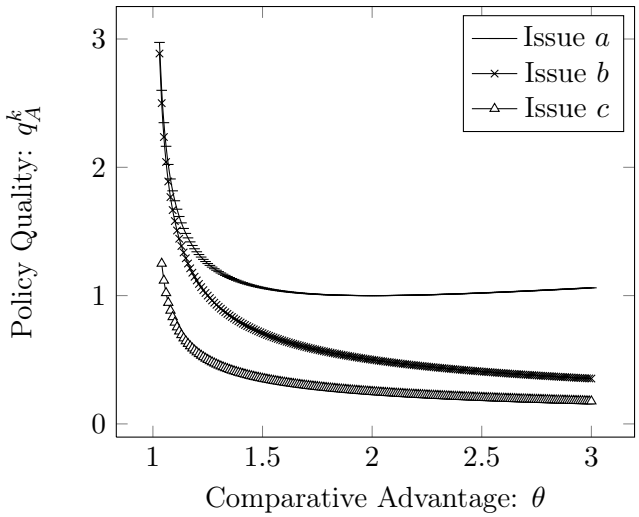


Figure 5: Policy Quality provided by party A's in all issues as a function of θ, holding $\beta = \frac{1}{3}$ and $\theta_c = \frac{1}{2}$.

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 these two potential deviations be dominated. 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$_k$ $\Delta_k \geq 0$), party A maximizes its objective function by setting $q_a^A = q_a^B + \varepsilon_a$, $q_b^A = q_b^B$ and $q_c^A = q_c^B + \varepsilon_c$, with $\varepsilon_a, \varepsilon_c \geq 0$ and $\varepsilon_a\ \varepsilon_c = 0$.*

Proof. *For any $\{q_a^A, q_b^A, q_c^A\}$ such that* $\min_k\ \Delta_k \geq 0$, *the vote share of party A is 1. Therefore, party A can only increase its payoff by reducing quality provision, subject to* $\min_k\ \Delta_k \geq 0$ *and at least one $\Delta_k > 0$.* ■

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:

$$\begin{aligned}\Pi^P\left(\mathbf{q}^{PSE},\mathbf{t}\right) &= V^A\left(\mathbf{q}^{PSE},\mathbf{t}\right)-\sum_k \frac{\left(q_k^{P,PSE}\right)^2}{\theta_k^P} \\ &= \frac{1}{2}-\frac{1+\beta}{1-\beta}\frac{\theta+1}{8\left(\theta-1\right)}-\frac{1-\beta}{1+\beta}\frac{\theta_c}{2\left(\theta-1\right)}. \end{aligned} \tag{9}$$

Conversely, the payoff of party A when it deviates to $\left\{q_a^{A,IS},q_b^{A,IS},q_c^{A,IS}\right\}=\left\{q_a^B,q_b^B,q_c^B\right\}$ is:

$$\Pi^A\left(\mathbf{q}^{A,IS},\mathbf{q}^{B,PSE}\right)=1-\left(\frac{1+\beta}{1-\beta}\frac{1}{8\left(\theta-1\right)}\right)\frac{1+\theta^3}{\theta}-\frac{1-\beta}{1+\beta}\frac{\theta_c}{2\left(\theta-1\right)}. \tag{10}$$

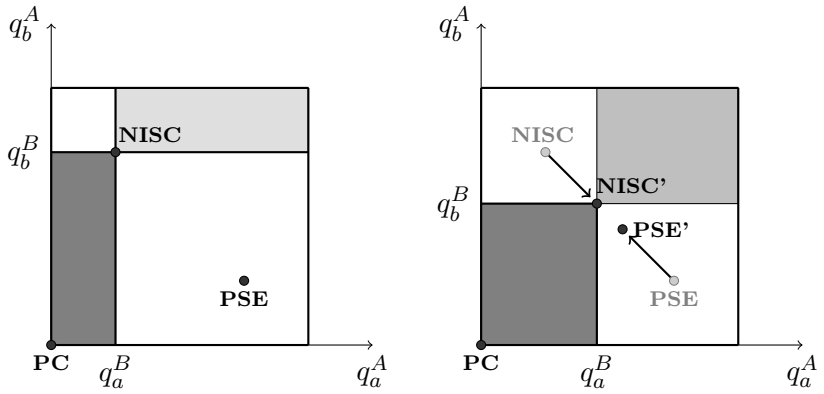
The *No issue stealing condition* is that the former payoff is at least as large as the second payoff. If it is satisfied, no party wants to undertake this deviation. Comparing these payoffs, we find that:

Proposition 4 *A necessary condition for the existence of a pure strategy equilibrium is that the parties' reputation advantage θ be sufficiently large:*

$$\frac{\theta^2-1}{4\theta}\leq\frac{1-\beta}{1+\beta}. \tag{11}$$

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 $\Delta_a=|\Delta_b|=\sqrt{\frac{(\theta-1)}{8}\frac{1+\beta}{1-\beta}}$ are monotonously increasing both in the party's reputation advantage θ and in the effectiveness of priming β. When condition (11) is not satisfied, *i.e.* when parties are insufficiently differentiated (θ 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 $q_c^P=0$ in any equilibrium. PSE represents the optimal quality for party A and NISC the optimal quality for party B in a PSE. To beat party B on all issues, party A must deviate from PSE to any point in the area denoted "$V^A=1$". 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 advantages is small ($\theta=1.2$ – β is still 0.4). Then, quality differentials are small, and issue stealing becomes cheap.



(a) $\theta = 3$ (b) $\theta = 1.2$

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 reputation advantages is high, and deviations from the pure strategy equilibrium qualities (PSE) are too costly. In panel b, the differential in reputation advantages is low and parties optimally deviate from PSE strategy.

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 the existence of a mixed strategy equilibrium 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 one on a and c, and with a lower-than-one probability 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 vote share, *i.e.* when the expected vote share 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: the parties' strong and weak issues may be reversed in comparison with the pure strategy equilibrium and the issues that will be most debated during the campaign 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-vote share. 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 vote share 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* θ *be large and priming effects* β *small:* $\Pi^P\left(\mathbf{q}^{PSE}, \mathbf{t}\right) \geq 0$*, iff*

$$\theta \geq \theta^*\left(\beta, \theta_c\right) \equiv \frac{5-3\beta}{3-5\beta} + \frac{4(1-\beta)^2\theta_c}{(1+\beta)(3-5\beta)} \text{ and } \beta < 3/5 \tag{12}$$

Proposition 5 sheds a different 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 manipulation voter attention (priming) allows the two parties to soften competition and specialize in the issue that they typically own.

Proposition 5 instead shows that the aggregate effect of priming effectiveness can actually be the opposite. Within the pure strategy equilibrium, higher priming effectiveness, β forces both parties to investment 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, it becomes very cheap for the other party to dominate in all issues. But, this implies that the former party now also has an incentive to deviate by slightly increasing its investment levels in all issues, which 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. In other words, and paradoxically, the more voters can be manipu-

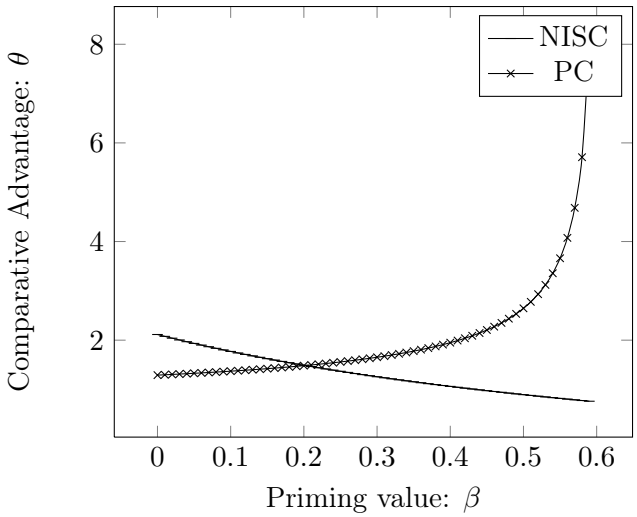


Figure 7: Holding $\theta_c = 0$ and $0 \leq \beta < 0.6$, the participation constraint is satisfied above the x-marked curve while the no issue stealing condition is satisfied above the regular line.

lated, 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 $\theta_c = 0$.[11] The PSE exists when the parameters (β, θ) lie above both curves on that figure. That is, when comparative advantages are sufficiently large, and priming effects are not too strong. In that equilibrium, competition is relatively soft, in the sense that parties can earn strictly positive rents, and they do not engage in issue stealing. The main reason being that parties are so different (comparative advantages are so large) that issue stealing is too costly. When party differences fade away (*i.e.* $\theta \to 1$) or priming effects become too large (*i.e.* $\beta \to 3/5$), 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.

Finally, observe that since $\frac{5-3\beta}{3-5\beta} > 0$ and $\frac{4(1-\beta)^2}{(1+\beta)(3-5\beta)} \geq 1$ for all $\beta > 0$ we have that the participation constraint can only be satisfied for values of θ that are larger than θ_c. Thus there will be issue stealing (and zero rents) as soon as voters value more highly the parties' proposals on issues that are unbiased rather than biased.

[11] The participation constraint moves upwards (*i.e.* becomes more binding) when θ_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.

6 Conclusions

Even though issue ownership theory is well established in the literature on selection in electoral campaigns, the stability of issue ownership remains an open question. In order to give it an answer, we proposed a model that extends the issue-selection problem by introducing an endogenous policy quality stage that combines the reputation differentials of parties with their entrepreneurial effort in drafting their political platforms. We provide novel insights on the relation between the degree of competition and the stability of issue ownership, and identify the precise effects of both the role of the parties' reputation advantage over issues and of priming in driving the degree of competition among parties. While the role of priming in manipulating voters' attention toward some issues was already well-understood, to the very best of our knowledge, its effects on political competition had never been identified.

The effects we identify are not always monotonic but three general and empirically testable results emerge from our analysis. First, we find that the more asymmetric are the parties' reputations on some issues before the campaign, the more likely is issue specialization during the campaign. Parties then enjoy relatively high rents. Second, we find that stiff competition and issue stealing during the campaign become more likely when parties face high costs of providing innovative solutions for issues that are not owned by any party (issue c in the model). Last and more surprisingly, stiff competition and issue stealing is more likely when priming effects are strong. Parties then earn lower rents (zero in the model). These results offer three new hypotheses that future research could test empirically, namely: a negative correlation between the level of issue ownership and the likelihood of issue stealing, a positive correlation between the parties' costs of resolving neutral issues and issue stealing, and a positive correlation between the intensity of the priming effects and the likelihood of issue stealing.

In terms of welfare implications, our model is more limited. The rule that voters are assumed to use in the model in order to decide their vote cannot be considered as a welfare function, since it is affected by the voters' weighting of issues, which are manipulable. While political adverts have been found to effectively and significantly affect voting decisions, how they affect the voters' welfare after the election is another question. As a proxy for social welfare, we can only use the quality levels of the policies produced by the parties before the electoral campaign. Since our model relies on an assumption of full commitment, the policies announced prior to the campaign are the ones that determine welfare. This allows us to perform some welfare comparisons: issue stealing involves random investment

levels, which must be high in expected terms. On average, issue stealing thus produces higher-quality policies: parties need to be more creative and come up with 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.

One limitation of our model comes from the fact that it only considers valence issues, and neglects divisive issues. We want to argue that our approach usefully complements the analysis of divisive issues: the analysis led by Colomer and Llavador (2011) does not allow parties to work on different issues at once, and neither Glazer and Lohmann (1989), nor Morelli and Van Weelden (2011a and b) allow for the feedback effects between the advertisement campaign and quality provision that we identify. 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 a large part of the effects of electoral campaigns are released through valence issues (such as the country's economic performance) rather than divisive issues. The argument is as follows. On the one hand, divisive issues should be affecting more intensely the vote of partisan voters rather than independent voters. This implies that our model is well suited to explain the significant electoral swings that are observed across elections, as well as the parties' choices to switch across or to steal one another's issues. As our examples illustrate, many of these switches succeeded or failed because of a valence advantage accumulated by the parties. On the other hand, since the political preferences of partisan voters are mostly determined by their ideology, the effect of the electoral campaigns on their vote decision should be much weaker than for independent voters. Yet, we believe that our model could also be provide a better understanding of some voters' partisan attachment, through the parties' accumulated reputation over issues. We however leave this for future research.

Another 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.

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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 $\frac{\partial \Pi^A}{\partial t_k^A} = \frac{\partial V^A}{\partial t_k^A} \geq 0$ for $k \in \{a, b, c\}$. Maximizing the payoff is therefore equivalent to maximizing the vote share. Suppose that $\Delta_a > \Delta_c > \Delta_c$. In that case, the set of voters who cast their ballot for A is given by (6). To maximize its vote share, A must therefore increase $s_a^i(t_a)$ and reduce $s_b^i(t_b)$, which is achieved by focusing all its advertisement campaign on issue a, *i.e.* set $t_a^A = 1/2$. Conversely, party B should focus all its advertisement campaign on issue b, *i.e.* set $t_b^B = 1/2$.

If instead $\Delta_b > \Delta_a > \Delta_c$, then party A's vote share is decreasing in $s_a^i(t_a)$ and increasing in $s_b^i(t_b)$. Hence, A must focus all its advertisement campaign on issue b, i.e. set: $t_b^A = 1/2$, whereas party B should focus its campaign on issue a and set $t_a^B = 1/2$. Applying the same reasoning to all possible rankings of Δ_a, Δ_b, and Δ_c yields the proposition.

■

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

$$\Pi^A\left(\mathbf{q}^A, \mathbf{q}^B, \mathbf{t}^A, \mathbf{t}^B\right) = V^A\left(\mathbf{q}^A, \mathbf{q}^B, \mathbf{t}^A, \mathbf{t}^B\right) - \sum_k \frac{\left(q_k^A\right)^2}{\theta_k^A},$$

and:

$$\Pi^B\left(\mathbf{q}^A, \mathbf{q}^B, \mathbf{t}^A, \mathbf{t}^B\right) = 1 - V^A\left(\mathbf{q}^A, \mathbf{q}^B, \mathbf{t}^A, \mathbf{t}^B\right) - \sum_k \frac{\left(q_k^B\right)^2}{\theta_k^B}.$$

Moreover, $\theta_a^A = \theta_b^B \equiv \theta > 1 \equiv \theta_b^A = \theta_a^B$ and $\theta_c^A = \theta_c^B \equiv \theta_c$. It follows that the parties' FOCs with respect to q_c are:

$$\begin{aligned}
\frac{d\Pi^A}{dq_c^A} &= \frac{\partial V^A}{\partial \Delta_c} \cdot \frac{\partial \Delta_c}{\partial q_c^A} - 2\frac{q_c^A}{\theta_c} = \frac{\partial V^A}{\partial \Delta_c} - 2\frac{q_c^A}{\theta_c} = 0, \\
\frac{d\Pi^B}{dq_c^B} &= \frac{\partial V^B}{\partial \Delta_c} \cdot \frac{\partial \Delta_c}{\partial q_c^B} - 2\frac{q_c^B}{\theta_a^B} = -\frac{\partial V^A}{\partial \Delta_c}(-1) - 2\frac{q_c^B}{\theta_c} = 0.
\end{aligned}$$

Thus, in equilibrium, $q_c^{A^*} = q_c^{B^*} = \frac{\theta_c}{2}\frac{\partial V^A}{\partial \Delta_c}$, which implies $\Delta_c \equiv q_c^A - q_c^B = 0$.

Similarly, the parties' FOCs with respect to q_a are:

$$\begin{aligned}
\frac{d\Pi^A}{dq_a^A} &= \frac{\partial V^A}{\partial \Delta_a} \cdot \frac{\partial \Delta_a}{\partial q_a^A} - 2\frac{q_a^A}{\theta} = \frac{\partial V^A}{\partial \Delta_a} - 2\frac{q_a^A}{\theta} = 0, \\
\frac{d\Pi^B}{dq_a^B} &= \frac{\partial V^B}{\partial \Delta_a} \cdot \frac{\partial \Delta_a}{\partial q_a^B} - 2q_a^B = -\frac{\partial V^A}{\partial \Delta_a}(-1) - 2q_a^B = 0.
\end{aligned}$$

Thus, in equilibrium, $q_a^{A^*} = \frac{\theta}{2}\frac{\partial V^A}{\partial \Delta_a}$ and $q_a^{B^*} = \frac{1}{2}\frac{\partial V^A}{\partial \Delta_a}$, which implies $q_a^{A^*}/q_a^{B^*} = \theta$. Recall that $\theta > 1$. Hence, $\Delta_a \equiv q_a^{A^*} - q_a^{B^*} = (\theta - 1)\, q_a^{B^*} > 0$. Applying similar calculations to q_b obtains $q_b^{B^*} = \frac{1}{2}\frac{\partial V^A}{\partial \Delta_b}$ and $q_b^{B^*} = \frac{\theta}{2}\frac{\partial V^A}{\partial \Delta_b}$. Therefore, $\Delta_b \equiv q_b^{A^*} - q_b^{B^*} = (1 - \theta)\, q_a^{B^*} < 0$.

■

Lemma 4 *Let:*

$$\alpha \equiv \frac{\Delta_c - \Delta_b}{\Delta_a - \Delta_c}\,(> 0) \;\; \textit{and} \;\; \gamma \equiv -\frac{\Delta_c}{\Delta_a - \Delta_c} \tag{13}$$

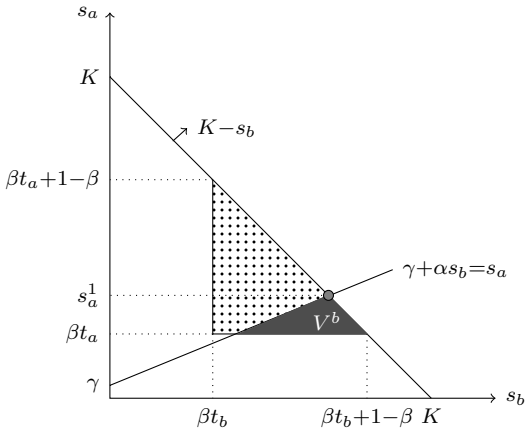

Figure 8: The vote share of B is given by the black area.

The parties' vote shares can then be written as:

$$V^A\left(q^A,q^B,q^C;t^A,t^B\right) = \begin{cases} 1 \text{ if } \gamma+\alpha\beta t_b \leq \beta t_a-\alpha\left(1-\beta\right) \\ 1-\frac{\left[\alpha(1-\beta)+\gamma+\beta(\alpha t_b-t_a)\right]^2}{\alpha(1+\alpha)(1-\beta)^2} \\ \qquad \text{if } \beta t_a-\alpha\left(1-\beta\right) \leq \gamma+\alpha\beta t_b \leq \beta t_a \\ \frac{\left[(1-\beta)-\gamma+\beta(\alpha t_a-t_b)\right]^2}{(1+\alpha)(1-\beta)^2} \\ \qquad \text{if } \beta t_a \leq \gamma+\alpha\beta t_b \leq \beta t_a+1-\beta \\ 0 \text{ if } \gamma+\alpha\beta t_b \geq \beta t_a+1-\beta \end{cases} \tag{14}$$

$$V^B\left(q^A,q^B,q^C;t^A,t^B\right) = 1-V^A\left(q^A,q^B,q^C;t^A,t^B\right)$$

Proof. *Using* (1) *and Proposition 2, all the voters whose weighting of issue a, denoted* s_a^i*, is higher than the value defined by the separating line:*

$$s_a\left(t_a\right)=s_b\left(t_b\right)\ \alpha+\gamma \tag{15}$$

will vote for A at stage 3.

In this proof, we focus on the case in which $\gamma+\alpha\beta t_b \leq \beta t_a$*, which is depicted in* ***Figure 8****. We also impose that* $\gamma+\alpha\beta t_b$ *is sufficiently large that* $V^B(\cdot)$ *is strictly positive. Graphically, these conditions imply that the separating line cuts the simplex "from below".*

The vote share of B is then the (strictly positive) mass of voters with $s_a\left(t_a\right) \leq \gamma+\alpha s_b\left(t_b\right)$*. Knowing that the density of voters within the simplex* $S_s\left(\mathbf{t},\beta\right)$ *is* $2/\left(1-\beta\right)^2$*, B's vote share is*

defined by:

$$V^B\left(q^A,q^B,q^C;t^A,t^B\right)=\int_{\beta t_a}^{s_a^1}\int_{\frac{s_a-\gamma}{\alpha}}^{K-s_a}\frac{2}{(1-\beta)^2}ds_b ds_a, \tag{16}$$

where: $K\equiv\beta\left(t_a+t_b\right)+(1-\beta)$ *is origin of the downward sloping line* $s_a=K-s_b$ *in* **Figure 8** *and* $s_a^1\equiv\frac{\alpha K+\gamma}{1+\alpha}$ *is the value of* s_a *at the point of intersection between that line and the separating line* (15)*. Remark also that* $\frac{s_a-\gamma}{\alpha}$ *is the inverse of the separating line. This integral represents the surface of the triangle* V^B *in* **Figure 8***, multiplied by the density of the population within the simplex.*

Substituting for K *and* s_a^1 *in* (16) *and executing the integral yields:*

$$V^B\left(\cdot\right)=\frac{\left[\alpha(1-\beta)+\gamma+\beta(\alpha t_b-t_a)\right]^2}{\alpha(1+\alpha)(1-\beta)^2}. \tag{17}$$

The second value of $V^A\left(\cdot\right)$ *in* (14) *is simply* $1-V^B\left(\cdot\right)$*. The first, third, and fourth cases in* (14) *are the values of* $V^A\left(\cdot\right)$ *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 vote shares 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 β.

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

$$V_B\left(q^A,q^B,q^C;\tfrac{1}{3},\tfrac{1}{3}\right)=\frac{\left[\alpha(1-\beta)+\gamma+\beta(\alpha-1)/3\right]^2}{\alpha(1+\alpha)(1-\beta)^2} \tag{18}$$

The first order conditions defining the optimal levels of quality are therefore: $\frac{\partial V_P}{\partial\alpha}\frac{\partial\alpha}{\partial q_k^P}+\frac{\partial V_P}{\partial\gamma}\frac{\partial\gamma}{\partial q_k^P}=\frac{2q_k^P}{\theta_k}$, where $\frac{\partial V_A}{\partial x}=-\frac{\partial V_B}{\partial x}$ for $x=\alpha,\gamma$. Differentiating (18) yields:

$$\begin{aligned}\frac{\partial V_B}{\partial\alpha} &= \frac{\left(1-\frac{2}{3}\beta\right)(1-2\gamma)-(1+2\alpha)\left(\frac{\beta/3-\gamma}{\alpha}\right)^2}{(1+\alpha)^2(1-\beta)^2}, \text{ and}\\ \frac{\partial V_B}{\partial\gamma} &= \frac{\alpha+\gamma-\frac{\beta(1+2\alpha)}{3}}{\alpha(1+\alpha)(1-\beta)^2}.\end{aligned}$$

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

$$q_a^A/\theta=q_a^B=\sqrt{\frac{4-(1+\beta)^2}{24(1-\beta)^2(\theta-1)}}=q_b^B/\theta=q_b^A. \tag{19}$$

This implies:

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

Next, we have:

$$q_c^A=\frac{2\theta_c}{\sqrt{6}\sqrt{\theta-1}}\frac{\beta^2-4\beta+3}{(1-\beta)\sqrt{3-2\beta-\beta^2}}.$$

Differentiating and simplifying:

$$\frac{\partial q_c^A}{\partial \beta} = \frac{8\beta\theta_c}{\sqrt{6}\sqrt{\theta-1}(3-2\beta-\beta^2)^{3/2}} > 0$$

■

Proof of Proposition 3: To prove the proposition, we use the vote shares 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:

$$V^B\left(\mathbf{q}^A, \mathbf{q}^B; \tfrac{1}{2}, \tfrac{1}{2}\right) = \frac{[\alpha(1-\beta)+\gamma+\beta(\alpha-1)/2]^2}{\alpha(1+\alpha)(1-\beta)^2}. \tag{20}$$

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: $q_a^A/\theta = q_a^B = q_b^B/\theta = q_b^A$.

Using the equilibrium values of α and γ to simplify $\frac{\partial V^A}{\partial \alpha}$ and $\frac{\partial V^A}{\partial \gamma}$ yields:

$$\frac{\partial V^A}{\partial \alpha} = -\frac{1+\beta}{4(1-\beta)} \tag{21}$$

and

$$\frac{\partial V^A}{\partial \gamma} = -\frac{1}{1-\beta}. \tag{22}$$

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

Proof of Proposition 5: The participatory constraint is violated if $\Pi^A(\mathbf{PSE}) < 0$. 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:

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

This inequality always holds for $\beta \geq \frac{3}{5}$. Conversely, for $\beta < \frac{3}{5}$, simplifying (23) yields Proposition 5.

Differentiating the condition with respect to β shows that $\theta^*(\beta, \theta_c)$, which is the lowest level of θ compatible with the PSE, is increasing in β 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 more parties can shift the voters' attention towards some issues.■