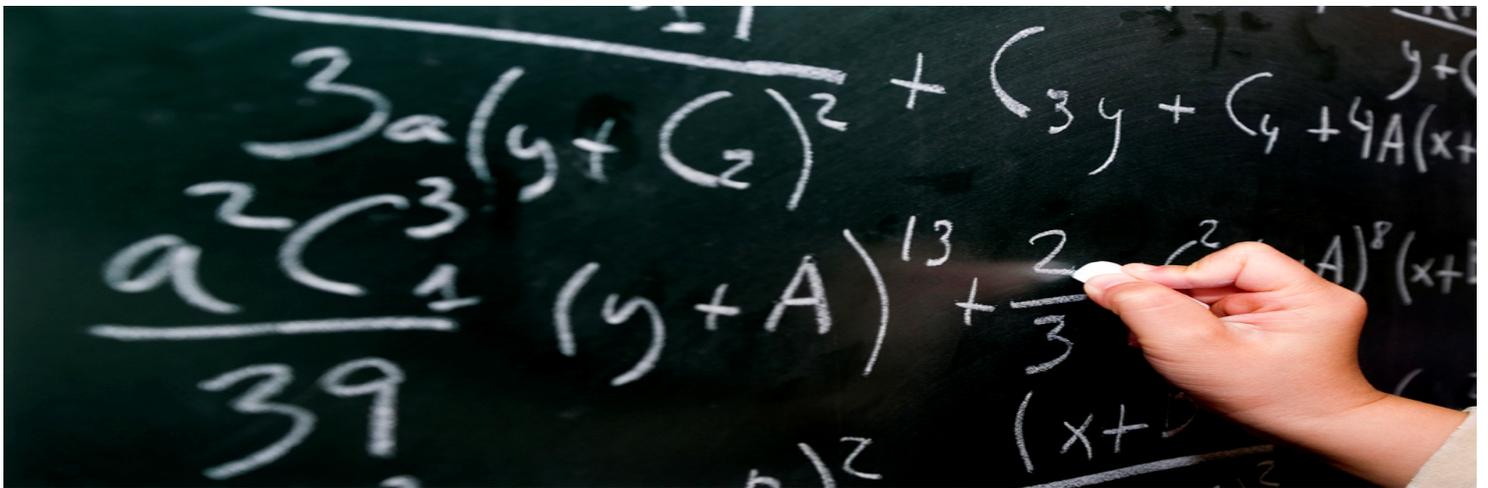


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# Party Organization and Electoral Competition<sup>1</sup>

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## Abstract

We propose a model in which two parties select the internal organization that helps them win the election. Party choices provide incentives to the politicians who represent them. Depending on whether politicians are opportunistic or partisan, we identify four effects. First, a selection effect: intraparty competition gives parties more candidates to choose from. Second, an incentive effect: intraparty competition adds a hurdle and impacts on candidates' incentives. Third, a trust effect: because of the incentive effect, intraparty competition is a signal to uninformed voters. Finally, with partisan preferences, an ideology effect appears. Ideology is a public good in a competitive party and induces free riding. Intraparty competition is valuable when voters are badly informed or interparty competition is weak. These results rationalize the introduction of direct primaries in the U.S., the organizational changes in Western European parties since 1960 and the organizational differences between centrist and extreme parties.

**JEL Classification:** D23, D72, D81.

**Keywords:** Party organization, Primaries, Electoral law reforms, Incentives.

# 1 Introduction

At the beginning of the 20th century, the US political system witnessed a fundamental change with the introduction of a legislative reform on candidate selection, the “direct primary”.<sup>1</sup> Before this reform, parties could nominate their candidates through a system involving caucuses and conventions. Under the direct primary legislation, parties “are required by law to choose their candidates through state-administered elections in which any legally qualified person must be allowed to vote” (Ranney 1975, p121). This reform substantially increased the competitiveness of candidate selection procedures in parties. Ware (2002, p74) states that, before the reform, the party elites were able to “run conventions in the way that they wanted [...] thereby negating challenges from any opponents”.

Selection procedures were also made more competitive in Western Europe. Katz and Mair (1995 and 2002) explain how a new form of party organization, which they label the ‘Cartel Party’ started to emerge in the 1960s.<sup>2</sup> The national elites of Cartel Parties pushed through internal reforms that increased the competitiveness of candidate selection procedures and minimized the influence of the local mid-level elites. They achieved this, among other things, by replacing selection committees, which were more easily manipulable by mid-level party cadres, with the use of postal ballots, in which all members participate on an equal footing (Katz and Mair 1995, p21).

Thus, both Ware (2002) and Katz and Mair (1995, 2002) show that candidate selection methods change over time. Yet, the rationale for such changes is still not fully understood. Ware (2002) documents that in the years immediately before the direct primary reform, America switched from being a “face-to-face” society –in which voters and candidates knew each other personally– to a much more anonymous, urbanized society –in which candidates are largely unknown to voters. Ware views this change as being central to the adoption of the direct primary. Unfortunately, his careful study falls short of providing an analytical framework to rationalize the relationship between changes in information and in

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<sup>1</sup>According to Ranney (1975, p121, quoted by Ware 2002, pp1 and 95) “The adoption of the direct primary by the states from the early 1900s onward is [...] the most radical of all the party reforms adopted in the whole course of American history”.

<sup>2</sup>We thank an anonymous referee for drawing our attention to this case.

party organization. Similarly, Katz and Mair (2002, p123) emphasize that the appearance of cartel parties took place at the time party funding by the state was becoming “an almost universal practice”, which substantially reduced the reward of winning office.<sup>3</sup> Our model identifies causal relationships between these events and the advent of competitive procedures inside parties.

Another dimension that appears to affect party organization is ideology.<sup>4</sup> The data in both Lundell (2004, p36) and in Bille (2001, p366) show that the more extreme parties are, the less competitive are their candidate selection procedures. Thus, political polarization and the competitiveness of the candidate selection method are negatively correlated. The 2007 election in France provides another piece of evidence. The members of the Socialist and the center-right UMP parties elected their respective leading candidates, Ségolène Royal and Nicolas Sarkozy. To the contrary, Jean-Marie Le Pen was the unchallenged leading candidate of the Front National, an extreme right-wing party. Le Pen has been more or less unchallenged since the creation of his party, in October 1972!

The goal of this paper is to develop a model of electoral competition that helps understand intraparty competition choices. In particular, our focus is on the link between the competitiveness of the candidate selection procedure and 1) the information available to voters, 2) the value of winning office, and 3) political polarization between parties.

In our model, two parties compete for election. Each party consists of two groups: the party elite, composed of an oligarchy of leaders who do not run for election, and the party candidates. Party leaders determine which procedure is used to select the party candidate. They can choose between a competitive and a non-competitive selection procedure. Under the competitive procedure, a tournament is organized. Two politicians run to win the right to represent the party in the general election. In the non-competitive setup, the party leaders pick the party candidate without such a tournament.

Party candidates exert effort to improve the quality of the party platform. As a

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<sup>3</sup>Katz and Mair (1995, p16) state that “the differences in the material positions of winners and losers have been dramatically reduced.”

<sup>4</sup>See for example Gallagher and Marsh (1988), Katz and Mair (1992 and 1994) and Norris (1997).

consequence, when party leaders choose the level of intraparty competition, they keep an eye on providing the best incentives to their candidates. Indeed, the higher is effort, the higher is the probability that the candidate proposes a high-quality platform and, in turn, the higher is the likelihood that the party wins the election.

A distinguishing feature of our model is that we embed our analysis of intraparty organization in a setting with two parties competing for office. As we discuss below, this feature allows us to link factors such as the value of the rents from office and polarization – which are features of the competition *between* the two parties – to the equilibrium degree of *intraparty* competition. Another important feature of our model is that voters are not always informed about party platform quality; this also affects the relative value of the two selection procedures.

Our model points to four effects that are important to understand the way parties get organized (see Sections 3 and 4). First, and quite intuitively, intraparty competition implies that the party elite has more candidates to choose from. That is, whenever information on platform quality is available, party leaders can pick the most successful candidate. We refer to this as the *selection* effect. Second, if the choice of internal competition affects equilibrium effort levels, the choice of a party structure is a signal to voters. This signal is important when voters do not learn the true quality of a party platform. We refer to this as the *trust* effect. Third, intraparty competition introduces a new hurdle for a political candidate to win the election. From tournament theory, we know that incentives to exert effort vary with the number of competitors. Therefore, introducing intraparty competition impacts on individual effort provision. This is what we call the *incentive* effect. Finally, when we introduce partisan motivations (see Section 4), an important *ideology* effect appears. When politicians are purely partisan, their decision regarding effort provision is driven by two considerations: 1) they want their party to win to ensure that their ideology is implemented; 2) they do not care about the exact identity of the politician implementing their party's ideology. In a competitive structure, ideology essentially acts as a public good and this induces candidates to free ride on each other's effort. This is what we label the *free-riding-in-parties* problem.

The selection effect favors the competitive structure over the non-competitive one and the opposite holds for the ideology effect. Depending on the intensity of interparty competition and on how well informed voters are, the other two effects may favor either structure. This implies that parties face a trade-off when deciding whether or not to adopt a competitive structure.

In particular, the characteristics of the election determine what is the net result of the four effects highlighted above. First, as already hinted at, information matters. If platform qualities are rarely observed, the trust effect is the key to electoral success. Parties understand that voters will cast their ballot on the basis of what they *expect* each candidate to do. In this case, intraparty competition proves optimal: when information about platform quality is poor, individual equilibrium effort provision is actually higher under the competitive structure. We believe this prediction helps rationalize the emergence of the American direct primary and fits very well with Ware's (2002) account of this key reform. To the best of our knowledge, our model provides the first analytical framework to understand this reform.

Second, we study how the perquisites from office impact on intraparty competition. If perks are low, competition between candidates of different parties is too weak: the prospect of winning the election does not provide sufficient incentives. It then proves optimal for the party to choose a competitive structure: by the incentive effect, internal competition acts as a substitute for the lack of external incentives. This result underpins the argument of Katz and Mair (1995, 2002) by identifying a causal relationship from the decrease in the reward from office to the increased competitiveness of candidate selection procedures.

Finally, partisan motivation and polarization reduce the appeal of intraparty competition. Partisan candidates compete to implement their ideology: their primary goal is to beat the other party, and not their fellow politician. Therefore, interparty polarization increases the partisans' intrinsic motivation but worsens the free-riding-in-parties problem. Combined, these two forces imply that the more important is polarization, the less effective is the competitive structure. We believe this prediction helps rationalize the evidence

in Bille (2001) and Lundell (2004).

## 1.1 Related Literature

Our paper shows that the organization of political parties, in particular the candidate selection process, can be explained by the political and social environment. It draws on Caillaud and Tirole’s (2002) theory of parties as political intermediaries that regulate competition among factions to enhance their “image” in the electorate. Their objective is to highlight the mechanisms that transform candidate selection into electoral success. Our goal is to uncover links between the competitiveness of candidate selection procedures and various characteristics of the electoral game.

To this end, we depart from the model of Caillaud and Tirole (2002) in three important ways. First, we propose a model in which the effort of politicians is continuous and not simply binary, following Carrillo and Castanheira (2008).<sup>5</sup> Second, we analyze a situation in which two parties compete through their internal organization, whereas Caillaud and Tirole focus on a single party. Third, we do not endow parties with the internal validation mechanism present in Caillaud and Tirole (this mechanism assumes that voters learn that two candidates have a high quality platform if they both propose the same idea). The main advantage of dropping such an exogenous mechanism is that we can isolate the effects of incentives on effort provision and “party image”. We then show that a drop in the probability of observing platform qualities can induce a switch from non-competitive to competitive candidate selection methods. This prediction refines the one of Caillaud and Tirole and provides a rationale for the stylized facts established by Ware (2002).

The modelling differences lead to other empirical predictions along dimensions that are not considered by Caillaud and Tirole (2002) and help rationalize the stylized facts established by Katz and Mair (1995, 2002), Bille (2001), and Lundell (2004) that we reported in the introduction. First, the model predicts that internal competition becomes more attractive when the value of office decreases. Second, we find that the more weight

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<sup>5</sup>Carrillo and Castanheira (2008) focus on a two-party platform positioning game with a single politician per party.

politicians attribute to ideology and the more polarized are parties, the more valuable the non-competitive structure becomes. Finally, we compare the equilibrium in party structures with the party structures that would be chosen by the electorate. Our results predict a potential tension between the preferred choice of the electorate and that of the parties.

Another closely related paper is Besley, Persson and Sturm (2006). Like this paper, they investigate the links between electoral competition and electoral outcomes. Their exploration of this link suggests that “lopsided political support and weak political competition may spill over into party selection of low-quality political candidates who are more susceptible to influence by special interests” (p3). Thus, their analysis is complementary to ours: while they focus on the case in which one of the two parties enjoys a substantial electoral advantage, we focus on the symmetric case, in which no party enjoys an ex-ante advantage.

## 1.2 Roadmap

The paper proceeds as follows. Section 2 introduces the model and discusses the main assumptions. Section 3 solves for the equilibrium of the electoral game when politicians are purely office-motivated. Section 4 shows that allowing candidates to be ideologically motivated depresses the incentives of parties to resort to intraparty competition. The following section discusses some of our assumptions and some possible extensions. The last section concludes and offers suggestions for further research.

## 2 The Model

We consider the following electoral game. Two political parties,  $L$  and  $R$ , compete in an election. The winner is the party receiving the majority of the votes. Voters evaluate parties along two dimensions: ideology and platform quality. Along the ideologic dimension, we impose that the two parties’ positions are equidistant from the median voter. Hence, the median voter casts his ballot in favor of the party with the highest quality platform.

Parties control the extent of intra-party competition to become the party candidate but rely on this politician to craft the electoral platform. Like in Carrillo and Castanheira (2008), platform quality increases stochastically with the candidates' effort. The timing of the game is as follows.

*Timing*

$t = 1$ . **Party governance:** the party elites choose the intraparty competition structure.

$t = 2$ . **Platform design:** candidates exert effort to design their electoral platform.

$t = 3$ . **Public signal:** platform qualities are revealed with probability  $p$ .

$t = 4$ . **Nomination:** each party elite selects a candidate for the general election.

$t = 5$ . **General election:** voters cast their ballot for the party they prefer.

*Party objective and choice of governance structure ( $t = 1$ )*

As we said in the introduction, each party consists of candidates and the elite. The elite wishes to maximize the probability that the party wins the election. They can influence the performance of the party through the choice of the degree of competition of their candidate selection procedure,  $\sigma_P$ . The parties choose their internal structure simultaneously. These are public knowledge as of  $t = 2$ . Parties choose between two options: a *competitive* internal structure ( $\sigma_P = \mathcal{C}$ ) and a *non-competitive* one ( $\sigma_P = \mathcal{N}$ ). Under the competitive structure, the party organizes a tournament among two candidates, who compete to become the party representative.<sup>6</sup> Under the non-competitive structure the party selects their candidate immediately at time  $t = 1$  and there is no further selection at time  $t = 4$ .<sup>7</sup>

*Politicians' objectives and strategies ( $t = 2$ )*

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<sup>6</sup>As explained in the discussion, our results extend to competition amongst more than two candidates. Restricting attention to two internal candidates is sufficient to capture the relevant trade-offs.

<sup>7</sup>These two options are close to Caillaud and Tirole's (2002) *Entrenched* and *Democratic* structures. We choose a different terminology because we emphasize the comparative effects of intra and interparty competition.

Traditionally, political scientists distinguish between *office-seeking* and *partisan* politicians. The former are purely opportunistic and motivated by the perks from office (such as financial and ego rents). *Partisans* only value being in office as a means to implement their favored policy; they are purely ideologic. Since the (absence of) congruence between the party's and the politicians' objectives lies at the core of the organization of parties, we analyze the effect of both types of motivations on party structures. For expositional convenience, however, we begin with the case of pure office-seeking politicians (Section 3) and then see how ideologic and opportunistic motivations interact (Section 4). For simplicity, candidates within a party have identical preferences.

We denote the utility derived from being in office by  $w$ . These are the monetary or ego rents from office. To earn  $w$ , the politician must *himself* be elected. The ideologic payoff is denoted by  $K$ . It is obtained whenever the politician's *party* wins the election.

The role of candidates is to design an electoral platform. Quality is either high or low and depends on the amount of effort  $q$  the candidate exerts with, for simplicity,  $\Pr(\text{High}|q) = q = 1 - \Pr(\text{Low}|q)$ . Effort is a continuous choice variable (between 0 and 1) and bears a cost  $c(q) = q^2/2$  to the politician. Thus,  $c(q)$  represents the individual cost of providing quality.<sup>8</sup> Effort is private information: neither the party leaders nor the voters are directly informed about the politicians' effort. The quality of a platform can be interpreted in many ways. The most intuitive interpretation is that politicians learn to address problems and propose innovative solutions.

A strategy for a politician is simply an effort level for every possible configuration of party structures. At time  $t = 2$  the politician observes both party structures,  $\sigma_L$  and  $\sigma_R$ , and then decides how much effort to exert. A politician's equilibrium strategy is thus a quadruple, taking a different value for each of the four possible combinations of party structures:  $(\sigma_L, \sigma_R) \in \{\mathcal{N}, \mathcal{C}\}^2$ . We denote with  $q_{P_i}(\sigma_P, \sigma_{-P})$  the effort of candidate  $i$  in party  $P$  when the structure of his party is  $\sigma_P$  and that of the other party is  $\sigma_{-P}$ , for  $P = L, R$ .

*Information: public signal ( $t = 3$ )*

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<sup>8</sup>The elite does not internalize the platform design costs that individual candidates have to bear.

With probability  $p$ , realized qualities of all the political platforms become public information. With probability  $1-p$ , qualities remain unknown to everyone.<sup>9</sup> This simple structure captures the idea that the voters' perception of platform quality is the only thing that matters at the time of the election, and that the electorate may remain uncertain about which platform they prefer. An interpretation of  $p$  relates to the informational role played by the media, which may or may not reveal hard facts about a politician's platform. Another interpretation is the closeness between policy-making and the citizens. For instance, the likelihood that citizens know their mayor and his actions is larger in a small village than in a large city.

#### *Nomination ( $t = 4$ )*

In a party with a competitive structure, the chosen candidate is the one with the highest quality platform if platforms are observed (this happens with probability  $p$ ). Otherwise, party leaders toss a fair coin. In a party without a competitive structure, the unchallenged candidate selected at  $t = 1$  stands for election.

#### *Elections and voters' preferences ( $t = 5$ )*

The distribution of voters on the ideologic spectrum is symmetric around the center. Since the ideologic positions of the two parties are assumed to be equidistant from the center, the median voter is a priori indifferent between the two parties. The outcome of the election thus depends on the relative quality of the platforms. We assume that all voters get the same information about the platforms. This implies that the median voter is pivotal and we can concentrate on his voting decision to determine the outcome of the election.

### **3 Equilibrium with Office-Motivated Politicians**

This section focuses on politicians who are purely opportunistic. We introduce ideologic motivation in the next section. We solve for the subgame perfect equilibrium of the game

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<sup>9</sup>This information structure is similar to Caillaud and Tirole (2002) and Carrillo and Castanheira (2008). Results remain qualitatively the same if the party has more information than the electorate; see section 5.1.

using backward induction. This equilibrium is always unique and in pure strategies.

### 3.1 Voting ( $t = 5$ )

We start with the median voter's behavior. There are two cases, depending on whether or not he observes platform qualities. If qualities are observed, the choice of the median voter is obvious: he casts his ballot for the candidate with the best platform. In case of a tie, he tosses a fair coin.

If platforms remains unobserved, the median voter bases his decision on his *beliefs* about equilibrium effort provision by candidates. Because the probability of having a high quality platform is increasing in individual effort provision, the median voter votes for the candidate who he believes has exerted highest effort. As we show below, effort provision is a function of, among others, the party's organizational structure. The median voter then uses that structure as a *signal* about individual equilibrium effort. Let  $\mathbf{E}(q_P^*(\sigma_P, \sigma_{-P}))$  stand for the median voter's belief about equilibrium effort provision  $q_P^*$  by the candidate of party  $P$ .<sup>10</sup> His voting decision can thus be summarized as follows:

- If qualities are observed:
  - vote for the best candidate if qualities are different;
  - toss a fair coin in case of a tie in qualities.
- If qualities are unobserved:
  - vote for the candidate of party  $L$  if and only if:  $\mathbf{E}(q_L^*(\sigma_L, \sigma_R)) > \mathbf{E}(q_R^*(\sigma_R, \sigma_L))$ ;
  - toss a fair coin if and only if:  $\mathbf{E}(q_L^*(\sigma_L, \sigma_R)) = \mathbf{E}(q_R^*(\sigma_R, \sigma_L))$ ;
  - vote for the candidate of party  $R$  if and only if:  $\mathbf{E}(q_L^*(\sigma_L, \sigma_R)) < \mathbf{E}(q_R^*(\sigma_R, \sigma_L))$ .

We summarize the median voter's voting behavior when uninformed using the following function  $T$ . This function maps beliefs into the probability that the median voter votes

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<sup>10</sup>Likewise,  $\mathbf{E}(q_{-P}^*(\sigma_{-P}, \sigma_P))$  stands for the median voter's beliefs about equilibrium effort by the candidate of party  $-P$ .

for the candidate of party  $L$ :

$$\begin{aligned} \mathbb{T}(\cdot) = 1 &\Leftrightarrow \mathbb{E}(q_L^*(\sigma_L, \sigma_R)) > \mathbb{E}(q_R^*(\sigma_R, \sigma_L)) \\ \mathbb{T}(\cdot) = 1/2 &\Leftrightarrow \mathbb{E}(q_L^*(\sigma_L, \sigma_R)) = \mathbb{E}(q_R^*(\sigma_R, \sigma_L)) \\ \mathbb{T}(\cdot) = 0 &\Leftrightarrow \mathbb{E}(q_L^*(\sigma_L, \sigma_R)) < \mathbb{E}(q_R^*(\sigma_R, \sigma_L)) \end{aligned} \tag{1}$$

We label the  $\mathbb{T}$  function the *trust* function and the effect party structures have on the median voter's voting strategy (when platforms are not observed) the *trust effect*.

### 3.2 Nomination ( $t = 4$ )

Focus on party  $L$  and suppose its structure is competitive. Label  $L$ 's two candidates as  $L1$  and  $L2$ . If platform qualities are observed and are different, the party leaders nominate the candidate of best revealed quality. If qualities are identical across candidates or if these remain unobserved, the party leaders toss a fair coin.

Let  $\eta_h(\mathcal{C})$  stand for the nomination probability of, say, candidate  $L1$  if in possession of a high quality platform. Similarly, let  $\eta_l(\mathcal{C})$  denote  $L1$ 's nomination probability when the platform is of low quality. Then:

$$\begin{aligned} \eta_h(\mathcal{C}) &= q_{L2}/2 + 1 - q_{L2} \\ \eta_l(\mathcal{C}) &= (1 - q_{L2})/2 < \eta_h(\mathcal{C}) \end{aligned} \tag{2}$$

and similar nomination probabilities apply to candidate  $L2$ .

Suppose now that the structure of party  $L$  is not competitive. The nomination probability of the uncontested candidate is, obviously

$$\eta_h(\mathcal{N}) = \eta_l(\mathcal{N}) = 1. \tag{3}$$

### 3.3 Information Revelation ( $t = 3$ )

At  $t = 3$ , Nature reveals all platform qualities with probability  $p$ . With the complementary probability  $1 - p$ , all platform qualities remain unobserved to everybody.

### 3.4 Candidate Effort Provision ( $t = 2$ )

When candidates are purely opportunistic, they are driven by their own prospect of winning the general election, to grab the perks from office  $w$ . Focus on party  $L$  and suppose its structure is competitive. The problem each candidate solves is:<sup>11</sup>

$$\max_{q_{Li}} \pi_{Li}(\mathcal{C}) \cdot pw - c(q_{Li}) \quad (4)$$

where  $\pi_{Li}(\mathcal{C})$  is candidate  $Li$ 's probability of victory.

Given the median voter's voting rule at  $t = 5$ ,  $\pi_{Li}$  is given by:

$$\pi_{Li}(\mathcal{C}) = q_{Li} \eta_h(\mathcal{C}) \left[ \frac{\tilde{q}_R}{2} + 1 - \tilde{q}_R \right] + (1 - q_{Li}) \eta_l(\mathcal{C}) \frac{1 - \tilde{q}_R}{2}. \quad (5)$$

where the probability that the selected candidate of party  $R$  has a high quality platform is  $\tilde{q}_R$ .<sup>12</sup>

The first term in (5) reads as follows. With probability  $q_{Li}$ ,  $Li$  obtains a high-quality platform. In that case, he is nominated with probability  $\eta_h(\mathcal{C})$ , and wins in the general election with probability 1 when faced with a low-quality opponent (probability  $(1 - \tilde{q}_R)$ ), and with probability 1/2 when he faces a high-quality opponent (probability  $\tilde{q}_R$ ). The second term is the joint probability that a politician  $a$ ) obtains a low quality (probability  $1 - q_{Li}$ ),  $b$ ) is nominated ( $\eta_l(\mathcal{C})$ ),  $c$ ) faces a low quality opponent ( $1 - \tilde{q}_R$ ), and  $d$ ) beats that opponent in the general election (probability 1/2).

Using the nomination probabilities in (2), this boils down to:

$$\pi_{Li}(\mathcal{C}) = \frac{1}{4} [q_{Li} (3 - \tilde{q}_R - q_{Lj}) - \tilde{q}_R - q_{Lj} + \tilde{q}_R q_{Lj} + 1] \quad (6)$$

Similarly, if  $L$  has an non-competitive structure, the election probability of its candidate when she provides effort  $q_L$  is given by

$$\pi_L(\mathcal{N}) = q_L \eta_h(\mathcal{N}) \left[ \frac{\tilde{q}_R}{2} + 1 - \tilde{q}_R \right] + (1 - q_L) \eta_l(\mathcal{N}) \frac{1 - \tilde{q}_R}{2} \quad (7)$$

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<sup>11</sup>The candidate's problem also depends on what the median voter decides when qualities are unobserved. Yet, this part of the problem is a function of the median voter's beliefs only. These are taken as given by each candidate and hence are not shown in the maximand.

<sup>12</sup>This is equal to the leader's effort provision only when  $R$  has a non-competitive structure.

which, using (3) boils down to:

$$\pi_L(\mathcal{N}) = \frac{q_L + 1 - \tilde{q}_R}{2} \quad (8)$$

Remember that  $q_P^*(\sigma_P, \sigma_{-P})$  stands for equilibrium effort provision by the candidate of party  $P$  when the structure of party  $P$  is  $\sigma_P$  and that of party  $-P$  is  $\sigma_{-P}$ . Using (6) and (8) to solve problem (4) across the different structures, we have the first key proposition of this paper (all proofs are relegated to the appendix):<sup>13</sup>

**Proposition 1** *When politicians are purely opportunistic, equilibrium effort levels are:*

$$q^*(\mathcal{N}, \mathcal{N}) = q^*(\mathcal{N}, \mathcal{C}) = \frac{pw}{2} \quad (9)$$

$$q^*(\mathcal{C}, \mathcal{N}) = \frac{pw}{2} \frac{6 - pw}{4 + pw}, \quad (10)$$

$$q^*(\mathcal{C}, \mathcal{C}) = \frac{4 + 3pw - \sqrt{16 + 24pw - 3p^2w^2}}{2pw}. \quad (11)$$

*This implies that equilibrium effort is higher in the competitive than in the non-competitive structure if and only if:*

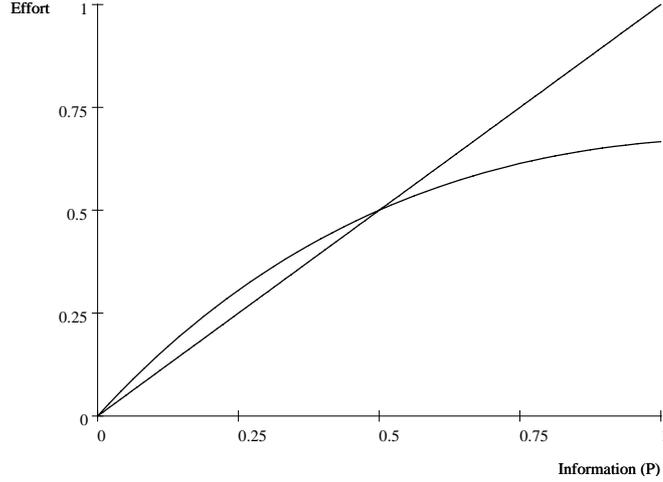
$$q^*(\mathcal{C}, \mathcal{N}) > q^*(\mathcal{N}, \mathcal{C}) \Leftrightarrow pw < 1. \quad (12)$$

The mechanism underlying (12) in Proposition 1 is the “double hurdle” of intraparty competition. The graph below represents individual effort provision as a function of information for  $w = 2$  ( $q^*(\mathcal{N}, \mathcal{C})$  is the straight line and  $q^*(\mathcal{C}, \mathcal{N})$  the concave curve):<sup>14</sup>

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<sup>13</sup>We focus on interior solutions. This requires  $pw < 2$ .

<sup>14</sup>The two curves cross at  $p = 1/2$  given that, for  $w = 2$ ,  $q^*(\mathcal{C}, \mathcal{N}) = q^*(\mathcal{N}, \mathcal{C}) \Leftrightarrow p = 1/2$ .



**Figure 1:** Equilibrium efforts

Why should candidates exert more effort under the competitive structure when  $pw$  is low? The main force behind this result is what we label the *incentive effect*. Differentiation of (6) and (8) with respect to  $q_{Li}$  allows us to highlight that:

$$\frac{\partial \pi_L(\mathcal{N})}{\partial q_L} = \frac{1}{2}, \quad (13)$$

whereas

$$\frac{\partial \pi_{Li}(\mathcal{C})}{\partial q_{Li}} = \frac{1}{4}(3 - q_{Lj} - q_R). \quad (14)$$

These two derivatives imply that, with intraparty competition, the higher is effort provision by opponents (and therefore the higher is the probability that they have a high quality platform), the lower is a candidate's marginal benefit of effort. Assume that  $pw$  is very small, either because voters are very unlikely to become informed or because the perks from office have little value. Then, the candidate expects all his opponents to exert little or no effort. In that case  $q_{Lj}, \tilde{q}_R \simeq 0$  and, when qualities are revealed, his marginal benefit of effort provision (in terms of the increase in the probability of victory) is  $\frac{3}{4}$ . By contrast, if  $pw$  is high, the candidate faces opponents that exert high effort ( $q_{Lj}, \tilde{q}_R \simeq 1$ ) and the marginal benefit of effort falls to  $\frac{1}{4}$ . Hence, the more effort his opponents put in, the lower are his incentives to exert effort himself.

This *incentive effect* tells us that the extend to which voters are informed and the value of the perks from office affect effort choices *differently across party structures*. In a

competitive party the marginal effect of an increase in effort on the probability of winning *decreases* with an increase in  $pw$  (through the increase in  $q_{Lj}$  and  $\tilde{q}_R$ , see (14)) whereas in a non-competitive party this marginal effect is *constant* and equal to  $1/2$  (see (13)). Interpreting the value of the perks from office as a measure of the stiffness of interparty competition, this means that a competitive structure yields lower-powered incentives in an environment with fierce interparty competition (high  $w$ ). In contrast, intraparty competition improves incentives in an environment with little interparty competition (low  $w$ ).

### 3.5 Choice of Party Structure ( $t = 1$ )

While Figure 1 illustrates the relative level of effort under each structure, it does not identify formally which structure is chosen by the rank and file. We have already shown that, when both parties have the same structure, all politicians exert the same effort (see Proposition 1). In that case, each party necessarily has the same probability of winning the election. Therefore, we must derive the probabilities of election when parties choose different structures, and compare this value to  $1/2$ , the probability of election when both parties have the same structure.

The two parties play a constant-sum game. We can represent it with the following matrix (in each cell the payoffs sum to 1 given that these are winning probabilities):

	Competitive	Non-Competitive
Competitive	$(\frac{1}{2}, \frac{1}{2})$	$U_L(\mathcal{C}, \mathcal{N}), U_R(\mathcal{N}, \mathcal{C})$
Non-Competitive	$U_L(\mathcal{N}, \mathcal{C}), U_R(\mathcal{C}, \mathcal{N})$	$(\frac{1}{2}, \frac{1}{2})$

with  $U_L(\sigma_L, \sigma_R) = 1 - U_R(\sigma_R, \sigma_L)$ .

Focus on  $L$ . If  $U_L(\mathcal{C}, \mathcal{N})$  is greater than  $1/2$ , the strictly dominant strategy for  $L$  is to adopt the competitive structure. Thus, as soon as  $U_P(\mathcal{C}, \mathcal{N}) > 1/2$ , it is a strictly dominant strategy for both parties to adopt the competitive structure and conversely for  $U_P(\mathcal{C}, \mathcal{N}) < 1/2$ .<sup>15</sup>

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<sup>15</sup>The fact that the equilibrium is in dominant strategy does not mean that the actions of the other party

When does this situation arise? We have:

$$U_L(\mathcal{C}, \mathcal{N}) = p [\pi_{L1}^*(\mathcal{C}, \mathcal{N}) + \pi_{L2}^*(\mathcal{C}, \mathcal{N})] + (1-p) \mathbb{T} [\mathbb{E}(q_P^*(\sigma_P, \sigma_{-P})), \mathbb{E}(q_{-P}^*(\sigma_{-P}, \sigma_P))],$$

with  $\pi_{L1}^*(\mathcal{C}, \mathcal{N})$  and  $\pi_{L2}^*(\mathcal{C}, \mathcal{N})$  representing the individual probabilities that candidates  $L1$  and  $L2$  win the election, see (5). Using the winning probability (6) and exploiting the fact that, in equilibrium,  $q_{Li}^* = q_{Lj}^* = q_L^*(\mathcal{C}, \mathcal{N})$  for  $i, j = 1, 2$ ,  $\pi_{Li}^*(\mathcal{C}, \mathcal{N})$  boils down to:

$$\pi_{Li}^*(\mathcal{C}, \mathcal{N}) = \frac{1 + 2q_L^*(\mathcal{C}, \mathcal{N}) - [q_L^*(\mathcal{C}, \mathcal{N})]^2 - q_R^*(\mathcal{N}, \mathcal{C})}{4} \quad (15)$$

Replacing  $q_L^*(\mathcal{C}, \mathcal{N})$  with (10) and  $q_R^*(\mathcal{N}, \mathcal{C})$  with (9) in  $\pi_{Li}^*(\mathcal{C}, \mathcal{N})$  leads to the second key proposition:

**Proposition 2** *In the subgame perfect equilibrium of the electoral game, parties select a competitive structure:*

a) *when the median voter trusts the competitive structure; this happens if*

a1) *the median voter is not likely to be informed:  $p < \hat{p} = 1/w$  for any  $w$ ;*

a2) *the rents from office are sufficiently low:  $w < 5/4$ , for any  $p$ ;*

b) *when he does not trust the competitive structure; this happens if*

b1)  *$w \in [5/4, 7/4]$  and  $p > \tilde{p}(w)$  (where  $\lim_{w \rightarrow 7/4} \tilde{p}(w) = 1$  and  $\lim_{w \rightarrow 5/4} \tilde{p}(w) = \hat{p}$ ).*

*Otherwise, both parties choose the non-competitive structure.*

To make their decision, the party leaders take into account three effects of intraparty competition. On top of the trust and incentive effect that we discussed above, there is a third effect, which we label the *selection effect*. Indeed, all else equal and if platform qualities are revealed, a competitive structure gives parties a higher chance to have a high platform quality candidate than a noncompetitive structure: for the former structure the are irrelevant. The equilibrium effort of the other party's politician(s) matter, but are already anticipated at time  $t = 1$ .

party leaders can select their representative out of two candidates whereas for the latter there is no selection to be made.

How do the three effects impact on the parties' decision? There are four cases to consider, depending on whether or not  $p$  and/or  $w$  are high or low. These cases are summarized in figure 2 on the next page.

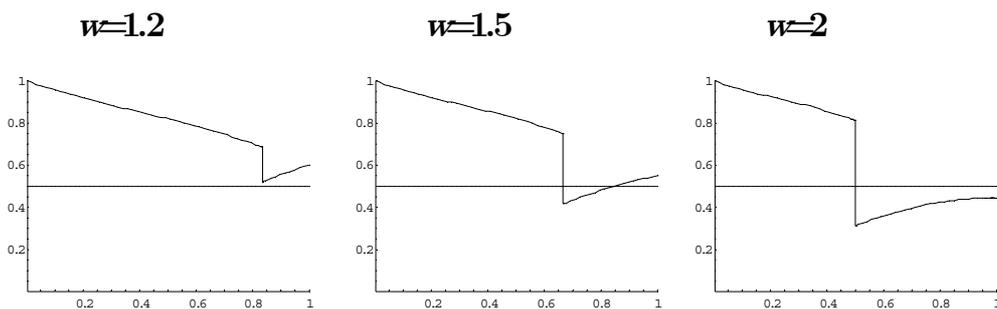
When information is bad (low  $p$ ), the selection effect is not important because party leaders (and the voters) are unlikely to identify the best platform. The leaders then favor the structure that provides highest-powered incentives. Indeed, even though the incentive effect plays little *direct* role (platform qualities are unlikely to be observed), it affects the median voter's behavior, *indirectly*, through the trust effect. The optimal structure is then the competitive one, because it enhances incentives for effort provision (this can be seen in all three panels of figure 2).

When  $p$  is large, the trust effect plays little or no role: platform qualities are very likely to be observed. The optimal structure then depends upon which of the selection or incentive effect dominates. If it is the selection effect that dominates, the optimal structure is the competitive one (this requires  $w$  not to be too high; see the first and second panels in figure 2); if the incentive effect dominates, the optimal structure is the non-competitive one (this requires  $w$  to be high enough; see the last panel of figure 2).

Turning to  $w$ , if it is sufficiently low, intraparty competition is always the optimal choice, for any value of  $p$ : the incentive effect dominates across the board, either directly, when  $p$  is high, or indirectly, through the trust effect, when  $p$  is low (see the first panel of figure 2).<sup>16</sup> To the contrary, when  $w$  is large, the competitive structure is best for low values of  $p$  (because of the indirect effect of incentives on the median voter's trust) whereas the non-competitive structure is best when  $p$  is high: the incentive effect dominates the selection effect and favors abandoning intraparty competition (see the last panel of figure 2).

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<sup>16</sup>In section 5.4, we build on this result to propose an extension of our baseline model that rationalizes the positive correlation between the decrease in  $w$  and the elimination of the influence of mid-level party elites in candidate selection that Katz and Mair (1995, 2002) highlight.



**Figure 2:** Winning probability under the competitive structure

The discontinuities in the figure happen at  $\hat{p} = 1/w$ . At  $\hat{p}$ , incentives and effort provision are identical inside the two parties and the median voter’s trust is equally shared among parties:  $\Gamma = 1/2$ . The probability of winning is therefore discontinuous at  $\hat{p}$ : when information is low ( $p < \hat{p}$ ), he trusts the competitive party. When information improves ( $p > \hat{p}$ ), he trusts the non-competitive party.<sup>17</sup>

Summing up, party leaders value intraparty competition under two different scenarios. First, when information and/or *interparty* competition is low ( $pw$  is low), because *intraparty* competition provides better individual incentives – this allows the party to take advantage of both the incentive and trust effects. Second, when  $p$  is close to 1 but  $w$  is not too large (to ensure the adverse impact of the incentive and trust effects are more than compensated by the beneficial selection effect).

### 3.6 Link to the American Direct Primary

The results of proposition 2 allow us to propose a rationale for the introduction of the American direct primary, a reform that changed US politics at the beginning of the 20th century. The introduction of the direct primary led to the legal obligation for parties to “choose their candidates through state-administered elections in which any legally qualified

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<sup>17</sup>With probabilistic voting, the discontinuity would be replaced by a gradual shift of the voters’ trust from the competitive to the non-competitive structure, without affecting the qualitative nature of our results.

person must be allowed to vote” (Ranney 1975, p121, quoted by Ware 2002, p95).<sup>18</sup> According to political scientists, one of the key effects of this reform was to increase the competition to stand for election under a party’s banner.

Given that candidate selection was firmly in the hands of party elites before this reform (see the introduction), a key question is whether or not the reform was engineered voluntarily and strategically by the parties themselves. Ware (2002) argues that this is indeed the case, and that it should be seen as a response by parties to changes in the environment in which parties were embedded. That parties were forced to accept this reform is unlikely: Ware provides ample evidence that parties were extremely powerful at the time of the reform. Ware then argues that the caucus-convention system had worked for a while but that societal changes had prompted such a reform:

America consisted of small towns and rural hinterlands; it was a face-to-face society in which informal constraints were largely sufficient to regulate the conduct of politics [...]. However, in the decades after the emergence of mass party politics in the 1830s, the social base of America changed radically. [...] A style of politics that worked relatively well in the 1830s was working much less well in the new circumstances. (Ware 2002, p21)

With the urbanization of the US and the development of mass-party politics, society became more anonymous and voters became less informed about individual politicians. As a consequence, parties started to worry about the voters’ trust. Our model offers a formal analysis of one avenue that could have helped parties keep such trust when the quality of information –  $p$  in our model – decreased: the introduction of intraparty competition.<sup>19</sup> This is exactly what American parties decided to do: they modified their selection procedure to increase internal competition. Thus, the simple interpretation is that the end of the face-to-face society (decrease in  $p$ ) led to a change in the equilibrium

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<sup>18</sup>The only election for which the direct primary *does not* apply is that for the President of the United States.

<sup>19</sup>Notice that we need the value of the perks from office  $w$  to be large enough to be in the equilibrium with no intraparty competition when  $p$  is high (panel 3 in figure 1). Ware provides a wealth of evidence that this was certainly the case in the US after the civil war. See for example Ware (2002, p71).

choice of party organization. We thus concur with Ware that parties rationally *chose* to adopt the reform, in order to increase intraparty competition and thereby restore the trust of the electorate. In line with this interpretation, Ware (2002 p101) documents the fact that the first counties (e.g. Crawford county, Pennsylvania) to experiment with the direct primary were rural counties that *from the start* lacked the face-to-face characteristics of 19th century New England and therefore had the highest incentives to put forward electoral reforms such as the direct primary.<sup>20</sup>

## 4 Adding Ideology in the Candidates' Objective Function

In the previous section, we focused on purely opportunistic politicians. In reality, ideological motivations matter as well: politicians also want to get elected to implement the policies they believe in. It is thus interesting to introduce an ideological component in the politicians' objective function. In this section we extend the candidates' objective function to allow for ideologic motivation and analyze how polarization and the intensity of ideologic preferences modify equilibrium effort and interact with equilibrium party structures.

Each candidate's payoff comes from two sources. There is the monetary payoff  $w$  that goes to the individual who wins the election. There is also the ideologic payoff  $K$  that goes to all the candidates of the winning party.

$K$  is composed of two factors: 1) the sheer intensity of ideologic preferences,  $k$  and 2) polarization, that is, the ideologic distance between the two parties,  $\delta$ . Thus, ideologic motivation is given by  $K = k \cdot \delta$ . This payoff not only increases in polarization ( $\delta$ ), but also in the intensity of ideologic preferences (increase in  $k$ ).

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<sup>20</sup>While our results explain why promoting intraparty competition is a Nash best response, it is less clear why it may have been a *coordinated* best response. The details provided by Ware are sufficient to explain this: first, state-administered primary elections are also state-financed elections. Passing such a reform thus allowed parties to save substantial amounts of money for their campaigns. Second, the introduction of the primary took place at a time when challengers were trying to reduce the advantage of incumbent parties. The introduction of the direct primary was then a perfect opportunity to foreclose entry: it warranted competition inside the party, and thereby weakened competition from outside the party.

Assume party  $R$  adopts the non-competitive structure whereas party  $L$  adopts the competitive one. Focus on candidate  $L1$ : if  $L1$  wins the election, his payoff is  $(w + K)$ ; if his fellow party candidate  $L2$  wins,  $L1$ 's payoff is  $K$ . That is, compared to the previous section in which only office-motivation played a role, both payoffs are increased by  $K$ , the ideological benefit of winning.  $L1$ 's problem is:<sup>21</sup>

$$\max_{q_{L1}} \pi_{L1}(q_{L1}, q_{L2}, \tilde{q}_R) \cdot p(w + K) + \pi_{L2}(q_{L1}, q_{L2}, \tilde{q}_R) \cdot pK - c(q_{L1})$$

The first-order condition corresponding to the maximization problem of candidate  $L1$  yields:

$$\underbrace{\frac{\partial \pi_{L1}}{\partial q_{L1}}}_{>0} \cdot p(w + K) + \underbrace{\frac{\partial \pi_{L2}}{\partial q_{L1}}}_{<0} \cdot pK - c'(q_{L1}) = 0. \quad (16)$$

Using (5) and solving, this yields:

$$q_{L1}^* = p \left[ \frac{1 - q_{L2}^*}{2} K + \frac{3 - q_R^* - q_{L2}^*}{4} w \right], \quad (17)$$

and a similar condition holds for  $q_{L2}^*$ .

Intraparty and interparty competition now affect incentives quite differently. In particular, interparty competition ( $q_R^*$ ) only appears in the term that depends on  $w$ . Proceeding as in proposition 1, that is, solving jointly for each candidate's effort, we find when the solution is interior:<sup>22</sup>

**Proposition 3** *When politicians are office and ideologically-motivated, equilibrium effort levels are given by:*

$$\begin{aligned} q^*(\mathcal{N}, \mathcal{N}) &= q^*(\mathcal{N}, \mathcal{C}) = \frac{p}{2}(w + K), \\ q^*(\mathcal{C}, \mathcal{N}) &= \frac{p}{2} \frac{4K + 6w - pw(w + K)}{4 + p(2K + w)}. \end{aligned} \quad (18)$$

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<sup>21</sup>As before, we abstract from the parts of the candidate's problem that are a function of the median voter's choices when qualities are not observed, because these are determined by equilibrium effort provision and thus are taken as given by the candidates when these decide how much effort to put in.

<sup>22</sup>This requires that  $p(w + K) < 2$ .

We see that the presence of ideology is not innocuous for individual incentives. That is, if in the party with a non-competitive structure, ideologic motivation boosts the incentives to exert effort, with intraparty competition each candidate faces a new disincentive to exert effort, because his effort reduces the probability that his fellow party candidate gets nominated by the party. Put differently, allowing for partisanship introduces a fourth, *ideology effect* of intraparty competition. This effect is directly linked to the fact that the ideologic component in a candidate's objective function is like a public good for individual candidates inside the same party. Under the competitive structure, partisan motivation is then associated to a *free-riding-in-parties problem* that plays against intraparty competition. We have:

**Proposition 4** (Ideology Effect and Free-riding-in-parties) *When the importance of ideologic motivation increases:*

- a)  $\partial q_R^*(\mathcal{N}, \mathcal{C}) / \partial K > 0$ : *equilibrium effort in a non-competitive party is always increasing in  $K$ .*
- b)  $\partial q_R^*(\mathcal{N}, \mathcal{C}) / \partial K > \partial q_L^*(\mathcal{C}, \mathcal{N}) / \partial K$ : *equilibrium effort in a non-competitive party increases faster than in a competitive party, for any value of  $w$  and  $K$ .*
- c)  $\partial q_L^*(\mathcal{C}, \mathcal{N}) / \partial K < 0$  *if  $pw$  is large enough: equilibrium effort in a competitive party decreases if the perks from office are sufficiently large.*

The ideology effect also implies:

**Proposition 5** *Define  $\Omega(w, K)$  as the set of values of  $p$  such that the competitive structure is chosen in equilibrium, given  $w$  and  $K$ . We have:*

$$\Omega(w, K) \subset \Omega(w, 0) \text{ and } \Omega(w, 0) \setminus \Omega(w, K) \neq \emptyset;$$

*that is, intraparty competition is less likely to be an equilibrium when candidates are office- and ideologically motivated than when they are purely office motivated.*

*In particular, if candidates are purely ideologically motivated ( $w = 0$ ),  $q^*(\mathcal{C}, \mathcal{N}) < q^*(\mathcal{N}, \mathcal{N})$ , and  $\Upsilon(\cdot) = 0$ , for any  $p$  and  $K$ .*

*Yet, the competitive structure is chosen in equilibrium if ideological preferences are sufficiently weak and information is sufficiently good: for  $K < \sqrt{5} - 1$ , there exists  $\check{p} < 1$  such that the competitive structure is chosen in equilibrium for  $p > \check{p}$ .*

Two forces explain these results. First, as already seen above, reducing intraparty competition improves incentives when inter-party competition is already intense (high  $w$  and  $p$ ). Other things equal, ideological motivation increases the intensity of competition and reinforces this effect. Second, the public good dimension of ideology implies that the free-riding-in-parties effect depresses incentives in a competitive party. Taken together, these two effects explain why it is less likely that parties rely on intraparty competition when ideologic motivation becomes central.

Proposition 5 also offers a rationale for why extremist parties tend to rely on the same candidate for long periods of time: with ideologically motivated candidates, the more polarized are the two parties (the higher is  $\delta$ ), the less valuable is the competitive structure.<sup>23</sup> Beyond some polarization level, intraparty competition necessarily decreases the voters' trust in the party. The prediction is thus that moderate and extreme parties may face opposite incentives regarding their internal organization.<sup>24</sup> The empirical political science literature on candidate selection methods supports this. To give just one example, the data gathered by Lundell (2004) point very clearly to the fact that far-right and communist parties are associated with much less internal competition than centrist parties (see in particular his table 2, p36).

This prediction is also matched by the evolution of several European moderate parties, which increased the transparency of their selection procedure. Recent examples include

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<sup>23</sup>We are not claiming that candidates in centrist parties are not motivated by ideology. Our claim is that the free-riding-in-parties problem is less present in centrist parties, because of lower polarization (low  $\delta$ ), which reduces the importance of ideology ( $k$ ) in the politicians' objective function, keeping  $K$  small relative to  $w$ .

<sup>24</sup>The reliance on the same candidate in extreme parties may also be due to historical reasons or to the fact that, typically, these parties are relatively small and therefore easier to control by their leader. Yet, our results emphasize that there are also important *strategic* reasons why we should expect leaders of extreme parties to enjoy prolonged spells of uncontested party control.

the selection of José Zapatero inside the Spanish socialist party and that of Ségolène Royal and Nicolas Sarkozy in France or Romano Prodi in Italy. At the same time, the names of extreme parties such as France's *Front National* or Italy's *Rifondazione Comunista* are still hardly distinct from Jean-Marie Le Pen and Fausto Bertinotti. The prediction of our model is that, for the latter parties, given that ideology drives the motivation of their main candidates, a competitive selection procedure would primarily harm their electoral appeal.

Another interesting case is that of the Flemish *Volkspartij* in Belgium. Van Haute (2005) and Pilet and Van Haute (2006) describe the influence and the evolution of this party: it was created in 1954 around an ideology which, at the time, was in stark contrast with all mainstream parties. This so-called “regionalist” party wanted more devolution powers to Flemish authorities. On other policy dimensions, intraparty ideological differences were substantial, lumping together Christian conservatives, socialists, and pro-market liberals. Despite these dissensions, all fringes in the party accepted the rule of an unchallenged leader, Frans Van der Elst, for almost 20 years, from 1957 to 1975. The success of the party was such that all Flemish parties incorporated some aspects of the *Volkspartij* ideology in their programme. Thus, the distance between the *Volkspartij* and the other parties was gradually reduced. Rotation at the head of the party increased concomitantly. This fifty-year long process is in line with our results: as long as the candidates' main objective was ideological, the party shied away from internal competition. When the polarization with the other parties reduced, opportunistic motivations came to the fore, and intraparty competition had to increase.

Yet, the literature proposes other potential rationales. One compelling explanation is that party structures are not chosen to achieve electoral success, as assumed in this paper, but to reflect the ideology that the party defends.<sup>25</sup> Hence, extremist parties select non-competitive selection methods because of their authoritarian ideology. In contrast, “green” or libertarian parties adopt competitive selection methods because they reject such an authoritarian ideology. Our contention is that the two explanations complement one another: even if ideological motivations influence party organization at the outset,

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<sup>25</sup>We thank an anonymous referee for drawing our attention to this point.

the electoral forces identified by Proposition 5 may force the party to adapt afterwards. In other words, a party should thrive most easily in two opposite cases: *a*) it defends an authoritarian ideology and ideology is the dominant motivation of its candidates ( $K$  large relative to  $w$ ) or *b*) it is in favor of a competitive structure and its candidates are either sufficiently opportunistic or ideologically close to their main competitors ( $w$  large relative to  $K$ ). If there is mismatch between the party's preferences and its candidates' motivation, electoral success may remain below potential. In that case, one solution is to either change the internal organization of the party or rely on candidates with the right motivation.

As shown by Katz and Mair (1995, 2002), such a process is far from improbable: several parties, notably the Greens, have evolved from “anti-establishment” parties into government parties and their candidates have become both more moderate and more focused on winning office (increase in  $w$  relative to  $K$ ).<sup>26</sup> In contrast, libertarians are clearly in a mismatch, with high ideological distance (high  $K$ ) and a party organization that is not sufficiently authoritarian.

Some extreme right parties are also running the risk of finding themselves in a mismatch if centrist parties espouse part of their platforms (see the case of the *Volksunie* above). An interesting avenue for further research would be to analyze whether or not this move by moderate parties is part of the reason behind the recent increases in the competitiveness of candidate selection in extremist parties such as the Belgian *Vlaams Belang*.

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<sup>26</sup>Taking Green parties as a case in point, Katz and Mair (2002, p124) state that these “[...] have developed to a stage where they are, or recently have been, holders of public office” and Katz and Mair (1995, p23) add that one important consequence of this transformation is that their candidates have come to view “[s]tability [as] more important than triumph”.

## 5 Discussion and Extensions

### 5.1 Information

We made three simplifying assumptions regarding information. First, parties cannot observe the candidates' qualities unless the voters observe it as well. Second, primaries do not generate any additional information. Third, either all qualities are observed, or none is. Let us discuss these three assumptions.

*i)* Assume parties observe their candidates' qualities with some probability  $\lambda$ , before voters have a chance to learn qualities, with probability  $p$ . Assume the primaries take place in between these two dates. With this timing, voters are certain that, if parties observe realized qualities, they choose the best available candidate.

Suppose party  $L$  has a competitive structure. At  $t = 5$ , if voters are informed, they keep electing the best candidate. If they are uninformed, their expectations become:

$$\mathbf{E}q_L(\lambda) = \lambda \left[ 1 - (1 - q_L(\sigma_L, \sigma_R))^2 \right] + (1 - \lambda) q_L(\sigma_L, \sigma_R),$$

*i.e.* with probability  $\lambda$ , the party observes qualities and picks a good candidate, if there is one. The case analyzed in the main body of the paper is when  $\lambda = 0$ . For  $\lambda \in (0, 1)$ , the larger is  $\lambda$ , the higher is the voters' trust in the competitive structure. Hence, a larger  $\lambda$  is associated with a larger set of values  $p$  for which the competitive structure is chosen in equilibrium. Still, for  $pw$  sufficiently large, the incentive effect still dominates and parties keep preferring the non-competitive structure. Introducing  $\lambda$  in the model thus adds parameters but does not affect the substance of the results.

*ii)* If voters could observe each candidate's quality with some probability, and not necessarily either all or none of the qualities, then we would have a much larger number of cases to consider at time  $t = 5$ , but the results would still hold. For any given information set, a candidate with an observed high quality platform is now sure to beat any candidate whose quality is not observed. If his platform is low quality, he loses to unobserved candidates. This does not change much of the incentive structure, nor the results, in a symmetric world.

iii) Intraparty competition may also increase the amount of information available to voters. Assume that the probability  $p$  with which qualities are observed is higher when a party adopts a competitive structure. Suppose it increases from  $p$  to  $p^+$ . Let party  $R$  have a non-competitive structure. By backward induction, the rank and file in party  $L$  must now compare the probability of winning under the non-competitive structure ( $1/2$  since the other party has a non-competitive structure) with the election probability under the competitive structure in  $p^+$  (and not in  $p$ ).

If  $p$  is slightly below  $\hat{p}$  (the value at which the trust switches from one structure to the other in Proposition 2), additional information becomes detrimental to the competitive structure. The critical value  $\hat{p}$  is thus reduced by  $(p^+ - p)$ . Similarly, if  $w$  takes an “intermediate” value, we found that there exists another critical threshold  $\tilde{p} < 1$ . That threshold would also be reduced by  $(p^+ - p)$ . Hence if intraparty competition generates additional information, the thresholds found in Proposition 2 are reduced accordingly.

## 5.2 More than two Candidates

One might think that a competitive structure with many candidates would dominate all the other structures. This is actually not the case. The intuition is as follows: by the *incentive effect*, if there are  $n$  candidates, the marginal effect of effort on a candidate’s winning probability is:

$$\frac{\partial \pi_{Li}(q_{Li}, \tilde{q}_R)}{\partial q_{Li}} = \frac{\eta_h(\mathcal{C}_n)}{2} + (\eta_h(\mathcal{C}_n) - \eta_l(\mathcal{C}_n)) \frac{1 - \tilde{q}_R}{2},$$

in which,  $\mathcal{C}_n$  is a competitive structure with  $n$  candidates in party  $L$ . As before, increasing the number of candidates decreases both  $\eta_h$  and  $\eta_l$ . Beyond some  $n$ , this must reduce equilibrium effort levels, and therefore lose the voters’ trust. Like in the two-candidate setting, the *selection effect* operates in the opposite direction. Yet, the importance of this positive effect decreases as  $p$  shrinks. Hence, whenever trust is relevant, the optimal number of candidates is finite. Furthermore, if  $\eta_h(\mathcal{C}_n)$  and/or  $\frac{1 - \tilde{q}_R}{2}$  are sufficiently small

for all  $n$ , the non-competitive structure dominates all possible competitive structures.<sup>27</sup>

A robust result therefore appears to be that, unless trust only plays a marginal role, parties increase their prospects of winning by regulating the number of candidates who compete for selection: excessive entry weakens the party. As in Lizzeri and Persico (2005), our results suggest that parties have a *socially valuable* function: regulating political competition – see also the next section

### 5.3 Voters' Welfare

While a full-fledged welfare analysis would be beyond the scope of this paper, we can analyze how the parties' choices influence the median voter's welfare when politicians are purely opportunist ( $K = 0$ ). For some parameter values, the parties' decision is also the best for voters (that is, parties choose the same structure as the median voter would choose had he decision powers). Still, the following proposition shows that there always exist parameter values for which the parties' equilibrium structures are *suboptimal* for the median voter:

**Proposition 6** *In the neighborhood of  $\hat{p} = 1/w$ , whenever  $w > 5/4$  (that is, when  $(\mathcal{C}, \mathcal{C})$  is an equilibrium for  $p \leq \hat{p}$  and  $(\mathcal{N}, \mathcal{N})$  is an equilibrium for  $p \geq \hat{p}$ ), then:*

- a) *there always exists a non-empty interval  $(\hat{p}, s)$  within which the equilibrium governance structure is suboptimal for the voters;*
- b) *a marginal increase in  $p$  that triggers a switch from  $(\mathcal{C}, \mathcal{C})$  to  $(\mathcal{N}, \mathcal{N})$  leads to a drop in voters' welfare for any  $w < 5$ .*

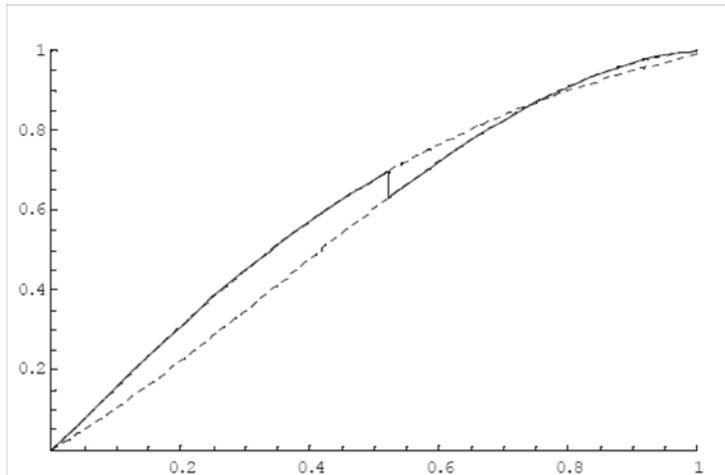
Hence, parties are not the only ones to benefit from restricted competition. Voters may benefit from it as well. Still, laissez-faire does not guarantee that political competition is efficient in equilibrium. For instance, there are intermediate levels of information for which voters would prefer an asymmetric set of party structures: one party being competitive, and the other one being non-competitive. This reduces the probability of winning for one

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<sup>27</sup>Unfortunately, we cannot provide generic closed-form solutions for these cases, because they involve polynomials of order  $n$ . We thus relied on numerical simulations.

of the parties (which is why it does not happen in equilibrium), but it produces higher quality in expected terms. This gap between voters' and parties' preferences is however absent in extreme informational cases. When information is very low or close to perfect, voters and parties have perfectly aligned interests.

As seen in part *b* of the proposition, this switch in equilibrium party structures may imply that voters actually suffer from getting better informed: both parties benefit from restricting intraparty competition, whereas voters would prefer to maintain more candidates. For reasonably low perks from office, more information increases the incentives of politicians but induces the party leaders to reduce intraparty competition. In that case, voters may actually benefit from reducing the rents from office for the politicians, or from worsening the quality of information. Conversely, if  $w$  is high, voters may actually benefit from reducing the number of candidates further than in equilibrium.



**Figure 3:** Welfare as a function of information

Figure 3 is an illustration of this result. The lower dashed curve depicts the voters' expected welfare when parties are non-competitive, and the upper dashed curve the welfare when parties are competitive. The solid curve shows the equilibrium welfare of voters, when parties choose optimally the degree of intraparty competition. When  $p$  rises above  $\hat{p} = 1/w$ , both parties abandon competition, and the welfare is reduced: improved information harms voters as it triggers a decrease in intraparty competition.

## 5.4 Candidate Selection in Katz and Mair's Cartel Party

As seen in the Introduction, Katz and Mair (1995, 2002) argue that the emergence of the Cartel party and the associated reduction in the value of holding office is also accompanied by an increase in the competitiveness of candidate selection procedures. Specifically, they argue that this increase in competition was carried out by the national party elite which pushed through internal reforms to eliminate the influence of mid-level, local cadres in the selection of candidates (Katz and Mair 1995, p21). We now show how an extension of our model helps rationalize that argument.

For simplicity only, assume that one party is non-competitive (equilibrium effort provision by its unchallenged candidate is thus equal to  $pw/2$ ; see proposition 1 above) and let the other party have the competitive structure. To be in a position to rationalize the argument of Katz and Mair, we need to introduce a third actor in the model, the local party elite. Suppose that one of the two candidates running for selection inside the competitive party is preferred by this local elite and consider two cases. In the first case, the local elite interferes with the national elite's goal of selecting the candidate with the highest platform quality. Specifically, the advantaged candidate, *i.e.* the candidate supported by the local elite, is always selected if his platform quality is at least as good as that of the disadvantaged candidate. In the other case, the mid-level cadres have been neutralized by the national elite: the rules governing the selection of the candidate are those of sections 2-4 above.

To save on space, we focus on equilibrium effort provision only. In the first case, given what we just said, the problem of the advantaged candidate is:

$$\begin{aligned} & \max_{q_a} \pi_a(\mathcal{C}) \cdot pw - c(q_a) \\ = & \left[ q_a (q_d + 1 - q_d) \left[ \frac{\tilde{q}}{2} + 1 - \tilde{q} \right] + (1 - q_a) (1 - q_d) \frac{1 - \tilde{q}}{2} \right] pw - \frac{q_a^2}{2}, \end{aligned} \quad (19)$$

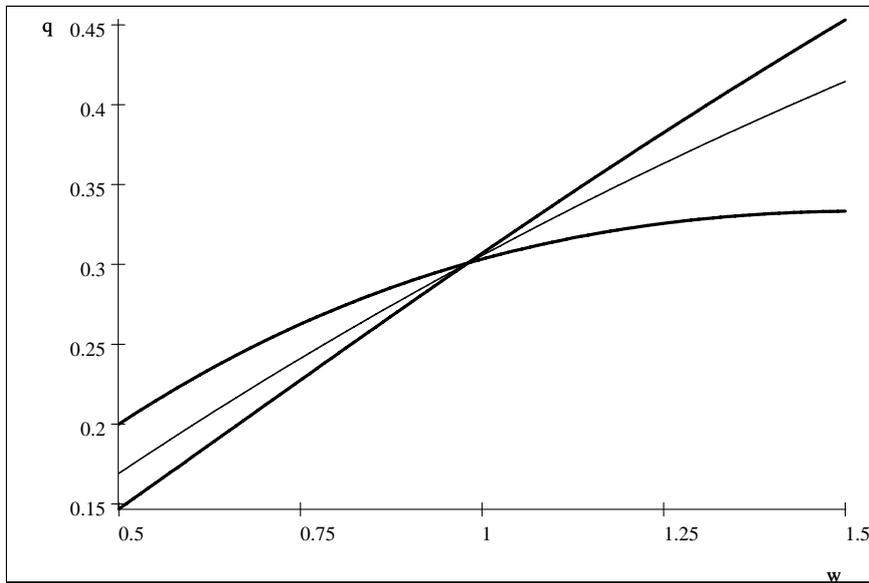
where  $q_a$  is effort provision by the advantaged candidate,  $q_d$  is effort provision by the other candidate and  $\tilde{q}$  is effort provision by the candidate of the other party.

Similarly, the problem of the disadvantaged candidate is:

$$\max_{q_d} \pi_d(\mathcal{C}) \cdot pw - c(q_d) = \left[ q_d (1 - q_a) \left( \frac{\tilde{q}}{2} + 1 - \tilde{q} \right) \right] pw - \frac{q_d^2}{2} \quad (20)$$

In the second case, no candidate has an advantage, and we already know from proposition 1 that both candidates' effort is equal to  $q^*(\mathcal{C}, \mathcal{N})$ .

Solving problems (19) and (20) above using the fact that  $\tilde{q} = \frac{pw}{2}$  yields the equilibrium efforts of the advantaged and disadvantaged candidates. For high values of  $w$ , effort provision by the advantaged candidate is highest of all. To the contrary, when  $w$  is low, it is the disadvantaged candidate who exerts the most effort! Furthermore, for low values of  $w$ , if the national elite neutralizes the interference of the local leadership, effort provision by both candidates is higher than that of the advantaged politician. Figure 4 illustrates effort provision for  $p = 1/2$  and letting  $w$  vary between 0.5 and 1.5.<sup>28</sup> The thick concave curve is effort provision by the advantaged candidate, the thick curve that starts at the crossing of the two axes is effort provision by the disadvantaged one and the thin curve is  $q^*(\mathcal{C}, \mathcal{N})$ .



**Figure 4:** Effort provision with and without a selection advantage

<sup>28</sup>These parameter values are such that, in the model of sections 2-4, the competitive structure is necessarily the optimal one. Results do not change qualitatively if we take different values for  $p$ .

Define  $\hat{w}$  as the value of the perks for which individual effort provision is the same across the two cases considered here ( $\hat{w} \simeq 0.98$  in figure 4 above). Given our assumptions, the following proposition rationalizes the argument of Katz and Mair (1995) and also suggests that causality runs from the fall in the value of winning office to changes in the competitiveness of the candidate selection process:

**Proposition 7** *As soon as  $w$  falls below  $\hat{w}$ , the optimal choice for the national party elite is to push through intraparty reforms that neutralize the interference of the mid-level party cadres and put all candidates on an equal footing.*

## 6 Summary and Conclusion

We proposed a model of electoral competition that helps uncover and understand the link between the competitiveness of candidate selection procedures and the characteristics of the electoral game (the value of the perks from office, how well informed voters are and how much ideologically polarized parties are). We identified four main effects of competitive selection procedures and showed how these four effects interact with the characteristics of the election. This allowed us to propose how the characteristics of the election map into party structures. When information is bad (low  $p$ ), the competitive structure predominates. Indeed, the selection effect is not important and as a consequence the party leaders favor the structure that provides highest-powered incentives.

When  $p$  is large, the trust effect plays little or no role: platform qualities are very likely to be observed. The optimal structure depends upon which of the selection or incentive effect dominates. If it is the selection effect that dominates, the optimal structure is the competitive one (this requires  $w$  not to be too high); if the incentive effect dominates, the optimal structure is the non-competitive one (this requires  $w$  to be high enough).

Turning to  $w$ , if it is sufficiently low, intraparty competition is the optimal choice, for any value of  $p$ : the incentive effect dominates across the board, either directly, when  $p$  is

high, or indirectly, through the trust effect, when  $p$  is low. To the contrary, when  $w$  is large, the competitive structure is best for low values of  $p$  (because of the indirect effect of incentives on the median voter's trust) whereas the noncompetitive structure is best when  $p$  is high: the incentive effect dominates the selection effect and favors abandoning intraparty competition.

These results allow us to shed light on the introduction of the direct primary that changed radically American politics at the beginning of the 20th century. Our results support Ware's (2002) claim that this reform was largely engineered by the leading parties themselves as a response to societal changes that, among other things, reduced the quality of information about politicians.

Extending our model to account for a conflict of interest between national and local party elites in the selection of electoral candidates, our model also identifies a causal link in Katz and Mair's (1995, 2002) account of the emergence of the cartel party, which was accompanied both by a decrease in the reward from winning office and by the elimination by national party elites of the influence of the local, mid-level party cadres in the selection of candidates.

Finally, our findings are consistent with the evidence put forward by the empirical political science literature that studies candidate selection procedures and with the casual observation that moderate parties are associated with more internal competition than extreme ones.

While the focus of this paper was on national elections, its results suggest that parties may organize differently at different levels of the political game: two effects we identified come into play. On the one hand, if voters have more information at the local than at higher levels, we should expect party to rely on less competitive procedures for local elections. On the other hand, local elections should also generate lower perks, which renders competitive procedures more attractive. To the best of our knowledge, no study yet has analyzed how selection procedures vary across power levels; a relationship that may be worth investigating in more detail.

Our focus was also exclusively on the impact of the electoral environment on the

politicians' incentive to improve their platforms. We thus voluntarily assumed that all politicians have the same ability and that ideology was fixed, which allowed us to abstract from adverse selection issues. Another important role of party organization is to select the most promising candidate. Analyzing such an interaction between selection and incentives is also beyond the scope of this paper but may be important to better understand the hierarchical nature of party organization.

Also welcome would be a careful welfare analysis of the effects of party organizations. We analyzed which level of competitiveness the median voter prefers and showed that the interests of voters and parties need not coincide. This opens the door to the analysis of the effects of party legislation. For instance, the idea of replacing state-administered primaries with runoff (or: 'open-primary') elections was on the agenda in California recently (Proposition 62, which was rejected by 54% of the population. See also Kiesling and Reed, 2004). The opponents to this reform argued that it would have "eliminated voter choice", since two candidates of a same party (or of an extremely undesirable party) could reach the second round. The same "voter choice" argument is however the main rationale for maintaining runoff elections in, for example, France.

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## Appendix: Proofs

### 6.1 Proof of Proposition 1

In the absence of intraparty competition, the equilibrium effort of the uncontested candidate is such that:

$$\frac{pw}{2} = c'(q_i).$$

That gives us  $q^*(\mathcal{N}, \mathcal{N}) = q^*(\mathcal{N}, \mathcal{C}) = pw/2$ .

If party  $L$  resorts to intraparty competition, we know from the incentive effect derived above that the winning probability of candidate  $L_i$ ,  $i = 1, 2$  is such that:

$$\frac{\partial \pi_{Li}(q_{Li}, \tilde{q}_R)}{\partial q_{Li}} = \frac{\eta_h(\mathcal{C})}{2} + (\eta_h(\mathcal{C}) - \eta_l(\mathcal{C})) \frac{1 - \tilde{q}_R}{2}.$$

Using the nomination probabilities in (2), we have:

$$\frac{\partial \pi_{Li}(q_{Li}, \tilde{q}_R)}{\partial q_{Li}} = \frac{1}{2} - \frac{q_{Lj}}{4} + \frac{1 - \tilde{q}_R}{4} = \frac{3 - q_{Lj} - \tilde{q}_R}{4}, \quad (21)$$

for  $i \neq j$ .

This last equation shows that  $q_{L1}$  and  $q_{L2}$  are strategic substitutes. The two best responses thus cross only once and, by symmetry, for an equal effort level:

$$q_L^*(\mathcal{C}, \tilde{q}_R) = p \frac{(3 - \tilde{q}_R)w}{4 + pw},$$

where  $q_L^*(\mathcal{C}, \tilde{q}_R)$  denotes the equilibrium level of effort when there is intraparty competition in party  $L$ , given the probability that the candidate from party  $R$  has a high quality platform,  $\tilde{q}_R$ .

When party  $R$  is not competitive,  $\tilde{q}_R = pw/2$  and we get:

$$q_L^*(\mathcal{C}, \mathcal{N}) = p \frac{(3 - \frac{pw}{2})w}{4 + pw} = \frac{pw}{2} \frac{6 - pw}{4 + pw}.$$

When both parties are competitive, by symmetry we have that the expected quality of the candidate of party  $R$ , when qualities are revealed, is  $\tilde{q}_R = 1 - (1 - q^*(\mathcal{C}, \mathcal{C}))^2$ . We must thus solve:

$$q^*(\mathcal{C}, \mathcal{C}) = p \frac{(3 - [1 - (1 - q^*(\mathcal{C}, \mathcal{C}))^2])w}{4 + pw},$$

which yields (11) after some manipulations.

It remains to check when  $q^*(\mathcal{C}, \mathcal{N}) > q^*(\mathcal{N}, \cdot)$ . Comparing (9) and (10), one finds that:

$$\begin{aligned} q^*(\mathcal{C}, \mathcal{N}) \geq q^*(\mathcal{N}, \cdot) &\Leftrightarrow \frac{p}{2} \frac{w}{4 + pw} \frac{6 - pw}{pw} \geq \frac{pw}{2} \\ &\Leftrightarrow p \leq \hat{p} \equiv 1/w, \end{aligned}$$

which implies that  $\mathbb{T}(E q_L^*, E q_R^*) = 1$  (resp. 0) for any  $p < \hat{p}$  (resp.  $p > \hat{p}$ ).

## Proof of Proposition 2

Using Proposition 1, if party  $L$  has a competitive structure and party  $R$  a non-competitive structure, we have:

$$\begin{aligned} q_R^* < q_L^* < \frac{1}{2} & \text{ iff } p < \hat{p} \equiv 1/w \\ q_R^* = q_L^* = \frac{1}{2} & \text{ iff } p = \hat{p} \\ q_R^* > q_L^* > \frac{1}{2} & \text{ iff } p > \hat{p}. \end{aligned} \tag{22}$$

Hence, for  $p$  smaller than  $\hat{p}$ , we have that  $\mathbb{T}(Eq_L^*(\mathcal{C}, \mathcal{N}), Eq_R^*(\mathcal{N}, \mathcal{C})) = 1$ , and, by (15):

$$U_L^*(\mathcal{C}, \mathcal{N}) > U_L^*(\mathcal{N}, \mathcal{N}) = 1/2 = U_L^*(\mathcal{C}, \mathcal{C}) > U_L^*(\mathcal{N}, \mathcal{C}).$$

Therefore, choosing a competitive structure is a dominant strategy for any value of  $p$  below  $\hat{p}$ .

For  $p$  larger than  $\hat{p}$ , we have that  $q_R^*(\mathcal{N}, \mathcal{C}) > q_L^*(\mathcal{C}, \mathcal{N})$ , and hence

$$\mathbb{T}(Eq_L^*(\mathcal{C}, \mathcal{N}), Eq_R^*(\mathcal{N}, \mathcal{C})) = 0.$$

Therefore:

$$U_L^*(\mathcal{C}, \mathcal{N})|_{pw > 1} = 2\lambda\pi_{L_1}(q_L^*(\mathcal{C}, \mathcal{N}), q_R^*(\mathcal{N}, \mathcal{C})). \tag{23}$$

Taking the limit of this probability for  $p$  approaching  $\hat{p}$  from above, by (22), we have:

$$\lim_{p \rightarrow (1/w)^+} U_L^*(\mathcal{C}, \mathcal{C}) = \frac{5}{8w},$$

which is larger than  $1/2$  iff  $w \leq 5/4$ . This implies that, for  $p$  approaching  $\hat{p}$  from above, the competitive structure is still preferred, iff  $p \leq 5/4$ .

We now show that  $U_L^*(\mathcal{C}, \mathcal{N})$  is monotonically increasing in  $p$  for values of  $p$  above  $\hat{p}$  and for which  $U_L^*(\mathcal{C}, \mathcal{N}) > 1/2$ .<sup>29</sup> This property ensures that the set of values of  $p$  for the party prefers a non-competitive structure must be an interval. To this end, we focus on the derivative of  $U_L^*(\mathcal{C}, \mathcal{N})$  with respect to  $p$  and show that it must be strictly increasing if  $p > \hat{p}$ .

To this end, note that, by (23) and the fact that  $q_R^* = pw/2$ :

$$\frac{dU_L^*(\mathcal{C}, \mathcal{N})}{dp} = \frac{U_L^*(\mathcal{C}, \mathcal{N})}{p} + p(1 - q_L^*) \frac{dq_L^*}{dp} - \frac{pw}{4}.$$

The last term in that equation  $pw/4$  is strictly small than  $\frac{1}{2}$  for any value of  $pw < 2$ . Hence:

$$\Rightarrow \frac{dU_L^*(\mathcal{C}, \mathcal{N})}{dp} > \frac{U_L^*(\mathcal{C}, \mathcal{N})}{p} + p(1 - q_L^*) \frac{dq_L^*}{dp} - \frac{1}{2} \tag{24}$$

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<sup>29</sup>This in fact proves that if the curve in figure 2 (representing  $U_L^*(\mathcal{C}, \mathcal{N})$ ) is above the line of probability  $1/2$  at any time after the drop in trust, it increases as  $p$  increases.

In (24), one sees that the first term must be larger than  $\frac{1}{2}$  (since  $U_L^*(\mathcal{C}, \mathcal{N}) > \frac{1}{2}$  and  $p \leq 1$ ), and hence that the RHS of the inequality must be strictly positive (since  $dq_L^*/dp > 0$ ).

This shows that, for  $w > 5/4$ , if  $U_L^*(\mathcal{C}, \mathcal{N})|_{p=1} < 1/2$ , then the non-competitive structure is preferred for any  $p > \hat{p}$ . Conversely, if  $U_L^*(\mathcal{C}, \mathcal{N})|_{p=1} > 1/2$ , then there must exist a value  $\tilde{p} \in (\hat{p}, 1)$ , such that the competitive structure is preferred for any  $p > \tilde{p}$ .

Computing the value of  $U_L^*(\mathcal{C}, \mathcal{N})|_{p=1}$  shows that it is smaller than  $1/2$  for any  $w > 7/4$ .

## 6.2 Proof of proposition 3

Similar to that of proposition 1

### Proof of Proposition 4

From (18), we have that:  $\frac{\partial q_L^*}{\partial w} = \frac{\partial q_R^*}{\partial K} = \frac{p}{2} > 0$ .

Next, let us compute the derivative of  $q_L^*$  with respect to  $K$  :

$$\frac{\partial q_L^*(\mathcal{C}, \mathcal{N})}{\partial K} = \frac{p}{2} \frac{16 + p^2 w^2 - 12pw}{(4 + 2pK + pw)^2}.$$

This is larger than zero iff:  $16 + p^2 w^2 - 12pw > 0$ , that is iff  $pw < 6 - 2\sqrt{5} \approx 1.52$ . This proves part *b*.

That  $\frac{\partial q_R^*(\mathcal{N}, \mathcal{C})}{\partial K} > \frac{\partial q_L^*(\mathcal{C}, \mathcal{N})}{\partial K}$  is immediate. Rewriting  $q_L^*(\mathcal{C}, \mathcal{N})$ , we find:

$$q_L^*(\mathcal{C}, \mathcal{N}) = \frac{q_R^*(\mathcal{N}, \mathcal{C}) \left(1 - \frac{pw}{4}\right) + \frac{pw}{4}}{1 + \frac{p}{2} \left(K + \frac{w}{2}\right)},$$

and hence:  $\partial q_L^*(\mathcal{C}, \mathcal{N}) / \partial q_R^*(\mathcal{N}, \mathcal{C}) = \left(1 - \frac{pw}{4}\right) / \left(1 + \frac{p}{2} \left(K + \frac{w}{2}\right)\right)$  which is smaller than 1.

### Proof of Proposition 5

Following the same steps as for the proof of Proposition 2, one can check that  $(\mathcal{C}, \mathcal{C})$  is an equilibrium in dominant strategies for any  $p < \check{p} \equiv \frac{w}{(w+K)^2}$ . Note that  $\check{p}$  is unambiguously decreasing in  $K$ : the set  $[0, \check{p}]$  for which  $(\mathcal{C}, \mathcal{C})$  is an equilibrium is smaller the larger are ideological payoffs  $K$ .

Like in Proposition 2, there may also exist another cutoff value  $\bar{p} > \check{p}$  such that  $(\mathcal{C}, \mathcal{C})$  is an equilibrium for  $p \in [\bar{p}, 1]$ . This happens when the selection effect dominates the incentive effect for sufficiently large values of  $p$ . However, ideology introduces a free-riding effect (see Proposition

4), that reduces incentives under the competitive structure. The set of values of  $p$  for which the selection effect may dominate the incentive effect must therefore be smaller, the larger is  $K$ :  $\bar{p} > \tilde{p}$ , where  $\tilde{p}$  is the corresponding cutoff in Proposition 2c. This proves that the set  $[0, \tilde{p}] \cup [\bar{p}, 1]$  is necessarily smaller when  $K > 0$  than when  $K = 0$ .

To prove the second part of the proposition, first notice that using (18), if  $w = 0$ , voters never trust the competitive structure. Then, the probability that party  $L$  wins under  $(\mathcal{C}, \mathcal{N})$  becomes:

$$\frac{p}{2} (1 + q_L^*(\mathcal{C}, \mathcal{N}) (2 - q_L^*(\mathcal{C}, \mathcal{N})) - q_R^*(\mathcal{N}, \mathcal{C})), \quad (25)$$

which is clearly smaller than  $1/2$  for  $p \rightarrow 0$ . Hence, the non-competitive structure always dominates for  $p \rightarrow 0$ .

Following the same steps as for the proof of Proposition 2, if there exists a value  $p^*$  such that  $U_L(\mathcal{C}, \mathcal{N}) = 1/2$ , then  $\partial U_L(\mathcal{C}, \mathcal{N}) / \partial p > 0$  for any  $p \geq p^*$ . Hence  $U_L(\mathcal{C}, \mathcal{N}) > 1/2$ , for any  $p > p^*$ . Therefore, if  $U_L(\mathcal{C}, \mathcal{N}) > 1/2$  for  $p \rightarrow 1$ , there must exist such a value  $p^* < 1$  such that intraparty competition dominates for any  $p \in (p^*, 1]$ . Conversely, if  $U_L(\mathcal{C}, \mathcal{N}) < 1/2$  for  $p \rightarrow 1$ , then the non-competitive structure dominates for all  $p \in [0, 1]$ . Straightforward computations show that there exists a  $p^* > 1$  iff  $K > \sqrt{5} - 1$ .

## Proof of Proposition 6

By Proposition 1, in  $\hat{p} = 1/w$ , equilibrium effort levels are:

$$q^*(\mathcal{N}, \mathcal{N}) = \frac{1}{2}, \quad q^*(\mathcal{C}, \mathcal{C}) = \frac{7 - \sqrt{37}}{2}. \quad (26)$$

Therefore, around  $\hat{p}$ :

$$W(\mathcal{N}, \mathcal{N}) \simeq \hat{p} \left[ 1 - [1 - 1/2]^2 \right] + \frac{1 - \hat{p}}{2} = \frac{1}{4w} + \frac{1}{2}, \text{ and}$$

$$W(\mathcal{C}, \mathcal{N}) = \hat{p} \left[ 1 - [1 - 1/2]^3 \right] + \frac{1 - \hat{p}}{2} > W(\mathcal{N}, \mathcal{N}).$$

Thus, point *a* follows directly from (24) and the fact that voters would therefore necessarily benefit from an asymmetric party structure  $(\mathcal{C}, \mathcal{N})$  that is never proposed in equilibrium. To prove point *b* note that:

$$W(\mathcal{C}, \mathcal{C}) \simeq 0.455 \frac{1}{w} + 0.459.$$

It is immediate to see that,  $W(\mathcal{C}, \mathcal{C}) > W(\mathcal{N}, \mathcal{N})$  for any  $w < k \simeq 5$ . For such values, the welfare of voters is necessarily discontinuous and decreasing in  $p$  around  $\hat{p}$ , when the equilibrium switches from  $(\mathcal{C}, \mathcal{C})$  to  $(\mathcal{N}, \mathcal{N})$ .