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Document de treball n.19 -2017

DEPARTAMENT D'ECONOMIA – CREIP
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Edita:

Departament d'Economia
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Universitat Rovira i Virgili
Facultat d'Economia i Empresa
Av. de la Universitat, 1
43204 Reus
Tel.: +34 977 759 811
Fax: +34 977 758 907
Email: sde@urv.cat

CREIP
www.urv.cat/creip
Universitat Rovira i Virgili
Departament d'Economia
Av. de la Universitat, 1
43204 Reus
Tel.: +34 977 758 936
Email: creip@urv.cat

Adreçar comentaris al Departament d'Economia / CREIP

ISSN edició en paper: 1576 - 3382
ISSN edició electrònica: 1988 - 0820

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How public perception towards party (dis)unity affects the introduction of primaries

Anna Moskalenko,[(1)]

(1) Department of Economics, Universitat Rovira i Virgili and CREIP, Avinguda de la Universitat 1, Reus, Spain (*anna.moskalenko@urv.cat*)

November 2017

Abstract *Political parties are increasingly adopting more inclusive candidate selection methods by introducing primary elections. This paper identifies motives of this change, as well as decision makers leading to this introduction. We view a party as a coalition of factions, composed by a party elite and a dissenting faction. By developing a game-theoretical model of interplay between the party elite and the dissenting faction, we find that the primaries are introduced in two scenarios: (1) when the party elite find itself in a weak position under the credible threat of the dissidents to leave the party and (2) when there is a high cohesion between both factions and the party elite itself takes the initiative in introducing primaries.*

Keywords: Political parties, Primaries, Party split, Party factions, Candidate selection, intra-party politics.

***JEL* Classification Number:** D71, D72

1 Introduction

Over the last two decades a significant number of parties in advanced and new democracies has experienced important organizational changes, moving towards internal democratization (Bille 2001; Kittilson and Scarrow 2003; Cross et al. 2016). Political elites in Europe, Asia and Latin America have decided to introduce primary elections, giving their grassroot members a greater formal say in the selection of the candidates (Cross et al. 2016). This democratization of candidate selection procedures varies across parties and countries, but clearly constitutes a common trend. This trend is, however, quite puzzling as it involves the decision by the party elites to give away some power. Parties themselves are rather conservative organizations and are reluctant to *major* changes (Harmel and Janda 1994; Cross and Blais 2012). What drives political parties to adopt primary elections? What are the motives of the party elite to give away their power by democratizing the candidate selection methods?

These questions gave rise to a literature exploring the reasons for the adoption of primaries. Three main explanations are highlighted. First, party primaries may help to elicit the voters' preferences and to choose the most appropriate candidate (Adams and Merrill 2008; Aragon 2014; Serra 2011, 2013). Second, primaries may increase the internal competition among candidates, creating incentives among them to exert more effort during the electoral campaign and to better target the median voter's interests (Caillaud and Tirole 2002; Crutzen et al. 2009). More recently, a complementary view was suggested that primary elections may avoid costly internal conflict and serve as a unifying device for the party (Kemahlioglu et al. 2009; Hortallá-Vallve and Mueller 2015).

This paper follows the view of Hortallá-Vallve and Mueller 2015 (HM, hereinafter) and seeks to complement their work by introducing several modifications. As in the HM model, we view a party as a coalition of factions, a party *elite* faction and a *dissenting* faction. The strategic interaction between these two factions is analysed with the help of a simple game-theoretical model. Conflict between the factions is captured by the relative degree of the policy alignment between the factions and the relative weight of both factions within the party. In addition there is an electoral bonus of running jointly. The results of HM show that primaries are adopted in two scenarios: (1) to avoid the party split in the presence of internal conflict within the party and credible threat of the dissenting faction to split; (2) to pull the existing factions sufficiently close ideologically into the party. In both cases, primaries serve as a unifying device to preserve the party unity under the credible exit threat of the dissenters. In HM's work the party elite moves first deciding on the institutional set-up for candidate selection leaving the dissenting faction with a dilemma to decide afterwords whether to stay in the party or to split.

While the party elite can certainly take the initiative and be the first to change its internal organization, parties are rather conservative organizations. Hence, we can presume that party elites may be unwilling to give up their power easily. In this paper we revert the order of moves in the strategic game between the elite faction and the dissenting faction, and allow the dissidents to take the initiative and be the first-mover, by mobilizing in a collective action and launching the challenge to the party elite, demanding the latter to adopt primaries. Primaries are the instrument used by the dissenters to challenge the current party leader (belonging to the party elite faction) in order to reduce the latter's influence or to contest the internal power, strengthening their position within the party. Dissenters may also search for more representation, thus mobilizing against the party elite in a collective action to bring about change and viewing the primaries as a way to get it[1].

In fact, by changing the order of moves, we add additional option to the dissenting faction: the possibility to influence the party elite's decision by voicing their discontent, drawing on Hirschman's "Exit, Voice and Loyalty" framework (Hirschman 1970). Choosing to use voice means that the dissenting faction does not accept the elite faction's candidate (and consequently his policy) and instead seeks to persuade the elite to resolve the policy conflict through primaries. Furthermore, we introduce a new variable

[1] The case of Belgian party VU (Flemish nationalist party) is of this example. A faction of VU forced the party elite to introduce primaries (see Wauters 2014).

capturing the public perception of party disunity, which we call the *cost of disunity*. In our modified game, following the framework of Hirschman (1970) by moving first the dissenting faction decides whether to remain loyal to the party accepting the elite's faction candidate or voice discontent and demand primary elections. The elite faction then chooses whether to accept the dissidents' demand by adopting primaries or reject it. If the demand is accepted, the game ends and primaries are introduced. As in HM we assume that, in this case, the dissenting faction's candidates wins the primaries. The fact that the party elite accepts the dissidents' demand sends a signal to voters that the party is internally democratic and that all the party's members views are taken into account, which might increase the party's electoral performance[2]. Although there is a policy conflict between both factions, it may be resolved through primaries. The party still appears to be united, both factions run jointly and the party gets an electoral bonus. As long as the party appears to be united, their policy platform will be more credible. Therefore, the parties who postulate the united front to the voters might increase their electoral performance as the party unity may be essential for electoral success (Boucek 2010; Greene and Haber 2015). If the elite faction rejects the dissenting faction's demand, then the dissidents decide whether to stay in the party after failed attempt of voice or exit the party. In the event of exit, the party splits. In the event of stay, the party still remains united but the whole party incurs a loss in their winning probability due to an unresolved internal conflict that becomes known to the public. It is then that a parameter measuring the public perception of party disunity comes into play. The party cohesion influences electoral success while the lack of cohesion brings failure among the electorate (Kam 2009). Indeed, party commitments may seem less credible if internal disagreements exist, and as a consequence voters may punish parties if they show evidence of being internally divided (Greene and Haber 2015).

Several new insights are brought with these new changes. First, it allows us to introduce a new variable which captures the voters' perception of party disunity and to analyse how the dimension of this variable influences the likelihood of the adoption of

[2]In recent paper of Shomer et al. 2017 the authors show that the introduction of primaries increases the trust in parties among voters which in its turn increases their electoral performance.

primaries. The results show that primaries are adopted for a wider range of parameters than in the benchmark model of HM. Interestingly, the party elite is willing to concede its power to nominate the party candidate even when there is no credible exit threat from the dissidents. When the cost of disunity is negligible, the results are almost identical to the ones of HM: the party elite is only willing to adopt primaries under the credible exit threat of the dissidents and when it commands the minority support of the party members. As long as the cost of disunity increases, the results contrast with the ones in HM. We find two equilibria when primaries are adopted: one under the credible exit threat of the dissidents to split, and the other one when there is no exit threat but high ideological cohesion between both factions.

Which type of primaries prevails depends on the level of the intra-party conflict, the relative strength of both factions, the institutional set-up (whether there is a bonus of running jointly) and the public perception of party disunity. In a situation when there is a high cost of disunity, that is, voters punish internally fractionalized parties, or conversely, there is a high demand for party unity, the party elite accepts the adoption of primaries avoiding the party split and trying to conceal factional divisions within the party by postulating the party as a united front. The likelihood of this type of primaries increases with the disproportionality of the electoral system. For example, in majoritarian systems there is a strong demand for party cohesion and strong united parties. In that event, public perceptions of party (dis)unity may explain why parties in majoritarian democracies try to eliminate or conceal factional divisions within the party (Boucek, 2010), and in our case, by responding positively to the demand of the dissidents to adopt primaries.

The remainder of the paper is as follows. Section 2 describes the model. Section 3 provides the results. Section 4 concludes.

2 A model of endogenous primaries

We follow closely the model of Hortallá-Vallve and Mueller (2015). There are two groups of identical individuals, which are factions of one political party P: the *elite* faction E and the *dissenting* faction D. A general election is to be held. At issue is a policy (to be implemented by a candidate in case of victory), and over which there is a conflict of interest between E and D, measured by parameter $x \in (0, 1)$. The value of x reads as follows: x close to 0 represents a high discrepancy between E and D on policy issues, while x close to 1 means that E and D are much aligned in their policy preferences. Each faction would like to implement its own favourite policy (or equivalently to choose its own faction's candidate to run in the general election). Therefore, if D's (E's) candidate wins the election, D (E) gets the highest payoff normalized to 1. If the winning candidate belongs to D (E), then E (D) gets the in-between payoff of $x \in (0, 1)$ Finally, if the winning candidate belongs to some opposing party (whose internal strategic dynamic is not modelled and taken as given), both factions get the minimum payoff of 0. Given that the candidates are identified by their ideology, choosing a candidate is equivalent to choosing a policy.

By assumption E currently controls the candidate nomination process, and so will impose its own faction's candidate to represent P in the general election, who if wins implements his or her preferred policy. D can respond to this situation by choosing two options: either choose loyalty and accept E's candidate, and as a result, the party runs united with E's candidate representing P in the general election; or to voice discontent and demand primaries. We assume that the dissenting faction has overcome the collective-action problem and do not impose any costs for the dissidents to organize in voicing their discontent. By demanding primaries, D *believes* that, by holding them, the internal conflict concerning the policy issues can be resolved. If primaries are held, by assumption the winner is D's candidate. In case D demands primaries, E, in its turn, may respond positively by accepting D's demand and adopt primary elections, or reject it, at which point D must decide whether to exit or stay in the party. In the former case, the party splits and both factions run separately. In the latter case, the party still runs united but loses the share of its winning probability due to the internal conflict that becomes known to public. This situation is modelled as an extensive form game in Figure 1.

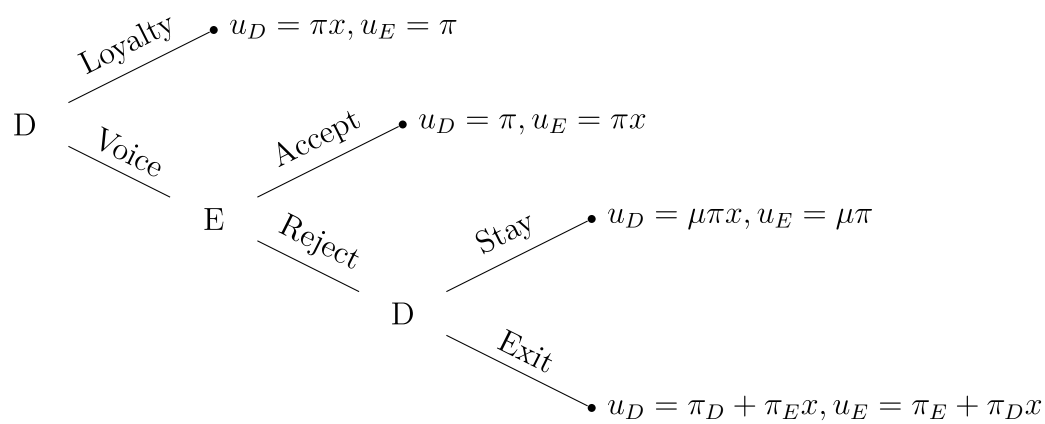

Figure 1: The intra-party game

The players' payoffs presented in Figure 1 are justified as follows. We assume the genericity assumption according to which, when making a choice, no faction may get the same payoff from the two choices. If both factions run jointly under the party P, its probability of winning the general election is $\pi \in (0, 1)$; the probability that some opposing party wins is $(1 - \pi)$. In case P splits, each faction runs separately and each wins the election with probability $\pi_i \in (0, 1)$, where $i = E, D$; some opposing party wins with the remaining probability $(1 - \pi_E - \pi_D)$. We presume that voters value positively the unity of the party P (i.e., when E and D run jointly), and denote by $\alpha > 1$ the unity bonus, which P obtains when running united. The probability π with which P wins the general election when the two factions run jointly is defined as

$$\pi = \alpha(\pi_E + \pi_D)$$

The value of α measures the *degree* to which the voters value party unity: the higher is α, the stronger the demand for the party unity among voters. An alternative interpretation of α is that it characterizes the proportionality of the electoral system: when α is close to 1, the bonus of running jointly is minimum, which is a characteristic feature of a highly proportional electoral system; while high α means that the bonus is the greatest, which characterizes highly disproportional electoral system (like majoritarian or single-member plurality voting systems). The two interpretations of α are interrelated, as the demand for unity is stronger in highly disproportional electoral systems, and as a consequence the greater the bonus for unity. Note that in the absence of the assumption that both factions are better off in terms of the winning probability when running jointly than separately, keeping the party unity with primaries would make little sense as both E and D would be better off through exit.

In case E rejects D's demand and D decides to remain in the party, both factions still run jointly but the whole party incurs the loss in the share of its winning probability. This loss occurs due to an unresolved internal conflict which becomes known to public. We denote by $\mu \in (0, 1)$ the cost of disunity by which the winning probability π is reduced. The lower is μ, the higher the cost of disunity perceived by the public and the smaller the winning probability of P after failed attempt of D to demand primaries. Conversely, the higher is μ, the lower the cost of disunity and, as a result, the larger the winning probability of P.

Next, we describe in detail each strategy of the players and the relevant payoffs obtained by playing those strategies, presented in Figure 1. The game begins with D deciding how to respond to E's choice of the candidate. Recall that E is in charge of P's policy, hence, by default the candidate from P belongs to E's faction. If D decides to remain loyal, the game ends and E's candidate wins the general election with probability π, in which case D gets an expected payoff of $u_D = \pi x + (1 - \pi) \times 0 = \pi x$ and E gets an expected payoff of $u_E = \pi \times 1 + (1 - \pi) \times 0 = \pi$, where u_D and u_E are expected utilities of D and E respectively. Specifically, u_D is defined as the winning probability with which P wins the election multiplied by the utility D gets from E's candidate policy, measured by x; and u_E is, respectively, E's expected utility which equals the probability with which E's candidate wins the election multiplied by a maximum payoff of 1 as E implements its preferred policy. Should D voice discontent and demand primary elections, the game moves to the next stage, where E decides whether it accepts D's demand and adopts primaries, or rejects it. If accepted, the party runs united and we assume that D's candidate wins the primary and subsequently general election with probability π. In this case, D gets the highest expected payoff corresponding to $u_D = \pi$ and E gets $u_E = \pi x$. If E rejects D's demand, the game moves to the last stage, where D decides between exiting or staying in the party P. If D exits, both factions run separately in the election, in which case D gets $u_D = \pi_D + \pi_E x$ and E gets $u_E = \pi_E + \pi_D x$. If D stays, the candidate belongs to E's faction, and the whole party incurs a loss in terms of the winning probability, as the internal conflict, not resolved through primaries, becomes known to voters. As a result, D gets $u_D = \mu\pi x$ and E gets $u_E = \mu\pi$, where $\mu < 1$.

Similarly to HM we denote by $y \in (0, 1)$, the relative strength of the elite faction E in terms of its probability of winning the general election, which equals the ratio of the winning probability of E when running separately to the joint winning probabilities of E and D running separately, i.e.

$$y = \frac{\pi_E}{\pi_E + \pi_D}$$

Thus, when $y > \frac{1}{2}$, the elite faction has the majority support (e.g. in terms of mobilized voters, or party members' support), or, equivalently, $\pi_E > \pi_D$. The relative strength of the dissenting faction D is $(1 - y)$, respectively. The value $y < \frac{1}{2}$ indicates that the dissenting faction D has the majority support, or, equivalently, $\pi_D > \pi_E$.

3 Results

We use the subgame perfect Nash equilibrium (SPNE) solution concept to solve the family of the extensive form games depicted in Figure 1. Accordingly, we proceed by backward induction, characterising the decision of the player at the end of the game.

There are five types SPNE grouped in Propositions 1 - 5 next. Equilibria are written in the following form: (D's first action, E's action, D's second action). We present the results in terms of our key parameters of the game: the level of intra-party conflict x, the relative strength of the party elite y, the bonus for unity α and the cost of disunity μ. We recall the following restrictions on our key parameters: $0 < x < 1$, $0 < y < 1$, $\alpha > 1$ and $0 < \mu < 1$.

Before presenting the main results in Propositions, for the ease of exposition we first introduce Lemmas characterizing the best replies of the players in each node of the game.

Lemma 1. *Exit is D's best reply if and only if*
(a) $\mu\alpha < 1$; *or*
(b) $\mu\alpha > 1$ *and* $x < \frac{1-y}{\mu\alpha - y}$.

Proof. At the last decision node, D chooses *Exit* rather than *Stay* if $\pi_D + \pi_E x > \mu\pi x$. After dividing both sides of the last inequality by $\pi_E + \pi_D$, we can rewrite it in terms of x, y, α and μ as $1 - y + yx > \mu\alpha x$, which is rearranged into

$$(\mu\alpha - y)x < 1 - y \tag{3.1}$$

From (3.1) it follows that:
(A) if $\mu\alpha < y$ (such that, $\mu\alpha - y < 0$), then (3.1) holds for any values of $0 < x < 1$. Since $\alpha > 1$, it must be that $y > \mu$.
(B) if $y < \mu\alpha < 1$ (such that, $\mu\alpha - y > 0$ and $\mu\alpha - y < 1 - y$), then (3.1) holds for any $0 < x < 1$.
(C) if $\mu\alpha > 1$ (such that, $\mu\alpha - y > 0$ and $\mu\alpha - y > 1 - y$), then (3.1) holds if

$$x < \frac{1-y}{\mu\alpha - y} \tag{3.2}$$

□

Lemma 2. *Stay is D's best reply if and only if* $\mu\alpha > 1$ *and* $x > \frac{1-y}{\mu\alpha - y}$.

Proof. At the last decision node, D chooses *Stay* rather than *Exit* if $\mu\pi x > \pi_D + \pi_E x$. After dividing both sides of the last inequality by $\pi_E + \pi_D$, we rewrite and rearrange it as $(\mu\alpha - y)x > 1 - y$, which holds if

$$x > \frac{1-y}{\mu\alpha - y} \tag{3.3}$$

Since $x < 1$, (3.3) requires that $\mu\alpha > 1$. □

Lemma 3. *Accept is E's best reply if and only if*
(a) D has chosen Exit and $x > \frac{y}{\alpha-1+y}$*; or*
(b) D has chosen Stay and $x > \mu$*.*

Proof. (a) *Accept* is E's best reply, when D has chosen *Exit*, if $\pi x > \pi_E + \pi_D x$. After dividing both sides of the last inequality by $\pi_E + \pi_D$, we rewrite and rearrange it into $(\alpha - 1 + y)x > y$, which holds if

$$x > \frac{y}{\alpha - 1 + y} \tag{3.4}$$

(b) *Accept* is E's best reply, when D has chosen *Stay*, if $\pi x > \mu\pi$, that is, if $x > \mu$. □

Lemma 4. *Reject is E's best reply if and only if*
(a) D has chosen Exit and $x < \frac{y}{\alpha-1+y}$*; or*
(b) D has chosen Stay and $x < \mu$*.*

Proof. (a) *Reject* is E's best reply, when D has chosen *Exit*, if $\pi x < \pi_E + \pi_D x$. After dividing both sides of the last inequality by $\pi_E + \pi_D$, we rewrite and rearrange it into $(\alpha - 1 + y)x < y$, which holds if

$$x < \frac{y}{\alpha - 1 + y} \tag{3.5}$$

(b) *Reject* is E's best reply, when D has chosen *Stay*, if $\pi x < \mu\pi$, that is, if $x < \mu$.

□

Lemma 5. *Voice is D's best reply if and only if*
(a) The sequence of the play is (Accept, Exit) or (Accept, Stay); or
(b) The sequence of the play is (Reject, Exit) and $x < \frac{1-y}{\alpha-y}$*.*

Proof. (a) The proof is trivial, since $x < 1$ whenever E accepts D's demand, D gets the highest expected payoff, $\pi > \pi x$.
(b) Given the sequence of the play (*Reject*, *Exit*), *Voice* is D's best reply, if $\pi x <$

$\pi_D + \pi_E x$. After dividing both sides of the last inequality by $\pi_E + \pi_D$, we rewrite and rearrange it as $(\alpha - y)x < 1 - y$, which holds if

$$x < \frac{1-y}{\alpha - y} \tag{3.6}$$

□

Lemma 6. *Loyalty is D's best reply if and only if*
(a) The sequence of the play is (Reject, Exit) and $x > \frac{1-y}{\alpha-y}$*; or*
(b) The sequence of the play is (Reject, Stay).

Proof. (a) Given the sequence of the play (*Reject*, *Exit*), *Loyalty* is D's best reply, if $\pi x > \pi_D + \pi_E x$. After dividing both sides of the last inequality by $\pi_E + \pi_D$, we rewrite and rearrange it as $(\alpha - y)x > 1 - y$, which holds if

$$x > \frac{\alpha - y}{1-y} \tag{3.7}$$

(b) Given the sequence of the play (*Reject*, *Stay*), *Loyalty* is always D's best reply as $\pi x > \mu\pi x$ since $\mu < 1$. □

Having characterized the best replies of our players in each node of the game, we present next the SPNE in which the party elite adopts primaries. There are two such SPNE grouped in Propositions 1-2.

Proposition 1 (*Primaries with threat*)**.** *(Voice, Accept, Exit) is a SPNE if and only if:*

(i) $\mu\alpha < 1$ *and* $x > \frac{y}{\alpha-1+y}$*; or*

(ii) $\mu\alpha > 1$ *and* $\frac{y}{\alpha-1+y} < x < \frac{1-y}{\mu\alpha-y}$.

Proof. By Lemma 1, D's best reply is *Exit* iff (a) $\mu\alpha < 1$; or (b) $\mu\alpha > 1$ and $x < \frac{1-y}{\mu\alpha-y}$. By Lemma 3(a), E's best reply is *Accept* iff $x > \frac{y}{\alpha-1+y}$. By Lemma 5(a), D's best reply is *Voice*. □

Remark 1. Condition on $0 < y < \frac{\alpha-1}{\alpha(1+\mu)-2}$ *guarantees that* $\frac{y}{\alpha-1+y} < x < \frac{1-y}{\mu\alpha-y}$ *when* $\mu\alpha > 1$.

Proof. The proof follows from resolving the inequality $\frac{y}{\alpha-1+y} < \frac{1-y}{\mu\alpha-y}$, which is simplified and rearranged into

$$y(\alpha(1+\mu)-2) < \alpha - 1 \tag{3.8}$$

Since $\mu < 1$ and $\mu\alpha > 1$, it follows that $\alpha(1+\mu)-2 > 0$, and, as a result, (3.8) holds if $y < \frac{\alpha-1}{\alpha(1+\mu)-2}$. Observe that since $\mu < 1$, $\frac{\alpha-1}{\alpha(1+\mu)-2} > \frac{1}{2}$. □

Condition (i) corresponds to the case when the cost of party disunity is high, i.e. $\mu\pi < \pi_E + \pi_D$ (which is equivalent to $\mu\alpha < 1$), which means that there is a strong demand for unified parties. In this case, D always prefers to exit the party irrespective of the level of the intra-party conflict, x, as remaining within the party brings high loss in its expected utility. Concerning E, there exists a threshold of intra-party conflict x, when E is willing to adopt primaries in order to preserve the party unity and to hide the factional divisions within the party. Note that in this case primaries are adopted for all values of y, that is, whether the party elite is in the minority or majority does not matter for the elite to accept the demand of the dissenters. Condition (ii) describes the case when the cost of disunity ranges from intermediate to low values, i.e. $\mu\pi > \pi_E + \pi_D$ (or equivalently, $\mu\alpha > 1$), and there exists the threshold value of the level of x intra-party conflict when D is better off to exit the party, forcing E to accept primaries in order to avoid the party split.

We now turn to the cases when the party elite is willing to accept primaries even when there is no credible exit threat from the dissidents.

Proposition 2 (*Primaries no threat*)**.** *(Voice, Accept, Stay) is a SPNE if and only if* $\mu\alpha > 1$ *and* $x > max\{\mu, \frac{1-y}{\mu\alpha-y}\}$.

Proof. From Lemma 2 we know that D's best reply is *Stay* if $\mu\alpha > 1$ and $x > \frac{1-y}{\mu\alpha-y}$. From Lemma 3(b) we know that E's best reply is *Accept* if $x > \mu$. From Lemma 5(a) we know that D's best reply is *Voice.* □

Remark 2. (a) If $\alpha > \frac{1}{\mu^2}$*, then SPNE (Voice, Accept, Stay) exists if* $x > \mu$ *for* $0 < y < 1$.
(b) If $\frac{1}{\mu} < \alpha < \frac{1}{\mu^2}$*, then SPNE (Voice, Accept, Stay) exists if* $x > \mu$ *for* $\frac{1-\mu^2\alpha}{1-\mu} < y < 1$ *and* $x > \frac{1-y}{\mu\alpha - y}$ *for* $0 < y < \frac{1-\mu^2\alpha}{1-\mu}$.

Proof. To see this, observe that $x > max\{\mu, \frac{1-y}{\mu\alpha-y}\}$ leads to either (i) $\mu > \frac{1-y}{\mu\alpha-y}$ or (ii) $\mu < \frac{1-y}{\mu\alpha-y}$. After rearranging the inequality (i) we obtain

$$y(1-\mu) > 1 - \mu^2\alpha \tag{3.9}$$

From (3.9) it follows that:
(1) if $\alpha > \frac{1}{\mu^2}$ (such that, $1 - \mu^2\alpha < 0$), then (3.9) holds for any values of $0 < y < 1$. In this case, $x > \mu$ implies $x > \frac{1-y}{\mu\alpha-y}$, making $x > \frac{1-y}{\mu\alpha-y}$ insignificant. As a result, (*Voice*, *Accept Stay*) is a SPNE if $x > \mu$, proving (a).

(2) if $\frac{1}{\mu} < \alpha < \frac{1}{\mu^2}$ (such that, $1 - \mu^2\alpha > 0$), then for (3.9) to hold it must be that $y > \frac{1-\mu^2\alpha}{1-\mu}$. In this case, $x > \mu$ implies $x > \frac{1-y}{\mu\alpha-y}$, thus making $x > \frac{1-y}{\mu\alpha-y}$ insignificant. As a result, (*Voice*, *Accept*, *Stay*) is a SPNE if $x > \mu$.

The inequality (ii) is the opposite of (i) and, consequently, is true if $y < \frac{1-\mu^2\alpha}{1-\mu}$. As a result, $x > \frac{1-y}{\mu\alpha-y}$ implies $x > \mu$, thus making $x > \mu$ insignificant. Hence, (*Voice*, *Accept*, *Stay*) is a SPNE if $x > \frac{1-y}{\mu\alpha-y}$. This proves (b). □

The results of the Proposition 2 describe the case when the primaries are adopted when there is no exit threat from the dissidents. This case only exists when the unity bonus is sufficiently high, i.e. $\alpha > \frac{1}{\mu}$, the cost of disunity is sufficiently low, which is expressed in sufficiently high μ ($\mu > \frac{1}{\alpha}$ or, equivalently, $\mu\pi > \pi_E + \pi_D$), and a high cohesion towards the policy issues between the elite and the dissidents (x is sufficiently high, $x > \mu$). Observe that in this case the primaries are adopted for any value of y, that is, whether the party elite or dissenting faction controls the majority support is irrelevant for the adoption of primaries, as long as x is high enough.

We next characterize SPNE when the dissenting faction stays loyal to the party. There are two such SPNE described in the Propositions 3 and 4.

Proposition 3 (*Loyalty with threat*)**.** *(Loyalty, Reject, Exit) is a SPNE if and only if:*

(a) $\mu\alpha < 1$ *and* $\frac{1-y}{\alpha-y} < x < \frac{y}{\alpha-1+y}$*; or*

(b) $\mu\alpha > 1$ *and* $\frac{1-y}{\alpha-y} < x < min\{\frac{1-y}{\mu\alpha-y}, \frac{y}{\alpha-1+y}\}$.

Proof. By Lemma 1, D's best reply is *Exit* iff (a) $\mu\alpha < 1$; or (b) $\mu\alpha > 1$ and $x < \frac{1-y}{\mu\alpha-y}$. By Lemma 4(a), E's best reply is *Reject* iff $x < \frac{y}{\alpha-1+y}$. By Lemma 6(a), D's best reply is *Loyalty* iff $x > \frac{1-y}{\alpha-y}$. □

Remark 3. Condition on $y < \frac{1}{2}$ *guarantees that* $\frac{1-y}{\alpha-y} < x < \frac{y}{\alpha-1+y}$.

Proof. For $\frac{1-y}{\alpha-y} < x < \frac{y}{\alpha-1+y}$ to hold, $\frac{y}{\alpha-1+y} > \frac{1-y}{\alpha-y}$ must be satisfied, which happens if $y > \frac{1}{2}$. □

Remark 4. If $\mu\alpha > 1$*, then SPNE (Loyalty, Reject, Exit) exists if* $\frac{1-y}{\alpha-y} < x < \frac{1-y}{\mu\alpha-y}$ *for* $\frac{\alpha-1}{\alpha(1+\mu)-2} < y < 1$ *and* $\frac{1-y}{\alpha-y} < x < \frac{y}{\alpha-1+y}$ *for* $\frac{1}{2} < y < \frac{\alpha-1}{\alpha(1+\mu)-2}$.

Proof. Observe that condition $x < min\{\frac{1-y}{\mu\alpha-y}, \frac{y}{\alpha-1+y}\}$ implies either (i) $\frac{y}{\alpha-1+y} < \frac{1-y}{\mu\alpha-y}$ or (ii) $\frac{y}{\alpha-1+y} > \frac{1-y}{\mu\alpha-y}$. After rearranging the inequality (i) we obtain

$$y(\alpha(1+\mu)-2) < \alpha - 1 \tag{3.10}$$

Since $\alpha > 1$ and $\mu\alpha > 1$, then $\alpha(1+\mu) - 2 > 0$, hence (3.10) holds for $y < \frac{\alpha-1}{\alpha(1+\mu)-2}$. In this case, $x < \frac{y}{\alpha-1+y}$ implies $x < \frac{1-y}{\mu\alpha-y}$. Inequality (ii) is the opposite of (i) and since $\mu\alpha > 1$ is true for $y > \frac{\alpha-1}{\alpha(1+\mu)-2}$. In this case, $x < \frac{1-y}{\mu\alpha-y}$ implies $x < \frac{y}{\alpha-1+y}$. □

From the Proposition 3 it follows that the outcome of loyalty with threat only exists when the dissenting faction commands the minority support ($y > \frac{1}{2}$).

Proposition 4 (*Loyalty no threat*)**.** *(Loyalty, Reject, Stay) is a SPNE if and only if* $\mu\alpha > 1$ *and* $\frac{1-y}{\mu\alpha-y} < x < \mu$.

Proof. By Lemma 2, D's best reply is *Stay* iff $\mu\alpha > 1$ and $x > \frac{1-y}{\mu\alpha-y}$. By Lemma 4(b), E's best reply is *Reject* iff $x < \mu$. By Lemma 6(b), D's best reply is *Loyalty*. □

Remark 5. (a) If $\alpha > \frac{1}{\mu^2}$, then SPNE (Loyalty, Reject, Stay) exists if $\frac{1-y}{\mu\alpha-y} < x < \mu$ for $0 < y < 1$.
(b) If $\frac{1}{\mu} < \alpha < \frac{1}{\mu^2}$, then SPNE (Loyalty, Reject, Stay) exists if $\frac{1-y}{\mu\alpha-y} < x < \mu$ for $\frac{1-\mu^2\alpha}{1-\mu} < y < 1$.

Proof. For condition $\frac{1-y}{\mu\alpha-y} < x < \mu$ to hold, the inequality $\mu > \frac{1-y}{\mu\alpha-y}$ must be satisfied, which is rearranged into

$$y(1-\mu) > 1-\mu^2\alpha \tag{3.11}$$

From which it follows that if $\alpha > \frac{1}{\mu^2}$ (such that, $1-\mu^2\alpha < 0$), then (3.11) holds for any $0 < y < 1$, proving part (a).
If $\alpha < \frac{1}{\mu^2}$ (such that, $1-\mu^2\alpha > 0$) and since $\mu\alpha > 1$, then (3.11) holds if $y > \frac{1-\mu^2\alpha}{1-\mu}$. □

Proposition 4 shows us the case when the dissidents prefer to stay loyal to the party and there is no exit threat. Observe that this case requires the unity bonus, α, to be sufficiently high ($\alpha > \frac{1}{\mu}$) and the cost of disunity to be sufficiently low (which is expressed by high μ, where $\mu > \frac{1}{\alpha}$). Moreover, by Remark 5(a) when α is very high ($\alpha > \frac{1}{\mu^2}$), both factions remain in the party with D staying loyal for all values of y, that is, whether there is a majority support for E or D plays no role.

Proposition 5 (*Party split*)**.** *(Voice, Reject, Exit) is a SPNE if and only if $x < min\{\frac{1-y}{\alpha-y}, \frac{y}{\alpha-1+y}\}$.*

Proof. By Lemma 1, D's best reply is *Exit* iff (a) $\mu\alpha < 1$; or (b) $\mu\alpha > 1$ and $x < \frac{1-y}{\mu\alpha-y}$. By Lemma 4(a), E's best reply is *Reject* iff $x < \frac{y}{\alpha-1+y}$. By Lemma 5(b), D's best reply is *Voice* iff $x < \frac{1-y}{\alpha-y}$.
Observe that $x < \frac{1-y}{\alpha-y}$ implies $x < \frac{1-y}{\mu\alpha-y}$, since $\mu < 1$. Therefore, condition $x < \frac{1-y}{\mu\alpha-y}$ becomes insignificant. □

From the Proposition 5 it follows that the party splits if there is a high policy conflict between both factions (low x). Observe that the cost of disunity, μ, does not matter for the party to split.

Table 1 below summarizes the results of the Propositions 1 - 5. The table reads as follows: given the value of $0 < \mu < 1$, we choose the value of α, which can be either low, belonging to Case (1) $1 < \alpha < \frac{1}{\mu}$, or high, belonging to Case (2) $\alpha > \frac{1}{\mu}$. Conditions on μ and α translate into the necessary values of y and x to produce a certain SPNE.

<table>
<tr><th rowspan="3">Proposition</th><th colspan="6">Conditions on α given $0 < \mu < 1$</th></tr>
<tr><th colspan="2">Case (1) $1 < \alpha < \frac{1}{\mu}$</th><th colspan="4">Case (2) $\alpha > \frac{1}{\mu}$</th></tr>
<tr><th>Conditions on y</th><th>Conditions on x</th><th colspan="2">Conditions on y</th><th colspan="2">Conditions on x</th></tr>
<tr><td>P1: Primaries with threat</td><td>$0 < y < 1$</td><td>$\frac{y}{\alpha-1+y} < x < 1$</td><td colspan="2">$0 < y < \frac{\alpha-1}{\alpha(1+\mu)-2}$</td><td colspan="2">$\frac{y}{\alpha-1+y} < x < \frac{1-y}{\mu\alpha-y}$</td></tr>
<tr><td rowspan="2">P2: Primaries no threat</td><td colspan="2" rowspan="2">–</td><td colspan="2" rowspan="2">$0 < y < 1$</td><td>$\frac{1}{\mu} < \alpha < \frac{1}{\mu^2}$</td><td>$\alpha > \frac{1}{\mu^2}$</td></tr>
<tr><td>$max\{\mu, \frac{1-y}{\mu\alpha-y}\} < x < 1$</td><td>$\mu < x < 1$</td></tr>
<tr><td>P3: Loyalty with threat</td><td>$\frac{1}{2} < y < 1$</td><td>$\frac{1-y}{\alpha-y} < x < \frac{y}{\alpha-1+y}$</td><td colspan="2">$\frac{1}{2} < y < 1$</td><td colspan="2">$\frac{1-y}{\alpha-y} < x < min\{\frac{1-y}{\mu\alpha-y}, \frac{y}{\alpha-1+y}\}$</td></tr>
<tr><td rowspan="2">P4: Loyalty no threat</td><td colspan="2" rowspan="2">–</td><td>$\frac{1}{\mu} < \alpha < \frac{1}{\mu^2}$</td><td>$\alpha > \frac{1}{\mu^2}$</td><td colspan="2" rowspan="2">$\frac{1-y}{\mu\alpha-y} < x < \mu$</td></tr>
<tr><td>$\frac{1-\mu^2\alpha}{1-\mu} < y < 1$</td><td>$0 < y < 1$</td></tr>
<tr><td rowspan="2">P5: Party split</td><td>$0 < y < \frac{1}{2}$</td><td>$0 < x < \frac{y}{\alpha-1+y}$</td><td colspan="2">$0 < y < \frac{1}{2}$</td><td colspan="2">$0 < x < \frac{y}{\alpha-1+y}$</td></tr>
<tr><td>$\frac{1}{2} < y < 1$</td><td>$0 < x < \frac{1-y}{\alpha-y}$</td><td colspan="2">$\frac{1}{2} < y < 1$</td><td colspan="2">$0 < x < \frac{1-y}{\alpha-y}$</td></tr>
</table>

Table 1: SPNE conditions described in Propositions 1 - 5.

We next show graphically the results of the Propositions 1 - 5 resumed in Table 1. There are three graphs showing the regions in the space (x, y) depending on values of α: Figure 2 depicts the case when $1 < \alpha < \frac{1}{\mu}$; Figure 3 depicts the case when $\frac{1}{\mu} < \alpha < \frac{1}{\mu^2}$; and Figure 4 depicts the case when $\alpha > \frac{1}{\mu^2}$.

Let $f(y) = \frac{y}{\alpha - 1 + y}$ define E's decision curve between accepting or rejecting primaries under the credible exit threat of D. Observe that the derivative $\frac{df}{dy}$ is positive and the second-order derivative $\frac{d^2 f}{dy^2}$ is negative, therefore, $f(y)$ is increasing and concave. Let $g(y) = \frac{1-y}{\alpha - y}$ define D's decision curve between being loyal to party P or voicing demand for primaries. The derivative $\frac{dg}{dy}$ is negative as well as the second-order derivative $\frac{d^2 g}{dy^2}$, hence, $g(y)$ is decreasing and concave. Let $\phi(y) = \frac{1-y}{\mu\alpha - y}$ define D's decision curve between exiting or staying in the party P after failed attempt of voice. The derivative $\frac{d\phi}{dy} = \frac{1-\mu\alpha}{(\mu\alpha - y)^2}$ is positive if $\mu < \frac{1}{\alpha}$ and in this case the second-order derivative $\frac{d^2\phi}{dy^2}$ is also positive, therefore, $\phi(y)$ is increasing and convex. If $\mu > \frac{1}{\alpha}$, then the derivative $\frac{d\phi}{dy}$ is negative, as well as the second-order derivative $\frac{d^2\phi}{dy^2}$. Hence, $\phi(y)$ is decreasing and concave.

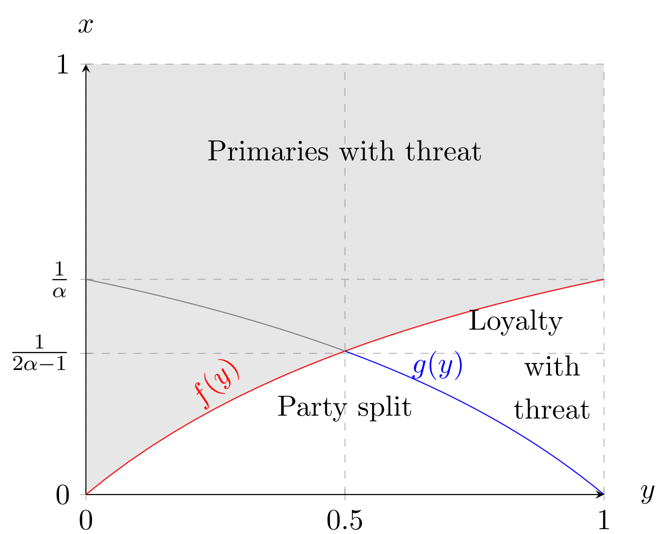

Figure 2: The SPNE when $1 < \alpha < \frac{1}{\mu}$. $f(y) = \frac{y}{\alpha - 1 + y}$, $g(y) = \frac{1-y}{\alpha - y}$.

From Figure 2, we can infer that the constraint on α ($1 < \alpha < \frac{1}{\mu}$) leads to the three possible outcomes of the game: either the party splits, the primaries are introduced, or the loyalty prevails. Observe that in this case the cost of disunity is high, captured by low level of μ ($\mu < \frac{1}{\alpha}$). Knowing this, D prefers to exit the party as remaining within the party after failed attempt to challenge brings high loss to D's expected utility. When

D commands a majority support ($y < \frac{1}{2}$), there are only two outcomes possible: the primaries or the party split. In this case, E finds itself in a weak position and is willing to accept primaries. Furthermore, high cost of disunity makes the demand for the unity stronger, therefore, the party elite accepts the primaries if x is high enough in order to conceal factional divisions within the party. When E commands the majority support ($y > \frac{1}{2}$), for low enough values of x the party splits. As long as x increases the loyalty of the dissenters to the party prevails. Interestingly, as long as x continues to increase, we observe the outcome when the primaries are introduced, despite the fact that now the party elite is in the majority. Although the elite is strong enough in terms of the mobilised votes, both factions are so much aligned in their policy preferences (expressed by high x), that for E to accept D's candidate may be as equivalent as to accept its own faction's candidate. This case is contrasting to the benchmark model of HM, as in their model the party elite only accepts primaries for the intermediate values of x and when it is in the minority ($y < \frac{1}{2}$).

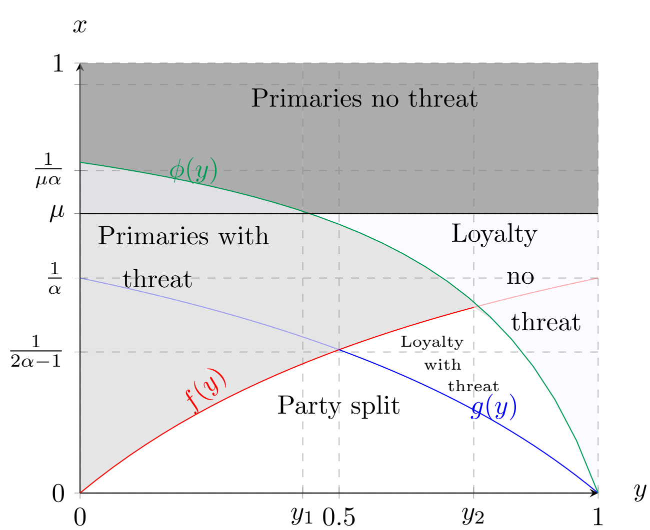

Figure 3: The SPNE when $\frac{1}{\mu} < \alpha < \frac{1}{\mu^2}$. $f(y) = \frac{y}{\alpha - 1 + y}$, $g(y) = \frac{1-y}{\alpha - y}$, $\phi(y) = \frac{1-y}{\mu\alpha - y}$, $y_1 = \frac{1-\mu^2\alpha}{1-\mu}$ and $y_2 = \frac{\alpha-1}{\alpha(1+\mu)-2}$.

The case when α is less constrained ($\frac{1}{\mu} < \alpha < \frac{1}{\mu^2}$) brings two additional SPNE:

Primaries with no threat and *Loyalty with no threat.* When D commands the majority support ($y < \frac{1}{2}$) and when this support is the strongest (y takes low values), the party can end up in two possible scenarios: either there is a party split, when there is a high intraparty conflict (low x), or primaries are introduced. In comparison to the case shown in Figure 2, now the primaries can be of two types: either with exit threat or with no exit threat. As long as the ideological proximity between both factions increases (x increases) and D maintains the majority support ($y < \frac{1}{2}$ and to be more precise $y < y_1$), the internal party dynamics passes through equilibria *Primaries with threat* to *Primaries no threat.* In the former case, the elite finds itself in a weak position and accepts primaries under the credible exit threat of the dissidents. In the latter case, the high ideological proximity makes E to accept primaries and consequently D's candidate.

Observing further Figure 3, when E has the majority support ($y > \frac{1}{2}$) and we are in the range of the values between y_1 and y_2, the party can find itself in five possible scenarios. For low values of x (namely, when $x < \frac{1}{2\alpha-1}$), there is a high intra-party conflict, so that both factions are better off running separately, leading to the party split. As long as x increases, the loyalty prevails and the party remains united. When x increases further, the elite adopts primaries under the credible exit threat of the dissidents. As long as the ideological cohesion between both factions is getting stronger (x continues to increase), there is no exit from the dissidents and either the loyalty prevails or for high enough x the primaries are adopted. High y together with high x points to the case when the party elite has a better winning chances than the dissidents, better representing the party members, thus, strengthening the ideological cohesion inside the party.

As long as the elite's strength increases and reaches its maximum (precisely, $y > y_2$ and is approaching to 1) the factions end up either splitting, which happens under high intra-party conflict (low values of x); loyalty prevails or primaries are introduced. Observe that as long as the ideological proximity between both factions increases (x increases), there is no more credible exit threat and the dissenters choose party loyalty. With x continuing to increase, the party ends up in the scenario of *Primaries no threat*, which happens for high values of x.

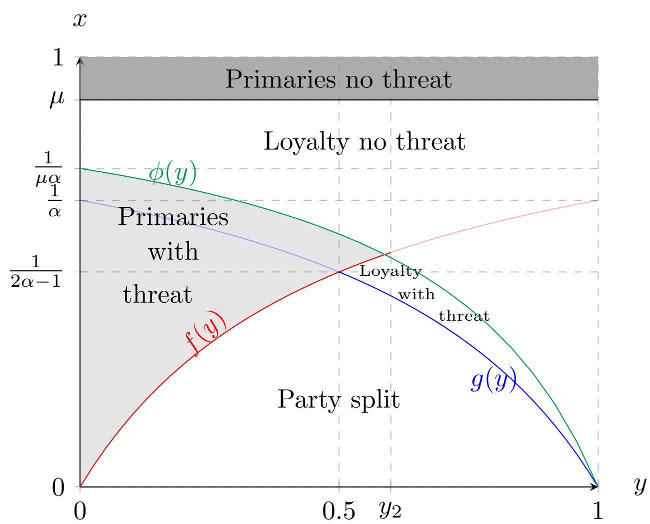

Figure 4: The SPNE when $\alpha > \frac{1}{\mu^2}$. $f(y) = \frac{y}{\alpha-1+y}$, $g(y) = \frac{1-y}{\alpha-y}$, $\phi(y) = \frac{1-y}{\mu\alpha-y}$, $y_2 = \frac{\alpha-1}{\alpha(1+\mu)-2}$.

Figure 4 shows us the case when there is no constraint on α ($\alpha > \frac{1}{\mu^2}$), and μ takes high values ($\mu > \frac{1}{\sqrt{\alpha}}$), that is, the cost of disunity is sufficiently low. Under this case the likelihood of both equilibia when primaries are adopted (*Primaries with threat* and *Primaries no threat*) decreases. This happens because now the elite is more inclined to reject the dissidents' demand, as this brings no cost. As long as μ is approaching to 1, that is, there is no cost of disunity, the likelihood of *Primaries with threat* decreases, while the likelihood of *Primaries no threat* almost disappears. This case is almost identical to the one of HM.

When D commands the majority support ($y < \frac{1}{2}$), four outcomes are possible. When there is a high intraparty conflict (low x), both factions prefer to run separately. As long as x increases, the party elite is willing to accept primaries in order to avoid the party split. With further increase in ideological proximity between both factions, the dissidents prefer party loyalty without any exit threat. Finally, for very high values of x, the party adopts primaries.

When E has the majority support ($y > \frac{1}{2}$), the party splits when x is low. As long as x increases, the dissidents choose loyalty. For high values of x, the primaries are adopted under no threat from the dissidents. As long as E gathers stronger support (y is increasing),there is no more threat from D: *Loyalty no threat* prevails. However, when x is very high, E still accepts primaries because there is no intraparty conflict between both factions and they are very close ideologically.

4 Conclusion

Democratizing candidate selection is getting common among many political parties all over the world. The reasons of why political elites are willing to concede their power in nominating candidates are not yet well understood. This paper sheds light on the reasons of why the party elites adopt primary elections by examining the intra-party factional dynamics.

Following the work of HV-M, we view a party as a coalition of factions, composed by a party elite and a dissenting faction. The strategic interplay between both factions is analysed. It is shown that the primaries are adopted in two cases. In the first case, there is a credible threat of the dissenting faction to split from the party, and as a consequence, the party elite finds itself in a weak position and is forced to adopt primaries in order to preserve the party unity and to hide from the public the party's internal divisions. In the second case, the party elite adopts primaries even when there is no threat from the dissenting faction to split. This case happens only when cohesion towards the policy issues between both factions is strong.

The major changes in the results compared to the benchmark model of HM are brought by the changed order of the moves of the players and the introduction of the variable capturing public perception towards party's internal (dis)unity. In the systems where there is a high demand for strong and united parties among voters (majoritarian electoral systems), the party elites are more willing to respond positively to the demands of the dissenters in order to prevent the factional disagreements from becoming publicly known. To be perceived less united as the opponent may be damaging for political parties. We have seen that in our case, when the cost of disunity is low (which captures high demand for party unity), the likelihood that the primaries are adopted becomes the highest. In contrast, in the proportional electoral systems (consensus democracies), intraparty disagreements may be viewed more positively, for example, they may be seen as solutions to coalition bargaining games or as moderating influences in building balanced governments. As long as the cost of disunity decreases and, consequently, the demand for party unity decreases, the need to conceal factional divisions becomes less necessary. In this case, the primaries are introduced when there is a high ideological cohesion within the party.

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