# Sorting of Candidates: Evidence from over 20,000 Czech Electoral Ballots*

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**Abstract**

Using over 20,000 Czech electoral ballots, we document that candidates in PR system are sorted on the ballot according to their valence and *intra* party value. Candidates of higher valence and those who possess *intra* party value, e.g. donors and party members are placed on better ballot positions and are more likely to be on electable positions. That is true despite the fact that candidates with *intra* party value tend to receive relatively fewer votes than their counterparts of the same characteristics at the same position on the ballot. The share of candidates with *intra* party value increases, as the party becomes more popular and expects more council seats. To provide an intuition for the observed results, we build a simple model in which a party leader trades candidates' valence and *intra* party value for ballot positions.

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# 1 Introduction

Politicians matter for economic outcomes and quality of lives. In many electoral systems, including the European Parliament[1], politicians are selected through elections with a strong gate-keeping power of political parties. Political parties thus substantially influence who becomes a politician. Importantly, political parties and party leaders are also believed to pursue their own goals, e.g. rewarding candidates' loyalty (e.g. Galasso and Nannicini, 2017) or defending their leadership position within the party (e.g. Besley et al., 2017). These motives of political selection may be in conflict with the public interest of electing high valence candidates. On the one hand, political parties improve political selection by partially overcoming information asymmetry between candidates and voters (e.g. Caillaud and Tirole, 2008), on the other hand, parties create a principal-agent problem, in which voters cannot control the pre-selection process of candidates.

Studying proportional representation (henceforth PR) electoral system[2], in which ballot rank is highly informative about electoral success of candidates, we document that candidates on the ballot are systematically sorted according to their valence and *intra* party value. Using data from over 20,000 electoral ballots from Czech municipal elections, we establish four observations. First, high valence candidates are placed on better ranked positions than low valence candidates. Second, candidates with *intra* party value (measured by membership status and political donations) are ranked better. Similarly, donors and members are also more likely to be placed on electable seats. Third, candidates with *intra* party value deliver significantly fewer votes than their counterparts. Fourth, a positive party popularity shock leads to a weak increase in the share of high valence candidates and a sizeable increase in

[1]The power of political parties over electoral results in the European Parliament elections varies from country to country.

[2]PR systems usually entail multiple representatives being elected and mandates are allocated proportionally or close to proportionally to party vote shares.

the share of candidates with high *intra* party value.

To provide intuition for the observations, we build a simple model. A party leader who is responsible for selecting and ranking candidates on a ballot values: (i) affiliated candidates that provide scarce resources for the party (*intra* party value of candidates) and; (ii) candidates' valence, because it attracts swing (quality sensitive) voters. In an environment with strong gate-keeping power of a party, the party leader trades ballot ranks which embody probabilities of winning seats for candidates' valence and *intra* party value. A candidate is either of high or low valence which entail different opportunity costs of running in the election. Furthermore, he decides on costly *intra* party value which means that he decides whether to become a member of the party and whether to donate money. Candidates accept party offer of a ballot rank if it satisfies their participation constraints. As a result, candidates that are more valuable for the party are rewarded by better rank. Additionally, stronger parties can attract more valuable candidates, both in terms of valence and *intra* party value, as they can offer more positions with high probabilities of winning.

We contribute to the existing literature by revising the candidate selection problem. Previous literature on the role of political parties in the selection of candidates typically features one of two following situations: (i) a party chooses which candidate to nominate in which (one-candidate) district (e.g. Galasso and Nannicini, 2011); or (ii) a party chooses the shares of high-valence (experts) and loyal candidates on the ballot where the two are mutually exclusive, ignoring the ballot ranking (Galasso and Nannicini, 2017; Besley et al., 2017). Additionally, candidates are usually considered passive players who cannot reject party's offer. Our approach differs from previous literature in three aspects. First, parties not only control the selection of candidates, but also their ranks on a ballot, i.e. probability of win-

ing a seat[3]. We demonstrate that the sorting of candidates on ballots is statistically and economically important[4]. Second, we use a rather general concept of *intra* party value of candidates and consider it to be the candidates' control variable. This brings the possibility of low valence candidates being well ranked and likely elected due to their *intra* party value despite their weaker electoral performance. Third, when building intuition for our results, we explicitly consider candidates' participation constraints[5] that appear as constraints in the party leader's optimization problem. By considering candidates' participation constraints, we incorporate the supply side of candidates that the party leader faces and has to take into account.

More broadly, this paper builds on literature that places political parties at the center stage of the process of selecting candidates. Scholars have proposed different reasons for why political parties may not strictly prefer high valence candidates. In Besley et al. (2017) party leader balances the potential threat of being overthrown by high quality party members against voters' preference for competent candidates. Mattozzi and Merlo (2015) present a model in which having a strong candidate may discourage other candidates, therefore, it may be optimal to recruit only mediocre candidates. Alternatively, Galasso and Nannicini (2011) and Galasso and Nannicini (2017) proposed that leaders may prefer loyal candidates who in their model cannot be of a high valence.

Only a few papers analyze the ranking of candidates on the ballot. Galasso and Nannicini

[3]To the best of our knowledge, the only other econonomics study devoted to candidates' ranking on the ballot is manuscript by Folke and Rickne (2017), who provide robust evidence that in the PR system (similar to ours), candidates are ranked according to their quality in descending order.

[4]Neglecting the ballot rank in theoretical models and assuming a constant share of high-valence candidates may lead, especially in closed-list electoral systems, to misleading conclusions about average quality of elected politicians.

[5]Considering participation constraints of candidates is standard in models of political selection with the focus on self-selection decisions of candidates. See Dal Bó and Finan (2018) for overview.

(2015) study a framework that is similar to ours. A party leader in the PR system selects and ranks loyal and expert candidates on the ballot. The authors show that safe positions are occupied by party officials and incumbent members of the parliament. They argue that this is because the voters are rational and care about all relevant seats as opposed to just the ones at the top, the party leader can thus place loyal candidates at the top and experts that attract voters to uncertain seats. On the contrary, Folke and Rickne (2017) show, using Swedish administrative data, that candidates are ranked according to their quality in descending order. The authors thus reject the hypothesis that strong candidates (those who are likely to attract voters) are placed on marginal ranks.[6] We address the apparent controversy between these two papers by dropping the assumption of high quality and loyalty of candidates being mutually exclusive.

The Czech Republic is a convenient case study for its availability of data, large number of municipalities, legal option to make political donations and duty to declare them, and the presence of the PR system in which independent candidates (non members) are allowed to run on party ballots.[7] However, we believe our results are generalizable to many national elections and the European Parliament election.

In Section 2, we introduce the Czech institutional background and the data that we use. We follow in Section 3 by empirically analyzing the ballot structure, providing some descriptive evidence and results from three empirical exercises. In Section 4, we build a simple

[6] Although it is not the focus of this study, we do see some evidence supporting marginal ranks hypothesis. For example, Figure 6 shows a peak in relative votes around one fifth of the ballot. Additionally, most of the candidates elected due to their preferential votes were elected from close-to-marginal positions. Specifically, one third of the candidates who jumped up due to preferential votes were only one position below the threshold of getting elected given the original ranking.

[7] There are other recent studies (e.g. Jurajda and Münich, 2015, Palguta and Pertold, 2018, Palguta, 2015, Kuliomina, 2016 and Titl and Geys, 2019) that used the advantage of empirically convenient environment of municipal and/or regional election in the Czech Republic.

model and form the intuition for our empirical findings. Section 5 follows with a discussion of the results and Section 6 concludes.

# 2 Institutional Background

In the Czech Republic, the public administration is organized in three levels: central, regional, and municipal. There are more than 6,000 municipalities, and each has its own council and representation that is elected every four years in municipal elections. The number of seats in municipal council depends on the number of citizens in the given municipality and varies from 5 in the smallest municipalities to 70 in the capital of Prague. The number of residents in municipalities varies with the average around 1,600 inhabitants. Municipalities are responsible for delivering public goods such as schooling, child care, and waste management. Czech municipal elections are characterized by a large number of candidates and parties. In every municipal election, there are around 200,000 candidates and roughly one third of them win a council seat. Half of the candidates run on a ballot of a local branch of one of the national parties, while the other half on a ballot of one of the purely local parties[8]. Local branches of national parties, the focus of this study, are more professionally organized, whereas local parties, majority of which are active only in one municipality, often lack structural internal organization.

Municipal elections in the Czech Republic are classified as open list elections which means that parties rank candidates on the ballots but voters are allowed to cast preferential votes to their desired candidates. Every voter has as many votes as there are seats to allocate. Voters can follow one of the three following voting strategies. First, they can cast all their votes to one party. Second, they can distribute votes preferentially to different candidates

[8]The exact shares of candidates running on ballots of national parties varies election by election and depends on classification of national parties and election coalitions of parties.

regardless of the ballot they are listed at. Third, they can combine the two approaches, i.e. some of their votes can be allocated directly to preferable candidates and the remaining votes to a party. Nobody can give more than one vote to any of the candidates. The allocation of seats to parties is determined using the D'Hondt method based on all the votes that the party received, including those allocated to individual candidates as preferential votes.[9] If a candidate receives at least 110% votes of the party average per candidate, then he automatically jumps up to the top of the ballot. Over the past five municipal elections 15% of seats were assigned to candidates who received enough preferential votes to jump higher up the rank and would not receive the seat otherwise. The number is not insignificant, but it is clear that the initial party ranking shapes the final electoral outcome substantially, as the remaining 85% of seats were assigned to the candidates at the top of the ballot - i.e. those pre-selected by the party. This system thus allows well ranked candidates to be elected despite having fewer votes than their party mates. The number of candidates on the ballot of a party is limited to at most the number of seats in the municipal council.

The available data consists of a universe of individual candidates from all elections since 1998 through to 2018. We observe candidates' names, age, academic degrees, place of residence, occupation, political membership, party they run for, position on the ballot, the number of votes each candidate received, and elected status.[10] The candidates do not have individual unique identifiers, so instead, we match them across different types of elections (municipal, regional, parliamentary) using their individual characteristics.[11] The initial dataset consists of 735,393 unique individuals who have run in at least one of the elections since 1998. We

[9]Note that there is also a threshold share of all valid votes that the party has to exceed, otherwise it is not assigned any mandates. The default threshold is 5% and it can be lower for parties that have fewer candidates than there are council seats in the municipality.

[10]Occupation and place of residence are self-reported.

[11]It is more complicated to match female candidates, as they may change their surname after marriage. We do robustness checks by matching females using all the usual characteristics except for surname and none of the analysis changes.

restrict the dataset to candidates that have run in at least one municipal election for one of the six main parties that operate nationally (KDUCSL, CSSD, KSCM, ODS, TOP09, ANO)[12] in one of the last 5 municipal elections (2002, 2006, 2010, 2014, and 2018)[13].

We use two measures of the *intra* party value: (i) membership status; and (ii) political donations. Candidates in any election can be nominated by a party and run on the party's ballot while not being formal members of the party. On the voting ballot, those candidates are labelled as "without political affiliation". Candidates who are members of any political party have the name of the party listed instead. Being a member of a political party is not only a signal of loyalty but is often connected with certain costs. At the very least, all members usually have to pay a membership fee. Furthermore, they can take on other duties and work for the party, they may provide voluntary labor and help with fundraising, organization, and campaign activities.

The Czech legal system allows both individuals and firms to make donations to political parties. A complete list of political donors, including additional individual information has to be published by the parties once a year. We collect the data on donations made by both individuals and firms between 1995[14] and 2018 and match it with a dataset of all candidates in all elections since 2002. This allows us to identify those who donate money to the party they run for and classify them as candidates-donors.[15]

[12]Note that TOP09 only participated in the last three elections and ANO in the last two elections.

[13]We do not consider candidates that run on a joint ballot for two or more parties in coalition, as we do not observe which party nominated which candidate.

[14]Prior to 1999, parties did not have to publish donations below 100,000 CZK.

[15]We link firms' donation to firms' owners, executive directors or board members.

# 3 Empirical Evidence

## 3.1 Ballot Structure

The order of candidates on the ballot is determined by many aspects including characteristics of candidates (e.g. political experience and ability), internal party organization (who bears the responsibility for ballot formation), municipality and voter characteristics, and political competition. We explore the role of candidates' valence and their *intra* party value and document that they both play a major role in explaining the observed ranking of candidates on ballots. Intuitively, valence represents the public value of candidates, i.e. it is the characteristic that the voters care about, while *intra* party value is any characteristic that the party itself appreciates. To ensure comparability across elections and ballots with different numbers of candidates, we: (i) further restrict the dataset to candidates running on full ballots (those with the maximum possible number of candidates listed)[16]; (ii) condition on other characteristics, e.g. political experience, age, and nominating party; (iii) normalize the rank so it falls into [0,1] interval. In this subsection, we denote this conditional normalized measure *rank*[17]. Table 6 in Appendix A summarizes the final numbers of candidates running for different national parties.

Measuring the valence of politicians is a difficult task. There is little consensus among the general public and researchers on what characteristics qualify politicians as high valence and even less so when restricting the discussion to measurable and available characteristics. Admitting all flaws of such a measure, we adopt a specification commonly used in the literature and treat candidates as of high valence if they have obtained at least a college degree and as low valence otherwise. Folke and Rickne (2017) show on Swedish data that

[16]Maximum possible number of candidates on a ballot equals to the number of council seats in a municipality.

[17]For more details about *rank*, see Appendix A

education is correlated with other (likely better) measures of valence such as leadership and cognitive scores and income which arguably makes it a useful and relevant measure in the Czech context as well. Additionally, in one of the empirical exercises we measure candidates' public value by the relative share of votes they received. The next section displays the ballot structure for: (i) membership; and (ii) political donations as measures of *intra* party value of candidates.

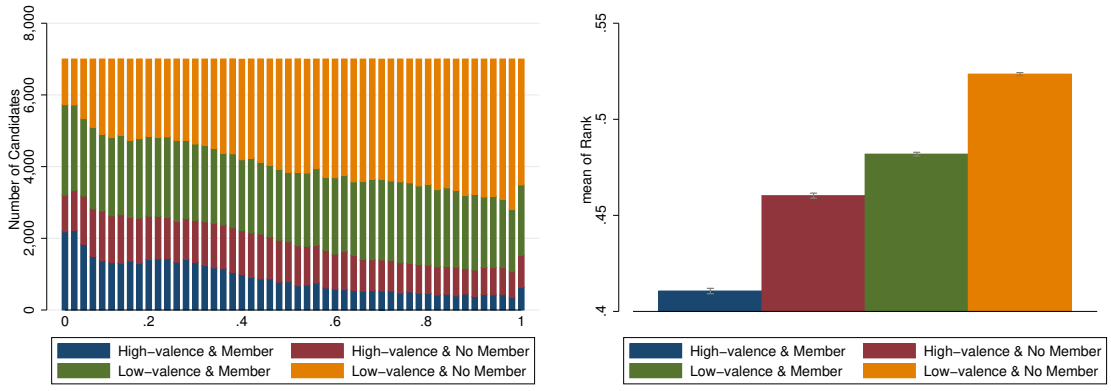
### 3.1.1 Members

The share of candidates in municipal elections who are recorded as members of their nominating party is typically between 30 % and 50 %, but differs across parties and over time (see Table 7 in Appendix A). We classify candidates into four groups: (i) high valence members (HM); (ii) high valence non members (HN); (iii) low valence members; and (iv) low valence non members. The average ballot in our study consists of 10% of high valence members; 14.5% of high valence non members; 28.5% of low valence members; and 47% of low valence non members.

Figure 1a shows the structure of ballots. Each bar represents 2% of candidates ordered according to their *rank* and shows the shares of the four groups of candidates in that rank. The x-axis shows the ballot position that goes from 0 on the left (best positions) to 1 on the right (worst positions). For example, the first bar implies that the share of high valence members in the 2% of the best ranked candidates is around 31%, while low valence non members make up only 18%. As we go from the top positions to the tail of the ballot, high valence candidates (sum of HM and HN) are gradually replaced by low valence candidates (sum of LM and LN). The same is apparent for members (HM and LM) who are over represented among the better ranked positions. Figure 1b summarizes average rank and confidence intervals of the four groups. Observation 1 summarizes the pattern. Appendix

A presents two robustness exercises that confirm the sorting pattern among candidates with no previous political experience and for candidates running on specific ballots that list at least one candidate of each type.

Interestingly, the tail of the ballot shows a peak of high valence members. There are two possible explanations for that. First, some of the popular politicians from national parliament, local celebrities or respected residents with no interest in being elected in municipal elections are voluntarily placed at the bottom in order to attract voters' attention to the party. If elected, they often refuse the council seat, as their main motivation for running is not getting elected but rather supporting the party. Second, voters may pay more attention to the candidates at the bottom of the ballot rather than around the middle of the list. Some candidates may, therefore, consider the bottom position more visible and thus more likely to attract preferential votes. As we discuss in Appendix A, the bottom positions also differ in political experience of candidates and their share of votes.




(a) Ballot Rank (Members)

(b) Average Rank by Groups (Members)

**Observation 1** (Structure of Ballot - Members)**.** *Members are systematically sorted on the ballot. In terms of average rank, the groups are ranked as follows: (i) high valence members*

*at the top; followed by (ii) high valence non members; (iii) low valence members; and (iv) low valence non members at the bottom of the ballot.*

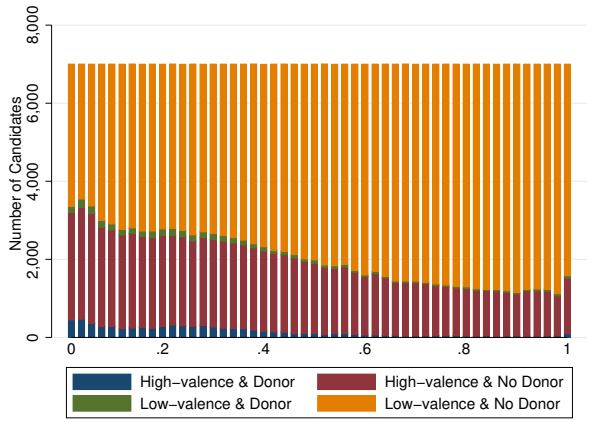
### 3.1.2 Donors

Using political donations of candidates as an alternative measure of *intra* party value, Figure 2a documents a similar sorting pattern. We classify a candidate as a donor if he is listed as a donor by the party he runs for in the same political cycle.[18] The average ballot in our study consists of 1.6% of high valence donors; 22.9% of high valence non donors; 1.2% of low valence donors; and 74.4% of low valence non donors. Note that there are dramatically fewer donors than there are members. We interpret that as a consequences of donations being a more costly form of *intra* party value for candidates compared to an active membership status. We discuss the difference in more detail in Section 4.

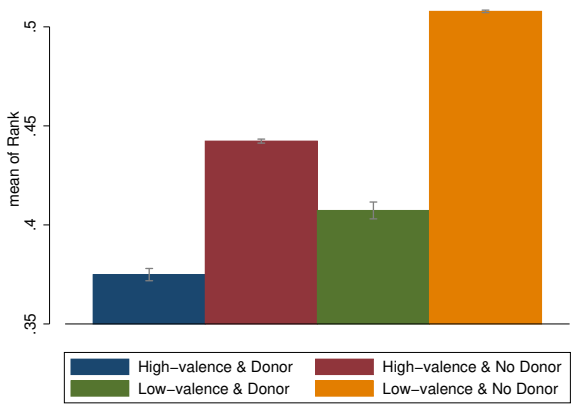
The main sorting pattern persists with one exception. While donors are over represented at the best ranked positions and under represented at the worst ranked positions, as expected, low valence donors are ranked better than high valence non donors on average. This is captured by Figure 2b. Using alternative, arguably more costly, measure of *intra* party value leads to a switch between the two groups. Similarly to Figure 1a we observe a spike in valence and donations at the bottom of the ballot. Observation 2 summarizes ballot sorting for donors. The same exercise for parliamentary elections, presented in Appendix A, confirmed the same sorting pattern.

**Observation 2** (Structure of Ballot - Donors)**.** *Donors are systematically sorted on the ballot. In terms of average rank, the groups are ranked as follows: (i) high valence donors; (ii) low valence donors; (iii) high valence non donors; (iv) low valence non non donors. This*

[18] We define political cycle a year before municipal elections, the year of elections and one year after. The results are robust to different specification of the time window.




(a) Ballot Structure (Donors)




(b) Average Rank by Groups (Donors)

*holds for both municipal and parliamentary elections.*

## 3.2 *Intra* Party Value of Candidates

We next provide regression evidence from an individual fixed effect model to document that becoming a member or a donor is associated with better ranked positions. The data are organized in a panel with individual candidate being the unit of observation. We exploit time variation in individual candidates' membership and donation status. Formally, we run the following regression:

$$y_{i\tau} = \alpha_i + \delta_\tau + \eta_p + \zeta_{p\tau} + \gamma_1 Membership_{i\tau} + \gamma_2 Donation\ Dummy_{i\tau} + \gamma_3 Donation\ Size_{i\tau} + \beta X_{i\tau} + \epsilon_{i\tau}, \quad (1)$$

where $y_{i\tau}$ stands for $Unconditional\,Rank_{i\tau}$ which is the unconditional ballot position of individual candidate $i$ at time $\tau$, normalized to be between 0 and 1[19], or $Electable\,Position_{i\tau}$ indicator that equals to 1 if candidate's position would win a seat if the party received as many seats as it did in the previous election; and 0 otherwise. Additionally, $\alpha_i$, $\delta_\tau$, $\eta_p$, and $\zeta_{p\tau}$ stand

[19]We use the transformation Rank = (Ballot position-1)/(Total number of candidates-1), so that the first position on the ballot always has rank 0 and the last position rank 1.

for individual, time, party, and party-time fixed effects, respectively. $Donation\ Dummy_{i\tau}$ indicates whether candidate $i$ made a donation in political cycle $\tau$, whereas $Donation\ Size_{i\tau}$ is the amount donated (measured in millions of CZK). We assign a particular donation to political cycle $\tau$ if it was made the year previous to the elections, the year of the elections or a year after. Vector $X_{i\tau}$ captures fixed effect for the age of the candidate and his previous political experience from municipal, regional, parliamentary, and senate elections. We remove the candidates who simultaneously run for other offices during the political cycle $\tau$, because in their case their donation could be related to different elections.

Table 1: Individual fixed effects

| | (1) Unconditional Rank | (2) Unconditional Rank | (3) Electable Position | (4) Electable Position |
|---|---|---|---|---|
| Donation Dummy | -0.056*** | -0.057*** | 0.103*** | 0.101*** |
| | (0.004) | (0.004) | (0.008) | (0.008) |
| Donation Size (in millions CZK) | -0.011* | -0.011* | 0.055*** | 0.050*** |
| | (0.006) | (0.006) | (0.018) | (0.018) |
| Membership | -0.107*** | -0.106*** | 0.076*** | 0.077*** |
| | (0.003) | (0.004) | (0.005) | (0.006) |
| Age FE | Yes | Yes | Yes | Yes |
| Political experience FE | Yes | Yes | Yes | Yes |
| Party and year FE | Yes | Yes | Yes | Yes |
| Gender | All | Men | All | Men |
| N | 345,701 | 236,059 | 345,701 | 236,059 |

Standard errors in parentheses
Party and year fixed effects include their interactions.
Previous political experience includes running and getting a mandate in municipal elections, regional elections, parliamentary elections and senate.
* $p < .10$, ** $p < .05$, *** $p < .01$

The first two models of Table 1 show that donations and membership are associated with

better positions (with lower rank). Models (3) a (4) show that membership and donations are associates with higher probability of being placed at the electable positions. All four specifications control for all time invariant individual characteristics, such as motivation, ability or local popularity. We cannot, however, rule out that the results are driven by some time varying characteristics such as an increased interest in a political career, which would place the candidate at better positions on the ballot and at the same time increase his likelihood of becoming a member and donor.

Models (1) and (2) show that the coefficient on *Donation Dummy* is negative and significant and suggest that the act of donating money to the party is associated with jumping 5.6 percentage points up the ballot. On a ballot of a median length, i.e. 21 candidates, this effect means roughly moving 1 position upward. Similarly, becoming a member of the party is associated with a 10.7 percentage point shift up the ballot which corresponds to a shift of a little over 2 places upward on a ballot with 21 candidates. The coefficient *Donation Size*, though significant and negative as expected, is of a very low magnitude[20]. Donating 1 million CZK (approx. 40,000 EUR) to the party is associated with a shift of only 6.7 percentage points up relative to not donating anything at all.

Models (3) and (4) show the same results for *Electable Position*. Becoming a member seems to be associated with a 7.6 percentage points higher likelihood of being listed on one of the electable positions. Donating money to the party increases the likelihood by 10.3 percentage points and donating 1 million CZK is associated with 15.8 percentage points higher likelihood of getting an electable position compared to not donating any money. The results for both *Unconditional Rank* and *Electable Position* show the same story. The coef-

[20]The reason is, we suspect, that the coefficient estimates an intensive margin of the treatment effect on a group of candidates who would be more likely to be placed on better positions even without the treatment

ficients on *Electable Position* are slightly higher. Intuitively, it may be because they capture the relationship between *intra* party value and the outcome of direct interest of candidates, i.e. whether they are placed on an electable position or not. Since we are more confident about correctly matching male candidates across different elections, we estimate the effect on only male candidates in Models (2) and (4). The coefficients remain very stable in both specifications.

**Observation 3** (Individual Benefits)**.** *Becoming a member and/or a donor is associated with a shift towards better ranked positions and higher probability of being placed among the electable positions.*

## 3.3 Electoral Performance of Candidates

We next document that candidates with high *intra* party value receive fewer votes in elections. Let us define $RelativeVotes_i$ as the ratio of votes a candidate $i$ received and the party's average number of votes per candidate. The ideal source of variation to study electoral performance of candidates would be voters' preferential voting. Unfortunately, preferential votes are not observable directly and they are also not straightforward to impute, since the electoral rules: (i) mechanically skew the distribution of votes in favour of top ranked candidates; and (ii) may lead to strategic voting[21]. In the following exercises, we use $Relative\ Votes_i$ as the variable of interest and controlling for all observable characteristics, including ballot positions, political experience, or education, we quantify the effect of being a donor or a member on relative candidate's performance.

Columns (1) and (3) of Table 2 show that donors and members receive more votes than their counterparts, but once we control for candidate and ballot characteristics, the sign reverses;

[21]Simply, voters may not want to give a vote to a preferable candidate if they view it as a wasted vote, e.g. he is unlikely to receive enough votes to be elected or he will to be surely elected.

Table 2: Under-performance of *Intra* Party Valued Candidates - Matching

| | (1) Relative Votes | (2) Relative Votes | (3) Relative Votes | (4) Relative Votes |
|---|---|---|---|---|
| Unmatched | 0.180*** | -0.011* | 0.030*** | 0.001 |
| | (0.003) | (0.006) | (0.001) | (0.003) |
| ATT | -0.072*** | -0.111*** | -0.060*** | -0.146*** |
| | (0.005) | (0.009) | (0.002) | (0.007) |
| Constant | 0.994*** | 1.274*** | 0.987*** | 1.273*** |
| | (0.001) | (0.002) | (0.001) | (0.003) |
| N | 348962 | 53190 | 349504 | 53108 |
| Treatment | DonationD | DonationD | Membership | Membership |

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

they, in fact, receive fewer votes conditional on the ballot position. Specifically, the first row shows the unconditional comparison of means of $Relative\,Votes$ between donors and non donors and members and non members; each for two different specifications: (i) the whole ballot - Columns (1) and (3); and (ii) electable positions - Columns (2) and (4). Apart from Column (2), donors and members receive more votes in all other specifications. For example, the first column implies that donors received by 18 percentage points more votes than non donors on average. This, however, is likely to be caused by donors being placed on better ranked positions and having richer political experience. Once we match on observables[22], the effect changes sign. The second row (ATT) shows the opposite story. Donors and members receive fewer votes by 7 and 6 percentage points respectively. The effect is even stronger for candidates placed on electable positions.

[22]Using p-score, calculated as probit using flexible functions of unconditional rank, political experience, degree, and fixed effects for political cycle and party.

Table 3: Under-Performance of *Intra* Party Valued Candidates - OLS

| | (1)<br>Relative Votes | (2)<br>Relative Votes |
|---|---|---|
| Membership | -0.046*** | -0.113*** |
| | (0.001) | (0.003) |
| Donation Dummy | -0.078*** | -0.088*** |
| | (0.003) | (0.005) |
| Degree | 0.074*** | 0.035*** |
| | (0.001) | (0.003) |
| Unconditional Rank | Yes | Yes |
| N | 349558 | 53252 |
| Sample | Whole Ballot | Electable Positions |

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

$$Relative\,Votes_i = \sum_{k=0}^{5} \theta_k Unconditional\ Rank_i^k + \omega Donation\ Dummy_i + \zeta Membership_i + \delta X_i + \varepsilon_i \quad (2)$$

We next run pooled OLS specified in Equation 2, where the vector $X_i$ represents gender, flexible functions of previous political experience, age of candidates, party-year fixed effects, and three dummies: (i) for the last position on a ballot; (ii) interaction of the last position and donor dummy; and (iii) interaction of the last position and membership. Controlling for all candidate characteristics available, Table 3 shows that both membership and donations are associated with lower performance of candidates. Specifically, given a particular position and the same observable characteristics, a donor receives on average fewer votes than a non donor.

As it is unlikely that membership or donations would have a direct negative effect on candidate's performance[23], the results suggest that donors and members are more likely to be worse in terms of some unobservables. It can be either in terms of individual quality of candidates which is, however, observable to voters who value them less, or donors and members may be less motivated and put in less effort during the electoral campaign. Regardless the channel, from the party leader's perspective it is noteworthy that candidates with *intra* party value under-perform and deliver fewer votes than their counterparts.

**Observation 4** (Candidates' Performance)**.** *Candidates with high intra party value receive fewer votes conditional on rank and other characteristics.*

## 3.4 Strength of Parties

In this section we explore how party's strength shapes the ballot structure. To measure the strength of a party, we make use of a convenient timing of different elections. Prior to any municipal election, parliamentary election takes place. While in the earlier election cycles the gaps between parliamentary and municipal election were about 4 months, in the last two election cycles the gap increased to a year. Figure 3 shows the sequence. We use the party's share of votes in the parliamentary election in the given municipality as a measure of local popularity which approximates the expected electoral success of the same party in the following municipal election.

While in the municipal elections a party $p$ forms a unique ballot for each municipality $j$, in the parliamentary election there is a unique ballot at a regional $\tilde{j}$ level. Each municipality

[23] Although membership status is observable to voters, there is no evidence that membership status would enter voter's preferences and affect their behaviour, especially when taking into account that we are only considering votes given to non members vs members of the party on whose ballot they both run. More convincingly, the list of political donations is published only during the year after the election, so donations are rarely known at the time of the election and are definitely not diplayed on the ballot.

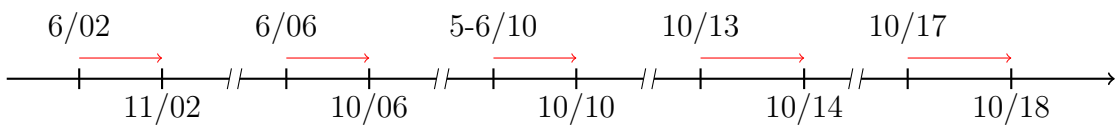



Figure 3: Sequence of Elections

$j$ belongs to one of 14 regions[24] $\tilde{j}$. Therefore, the personal intersection of municipal and parliamentary ballots is very limited. For both types of the elections, we observe the shares of the votes cast in the municipality. In this specification, we control for time-party and municipality-party fixed effects, and the identification is thus based on the time variation in local political preferences that is orthogonal to changes in national political preferences and to long-term geographical variation in political preferences. For example, a local perception of national or regional policy promoted by a given political party generates such variation[25]. Furthermore, we control for time-varying ballot structure at the regional level, so any within party organizational changes in ballot formation are filtered out.

### 3.4.1 Membership

We first explore membership status. Formally, for each group $g$: (i) high valence member (HM); (ii) high valence non member (HN); (iii) low valence member (LM); (iv) and low valence non member (LN) we run the following regression separately:

$$Share^{g}_{pj\tau} = \alpha^{g} + \beta^{g} PE\ ShareVotes_{pj\tau} + \sum_{k \in \{HM,HN,LM\}} \delta^{k} PE\ Share^{k}_{p\tilde{j}\tau} + \gamma^{g}_{pj} + \gamma^{g}_{p\tau} + \epsilon^{g}_{pj\tau} \tag{3}$$

[24]Prague is counted as one of the regions.

[25]National policy promoted by a given political party may affect different municipalities differently depending on their local demographic and economic conditions.

where $p$ denotes political party, $j$ municipality, and $\tau$ is a political cycle. $PE\,ShareVotes_{pj\tau}$ is the share of votes that a party $p$ received in municipality $j$ in the parliamentary elections during a political cycle $\tau$, and finally $PE\,Share^{k}_{p\tilde{j}\tau}$ captures the share of candidates of group $k \in \{HM, HN, LM\}$ on the ballot of party $p$ in the parliamentary elections in the electoral region $\tilde{j}$ and political cycle $\tau$. We include these terms in order to control for the effect of the quality of the ballot in the particular region - i.e. to control for the possibility that a party receives more votes in a given municipality not because it gained more popularity but because it formed a particularly good ballot in the parliamentary elections.

Table 4: Changes in party popularity and shares of members

| | (1) Share of HM | (2) Share of HN | (3) Share of LM | (4) Share of LN |
|---|---|---|---|---|
| PE Share Votes | 0.080*** | -0.033 | 0.352*** | -0.400*** |
| | (4.76) | (-1.35) | (10.75) | (-11.10) |
| PE Share of HM | -0.001 | -0.003 | -0.048 | 0.052 |
| | (-0.04) | (-0.14) | (-1.60) | (1.56) |
| PE Share of HN | -0.009 | 0.012 | -0.048 | 0.045 |
| | (-0.49) | (0.49) | (-1.41) | (1.19) |
| PE Share of LM | -0.005 | 0.014 | -0.032 | 0.023 |
| | (-0.30) | (0.60) | (-1.01) | (0.65) |
| N | 21442 | 21442 | 21442 | 21442 |
| Party Year FE | Yes | Yes | Yes | Yes |
| Party Municipality FE | | | | |

$t$ statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Each column of Table 4 represents a regression for one group of candidates. First row captures estimates of $\beta^g$ from Equation 3. One percentage point increase in the vote share in parliamentary election at a given municipality is associated with an increase of 0.08 percentage points of a share of high valence members in the following municipal election.

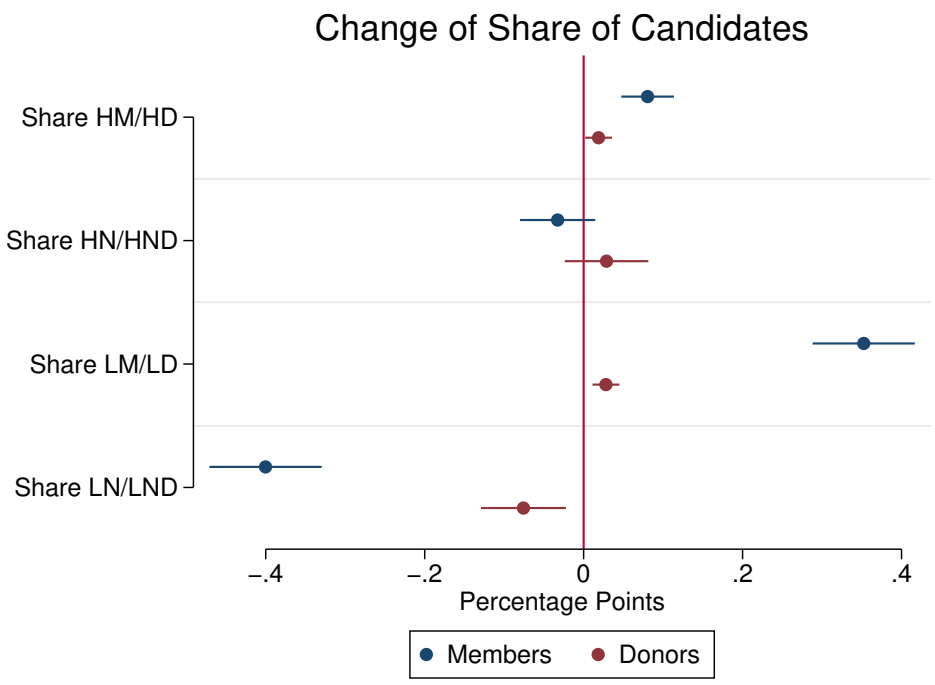



Figure 4: Changes in Group Shares

Since the average share of high valence members is roughly 10 percent for a ballot, the effect represents 0.8% increase. The results further show that the share of low valence members increases by 0.35 percentage points and the share of low valence non members decreases by 0.40 percentage points. These effect represent 1.2% increase of low valence members and 0.85% decrease of low valence non members, respectively. Overall, low valence non members, who are arguably the least valuable for the party leader, are squeezed out and replaced by more valuable groups, as the party strengthens. After a positive popularity shock there are weakly more high valence candidates and strictly more members on the ballots. Considering a ballot of a median length, i.e. 21 candidates, receiving additional 10 percentage points of votes in the parliamentary elections leads to one additional member in the subsequent municipal election. Figure 4 shows the $\beta$ coefficients and their confidence intervals graphically. Figure 11 in the Appendix A decomposes the effect for particular parties.

### 3.4.2 Donors

We next explore the effect of party strength on the share of donors on the ballot. Formally, we run regression (3) for $g$: (i) high valence donors (HD); (ii) high valence non donors (HN); (iii) low valence donors (LD); (iv) low valence non donors (LN). The results displayed in Table 5 qualitatively correspond to Table 4 with members. A shock to local popularity of a party is connected to an increase in high and low valence donors, while the share of the least valuable candidates, low valence non donors, decreases. That leads to an increase in both the share of donors and of high valence candidates.

Table 5: Changes in party popularity and shares of donors

| | (1) Share of HD | (2) Share of HND | (3) Share of LD | (4) Share of LND |
|---|---|---|---|---|
| PE Share Votes | 0.018** | 0.030 | 0.025*** | -0.073*** |
| | (0.009) | (0.027) | (0.008) | (0.027) |
| PE Share of HM | 0.026*** | -0.032*** | 0.012*** | -0.006 |
| | (0.004) | (0.012) | (0.004) | (0.012) |
| PE Share of HN | -0.005* | 0.001 | -0.001 | 0.005 |
| | (0.003) | (0.010) | (0.003) | (0.010) |
| PE Share of LM | 0.023*** | -0.000 | 0.033*** | -0.055*** |
| | (0.005) | (0.015) | (0.005) | (0.015) |
| N | 21442 | 21442 | 21442 | 21442 |
| Party Year FE | Yes | Yes | Yes | Yes |
| Party Municipality FE | | | | |

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Receiving 10 additional percentage points in parliamentary election is related to a 0.18 percentage point increase in high valence donors on the ballots. Taking the average ballot structure as a baseline case, i.e. only 1.4% of high valence donors, this is equivalent to a

1.2% increase in the number of high valence donors. The most pronounced positive effect is among low valence donors, as an increase of 10 percentage points in parliamentary elections implies 0.25 percentage point increase in the share of low valence donors. Using the same baseline ballot structure, it implies a 2.5% increase of low valence donors. The increase in the share of donors is offset by the share of low valence non donors whose share falls by 0.73 percentage points after a 10 percentage point popularity shock. The coefficients seem low, but that is due to the very low proportions of donors on ballots. Figure 4 shows the effects graphically.

**Observation 5** (Popularity Shock)**.** *After a local popularity shock, there are weakly more high valence candidates and significantly more candidates with intra party value on the ballot. In particular, the share high valence candidates with intra party value increases, while the share of low valence candidates with no intra party value decreases. This is the case for both of our measures: membership status and political donations.*

# 4 Understanding the Results

In this section we build a simple model of the selection process and use it to formalize the intuition for the observed sorting among different types of candidates. The selection process can be seen as a market where a candidate is willing to trade his valence and costly *intra* party value in exchange for the probability of winning a seat. The party leader's objective is twofold. First, to attract swing voters and thus succeed in elections, she needs a high valence ballot. Therefore, she values high valence candidates more than low valence candidates. Second, as for her *intra* party objective, she maximizes the number of candidates with *intra* party value. The party leader therefore offers ballot rank, i.e. probability of winning a seat, in exchange for valence and *intra* party value. For convenience, we consider the ballot as a [0,1] interval and denote a ballot rank as $t \in [0,1]$.

Voters' behaviour is given exogenously. As common in the literature, there are two types of voters. Party $p$ can be sure to receive $\alpha_p$ votes from its core voters, who always vote for party $p$. Additionally, there are also swing voters whose voting depends on the overall quality of the ballots. We assume that voters are more sensitive to the quality of the top ranked candidates than those at the bottom of the ballot.[26] Therefore, the swing voters care about an aggregate measure of quality of the ballot $\bar{q_p} = \int_0^1 g(t)q(t)dt$, where $g(t)$ is a weighting function satisfying $g'(t) < 0$ and $g(1) \geq 0$, and $q(t) \in \{0, 1\}$ captures the valence of candidate placed on position $t$. Party $p$ receives $\delta\bar{q_p} + \epsilon_p$ votes from swing voters, where $\epsilon_p$ is a random noise with zero mean. The behaviour of voters therefore yields the following probability of winning a seat.

$$P_p(\text{winning a seat}|\alpha, t, \bar{q}) = P(\alpha_p + \delta \int_0^1 g(\tilde{t})q(\tilde{t})d\tilde{t} + \epsilon_p \geq \omega_t) \tag{4}$$

where $\omega_t$ is a unique threshold for a position $t$. The probability measure is thus increasing in $\alpha$ and $\bar{q}$, but decreasing in $t$, as $\omega_t$ is increasing in $t$. Importantly, individual probability of winning a seat is a function of party $p$'s popularity ($\alpha_p$), candidate's ballot rank ($t$), and overall aggregate quality of the ballot ($\bar{q}$).

There are two infinitely large pools of candidates; high valence candidates (with $q = 1$) and low valence candidates ($q = 0$), who differ in their opportunity cost of running; $c_h > c_l$, so candidacy is more costly for high valence candidates. In order to ensure a better bal-

[26] There are two reasons to support this assumption. First, even under an open-list electoral system, the top ranked candidates are more likely to be elected due to mechanical reasons, as seats are allocated from the top down. Hence, being more sensitive to the top ranked candidates follows from maximizing the quality of candidates that are expected to be elected. Second, if voters are inattentive, they are likely to pay attention to the more pronounced or salient candidates, i.e. the candidates at the top of the list. Additionally, this assumption was empirically supported by Folke and Rickne (2017). In particular, using Swedish data they documented that ballots are formed according to the *rank-order hierarchy*.

lot position, candidates can perform a costly action ($c_a$), i.e. become *intra* party valuable ($m = 1$). This can take the form of an active membership status or financial donation to the political party. Candidates value a seat that brings them a benefit $b$ and maximize expected payoff (expected benefit minus cost). Quality and affiliation status of candidates are indicator functions that equal 1 if high valence and affiliated respectively. Formally, $q(t) = 1$ denotes that candidate placed on $t$ position is of high valence, while $m(t) = 1$ denotes that candidate placed on $t$ position is affiliated (or in other words of high *intra* party value).

Party leader seeks to maximize her value function

$$V(\bar{q}, \bar{m}) = \bar{q} + \gamma \bar{m},$$

where $\bar{q} = \int_0^1 g(t)q(t)dt$ is a measure of overall quality of the ballot and $\bar{m} = \int_0^1 m(t)dt$ is a measure of affiliated candidates. The first term of her objective $V(\bar{q}, \bar{m})$ follows from the electoral success motive ($\bar{q}$ increases the number of seats that the party expects to win), while the measure of affiliated candidates is motivated by *intra* party value of candidates. The crucial property that we impose on the objective is that it is weakly increasing with every additional high quality candidate and with every additional affiliated candidate holding the rest of the ballot constant. To reach her goal, she selects and ranks candidates on the ballot.

At time $s = 1$, candidates receive an offer and must decide whether to accept or reject it. When making the decision candidates compare the expected payoff $P(\alpha, \tilde{q}, t)b$ with a cost of running and, if required, a cost of *intra* party valued action, too. Importantly, at the time of the decision, candidates do not know the realized quality $\bar{q}$ of the ballot. Instead, they base their decisions on a prior belief $\tilde{q}$. We impose this assumption in order to keep the model as tractable as possible. At time $s = 2$, the party leader assigns positions to

candidates given their valence and their affiliation status and the aggregate quality of the ballot $\bar{q}$ is revealed. At time $s = 3$, election takes place, votes are realized and seats are assigned to candidates.

## 4.1 Solution

There are four conditions that characterize the solution, i.e. the allocation of types of candidates on the ballot. Three of the conditions are pinned down by participation constraints of candidates. The following equations implicitly defined threshold values $t_1$, $t_2$, and $t_3$.

$$P(\alpha, \tilde{q}, t_1) * b = c_h + c_a \tag{5}$$

$$P(\alpha, \tilde{q}, t_2) * b = c_l + c_a \tag{6}$$

$$P(\alpha, \tilde{q}, t_3) * b = c_h \tag{7}$$

No high valence candidates with high *intra* party value accept ballot positions worse than $t_1$; no low valence candidates with *intra* party value accept positions worse than $t_2$, and finally no high valence candidates worse than $t_3$.

Equations (5) - (7) together determine the supply of different groups of candidates. The party leader can order candidates however she prefers while satisfying the participation constraints. On the demand side, it is clear that the party leader prefers as many high valence candidates with *intra* party value as possible as they increase her objective the most. Similarly, she prefers the low valence candidates with no *intra* party value the least and will thus only place them at positions that do not satisfy participation constraints for any other type of candidates and thus where noone else is willing to run. Finally, it is also clear that the party leader prefers high valence over low valence candidates of the same *intra* party value as they increase $\bar{q}$ more and also candidates with *intra* party value over those who do not

possess such value of the same valence because they increase $\bar{m}$.

What remains is for the party leader to decide between low valence candidates with *intra* party value and high valence candidates with no *intra* party value. Let us define fourth threshold $t_4$ as a position above which she prefers one group and below which she prefers the other. Before characterizing $t_4$, note that the value of any additional high valence candidate is decreasing in his ballot rank, while the value of a low valence candidate with *intra* party value is constant across the ballot. Therefore, if $t_4$ exists in the interval [0,1], it must be that for positions worse than $t_4$, i.e. $t > t_4$, the party leader prefers low valence candidates with *intra* party value to high valence candidate with no *intra* party value, while for the positions better ranked than $t_4$, i.e. $t < t_4$ the opposite is true. Intuitively, an additional high valence candidate with no *intra* party value increases $\bar{q}$, while low valence candidate with *intra* party value increases $\bar{m}$. Importantly, neither $\bar{q}$ nor $\bar{m}$ affects candidates' participation constraints. Therefore, the party leader treats the vector $(t_1, t_2, t_3)$ as exogenous when choosing $t_4$. It follows that $t_4$ is defined as

$$t_4 = \text{argmax} \;\; V(\bar{q}(t_4), \bar{m}(t_4); t_1, t_2, t_3). \tag{8}$$

## 4.2 Explaining the Data

Consider first the active membership status as a measure of *intra* party value. Recall that candidates on a ballot are ordered as follows: high valence members (HM); high valence non members (HN); low valence members (LM); and low valence non members (LN). The following proposition establishes properties that the threshold values must satisfy in order to generate such an ordering.

**Proposition 1** (Membership)**.** *Consider membership as a measure of intra party value. If*

*and only if* $t_1 < t_3 < t_2$ & $t_1 < t_4$*, the group ordering is as follows: (i) HM; (ii) HN; (iii) LM; and (iv) LN.*

Proof can be found in Appendix B. This is consistent with the patterns we observe for members. Depending on where $t_4$ lies, there are three different combinations of the thresholds that support the observed data.[27] We are not able to distinguish among the three cases without making more assumptions or without more data. Nevertheless, even without specifying the exact ordering, the model generates some predictions. All three combinations predict that a positive popularity shock leads to an increase in the share of high valence members and a decrease in low valence non members. That follows from relaxing the participation constraints of all candidates. The remaining shares of different types of candidates generally depend on the relative shifts of different thresholds. The thresholds are complex to characterize, as they depend on several features including the slope of the probability profile. Note that Section 3.4 indeed established that an increase in party's strength, which in the model is represented by an increase of $\alpha_p$, is followed by a small increase in the share of HM and a large decrease in the share of LN.

To provide intuition, consider one particular combination of thresholds: $t_1 < t_4 < t_3 < t_2$.[28] As a party is hit by a positive popularity shock, an increase in $\alpha_p$ to $\tilde{\alpha_p} > \alpha_p$, the participation constraints relax for all types of candidates. This shifts $t_1$, $t_2$, and $t_3$ towards the bottom of the ballot as displayed in Figure 5. Since $t_4$ does not change[29], the shares of high and low valence candidates remain unchanged, but the share of members (of both high and low valence) increases.

[27] These are: $t_1 < t_3 < t_2 < t_4$, $t_1 < t_3 < t_4 < t_2$, and $t_1 < t_4 < t_3 < t_2$

[28] We consider this combination the most likely as it unambiguously predicts an increase in members in response to a positive party shock which is the most pronounced effect that we found in the data.

[29] See Appendix B.

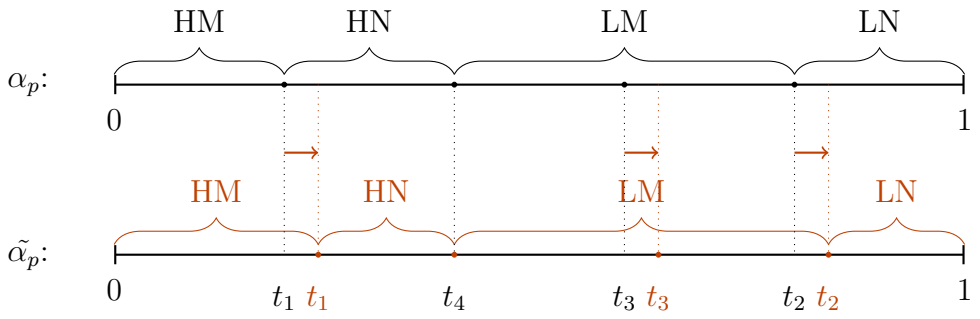



Figure 5: Explaining membership data

Proposition 2 establishes that there is only one combination of thresholds that is consistent with the patterns we observe for political donations as a measure of *intra* party value. Two features of the results are important. First, as $LD$ are ranked better than $HND$, it must be the case that $t_4$ is at most as high as $t_1$. Second, it must be the case that $t_2 < t_3$, otherwise there would be no positions occupied by $HND$.

**Proposition 2** (Donation)**.** *Consider political donations as a measure of intra party value. If and only if* $t_4 < t_1 < t_2 < t_3$*, the group ordering is as follows: (i)* $HD$*; (ii)* $LD$*; (iii)* $HND$*; and (iv)* $LND$*.*

Proof can be found in Appendix B. Comparing membership and donations as measures of *intra* party value yields two implications. First, the fact that among donors $t_2^D < t_3$, while the opposite is true among members (and thus $t_2^D < t_3 < t_2^M$) implies that in order to meet participation constraints of donors, they must be rewarded by better ballot positions. In other words, donation is more costly than membership status, and thus both high valence and low valence donors must be compensated by better positions on the ballot compared to members. Second, the value of donors for party leader dominates membership, i.e. donors are notably valuable for party leaders. In terms of our thresholds, for members, Proposition 1 states that $t_1^M < t_4^M$ whereas for donors $t_4^D < t_1^D$ implying an ordering $t_4^D < t_1^D < t_1^M < t_4^M$ using the first implication that the cost of becoming a member is higher than the cost of

becoming a donor. Proposition 3 summarizes both implications.

**Proposition 3** (Comparison)**.** *For candidates, becoming a donor is more costly than becoming a member. For party leaders, donors are more valuable than members of the same valence.*

Proof can be found in Appendix B.

# 5 Discussion

The previous section effectively models the process of political selection of candidates as a market. On the one hand, party leader (the demand side) demands valence and *intra* party value in exchange for ballot positions that embody probabilities of winning seats. On the other hand, candidates (the supply side) decide on their *intra* party value, as they strive to win a seat on the municipal council. This interaction resembles typical market forces.

Gate-keeping power of parties is likely to give rise to a principal-agent problem where party leaders may pursue their private goals in political selection. Swing voters incentivize the party leader to care about valence which mitigates the problem, assuming valence is what voters and the society as a whole care about. The interests of the party leader and voters are aligned at the top positions where high valence candidates are willing to pay to increase their *intra* party value. The conflict between party leader's interests and the interests of the public may appear at slightly lower positions where the party leader has the opportunity to skew the selection and ranking of the candidates in her favor, by prioritizing low valence candidates with *intra* party value rather than high valence candidates without *intra* party value.

We provide empirical evidence that is in line with market interactions of demand and supply in the process of political selection. First, candidates are sorted as predicted by the market

mechanisms in which the top positions tend to be occupied by candidates with both public and *intra* party value, whereas the bottom positions tend to be occupied by candidates that are the least valuable. Second, party leaders seems to voluntarily sacrifice some votes for *intra* party value of candidates. Third, after a popularity shock, the party leader takes advantage of her position and forms a ballot with a higher *intra* party value, as she has more to offer the candidates in exchange for their value. Fourth, the comparison between political donations and membership reveals that higher and more costly *intra* party value is rewarded by better ballot positions.

Relaxing the mutual exclusivity of valence and *intra* party value which is prevalent in the literature mitigates the principal agent problem, but may intensify other problems such as rent seeking. If being of high valence does not guarantee candidates to be placed on well ranked ballot positions, everyone is incentivized to acquire *intra* party value which may take different forms and may not be limited to membership status and political donations. Instead, we consider *intra* party value to be a very broad concept that can include a large variety of attributes. For example employees of the party, public proponents or anyone providing services of any kind to the party may be considered of high *intra* party value, regardless of whether they are also members or donors. More importantly, any rent seeking activity that a candidate does for the benefit of the political party may be seen by the party leader as increasing his value for the party.

Considering a broader concept of *intra* party value also extends the number of political environments in which the intuition applies. Candidates with high *intra* party value may be rewarded by better ballot ranks even in political systems in which formal membership is a requirement for every candidate and political donations are legally forbidden. From that perspective, the case of the Czech Republic is just a convenient case study for its data

availability and political and legal system, including a large number of municipal elections.

An important feature of both our model and our empirical setting is the fact that we consider PR electoral system with a strong gate-keeping power of political parties. In such an environment, political parties possess a strong influence over the probabilities of winning a seat, which drives the party's bargaining power. A lack of these features in different political systems limits the validity of our findings. Importantly, since we view the pre-selection problem as a bargaining process between candidates and a party leader, the resulting ballot structure depends on their respective bargaining powers and outside options. Many features of the electoral system such as the importance of preferential votes, the level of electoral competition or value of the office, affect the bargaining problem.

# 6 Conclusion

Studying over 20,000 Czech ballots, we establish several stylized facts about sorting of candidates. First, high valence candidates tend to be ranked better than low valence candidates, and candidates who possess high *intra* party value are placed at better positions than those who do not. This holds true for both of our measures of *intra* party value: (i) membership, and (ii) donations. Second, the link between better ballot positions and higher likelihood of being placed on electable positions and being a member or a donor remains significant and relatively strong even if we control for individual time invariant characteristics and available time variant characteristics. Specifically, becoming a party member and political donor on a ballot of median length is associated with a shift of the candidate by 2 and 1 position upward, respectively. Similarly, the probability of being placed on the electable positions increases by 7.6 percentage points for members and 15.8 percentage points for candidates who donated 1 million CZK.

Furthermore, controlling for candidate and ballot characteristics, candidates with *intra* party value deliver fewer votes than their counterparts. In particular, candidates with *intra* party value receive by around 5-11 percentage points fewer relative votes than their ballot position and observed individual characteristics would predict. Fourth, a positive party popularity shock leads to weakly more high valence candidates on the ballots and strictly more candidates with *intra* party value. That holds true for both measures of *intra* party value.

We interpret these observations in light of a simple model, in which party leader who aims to maximize an aggregate measure of *intra* party value of candidates on the ballot and the party vote share negotiates with candidates. As a better rank position on the ballot promises a higher probability of winning a seat, candidates are willing to contribute to the party in exchange for better positions. The rank on the ballot can be seen as a reward for candidates' valence and *intra* party value. Formalized framework allows us to compare parameters of candidates' and party leaders' behaviour under different circumstances.

While this paper describes the process of selecting and ordering candidates on the ballot as a trade between party leaders and candidates, it is mute about the exact mechanism. It does not address the structure of the market, nor the form of contract between candidates and parties. As candidates and party leaders interact in a highly uncertain environment and the contract between them is potentially dynamic, there are other possible research questions to study. For example, who bears the cost of uncertainty? Do candidates at marginal positions make donations prior to the election or only after getting elected? Do party leaders enforce party affiliation after the election and does it depend on valence of candidates? Furthermore, this paper has abstracted from addressing the interactions among different political parties within a municipality, but future research may shed light on the influence

of political competition on the interaction of parties and candidates.

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# Appendix A

## Data Description

| Political Party | 2002 | 2006 | 2010 | 2014 | 2018 |
|---|---|---|---|---|---|
| KDUCSL | 17,717 | 17,930 | 14,940 | 14,603 | 12,238 |
| CSSD | 16,095 | 16,111 | 16,884 | 16,336 | 11,752 |
| KSCM | 20,717 | 19,074 | 17,375 | 16,083 | 12,704 |
| ODS | 16,168 | 19,042 | 18,757 | 11,667 | 10,615 |
| TOP 09 | 0 | 0 | 9,703 | 6,363 | 1,338 |
| ANO | 0 | 0 | 0 | 7,906 | 7,927 |

Table 6: Number of Candidates

| Political Party | 2002 | 2006 | 2010 | 2014 | 2018 |
|---|---|---|---|---|---|
| KDUCSL | 37 % | 34 % | 31 % | 27 % | 27 % |
| CSSD | 43 % | 41 % | 48 % | 50 % | 50 % |
| KSCM | 60 % | 55 % | 52 % | 48 % | 48 % |
| ODS | 48 % | 51 % | 51 % | 50 % | 43 % |
| TOP 09 | . | . | 27 % | 29 % | 35 % |
| ANO | . | . | . | 18 % | 27 % |

Table 7: Share of Affiliated

## Definition of Rank

For all years $t$ and ballots $i$, being placed on a $k$-th position on a ballot with $n$ candidates yields normalized rank

$$NormalizedRank = \frac{k-1}{n-1}. \tag{9}$$

To provide a better measure of the effect of political affiliation and quality on ballot order and to provide more neat figures, we employ a conditional rank defined as followed.

$$\begin{aligned} \frac{k_{it}-1}{n_{it}-1} &= f(X_{it}, \gamma_{it}) + \eta_{it} \\ rank_{it} &= \frac{\eta_{it} - min(\eta_{it})}{max(\eta_{it}) - min(\eta_{it})}, \end{aligned} \tag{10}$$

where $f$ is a flexible function of year fixed effects, party fixed effects, party-year interactions, age, gender and previous political experience of candidates. The rank is normalized so it falls between (0,1). The rank converges to 0 as we approach the top position and to 1 as we approach the bottom of the ballot.

## Bottom Positions

There is a disproportionately high share of high valued candidates at the last position on the ballots. Candidates at the bottom are more likely to be of high valence, of higher *intra* party value, and with more political experience. We also document that the bottom positions attract more votes (Figure 6).

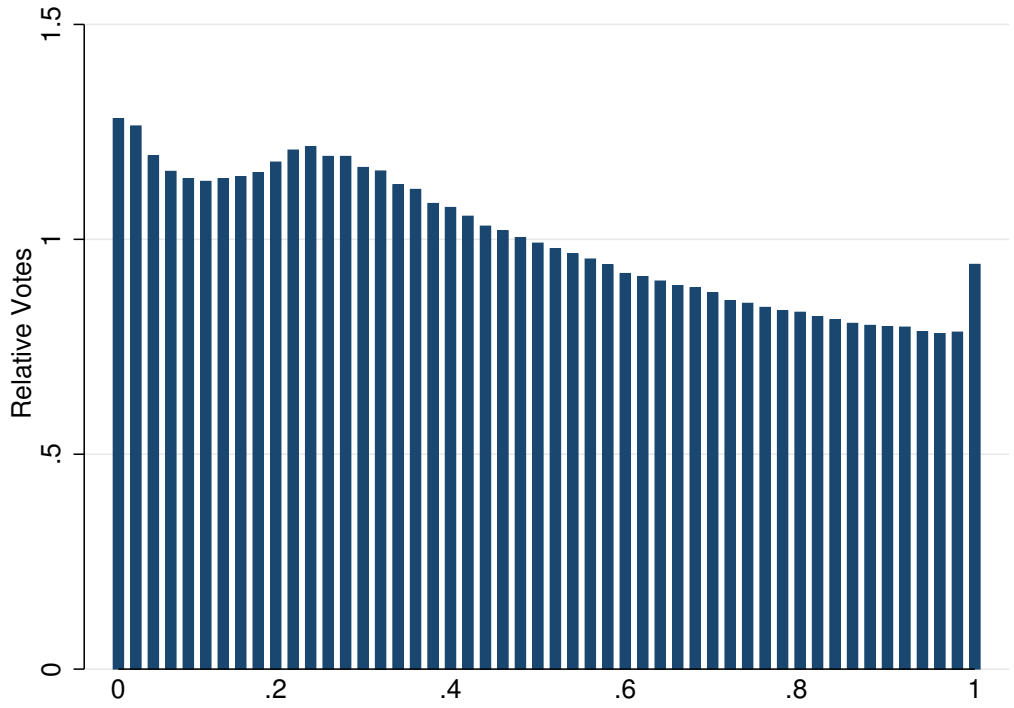
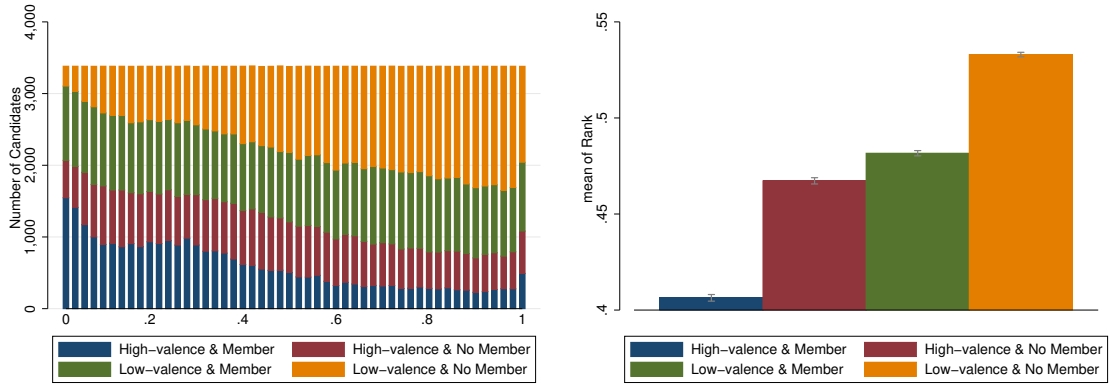



Figure 6: Average Relative Share of Votes by Ballot Position

## Robustness Exercises

### Ballot Structure

As a robustness check, we provide additional exercise. First, Figure 7a and 7b shows sorting and means by type of candidates for a sample of candidates who run on a ballot with all four types of candidates. Comparing to the baseline figures, it shows less than half of candidates. It also hints that a significant share of low valence non members place on well-ranked positions are candidates running on a ballot with not high valence candidates. Overall, the figure supports sorting as summarized in Observation 1.

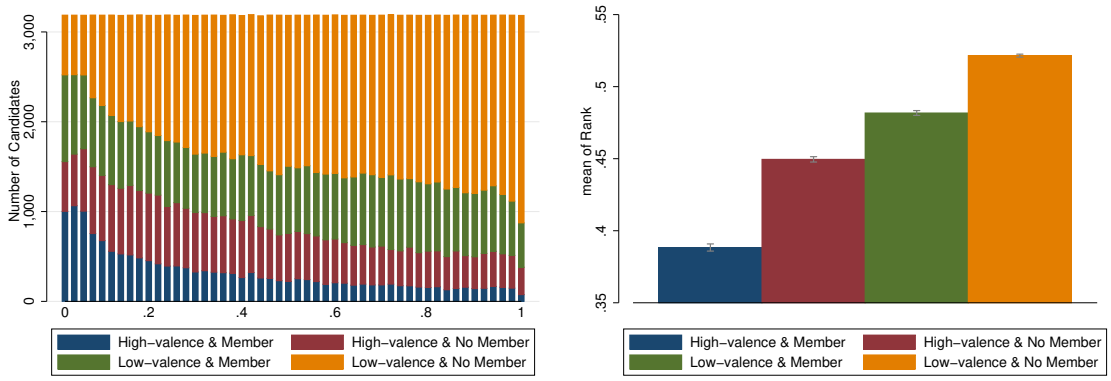



(a) Structure Ballots (Members) (b) Average Rank by Groups (Members)

Figure 7: Ballots with all Four Types of Candidates

Second, Figure 8a and 8b take into account only candidates that prior their candidacy have had no previous experience with municipal elections. It shows that the sorting patterns hold among political novices. Interestingly, there is no peak at the bottom of the ballot, suggesting that the peak is indeed driven by politically experience candidates.

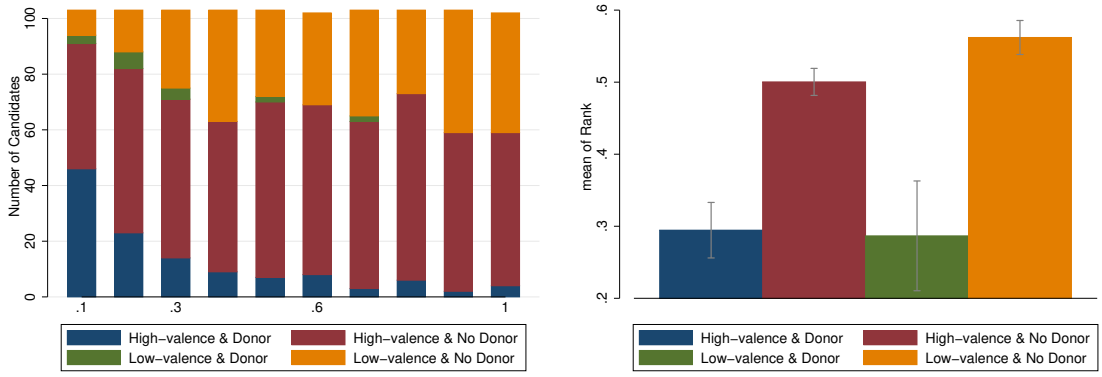
Third, using data from parliamentary elections, we reclassify the group of donors to those who donate at least 50,000 CZK (approx. 2,000 EUR). Figures 9a and 9b show the ballot




(a) Structure Ballots (Members) (b) Average Rank by Groups (Members)

Figure 8: Only Candidates Without Political Experience

structure for more generous donors. In line with the presented model, the share of donors shrinks, while the their ballot rank improved. In fact, as the threshold for donors increases, the different in rank between high and low valence candidates disappear.



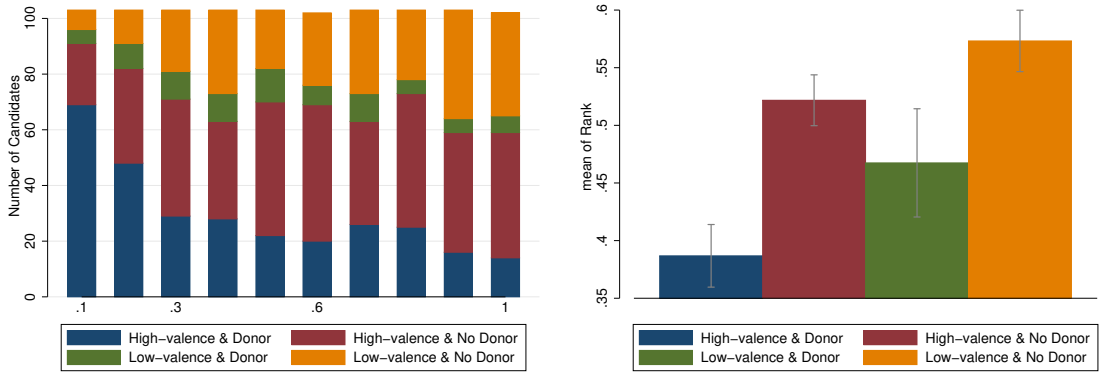

(a) Structure Ballots (Donors) (b) Average Rank by Groups (Donors)

Figure 9

**Donors - Parliamentary Election**

The share of donors among candidates in municipal elections is small. To provide additional evidence of sorting on the ballot among donors, we study ballots in parliamentary elections. While the number of candidates from one of the six main parties in the last 5 parliamentary elections is *only* around 8,500, roughly a third of them are classified as donors. We create *rank* as before, normalizing the ballot position into the [0,1] interval.

Figure 10a collapses candidates according to their rank by 10%. The share of high valence donors is decreasing rapidly as one goes to worse ranked positions on ballot. While there are almost two thirds of high valence donors among the 10% best ranked positions, there are only around 15% among the worst ranked candidates. Similarly to municipal election, in parliamentary elections, low valence donors are ranked better than high valence non donors.




(a) Ballot Structure (Donors) (b) Average Rank by Groups (Donors)

Figure 10

### Party Strength

Figure 11 shows changes in ballot structure after a popularity shows decomposed for all six parties. Note that both TOP09 and ANO, i.e. parties with relatively large confidence intervals are parties that participate only in three and two elections, respectively. Therefore, the estimates are based on fewer observations.

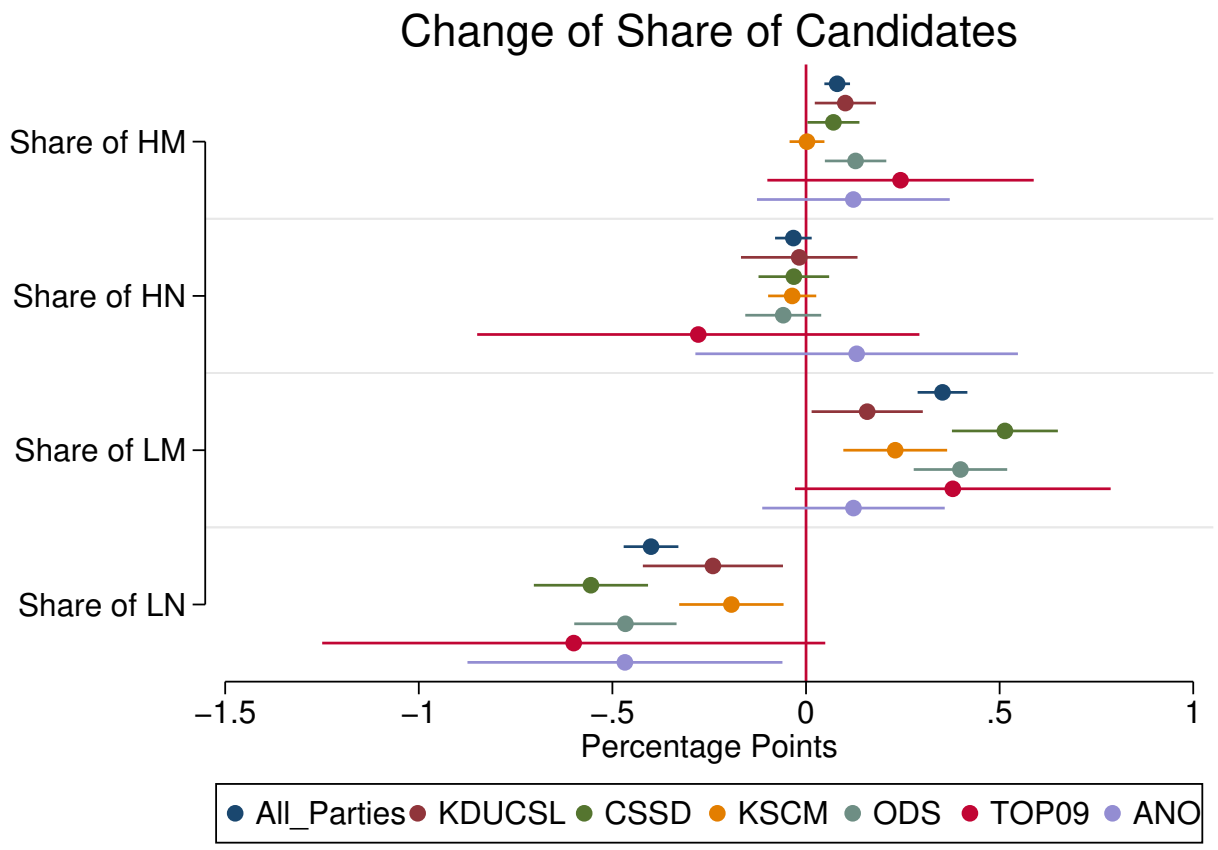



Figure 11: Changes in Groups Share (Members) by Party

### Different Source of Variation

To provide additional evidence supporting our narrative, we explore different source of variation. Specifically, comparing to the Regression 3, we employ two different fixed effects: (i)

party-municipality ($\gamma_{pj}$) as before; and (ii) political cycle ($\gamma_\tau$) as captured in regression 11. Therefore, we do not control for variation caused by a change a party popularity at the national level. Suppose a party A becomes more popular, then this popularity shocks increases both the share of votes in national election in the municipality and the electoral potential in the next municipal election.

$$Share^g_{pj\tau} = \alpha^g + \beta^g PE\ ShareVotes_{pj\tau} + \sum_{k\in\{HM,HN,LM\}} \delta^k PE\ Share^k_{p\tilde{j}\tau} + \gamma^g_{pj} + \gamma^g_\tau + \epsilon^g_{pj\tau} \tag{11}$$

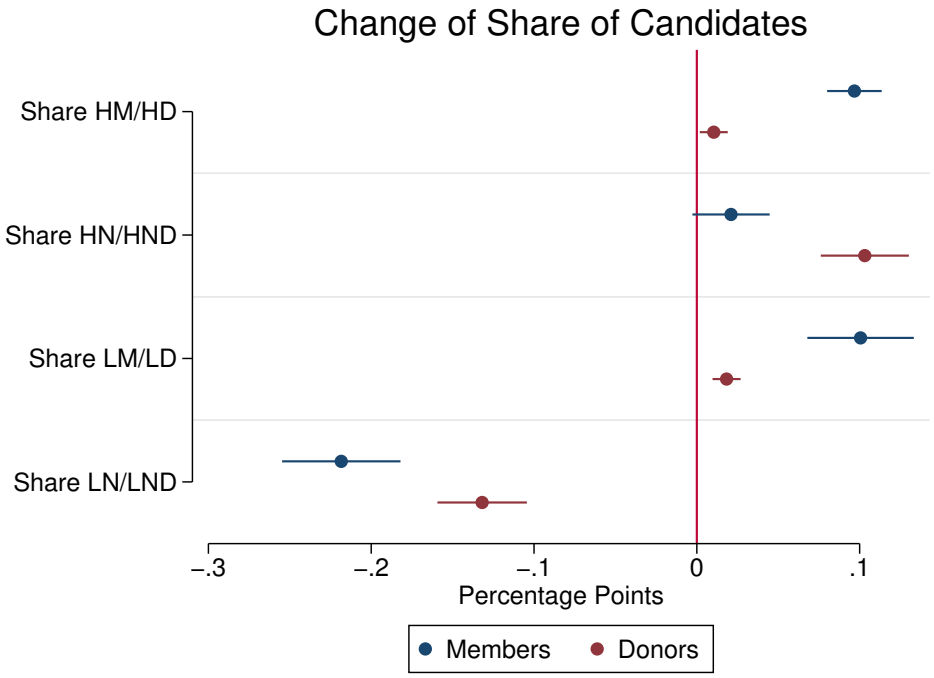



Figure 12: Changes in Group Shares (Robustness exercise)

Figure 12 graphically shows coefficients $\beta^g$ for both measures of *intra* party values. Despite some of the coefficient being insignificant, the main narratives hold. As party is more popular and thus its bargain power is higher, there are more high valence candidates and more candidates with *intra* party value on the ballot. Consequently, the least valuable group low

valence candidates with low *intra* party value are forced out.

# Appendix B

**$t_4$ is not sensitive to $\alpha$** To see this, we show that optimal $t_4$ is not a function of a vector ($t_1$, $t_2$, $t_3$). Start with the definition of $t_4$ as a threshold that solve party leader's problem, i.e. a threshold that maximizes $V(\bar{q}, \bar{m})$ and note that $q(t)$ and $m(t)$ are indicator functions, so the problem can be split in four non-zero integrals.

$$V(\bar{q}, \bar{m}) = \int_{HM} g(t)dt + \int_{HM} \gamma dt + \int_{HN} g(t)dt + \int_{LM} \gamma dt \tag{12}$$

First, note that first two terms, are independent of $t_4$, as HM will be always placed on the interval from (0,$t_1$). That simplifies the problem into a sum of two integrals.

$$\tilde{V} = \int_{HN} g(t)dt + \int_{LM} \gamma dt \tag{13}$$

Second, note that $t_4$ is binding only if $t_4 < \min(t_2, t_3)$. That follows from the fact that for $t > \min(t_2, t_3)$, there is no trade off between LM and HN, as (at least) one of the groups does not satisfies the participation constraints.

Consider the following reduced objective function and denote $x$ as a position of a switch between HN and LM.

$$\tilde{V} = \int_{t_1}^{x} g(t)dt + \int_{x}^{\min(t_2,t_3)} \gamma dt, \tag{14}$$

Deriving the FOC of $\tilde{V}$ with respect to $x$ yields

$$g(x) = \gamma. \tag{15}$$

Since $g(t)$ is a decreasing function, there is no more than one value satisfies this optimal condition. If $x < min(t_2, t_3)$, there is an interior solution and $t_4 = x$; otherwise, $x = min(t_2, t_3)$ and $t_4$ is irrelevant. Irrelevance of $t_4$ implies that any value of $t_4$, such that $t_4 \in (min(t_2, t_3), 1)$ is consistent with equilibrium behaviour. We show that while the switch between HN and LM is a function of $\alpha$, as the vector of thresholds derived from candidates' participation constraints is a function of $\alpha$, the $t_4$ it is not.

## Propositions

Proposition 1 Proposition 2 Proposition 3