Supplementary Material

The Gatekeeper's Dilemma: Political Selection or Team Effort*

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Abstract

Political parties play a crucial gatekeeping role in elections, including controlling electoral resources, candidate recruitment, and electoral list compositions. In making these strategic choices, parties aim to encourage candidates to invest in the campaign, while also trying to secure advantages for their preferred candidates. We study how parties navigate this trade-off using a specific feature of the Norwegian local electoral system in which parties can give advantaged positions to some candidates in an otherwise open list. Our theory reveals that parties' ex-ante electoral strength impacts their strategic decisions. Notably, the trade-off is weaker for more popular parties, allowing them to facilitate the election of their preferred candidates without compromising the party's overall performance. We show empirically that the moral hazard concern is real, and that larger parties are indeed more likely to use their power to make some candidates safe. The advantage of large parties extends further: safeguarding specific candidates enables parties to achieve disproportionately favorable outcomes in post-electoral bargaining. These findings reveal new insights for political representations, policy outcomes, and intra-party dynamics more broadly.

The supplementary material includes the following appendices:

- Appendix A: Proofs of lemmas and propositions
- Appendix B: Model extensions
- Appendix C: Additional figures and tables

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Appendix A: Proofs of lemmas and propositions

The Model: preliminaries

Denote $p(x)$ the probability of the party winning exactly x seats. We have that $p(x) = p\Big(S \in [Kx, K(x+1))\Big)$, with $V = S + \sum_i^n e_i + \delta$ and $\delta \sim U \in [-\frac{1}{2\phi}, \frac{1}{2\phi}]$. Plugging in this distributional assumption, we can easily compute these probabilities.

Recall that we assume that the party always wins at least $\underline{N}$ seats, and never more than $\overline{N}$ (i.e. $p(V < K\underline{N}) = 0$ and $p(V \geq K\overline{N}) = 0$). These assumptions impose the following restrictions on the parameters:

- $S < min \in \{(\overline{N}+1)K - n - \frac{1}{2\phi}, \frac{1}{2\phi} + K(\underline{N}+1) - n\}$,
- $S > max \in \{\underline{N}K + \frac{1}{2\phi}, \overline{N}K - \frac{1}{2\phi}\}$
- $K < min \in \{\frac{1}{\phi(\overline{N}-\underline{N}-1)} - \frac{n}{\overline{N}-\underline{N}-1}, \frac{1}{\phi}\}$
- $K > max \in \{n, \frac{n}{\overline{N}+1-\underline{N}} + \frac{1}{\phi(\overline{N}+1-\underline{N})}\}$
- $\phi < \frac{1}{n(\overline{N}-\underline{N})}$

The candidates' maximization problem.

Next, consider the maximization problem of a candidate in an advantaged position (i_a). Denote $p(\chi)$ the probability that exactly χ seats are won by the party and allocated to the advantaged group (recall that this probability is a function of the candidates' effort choice). Further, denote $Q_{i_a}(\chi)$ the probability of an advantaged candidate obtaining a seat. Then, each advantaged candidate maximizes the same objective function:

$$R\sum_{\chi=\underline{N}}^{n_a} p(\chi)Q_{i_a}(\chi) - \frac{e_{i_a}^2}{2} \tag{A.1}$$

The associated FOC is:

$$R(\sum_{\chi=\underline{N}}^{n_a} p(\chi)\frac{\partial Q_{i_a}(\chi)}{\partial e_{i_a}} + \sum_{\chi=\underline{N}}^{n_a} \frac{\partial p(\chi)}{\partial e_{i_a}} Q_{i_a}(\chi)) - e_{i_a} = 0 \tag{A.2}$$

$p(\cdot)$ and $\frac{\partial p(\chi)}{\partial e_{i_a}}$ are computed in a straightforward way from the normal CDF. Further, notice that the maximization problem is identical for all candidates belonging to the same group (i.e., all advantaged candidates and all disadvantaged ones). This implies, straightforwardly, that all advantaged candidates exert the same effort in equilibrium.

Thus, the following holds in equilibrium:

$$Q_{i_a}(\chi) = \frac{\chi}{n_a} \tag{A.3}$$

and plugging this into (A.2) we obtain

$$\frac{\partial Q_{i_a}(\chi)}{\partial e^*_{i_a}} = \frac{1}{e^*_{i_a}}(1 - \frac{\chi}{n_a})\sum_{j=1}^{\chi}\frac{1}{n_a - j + 1} \tag{A.4}$$

Finally, consider the problem of a candidate in a disadvantaged position i_{na}. Denote $p(\xi)$ the probability that exactly ξ seats are won by the party and allocated to the advantaged group (recall that this probability is a function of the candidates' effort choice). $Q_{i_a}(\xi)$ denotes the probability of an advantaged candidate obtaining a seat. Then, each non-advantaged candidate maximizes the same objective function:

$$R\sum_{\xi=1}^{\overline{N}-n_a} p(\xi)Q_{i_{na}}(\xi) - \frac{e^2_{i_{na}}}{2} \tag{A.5}$$

The associated FOC is:

$$R(\sum_{\xi=1}^{\overline{N}-n_a} p(\xi)\frac{\partial Q_{i_{na}}(\xi)}{\partial e_{i_{na}}} + \sum_{\xi=1}^{\overline{N}-n_a}\frac{\partial p(\xi)}{\partial e_{i_{na}}}Q_{i_a}(\xi)) - e_{i_{na}} = 0 \tag{A.6}$$

As above, we can verify that the following holds in equilibrium:

$$Q_{i_{na}}(\xi) = \frac{\xi}{n_{na}} \tag{A.7}$$

and

$$\frac{\partial Q_{i_{na}}(\xi)}{\partial e^*_{i_{na}}} = \frac{1}{e^*_{i_{na}}}(1 - \frac{\xi}{n_a})\sum_{j=1}^{\xi}\frac{1}{n_{na} - j + 1} \tag{A.8}$$

Proofs of Lemmas and Propositions

Hereafter, we will assume that $n = 4$, $\underline{N} = 1$ and $\overline{N} = 3$. Further, we assume that the party cannot assign an advantaged position to all candidates on the list.[34]

[34] The party is always indifferent between assigning 0 advantaged position or assigning an advantage to all candidates, so this restriction amounts to an indifference breaking assumption.

Proof of Lemma 1

Using (A.1)-(A.8), we can easily compute candidates' equilibrium effort choice in each possible subgame.

Case 1: the party assigns one advantaged position. The advantaged candidate is guaranteed a seat. Therefore:

$$e^*_{i_a} = 0 \tag{A.9}$$

In contrast, each non-advantaged candidate exerts strictly positive effort:

$$e^*_{i_{na}} = \frac{1}{2}(\frac{3}{2}R\phi + \sqrt{\frac{9}{4}R^2\phi^2 + 4R(\frac{5}{36} + \frac{5}{18}\phi S - \frac{11}{18}\phi K)}) \tag{A.10}$$

Case 2: the party assigns two advantaged positions. Here, both advantaged and non-advantaged candidates will exert strictly positive effort. Specifically:

$$e^*_{i_a} = \frac{\sqrt{R(\frac{1}{2} + \phi(2K - 2e^*_{na} - S))}}{2} \tag{A.11}$$

$$e^*_{i_{na}} = \frac{R\phi + \sqrt{R^2\phi^2 + R(\frac{1}{2} - \phi(3K - 2e^*_a - S)}}{2} \tag{A.12}$$

Case 3: the party assigns three advantaged positions. The non-advantaged candidate has no hope of ever winning a seat, therefore:

$$e^*_{i_{na}} = 0 \tag{A.13}$$

Each advantaged candidate instead exerts effort:

$$e^*_{i_a} = \sqrt{R\frac{2}{9}(\frac{1}{2} - \phi S) + \phi K R\frac{13}{18}} \tag{A.14}$$

Case 4: the party assigns no advantaged position (i.e., open list). Each candidate in the list solves the same maximization problem, so each exerts the same amount of effort in equilibrium:

$$e^*_i = \frac{1}{12}(5R\phi + \sqrt{25R^2\phi^2 - 3R(7\phi K - 4\phi S - 11)}) \tag{A.15}$$

Next, we compare the total equilibrium effort under the different allocation structures. We proceed in three steps.

Claim 1. *Total effort under $n_a = 0$ is always higher than total effort under $n_a \geq \overline{N}$ (i.e., if the party assigns three advantaged positions).*

Proof. Total effort under $n_a = 0$ is

$$E_0^* = \frac{1}{3}(5R\phi + \sqrt{25R^2\phi^2 - 3R(7\phi K - 4\phi S - 11)}). \tag{A.16}$$

Total effort under $n_a \geq \overline{N}$ (i.e., if the party assigns three advantaged positions) is

$$E_3^* = 3\sqrt{R\frac{2}{9}(\frac{1}{2} - \phi S) + \phi K R\frac{13}{18}}. \tag{A.17}$$

Straightforwardly, sufficient condition to guarantee that $E_0^* > E_3^*$ is

$$\frac{1}{3}\sqrt{25R^2\phi^2 - 3R(7\phi K - 4\phi S - 11)} > 3\sqrt{R\frac{2}{9}(\frac{1}{2} - \phi S) + \phi K R\frac{13}{18}}, \tag{A.18}$$

which reduces to

$$25R\phi^2 - 3(7\phi K - 4\phi V - 11) - 9(1 - 2\phi V + \phi K\frac{13}{2}) > 0. \tag{A.19}$$

The LHS is increasing in S. Plugging in the lower bound $S = 3K - \frac{1}{2\phi}$, the above reduces to

$$25R\phi^2 + 9 + \frac{21}{2}\phi K > 0, \tag{A.20}$$

which is always satisfied. □

Claim 2. *Total effort under $n_a = 0$ is higher than total effort under $n_a \in (\underline{N}, \overline{N})$ (i.e., if the party assigns two advantaged positions).*

Proof. Total effort under $n_a \in (\underline{N}, \overline{N})$ is always lower than

$$E_2^{max} = R\phi + \sqrt{R^2\phi^2 + R(\frac{1}{2} - \phi(3K - 2 - S)} + \sqrt{R(\frac{1}{2} + \phi(2K - S))}. \tag{A.21}$$

Total effort under $n_a = 0$ is

$$E_0^* = \frac{1}{3}(5R\phi + \sqrt{25R^2\phi^2 - 3R(7\phi K - 4\phi S - 11)}). \tag{A.22}$$

To prove the claim, we proceed in three steps. First, notice that

$$\frac{5}{3}R\phi > R\phi. \tag{A.23}$$

Next, we can show that

$$\frac{1}{6}\sqrt{25R^2\phi^2 - 3R(7\phi K - 4\phi S - 11)} > \sqrt{R^2\phi^2 + R(\frac{1}{2} - \phi(3K - 2 - S))}. \quad \text{(A.24)}$$

The above reduces to

$$15 - 24\phi S + 87\phi K - 72\phi > 11R\phi^2. \quad \text{(A.25)}$$

Plugging in the upper bound $S = 4K - 4 - \frac{1}{2\phi}$, we have

$$27 - 9\phi K + 24\phi > 11R\phi^2 \quad \text{(A.26)}$$

Since $K < \frac{1}{\phi}$, $\phi < \frac{1}{8}$ and $R < 1$, the above is always satisfied.
Finally, we can show that

$$\frac{1}{6}\sqrt{25R^2\phi^2 - 3R(7\phi K - 4\phi S - 11)} > \sqrt{R(\frac{1}{2} + \phi(2K - S))}. \quad \text{(A.27)}$$

Sufficient condition for the above to hold is

$$-3(7\phi K - 4\phi S - 11) > 36[\frac{1}{2} + \phi(2K - S)], \quad \text{(A.28)}$$

which reduces to

$$15 + 48\phi S - 93\phi K > 0. \quad \text{(A.29)}$$

By assumption, $S > max \in \{K + \frac{1}{2\phi}, 3K - \frac{1}{2\phi}\}$. First, suppose that $K > \frac{1}{2\phi}$, and plug in binding upper bound $S = 3K - \frac{1}{2\phi}$. The above reduces to

$$51\phi K - 9 > 0, \quad \text{(A.30)}$$

which is always satisfied at $K > \frac{1}{2\phi}$.

Finally, suppose that $K < \frac{1}{2\phi}$, and plug in binding upper bound $V = K + \frac{1}{2\phi}$. The above reduces to

$$39 - 45\phi K > 0, \quad \text{(A.31)}$$

which is always satisfied at $K < \frac{1}{2\phi}$. □

Claim 3. *Total effort $n_a = 0$ is always higher than total effort under $0 < n_a \leq \underline{N}$ (i.e., if the party assigns one advantaged position).*

Proof. Denote E_1 the total effort under $0 < n_a \leq \underline{N}$. First, we can show that $\Delta = E_0^* - E_1^*$ is decreasing in S:

$$\frac{\partial \Delta}{\partial S} = \frac{2}{\sqrt{25R^2\phi^2 - 3R(7\phi K - 4\phi S - 11)}} - \frac{5}{6\sqrt{\frac{9}{4}R^2\phi^2 + \frac{5}{9}R + \frac{10}{9}R\phi S - \frac{22}{9}\phi K}}. \quad \text{(A.32)}$$

$\frac{\partial \Delta}{\partial S} < 0$ if and only if

$$144[\frac{9}{4}R^2\phi^2 + \frac{5}{9}R + \frac{10}{9}R\phi S - \frac{22}{9}R\phi K] < 25[25R^2\phi^2 + 33R + 12R\phi S - 21R\phi K)], \quad \text{(A.33)}$$

which is always satisfied given $K < \frac{1}{\phi}$ (by assumption).

Thus, it is sufficient to show that the claim holds at the upper bound $S = 2K - 4 + \frac{1}{2\phi}$, i.e.,:

$$\begin{aligned} &\frac{1}{3}\left(5R\phi + \sqrt{25R^2\phi^2 - 3R[7\phi K - 4\phi(2K - 4 + \frac{1}{2\phi}) - 11]}\right) > \\ &\frac{3}{2}\left(\frac{3}{2}R\phi + \sqrt{\frac{9}{4}R^2\phi^2 + 4R[\frac{5}{36} + \frac{5}{18}\phi(2K - 4 + \frac{1}{2\phi}) - \frac{11}{18}\phi K]}\right), \end{aligned} \quad \text{(A.34)}$$

which reduces to

$$4\sqrt{25R^2\phi^2 + 3R\phi K + 39R - 48R\phi} > 7R\phi + 18\sqrt{\frac{9}{4}R^2\phi^2 + \frac{10}{9}R - \frac{2}{9}R\phi K - \frac{40}{9}R\phi}. \quad \text{(A.35)}$$

Plugging in the lower bound $K = \frac{4\phi+1}{3\phi}$, we have

$$4\sqrt{25R^2\phi^2 + 40R - 44R\phi} > 7R\phi + 18\sqrt{\frac{9}{4}R^2\phi^2 + \frac{27}{28}R - \frac{128}{27}R\phi}. \quad \text{(A.36)}$$

To show that the above condition is always satisfied, I proceed in two steps.

First, since $\phi < \frac{1}{8}$, notice that

$$\sqrt{25R^2\phi^2 + 40R - 44R\phi} > \sqrt{R}\sqrt{40 - \frac{44}{8}}, \quad \text{(A.37)}$$

and

$$7R\phi < \frac{7}{8}R. \quad \text{(A.38)}$$

Further, recall that $R < 1$, therefore $R < \sqrt{R}$. Thus, we have that

$$\frac{7}{8\sqrt{40 - \frac{44}{8}}}\sqrt{R}\sqrt{40 - \frac{44}{8}} \geq 7R\phi, \tag{A.39}$$

and

$$4\sqrt{25R^2\phi^2 + 40R - 44R\phi} > \frac{7}{8\sqrt{40 - \frac{44}{8}}}\sqrt{25R^2\phi^2 + 40R - 44R\phi} > 7R\phi. \tag{A.40}$$

Next, it is easy to see that

$$\left(4 - \frac{7}{8\sqrt{40 - \frac{44}{8}}}\right)\sqrt{25R^2\phi^2 + 40R - 44R\phi} > 18\sqrt{\frac{9}{4}R^2\phi^2 + \frac{27}{28}R - \frac{128}{27}R\phi}. \tag{A.41}$$

Therefore

$$4\sqrt{25R^2\phi^2 + 40R - 44R\phi} > 7R\phi + 18\sqrt{\frac{9}{4}R^2\phi^2 + \frac{27}{28}R - \frac{128}{27}R\phi}. \tag{A.42}$$

□

This concludes the proof of Lemma 1.

Proof of Proposition 1

Claim 3 shows that $\frac{\partial(E_0^* - E_1^*)}{\partial S} < 0$. Thus, there exist a unique threshold $\widehat{B}$, *decreasing* in S, s.t. the party finds it optimal to exercise control if and only if $B > \widehat{B}$. Therefore, the probability (in the sense of set inclusion) that the party allocates $0 < n_a \leq \underline{N}$ is increasing in S.

Appendix B: Model extensions

Here, we formally analyze the extensions to the model referenced in section 4.5.

Amending candidates' motivations

Consider an amended version of the baseline model where each candidate i's utility is

$$u_i = \mathbb{I}_i R + g(e_i) - \frac{e^2}{2}. \tag{B.1}$$

In contrast with the baseline, candidates obtain a benefit from exerting campaign effort, $g(e_i) \geq 0$, regardless of whether they win a seat or not. Higher campaign effort increases visibility and name recognition, or the personal votes attracted by the candidates (which may in turn be valuable to improve the candidate standing in the party). For tractability, we will be imposing the following functional form: $g(e_i) = \beta \frac{e_i^2}{2}$ In what follows, we show that Proposition 1 remains robust in this setting.

Proceeding as in the baseline case, we first characterize the effort choice of the individual candidates. Denote $\mathbb{P}_i(e_i, e_{-i})$ the probability that candidate i obtains a seat in equilibrium. Then, differentiating B.1 with respect to e_i, we obtain

$$\frac{\partial \mathbb{P}_i(e_i, e_{-i})}{\partial e_i} R + \beta e_i - e_i. \tag{B.2}$$

Here, we must consider two cases: $\beta \geq 1$ and $\beta < 1$. Recall that $\frac{\partial \mathbb{P}_i(e_i, e_{-i})}{\partial e_i} \geq 0$. Therefore, when $\beta \geq 1$ B.2 is always positive, even if $\frac{\partial \mathbb{P}_i(e_i, e_{-i})}{\partial e_i} = 0$ (i.e., even if candidate i is guaranteed a seat or knows for sure he can never win one). Thus, all candidates exert maximum effort in equilibrium, regardless of the allocation of advantaged statuses. Notice, this solves the moral hazard problem for the party leadership. If each candidate's *individual* motives to exert effort are sufficiently strong, regardless of the prospects of winning a seat, the party leadership does not have to worry about adopting the list structure that maximizes their incentives to contribute to the party's collective performance.

Suppose instead, $\beta < 1$. Here, the problem resembles the baseline. Consider a candidate whose advantaged status guarantees a seat. Then, B.2 reduces to $\beta e_i - e_i$, which is always negative. As such, these candidates exert no effort in equilibrium. A similar logic applies to candidates who can never hope to win a seat. Instead, candidates who are not completely insulated from competition will exert positive effort, and their choice will be a function of *both* the electoral incentives (i.e., their incentives to win a seat), and their post-electoral motives (i.e., β). Proceeding as for the proof of Lemma 1, we obtain:

Case 1: the party assigns one advantaged position. The advantaged candidate is guaranteed a seat. Therefore:

$$e^*_{i_a} = 0 \tag{B.3}$$

In contrast, each non-advantaged candidate exerts strictly positive effort. Recall that in the baseline the assumption that $R < 1$ is enough to guarantee interior effort. Here, this is no longer true (whenever $\beta > 0$), thus we have :

$$e^*_{i_{na}} = min\{\frac{1}{2(1-\beta)}(\frac{3}{2}R\phi + \sqrt{\frac{9}{4}R^2\phi^2 + 4R(1-\beta)(\frac{5}{36} + \frac{5}{18}\phi S - \frac{11}{18}\phi K)}), 1\} \tag{B.4}$$

Case 2: the party assigns two advantaged positions. Here, both advantaged and non-advantaged candidates will exert strictly positive effort. Specifically:

$$e^*_{i_a} = min\{\frac{\sqrt{R(\frac{1}{2} + \phi(2K - 2e^*_{na} - S))}}{2(1-\beta)}, 1\} \tag{B.5}$$

$$e^*_{i_{na}} = min\{\frac{R\phi + \sqrt{R^2\phi^2 + R(1-\beta)(\frac{1}{2} - \phi(3K - 2e^*_a - S)}}{2(1-\beta)}, 1\} \tag{B.6}$$

Case 3: the party assigns three advantaged positions. The non-advantaged candidate has no hope of ever winning a seat, therefore:

$$e^*_{i_{na}} = 0 \tag{B.7}$$

Each advantaged candidate instead exerts effort:

$$e^*_{i_a} = min\{\sqrt{\frac{R\frac{2}{9}(\frac{1}{2} - \phi S) + \phi K R \frac{13}{18}}{1-\beta}}, 1\} \tag{B.8}$$

Case 4: the party assigns no advantaged position (i.e., open list). Each candidate in the list solves the same maximization problem, so each exerts the same amount of effort in equilibrium:

$$e^*_i = min\{\frac{1}{12(1-\beta)}(5R\phi + \sqrt{25R^2\phi^2 - 3(1-\beta)R(7\phi K - 4\phi S - 11)}), 1\} \tag{B.9}$$

Next, we compare the total equilibrium effort under the different allocation structures, and we establish the following result, mirroring Lemma 1 in the baseline:

Lemma 2. *Suppose $\beta < 1$. Then, Total campaign effort (and thus expected number of seats) is maximized when the party allocates zero advantaged positions ($n_a = 0$).*

Proof. We proceed in three steps.

Claim 4. *Total effort under $n_a = 0$ is always higher than total effort under $n_a \geq \overline{N}$ (i.e., if the party assigns three advantaged positions).*

Proof. First, suppose effort is interior. Then, total effort under $n_a = 0$ is

$$E_0^* = \frac{1}{3(1-\beta)}(5R\phi + \sqrt{25R^2\phi^2 - 3R(1-\beta)(7\phi K - 4\phi S - 11)}). \tag{B.10}$$

Total effort under $n_a \geq \overline{N}$ (i.e., if the party assigns three advantaged positions) is

$$E_3^* = 3\sqrt{\frac{R\frac{2}{9}(\frac{1}{2} - \phi S) + \phi K R\frac{13}{18}}{(1-\beta)}}. \tag{B.11}$$

Straightforwardly, sufficient condition to guarantee that $E_0^* > E_3^*$ is

$$\frac{1}{3(1-\beta)}\sqrt{25R^2\phi^2 - 3R(1-\beta)(7\phi K - 4\phi S - 11)} > 3\sqrt{\frac{R\frac{2}{9}(\frac{1}{2} - \phi S) + \phi K R\frac{13}{18}}{(1-\beta)}}, \tag{B.12}$$

which reduces to

$$25R\phi^2 - 3(1-\beta)(7\phi K - 4\phi V - 11) - 9(1-\beta)(1 - 2\phi V + \phi K\frac{13}{2}) > 0. \tag{B.13}$$

The LHS is increasing in S. Plugging in the lower bound $S = 3K - \frac{1}{2\phi}$, the above reduces to

$$25R\phi^2 + 9(1-\beta) + \frac{21}{2}(1-\beta)\phi K > 0, \tag{B.14}$$

which is always satisfied.

The above also implies that effort under an open list will hit the corner sooner. Furthermore, the number of candidates exerting effort is higher under an open list. Therefore, even if effort is at the corner under one or both allocation, the claim remains valid. □

Claim 5. *Total effort under $n_a = 0$ is (weakly) higher than total effort under $n_a \in (\underline{N}, \overline{N})$ (i.e., if the party assigns two advantaged positions).*

Proof. First, suppose effort is interior. Suppose that Total effort under $n_a \in (\underline{N}, \overline{N})$ is always lower than

$$E_2^{max} = \frac{1}{1-\beta}\Big(R\phi + \sqrt{R^2\phi^2 + R(1-\beta)(\frac{1}{2} - \phi(3K-2-S))}\Big) + \sqrt{\frac{R(\frac{1}{2} + \phi(2K-S))}{1-\beta}}. \tag{B.15}$$

Total effort under $n_a = 0$ is

$$E_0^* = \frac{1}{3(1-\beta)}(5R\phi + \sqrt{25R^2\phi^2 - 3R(1-\beta)(7\phi K - 4\phi S - 11)}). \tag{B.16}$$

To prove the claim, we proceed in three steps. First, notice that

$$\frac{5}{3}R\phi > R\phi. \tag{B.17}$$

Next, we can show that

$$\frac{1}{6(1-\beta)}\sqrt{25R^2\phi^2 - 3R(1-\beta)(7\phi K - 4\phi S - 11)} > \sqrt{R^2\phi^2 + R(1-\beta)(\frac{1}{2} - \phi(3K-2-S))} \tag{B.18}$$

Notice that the LHS is increasing in β (as we will show below, $(7\phi K - 4\phi S - 11) < 0$), while the RHS is decreasing. Thus, as established in the baseline model, the condition is always satisfied.

Finally, we can show that

$$\frac{1}{6(1-\beta)}\sqrt{25R^2\phi^2 - 3R(1-\beta)(7\phi K - 4\phi S - 11)} > \sqrt{\frac{R(\frac{1}{2} + \phi(2K-S))}{(1-\beta)}}. \tag{B.19}$$

Sufficient condition for the above to hold is

$$-3(7\phi K - 4\phi S - 11) > 36[\frac{1}{2} + \phi(2K-S)], \tag{B.20}$$

which reduces to

$$15 + 48\phi S - 93\phi K > 0. \tag{B.21}$$

By assumption, $S > max \in \{K + \frac{1}{2\phi}, 3K - \frac{1}{2\phi}\}$. First, suppose that $K > \frac{1}{2\phi}$, and plug in binding upper bound $S = 3K - \frac{1}{2\phi}$. The above reduces to

$$51\phi K - 9 > 0, \tag{B.22}$$

which is always satisfied at $K > \frac{1}{2\phi}$.

Finally, suppose that $K < \frac{1}{2\phi}$, and plug in binding upper bound $V = K + \frac{1}{2\phi}$. The above reduces to

$$39 - 45\phi K > 0, \tag{B.23}$$

which is always satisfied at $K < \frac{1}{2\phi}$.

The above also implies that effort under an open list will hit the corner sooner. Therefore, even if effort is at the corner under one or both allocation, the claim remains valid. □

Claim 6. *Total effort $n_a = 0$ is always higher than total effort under $0 < n_a \leq \underline{N}$ (i.e., if the party assigns one advantaged position).*

Proof. Suppose effort is interior. Denote E_1 the total effort under $0 < n_a \leq \underline{N}$. First, we can show that $\Delta = E_0^* - E_1^*$ is decreasing in S:

$$\frac{\partial \Delta}{\partial S} = \frac{2}{\sqrt{25R^2\phi^2 - 3R(1-\beta)(7\phi K - 4\phi S - 11)}} - \frac{5}{6\sqrt{\frac{9}{4}R^2\phi^2 + (1-\beta)\left(\frac{5}{9}R + \frac{10}{9}R\phi S - \frac{22}{9}\phi K\right)}}. \tag{B.24}$$

$\frac{\partial \Delta}{\partial S} < 0$ if and only if

$$144\left[\frac{9}{4}R^2\phi^2 + (1-\beta)\left(\frac{5}{9}R + \frac{10}{9}R\phi S - \frac{22}{9}\phi K\right)\right] < 25\left[25R^2\phi^2 + (1-\beta)\left(33R + 12R\phi S - 21R\phi K\right)\right], \tag{B.25}$$

which is always satisfied given $K < \frac{1}{\phi}$ (by assumption).

Thus, it is sufficient to show that the claim holds at the upper bound $S = 2K - 4 + \frac{1}{2\phi}$, i.e.,:

$$\begin{aligned}\frac{1}{3}\left(5R\phi + \sqrt{25R^2\phi^2 - 3R(1-\beta)[7\phi K - 4\phi(2K - 4 + \frac{1}{2\phi}) - 11]}\right) > \\ \frac{3}{2}\left(\frac{3}{2}R\phi + \sqrt{\frac{9}{4}R^2\phi^2 + 4R(1-\beta)[\frac{5}{36} + \frac{5}{18}\phi(2K - 4 + \frac{1}{2\phi}) - \frac{11}{18}\phi K]}\right),\end{aligned} \tag{B.26}$$

which reduces to

$$4\sqrt{25R^2\phi^2 + (1-\beta)(3R\phi K + 39R - 48R\phi)} > 7R\phi + 18\sqrt{\frac{9}{4}R^2\phi^2 + (1-\beta)\left(\frac{10}{9}R - \frac{2}{9}R\phi K - \frac{40}{9}R\phi\right)}. \tag{B.27}$$

Plugging in the lower bound $K = \frac{4\phi+1}{3\phi}$, we have

$$4\sqrt{25R^2\phi^2 + (1-\beta)(40R - 44R\phi)} > 7R\phi + 18\sqrt{\frac{9}{4}R^2\phi^2 + (1-\beta)\Big(\frac{27}{28}R - \frac{128}{27}R\phi\Big)}. \tag{B.28}$$

To show that the above condition is always satisfied, I proceed in two steps. First, since $\phi < \frac{1}{8}$ and $\beta + R < 1$ (for interior effort), notice that

$$\sqrt{25R^2\phi^2 + (1-\beta)(40R - 44R\phi)} > \sqrt{25R^2\phi^2 + R(40R - 44\frac{R}{8})} > R\sqrt{40 - \frac{44}{8}}, \tag{B.29}$$

and

$$7R\phi < \frac{7}{8}R. \tag{B.30}$$

Thus, we have that

$$\frac{7}{8\sqrt{40 - \frac{44}{8}}}R\sqrt{40 - \frac{44}{8}} \geq 7R\phi, \tag{B.31}$$

and

$$\frac{7}{8\sqrt{40 - \frac{44}{8}}}\sqrt{25R^2\phi^2 + (1-\beta)(40R - 44R\phi)} > 7R\phi. \tag{B.32}$$

Next, it is easy to see that

$$\Bigg(4 - \frac{7}{8\sqrt{40 - \frac{44}{8}}}\Bigg)\sqrt{25R^2\phi^2 + (1-\beta)(40R - 44R\phi)} > 18\sqrt{\frac{9}{4}R^2\phi^2 + (1-\beta)\Big(\frac{27}{28}R - \frac{128}{27}R\phi\Big)}. \tag{B.33}$$

Therefore

$$4\sqrt{25R^2\phi^2 + (1-\beta)(40R - 44R\phi)} > 7R\phi + 18\sqrt{\frac{9}{4}R^2\phi^2 + (1-\beta)\Big(\frac{27}{28}R - \frac{128}{27}R\phi\Big)}. \tag{B.34}$$

□

The above also implies that effort under an open list will hit the corner sooner. Furthermore, the number of candidates exerting effort is higher under an open list. Therefore, even if effort is at the corner under one or both allocation, the claim remains valid. □

Looking at the party leadership's choice, we then have:

Proposition 2. *The likelihood (in the sense of set inclusion) that the party leadership allocates advantaged positions to insulate some candidates from competition (i.e., chooses bottom only competition) is increasing in the party's ex-ante electoral strength S.*

Proof. The proof of Claim 6 shows that $\frac{\partial(E_0^* - E_1^*)}{\partial S} \leq 0$ (where the inequality is strict as long as at least one of the equilibrium effort choices is interior). Thus, there exists a unique $\widehat{B}(S, \beta) \geq 0$ s.t. in equilibrium the party leadership adopts bottom only competition if and only if $B > \widehat{B}(S, \beta)$, where $\widehat{B}(S, \beta \geq 1) = 0$, $\widehat{B}(S, \beta < 1) > 0$ and $\frac{\partial \widehat{B}(S,\beta)}{\partial S} \leq 0$ (where the inequality is strict whenever $\beta < 1$). Therefore, we have that the parameter region for which, in equilibrium, the party leadership adopts bottom only competition is (weakly) increasing in S. □

Amending parties' utility

Here, we analyze an extension of the baseline model where, in addition to the value of insulating their preferred candidates from internal competition, parties obtain a benefit that is a function (either decreasing or increasing) of the number of advantaged positions they allocate.

Formally, denote σ the total number of seats won by the party. Then, we have that the leadership's utility U_l is:

$$U_l = \begin{cases} W\sigma + f(n_a) + \Delta, & \text{if } 0 < n_a \leq \underline{N} \\ W\sigma + f(n_a), & \text{otherwise} \end{cases} \tag{B.35}$$

Thus, if $f(n_a) > 0$ is increasing in n_a, the party leadership obtains more and more utility as they assign more advantaged positions (everything else being equal). In contrast, if $f(n_a) > 0$ is decreasing in n_a, the party leadership prefers to assign a lower number of advantages, everything else being equal. Δ represents the additional value from securing seats for some specific candidate in the list.

Here we show that, in both cases, our predictions from Proposition 1 remain robust.

Proposition 3. *The likelihood (in the sense of set inclusion) that the party leadership allocates advantaged positions to insulate some candidates from competition (i.e., chooses bottom only competition) is increasing in the party's ex-ante electoral strength S.*

Proof. First, notice that the candidates' effort choices are as in the baseline model, since their strategic problem is unchanged. This implies that total effort is again maximized under open-list ($n_a = 0$), and $E_0^* - E_1^*$ is decreasing in S. Furthermore, if we compare A.10 and A.14, we can see that $E_3^* - E_1^*$ is also decreasing in S (recall that the subscript indicates the number of candidates who obtain an advantage).

With this, suppose first that $f(n_a)$ is increasing in n_a. Then, it must be the case that the party makes one of three choices in equilibrium: $n_a = 0$ to maximize effort, $n_a = 1$ to obtain Δ, or $n_a = 3$ to maximize $f(n_a)$.[35] Thus, there exists a $\widetilde{\Delta}(S)$ s.t. the party adopts bottom only competition if and only if $\Delta > \widetilde{\Delta}(S)$, where $\widetilde{\Delta}(S) = max\{U_l(n_a = 0) - U_l(n_a = 1); U_l(n_a = 3) - U_l(n_a = 1)\}$. Recall that S enters these differences in the party's utility only via the candidates' effort choices. Because both $E_0^* - E_1^*$ and $E_3^* - E_1^*$ are decreasing in S, it must be the case that $\widetilde{\Delta}(S)$ is decreasing in S as well.

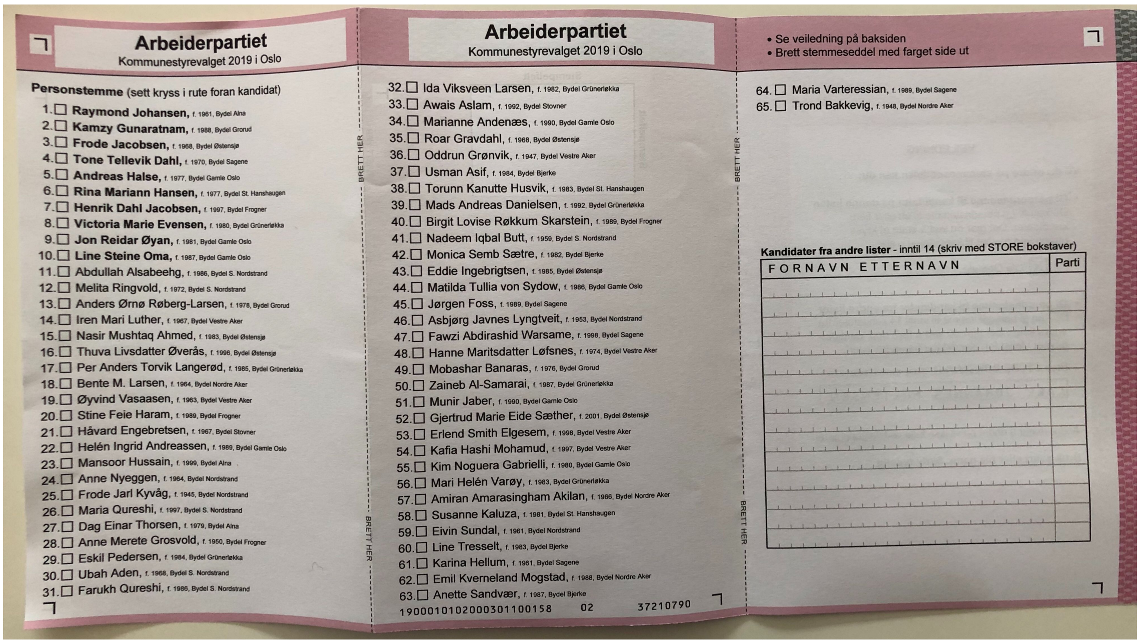
Next, suppose that $f(n_a)$ is increasing in n_a. Then, it must be the case that the party makes one of two choices in equilibrium: $n_a = 0$ to maximize effort, or $n_a = 1$ to obtain Δ *and* maximize $f(n_a)$. Thus, this case is equivalent to the baseline, and the result from Proposition 3 holds.

□

[35] Recall that we are assuming the party cannot assign an advantage to all the candidates in the list. However, relaxing this assumption would have no bearing on the results since the candidates incentives under $n_a = 0$ and $n_a = 4$ are identical, and thus $E_4^* = E_0^*$.

Appendix C: Additional figures and tables

Figure C.1: Example of ballot paper from the Labor Party in Oslo



Arbeiderpartiet
Kommunestyrevalget 2019 i Oslo

Personstemme (sett kryss i rute foran kandidat)

1.☐ **Raymond Johansen,** f. 1961, Bydel Alna
2.☐ **Kamzy Gunaratnam,** f. 1988, Bydel Grorud
3.☐ **Frode Jacobsen,** f. 1968, Bydel Østensjø
4.☐ **Tone Tellevik Dahl,** f. 1970, Bydel Sagene
5.☐ **Andreas Halse,** f. 1977, Bydel Gamle Oslo
6.☐ **Rina Mariann Hansen,** f. 1977, Bydel St. Hanshaugen
7.☐ **Henrik Dahl Jacobsen,** f. 1997, Bydel Frogner
8.☐ **Victoria Marie Evensen,** f. 1980, Bydel Grünerløkka
9.☐ **Jon Reidar Øyan,** f. 1981, Bydel Gamle Oslo
10.☐ **Line Steine Oma,** f. 1987, Bydel Gamle Oslo
11.☐ Abdullah Alsabeehg, f. 1986, Bydel S. Nordstrand
12.☐ Melita Ringvold, f. 1972, Bydel S. Nordstrand
13.☐ Anders Ørnø Røberg-Larsen, f. 1978, Bydel Grorud
14.☐ Iren Mari Luther, f. 1967, Bydel Vestre Aker
15.☐ Nasir Mushtaq Ahmed, f. 1983, Bydel Østensjø
16.☐ Thuva Livsdatter Øverås, f. 1996, Bydel Østensjø
17.☐ Per Anders Torvik Langerød, f. 1985, Bydel Grünerløkka
18.☐ Bente M. Larsen, f. 1964, Bydel Nordre Aker
19.☐ Øyvind Vasaasen, f. 1963, Bydel Vestre Aker
20.☐ Stine Feie Haram, f. 1989, Bydel Frogner
21.☐ Håvard Engebretsen, f. 1967, Bydel Stovner
22.☐ Helén Ingrid Andreassen, f. 1989, Bydel Gamle Oslo
23.☐ Mansoor Hussain, f. 1999, Bydel Alna
24.☐ Anne Nyeggen, f. 1964, Bydel Nordstrand
25.☐ Frode Jarl Kyvåg, f. 1945, Bydel Nordstrand
26.☐ Maria Qureshi, f. 1997, Bydel S. Nordstrand
27.☐ Dag Einar Thorsen, f. 1979, Bydel Alna
28.☐ Anne Merete Grosvold, f. 1950, Bydel Frogner
29.☐ Eskil Pedersen, f. 1984, Bydel Grünerløkka
30.☐ Ubah Aden, f. 1968, Bydel S. Nordstrand
31.☐ Farukh Qureshi, f. 1986, Bydel S. Nordstrand

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Arbeiderpartiet
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32.☐ Ida Viksveen Larsen, f. 1982, Bydel Grünerløkka
33.☐ Awais Aslam, f. 1992, Bydel Stovner
34.☐ Marianne Andenæs, f. 1990, Bydel Gamle Oslo
35.☐ Roar Gravdahl, f. 1968, Bydel Østensjø
36.☐ Oddrun Grønvik, f. 1947, Bydel Vestre Aker
37.☐ Usman Asif, f. 1984, Bydel Bjerke
38.☐ Torunn Kanutte Husvik, f. 1983, Bydel St. Hanshaugen
39.☐ Mads Andreas Danielsen, f. 1992, Bydel Grünerløkka
40.☐ Birgit Lovise Røkkum Skarstein, f. 1989, Bydel Frogner
41.☐ Nadeem Iqbal Butt, f. 1959, Bydel S. Nordstrand
42.☐ Monica Semb Sætre, f. 1982, Bydel Bjerke
43.☐ Eddie Ingebrigtsen, f. 1985, Bydel Østensjø
44.☐ Matilda Tullia von Sydow, f. 1986, Bydel Gamle Oslo
45.☐ Jørgen Foss, f. 1989, Bydel Sagene
46.☐ Asbjørg Javnes Lyngtveit, f. 1953, Bydel Nordstrand
47.☐ Fawzi Abdirashid Warsame, f. 1998, Bydel Sagene
48.☐ Hanne Maritsdatter Løfsnes, f. 1974, Bydel Vestre Aker
49.☐ Mobashar Banaras, f. 1976, Bydel Grorud
50.☐ Zaineb Al-Samarai, f. 1987, Bydel Grünerløkka
51.☐ Munir Jaber, f. 1990, Bydel Gamle Oslo
52.☐ Gjertrud Marie Eide Sæther, f. 2001, Bydel Østensjø
53.☐ Erlend Smith Elgesem, f. 1998, Bydel Vestre Aker
54.☐ Kafia Hashi Mohamud, f. 1997, Bydel Vestre Aker
55.☐ Kim Noguera Gabrielli, f. 1980, Bydel Gamle Oslo
56.☐ Mari Helén Varøy, f. 1983, Bydel Grünerløkka
57.☐ Amiran Amarasingham Akilan, f. 1966, Bydel Nordre Aker
58.☐ Susanne Kaluza, f. 1981, Bydel St. Hanshaugen
59.☐ Eivin Sundal, f. 1961, Bydel Nordstrand
60.☐ Line Tresselt, f. 1983, Bydel Bjerke
61.☐ Karina Hellum, f. 1961, Bydel Sagene
62.☐ Emil Kverneland Mogstad, f. 1988, Bydel Nordre Aker
63.☐ Anette Sandvær, f. 1987, Bydel Bjerke
1900010102000301100158 02 37210790

BRETT HER

- Se veiledning på baksiden
- Brett stemmeseddel med farget side ut

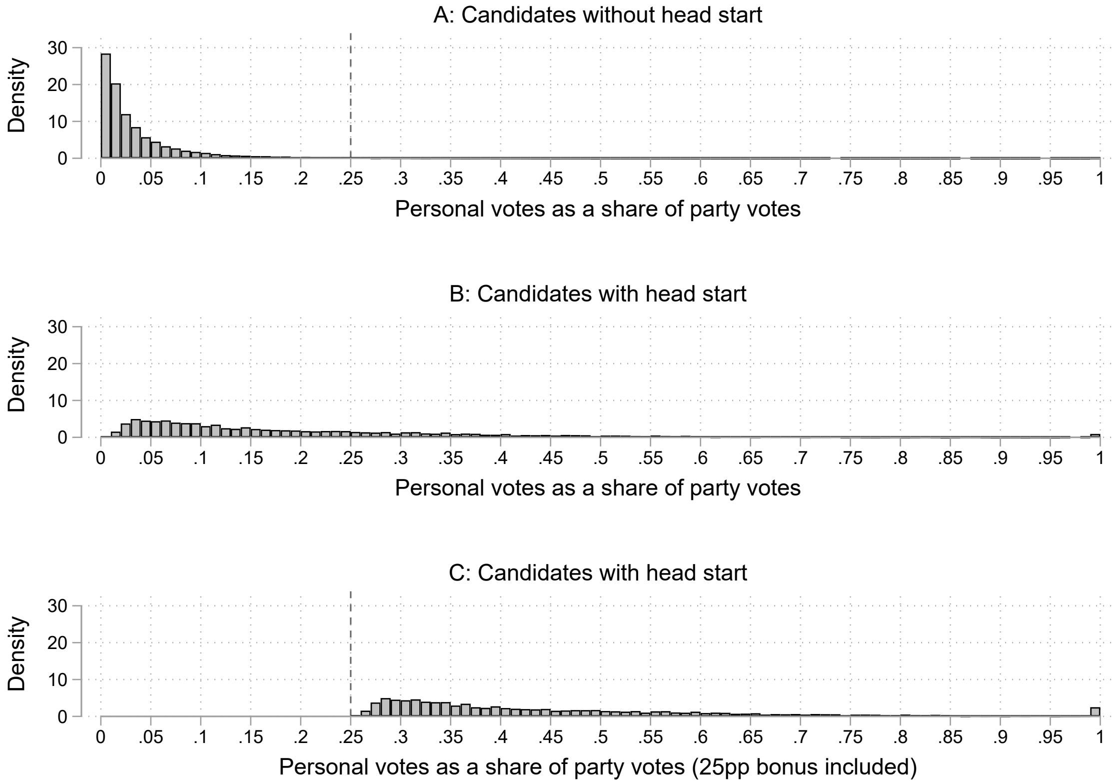
64.☐ Maria Varteressian, f. 1989, Bydel Sagene
65.☐ Trond Bakkevig, f. 1948, Bydel Nordre Aker

Kandidater fra andre lister - inntil 14 (skriv med STORE bokstaver)

FORNAVN ETTERNAVN	Parti

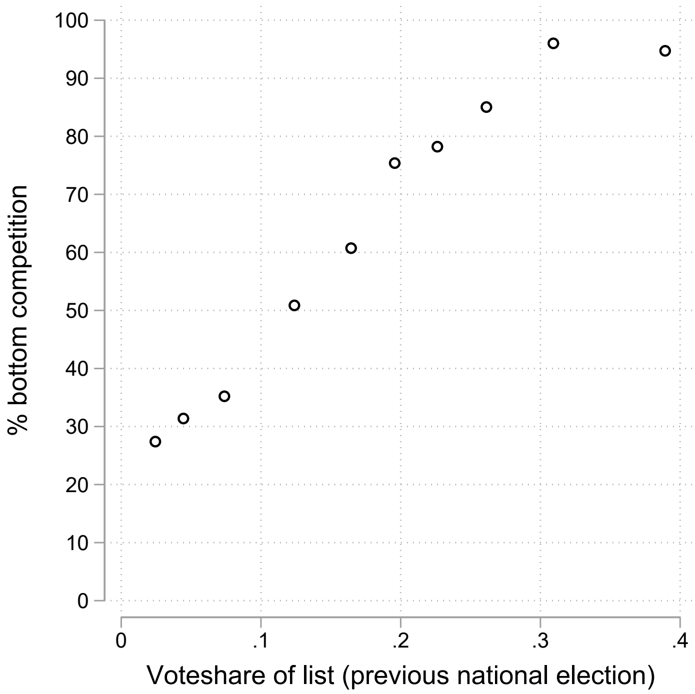
*Note: The figure shows the ballot paper from the Labor Party (*Arbeiderpartiet*) in Oslo for the 2019 election. The first ten candidates on the ballot have a head start and are listed in boldface.*

Figure C.2: Personal votes as a share of party votes for two types of candidates



Note: Panel A plots the density of observations as a function of personal votes as share of party votes for candidates without a head start. Similarly, Panel B plots the density of observations as a function of personal votes as share of party votes for candidates with a head start. Finally, Panel C, is identical to Panel B, but the 25 *percentage point bonus is included. Because voters can cast personal votes from candidates from other party lists, it is possible for a candidate's personal votes to exceed party votes. In the figure, we censor observations above* 1*. The sample is all candidates running for one of the seven main parties in the 2019 local election.*

Figure C.3: The likelihood that a party chooses bottom only competition ($0 < n_a \leq \underline{N}$) increases with electoral strength measured by the local party vote share in the previous national election



Note: The figure shows the fraction of local party lists choosing $0 < n_a \leq \underline{N}$ *(denoted on the y axis as the party choosing 'bottom only competition') in the 2019 election as a function of the local party vote share in the national election 2017.*

Table C.1: Municipality-level summary statistics for the main parties running in the 2019 local election

	Mean	SD	Min	Max	N
Share of votes					
Socialist Left Party (SV)	0.07	0.05	0.02	0.37	239
Labor Party (A)	0.29	0.11	0.07	0.67	346
Center Party (SP)	0.28	0.14	0.03	0.69	341
Liberal Party (V)	0.04	0.04	0.01	0.36	220
Christian Democratic Party (KrF)	0.07	0.06	0.01	0.40	222
Conservative Party (H)	0.16	0.09	0.02	0.58	309
Progress Party (FrP)	0.09	0.06	0.02	0.32	247
Seats in the local council					
Socialist Left Party (SV)	1.86	1.25	0	8	239
Labor Party (A)	7.38	3.70	1	19	346
Center Party (SP)	6.63	3.25	1	22	341
Liberal Party (V)	1.17	1.21	0	11	220
Christian Democratic Party (KrF)	1.84	1.74	0	8	222
Conservative Party (H)	4.72	3.54	0	24	309
Progress Party (FrP)	2.81	2.14	0	13	247
Seats in the executive board					
Socialist Left Party (SV)	0.58	0.57	0	2	239
Labor Party (A)	2.24	1.03	0	6	346
Center Party (SP)	2.00	0.98	0	5	341
Liberal Party (V)	0.33	0.52	0	3	220
Christian Democratic Party (KrF)	0.64	0.66	0	3	222
Conservative Party (H)	1.45	0.97	0	7	309
Progress Party (FrP)	0.76	0.74	0	3	247
Candidates with a pre-advantage					
Socialist Left Party (SV)	2.49	1.27	0	7	239
Labor Party (A)	3.17	1.81	0	10	346
Center Party (SP)	2.09	1.28	0	6	341
Liberal Party (V)	2.01	1.38	0	8	220
Christian Democratic Party (KrF)	1.87	1.09	0	6	222
Conservative Party (H)	2.59	1.80	0	10	309
Progress Party (FrP)	2.66	1.85	0	10	247

Table C.2: Individual-level summary statistics for the main sample

	Mean	SD	Min	Max	N
Pre-advantage	0.12	0.33	0.00	1.00	29312
Personal votes (share of party total)	0.05	0.08	0.00	0.78	29312
New candidate	0.38	0.49	0.00	1.00	29312
Previously elected 2003-2015 (count)	0.38	0.85	0.00	4.00	29312
Mayor (any previous election)	0.01	0.11	0.00	1.00	29312
Age	49.23	14.48	18.00	94.00	29312
Woman	0.43	0.49	0.00	1.00	29312
Log (Income)	12.77	1.20	3.71	15.66	29312
Union member	0.51	0.50	0.00	1.00	29312
Donations (NOK 10000)	0.17	0.50	0.00	4.00	29312
Municipal employee	0.30	0.46	0.00	1.00	29312
High education	0.46	0.50	0.00	1.00	29312
Immigrant	0.08	0.27	0.00	1.00	29312

Table C.3: Comparing advantaged candidates in top and bottom only competition lists

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Personal vote share	0.059***	0.021***	0.031***	0.022***
	(0.006)	(0.007)	(0.005)	(0.005)
Mean of outcome var.	0.055	0.053	0.046	0.033

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
New candidate	0.160***	0.126***	0.145***	0.139***
	(0.029)	(0.038)	(0.038)	(0.039)
Mean of outcome var.	0.376	0.393	0.405	0.417

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Elected prev. (no.)	-0.644***	-0.449***	-0.362***	-0.356***
	(0.069)	(0.093)	(0.097)	(0.115)
Mean of outcome var.	0.363	0.351	0.426	0.470

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Previous mayor	-0.099***	-0.073***	-0.097***	-0.058***
	(0.011)	(0.015)	(0.015)	(0.014)
Mean of outcome var.	0.012	0.010	0.013	0.014

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Age (standardized)	-0.198***	-0.119*	0.003	0.037
	(0.059)	(0.063)	(0.069)	(0.073)
Mean of outcome var.	3.197	3.201	3.217	3.251

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Woman	-0.045*	-0.024	-0.034	-0.033
	(0.024)	(0.027)	(0.025)	(0.025)
Mean of outcome var.	0.440	0.430	0.426	0.431

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Log (income)	-0.162***	-0.154*	-0.188**	-0.442***
	(0.057)	(0.079)	(0.089)	(0.077)
Mean of outcome var.	12.770	12.782	12.774	12.806

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Union member	0.005	0.021	-0.045	-0.080*
	(0.028)	(0.040)	(0.037)	(0.042)
Mean of outcome var.	0.537	0.496	0.524	0.529

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Donations (NOK 10000)	-0.004	-0.002	-0.024	-0.049
	(0.033)	(0.037)	(0.028)	(0.037)
Mean of outcome var.	0.186	0.153	0.143	0.113

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Municipal employee	-0.094***	-0.038	-0.091**	-0.134***
	(0.029)	(0.035)	(0.035)	(0.041)
Mean of outcome var.	0.333	0.292	0.287	0.249

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
High education	-0.058**	-0.026	-0.038	-0.071
	(0.029)	(0.040)	(0.038)	(0.052)
Mean of outcome var.	0.472	0.472	0.473	0.483

	(1) Adv 2	(2) Adv 3	(3) Adv 4	(4) Adv 5-6
Immigrant	0.011	0.026	0.024	0.047**
	(0.016)	(0.017)	(0.021)	(0.021)
Mean of outcome var.	0.077	0.079	0.089	0.106

Notes: In this table we analyze whether candidates obtaining an advantaged status in top and bottom only competition lists differ in terms of their individual characteristics. To this aim, we use the empirical specification from Equation 5 (omitting $\boldsymbol{\lambda}'\mathbf{X_{ipm}}$*), but consider candidates' individual characteristics as the outcome variable. For each outcome variable, we run separate regressions and report the estimated interaction effect (Top competition X Advantage). For completeness, we also report results when using the personal vote share as outcome variable (thus, the top-left panel is the result of our analysis from the main body—Equation 5), but without controlling for individual characteristics). * denotes 10% statistical significance, ** 5% and *** 1%.*

Table C.4: Extended version of Table 1 with candidate characteristics coefficients reported

	(1) Advantage 2	(2) Advantage 3	(3) Advantage 4	(4) Advantage 5-6
Top competition	0.002	0.004*	0.002	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)
Advantage	0.127***	0.104***	0.074***	0.060***
	(0.004)	(0.005)	(0.004)	(0.003)
Top competition X Advantage	0.076***	0.037***	0.050***	0.036***
	(0.006)	(0.006)	(0.006)	(0.007)
New candidate	0.000	0.000	0.002	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Elected one time before	0.029***	0.031***	0.023***	0.013***
	(0.002)	(0.004)	(0.003)	(0.003)
Elected two times before	0.037***	0.047***	0.034***	0.023***
	(0.003)	(0.006)	(0.005)	(0.006)
Elected three times before	0.052***	0.046***	0.050***	0.027***
	(0.005)	(0.008)	(0.010)	(0.007)
Elected four times before	0.053***	0.064***	0.056***	0.021**
	(0.008)	(0.014)	(0.013)	(0.008)
Mayor (any previous election)	0.060***	0.113***	0.131***	0.144***
	(0.009)	(0.019)	(0.020)	(0.020)
Age (standardized)	-0.007***	-0.006***	-0.007***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Woman	-0.007***	-0.005***	-0.008***	-0.007***
	(0.001)	(0.002)	(0.002)	(0.002)
Log (Income)	0.003***	0.003***	0.002***	0.002***
	(0.000)	(0.001)	(0.001)	(0.001)
Union member	-0.002*	-0.005**	-0.004**	-0.004**
	(0.001)	(0.002)	(0.002)	(0.002)
Donations (NOK 10000)	0.003**	0.007***	0.008***	0.003
	(0.002)	(0.002)	(0.003)	(0.002)
Municipal employee	0.002*	0.004*	0.005***	0.009***
	(0.001)	(0.002)	(0.002)	(0.002)
High education	0.006***	0.008***	0.004**	0.002
	(0.001)	(0.002)	(0.002)	(0.002)
Immigrant	-0.005***	-0.005*	-0.002	-0.003
	(0.002)	(0.003)	(0.003)	(0.003)
Mean of outcome var.	0.055	0.053	0.046	0.033
R-squared	0.58	0.55	0.53	0.50
Observations	10606	4458	4071	3025

*Notes: The baseline sample is all the candidates running for one of the seven main parties in the 2019 local election. We drop lists from municipalities using a parliamentary systems, lists from municipalities involved in mergers, and lists where we fail to match any candidates with administrative data from Statistics Norway. We split the sample by the number of advantaged candidates (given in the title of each column). We pool cases where the advantage is given to 5-6 candidates because of few observations. Party fixed effects are included but not reported. Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%.*

Table C.5: A version of Table 1 for municipalities with below 10k inhabitants

	(1) Advantage 2	(2) Advantage 3	(3) Advantage 4	(4) Advantage 5-6
Top competition	-0.001	-0.001	0.001	0.002
	(0.002)	(0.003)	(0.003)	(0.007)
Advantage	0.122***	0.097***	0.071***	0.045***
	(0.004)	(0.006)	(0.006)	(0.008)
Top competition X Advantage	0.079***	0.042***	0.048***	0.061**
	(0.008)	(0.008)	(0.008)	(0.019)
Mean of outcome var.	0.060	0.062	0.055	0.050
R-squared	0.56	0.53	0.51	0.50
Observations	7263	2617	2014	250

*Notes: The outcome variable is the candidates' personal vote share (within party list). The baseline sample is all the candidates running for one of the seven main parties in the 2019 local election. We drop all lists where we fail to match any candidates with administrative data from Statistics Norway. This sample consider only municipalities that have below 10,000 inhabitants. We split this sample further by the number of advantaged candidates (given in the title of each column). We pool cases where the advantage is given to 5-6 candidates because of few observations. We control for various candidate characteristics and national party fixed effects (see Equation 5). Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%.*

Table C.6: A version of Table 1 for municipalities with above 10k inhabitants

	(1) Advantage 2	(2) Advantage 3	(3) Advantage 4	(4) Advantage 5-6
Top competition	0.005*	0.006***	0.000	-0.002
	(0.003)	(0.002)	(0.003)	(0.002)
Advantage	0.139***	0.114***	0.072***	0.061***
	(0.008)	(0.008)	(0.005)	(0.003)
Top competition X Advantage	0.062***	0.029***	0.055***	0.032***
	(0.011)	(0.010)	(0.008)	(0.007)
Mean of outcome var.	0.045	0.041	0.038	0.032
R-squared	0.65	0.62	0.58	0.51
Observations	3343	1841	2057	2775

*Notes: The outcome variable is the candidates' personal vote share (within party list). The baseline sample is all the candidates running for one of the seven main parties in the 2019 local election. We drop all lists where we fail to match any candidates with administrative data from Statistics Norway. This sample consider only municipalities that have above 10,000 inhabitants. We split this sample further by the number of advantaged candidates (given in the title of each column). We pool cases where the advantage is given to 5-6 candidates because of few observations. We control for various candidate characteristics and national party fixed effects (see Equation 5). Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%.*

Table C.7: Candidates insulated from intraparty competition receive fewer media hits

	(1) Advantage 2	(2) Advantage 3	(3) Advantage 4	(4) Advantage 5-6
Top competition	0.006**	0.007**	0.007**	0.000
	(0.002)	(0.003)	(0.004)	(0.003)
Advantage	0.156***	0.109***	0.083***	0.059***
	(0.007)	(0.007)	(0.006)	(0.005)
Top competition X Advantage	0.032**	0.025*	0.032**	0.027***
	(0.015)	(0.014)	(0.012)	(0.010)
Mean of outcome variable	0.055	0.052	0.046	0.033
R-squared	0.31	0.26	0.28	0.25
Observations	10592	4450	4064	3025

*Notes:The outcome variable is the candidates' media hits share (within party list). The baseline sample is all the candidates running for one of the seven main parties in the 2019 local election. We drop all lists where we fail to match any candidates with administrative data from Statistics Norway. We split the sample by the number of advantaged candidates (given in the title of each column). We pool cases where the advantage is given to 5-6 candidates because of few observations. We control for various candidate characteristics and national party fixed effects. Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%.*

Table C.8: Relationship between bottom only competition ($0 < n_a \leq \underline{N}$) and electoral strength measured by the local party vote share in the previous national election

	(1) All	(2) All	(3) All	(4) All	(5) $A < A\_max$	(6) $0 < \underline{N}$	(7) $\underline{N} < A\_max$
Voteshare (2017 national election)	2.031***	1.674***	1.471***	1.522***	1.459***	1.355***	1.641***
	(0.091)	(0.126)	(0.160)	(0.148)	(0.157)	(0.149)	(0.217)
Number of incumbents		0.029***	0.020***	0.039***	0.046***	0.036***	0.042***
		(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.012)
Mean of outcome variable	0.587	0.587	0.587	0.587	0.594	0.631	0.469
R-squared	0.21	0.22	0.26	0.27	0.25	0.22	0.16
Observations	1626	1626	1626	1626	1479	1513	1220
Party FE	No	No	Yes	No	No	No	No
Municipality FE	No	No	No	Yes	Yes	Yes	Yes

*Notes: We use a linear probability model (OLS). Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%.*

Table C.9: Repeating the analysis from Table 3 using the local party's vote-share in the previous national election as an alternative proxy for electoral strength (S)

	(1)	(2)	(3)	(4)	(5)
Voteshare (2017 national election)	0.400***	0.318***	0.403***	0.372***	0.261***
	(0.035)	(0.033)	(0.035)	(0.042)	(0.045)
Length of list		0.004***	0.005***	0.005***	0.007***
		(0.001)	(0.001)	(0.001)	(0.001)
List with mayor			-0.057***	-0.075***	-0.064***
			(0.009)	(0.009)	(0.010)
Mean of outcome variable	0.620	0.620	0.620	0.620	0.620
R-squared	0.40	0.45	0.47	0.52	0.45
Observations	954	954	954	954	954
Advantage (count) FE	Yes	Yes	Yes	Yes	Yes
Party FE	No	No	No	Yes	No
Municipality FE	No	No	No	No	Yes

Notes: The share of personal votes to non-advantaged candidates is the outcome variable. The key variable of interest is S. The unit of analysis is a list in a municipality.

Table C.10: Who gets the advantage?

	(1)	(2)	(3)	(4)
New candidate	-0.002	-0.001		-0.020***
	(0.003)	(0.003)		(0.004)
Elected one time before	0.217***	0.215***		0.206***
	(0.009)	(0.009)		(0.008)
Elected two times before	0.305***	0.291***		0.291***
	(0.012)	(0.012)		(0.012)
Elected three times before	0.349***	0.309***		0.316***
	(0.017)	(0.018)		(0.017)
Elected four times before	0.500***	0.417***		0.428***
	(0.023)	(0.024)		(0.023)
Mayor (any previous election)		0.311***		0.296***
		(0.026)		(0.026)
Age (standardized)			0.004*	-0.029***
			(0.002)	(0.002)
Woman			-0.004	0.013***
			(0.003)	(0.003)
Log (Income)			0.027***	0.018***
			(0.001)	(0.001)
Union member			-0.020***	-0.003
			(0.005)	(0.004)
Donations (NOK 10000)			0.003	0.000
			(0.004)	(0.004)
Municipal employee			0.049***	0.017***
			(0.006)	(0.005)
High education			0.046***	0.029***
			(0.005)	(0.004)
Immigrant			-0.037***	-0.022***
			(0.006)	(0.006)
Mean of outcome variable	0.122	0.122	0.122	0.122
Within R-squared	0.14	0.15	0.02	0.16
Observations	29312	29312	29312	29312
Local party FE	Yes	Yes	Yes	Yes

*Notes: The baseline sample is all the candidates running for any of the seven main parties in the 2019 local election. We drop all lists where we fail to match any candidates with administrative data from Statistics Norway. Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%.*

Table C.11: Who gets the advantage? Heterogenous effects by party bloc

	(1) Left	(2) Center	(3) Right	(4) (1) - (2)	(5) (1) - (3)	(6) (2) - (3)
New candidate	-0.016**	-0.013**	-0.039***	-0.003	0.023**	0.026***
	(0.007)	(0.006)	(0.007)	(0.010)	(0.010)	(0.010)
Elected one time before	0.198***	0.222***	0.194***	-0.023	0.005	0.028
	(0.013)	(0.015)	(0.016)	(0.020)	(0.021)	(0.021)
Elected two times before	0.269***	0.318***	0.282***	-0.049*	-0.013	0.036
	(0.018)	(0.021)	(0.021)	(0.026)	(0.028)	(0.029)
Elected three times before	0.281***	0.328***	0.338***	-0.046	-0.056	-0.010
	(0.026)	(0.029)	(0.031)	(0.039)	(0.038)	(0.042)
Elected four times before	0.378***	0.468***	0.439***	-0.090*	-0.060	0.030
	(0.034)	(0.044)	(0.038)	(0.053)	(0.053)	(0.054)
Mayor (any previous election)	0.404***	0.227***	0.189***	0.178***	0.215***	0.038
	(0.037)	(0.048)	(0.057)	(0.061)	(0.069)	(0.076)
Age (standardized)	-0.039***	-0.021***	-0.030***	-0.017***	-0.009	0.009
	(0.004)	(0.003)	(0.005)	(0.005)	(0.006)	(0.005)
Woman	0.012**	0.000	0.030***	0.012*	-0.018**	-0.030***
	(0.005)	(0.005)	(0.006)	(0.007)	(0.008)	(0.008)
Log (Income)	0.018***	0.014***	0.022***	0.004	-0.004	-0.008**
	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)
Union member	0.001	0.000	-0.012	0.001	0.013	0.012
	(0.007)	(0.006)	(0.008)	(0.010)	(0.011)	(0.010)
Donations (NOK 10000)	0.011	-0.002	0.000	0.014	0.011	-0.003
	(0.013)	(0.005)	(0.011)	(0.014)	(0.017)	(0.012)
Municipal employee	0.009	0.014*	0.037***	-0.006	-0.028**	-0.022*
	(0.007)	(0.007)	(0.011)	(0.010)	(0.013)	(0.013)
High education	0.026***	0.035***	0.024***	-0.009	0.002	0.012
	(0.007)	(0.006)	(0.008)	(0.010)	(0.011)	(0.010)
Immigrant	-0.037***	-0.007	-0.021*	-0.030**	-0.016	0.014
	(0.010)	(0.010)	(0.012)	(0.014)	(0.016)	(0.016)
Mean of outcome variable	0.128	0.106	0.137	0.117	0.132	0.119
Within R-squared	0.17	0.17	0.16	0.17	0.16	0.16
Observations	10135	11341	7836	21476	17971	19177
Local party FE	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: The baseline sample is all the candidates running for one of the seven main parties in the 2019 local election. We drop all lists where we fail to match any candidates with administrative data from Statistics Norway. Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%.*

Table C.12: Who gets the advantage? Heterogenous effects by list's previous success in winning mayoral office

	(1) Never	(2) Sometimes	(3) Always	(4) (1) - (2)	(5) (1) - (3)	(6) (2) - (3)
New candidate	-0.023***	-0.020***	-0.028**	0.003	-0.005	0.008
	(0.005)	(0.006)	(0.014)	(0.008)	(0.014)	(0.015)
Elected one time before	0.244***	0.167***	0.169***	-0.078***	-0.076***	-0.002
	(0.012)	(0.012)	(0.028)	(0.016)	(0.029)	(0.030)
Elected two times before	0.327***	0.272***	0.285***	-0.055**	-0.043	-0.013
	(0.018)	(0.017)	(0.035)	(0.024)	(0.038)	(0.039)
Elected three times before	0.383***	0.324***	0.322***	-0.059*	-0.061	0.002
	(0.026)	(0.025)	(0.042)	(0.036)	(0.048)	(0.048)
Elected four times before	0.546***	0.481***	0.412***	-0.064	-0.133**	0.069
	(0.032)	(0.034)	(0.059)	(0.046)	(0.063)	(0.067)
Age (standardized)	-0.031***	-0.025***	-0.042***	0.005	-0.011	0.017*
	(0.003)	(0.004)	(0.008)	(0.004)	(0.008)	(0.009)
Woman	0.007	0.018***	0.021**	0.011**	0.014	-0.002
	(0.004)	(0.004)	(0.009)	(0.006)	(0.011)	(0.010)
Log (Income)	0.016***	0.024***	0.025***	0.009***	0.010*	-0.001
	(0.002)	(0.002)	(0.005)	(0.003)	(0.005)	(0.005)
Union member	0.001	-0.018***	-0.017	-0.019**	-0.018	-0.001
	(0.006)	(0.006)	(0.018)	(0.009)	(0.019)	(0.019)
Donations (NOK 10000)	0.002	-0.003	-0.007	-0.005	-0.009	0.004
	(0.005)	(0.008)	(0.019)	(0.010)	(0.019)	(0.020)
Municipal employee	0.013*	0.027***	0.050***	0.014	0.037**	-0.023
	(0.007)	(0.007)	(0.016)	(0.009)	(0.017)	(0.018)
High education	0.027***	0.036***	0.028*	0.009	0.001	0.008
	(0.006)	(0.006)	(0.016)	(0.008)	(0.017)	(0.017)
Immigrant	-0.018**	-0.021**	-0.061***	-0.002	-0.042**	0.040*
	(0.008)	(0.010)	(0.018)	(0.013)	(0.020)	(0.020)
Mean of outcome variable	0.130	0.108	0.119	0.122	0.129	0.110
Within R-squared	0.14	0.17	0.19	0.15	0.15	0.18
Observations	17414	9995	1903	27409	19317	11898
Local party FE	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: The baseline sample is all the candidates running for one of the seven main parties in the 2019 local election. We drop all lists where we fail to match any candidates with administrative data from Statistics Norway. Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%. We drop municipalities involved in mergers during the 2003-2019 period.*

Table C.13: Personal vote determinants

	(1)	(2)	(3)	(4)	(5)	(6)
New candidate	0.005***	0.005***		-0.001	0.001*	0.001*
	(0.001)	(0.001)		(0.001)	(0.001)	(0.001)
Elected one time before	0.061***	0.060***		0.057***	0.017***	0.017***
	(0.002)	(0.002)		(0.002)	(0.001)	(0.001)
Elected two times before	0.087***	0.082***		0.082***	0.024***	0.024***
	(0.003)	(0.003)		(0.003)	(0.002)	(0.002)
Elected three times before	0.109***	0.092***		0.094***	0.028***	0.028***
	(0.005)	(0.005)		(0.005)	(0.003)	(0.003)
Elected four times before	0.144***	0.111***		0.113***	0.031***	0.031***
	(0.006)	(0.006)		(0.006)	(0.004)	(0.004)
Mayor (any previous election)		0.125***		0.119***	0.018***	0.018***
		(0.008)		(0.007)	(0.006)	(0.006)
Age (standardized)			-0.002***	-0.011***	-0.006***	-0.006***
			(0.000)	(0.000)	(0.000)	(0.000)
Woman			-0.011***	-0.006***	-0.005***	-0.005***
			(0.001)	(0.001)	(0.001)	(0.001)
Log (Income)			0.008***	0.005***	0.002***	0.002***
			(0.000)	(0.000)	(0.000)	(0.000)
Union member			-0.009***	-0.003***	-0.001**	-0.001**
			(0.001)	(0.001)	(0.001)	(0.001)
Donations (NOK 10000)			0.006***	0.006***	0.005***	0.005***
			(0.001)	(0.001)	(0.001)	(0.001)
Municipal employee			0.015***	0.006***	0.001	0.001
			(0.001)	(0.001)	(0.001)	(0.001)
High education			0.017***	0.012***	0.006***	0.006***
			(0.001)	(0.001)	(0.001)	(0.001)
Immigrant			-0.012***	-0.009***	-0.005***	-0.005***
			(0.002)	(0.001)	(0.001)	(0.001)
Advantage (head start)						0.006**
						(0.002)
Mean of outcome variable	0.053	0.053	0.053	0.053	0.053	0.053
Within R-squared	0.20	0.23	0.04	0.26	0.69	0.69
Observations	29312	29312	29312	29312	29312	29312
Rank FE	No	No	No	No	Yes	Yes
Local party FE	Yes	Yes	Yes	Yes	Yes	Yes

*Notes: The baseline sample is all the candidates running for one of the seven main parties in the 2019 local election. We drop all lists where we fail to match any candidates with administrative data from Statistics Norway. Standard errors are clustered at the municipal level and reported in parentheses. * denotes 10% statistical significance, ** 5% and *** 1%.*