1 Introduction

Competent politicians are key for government and democracy to function well. In most democracies, political parties select the candidates who can run for o¢ ce. Parties' decision on which candidates to let run under their banner is therefore of fundamental importance. When they select candidates, parties have to worry not only about the competence of candidates but also about incentives, about their candidates' motivation to engage with voters and work hard for their party's electoral success.

Under closed-list proportional representation (PR),[1] the legislative seats a party wins are allocated to its candidates following the order of its electoral list. In this context, the parties' selection decisions become even more complex as they need not only decide which candidates to let run under their banner, but also how to rank them on their electoral list. As shown in Crutzen, Flamand, and Sahuguet (2020), each position on the list generates distinct incentives for candidates.

In this paper, we develop a formal model to analyze the conditions under which parties rank their candidates in decreasing order of competence. This orderreas

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to adopt a ranking that mirrors these incentives when their candidates di¤er in competence.

This …nding does not change when candidates are also driven by ideology, as the impact of ideology on e¤ort is independent of the position on the list. That ideology has no impact on the way parties rank their candidates to maximize electoral success also has the following, surprising additional e¤ect. Ideological polarization only impacts candidates' objective function via the payo¤ linked to ideology. As ideology impact on incentives does not depend on the rank on the party list, changes in the ideological polarization do not in‡uence how parties rank candidates.

Post-electoral high o¢ ces (typically linked to the control of the executive) o¤er a possible avenue to explain why we observe parties rank candidates in decreasing order of competence. If candidates ranked at the top of the list can get access to a high o¢ ce, candidates get an additional motivation to exert e¤ort to get their party win a majority of seats. If these additional incentives are strong enough, they can overturn the bell-shaped incentives coming from the prospect of winning a seat in parliament. Parties may then …nd it optimal to rank candidates in order of decreasing competence.

The presence of media e¤ects adds to the above …ndings. Indeed, it is well documented that the media coverage of candidates di¤ers based on their position on the list. Existing evidence suggests that candidates at the top of the list receive more attention than those lower on the list, with candidates who sit in hopeless positions receiving no attention at all (see for example Tresch (2009); Van Aelst, Sehata, and Van Dalen (2010); or Vos and Van Aelst (2018)). Indeed, whenever parties have to comment on a policy issue or need to send in a representative to participate in a debate, the media want their top candidates. In particular, the candidate who is at the top of the list receives the bulk of all media attention.

2 Related Literature

Candidate ranking strategies are not well understood in closed-list proportional representation systems, especially when both incentive and competence considerations play a role. Our paper thus adds to a small but growing literature, both empirical and theoretical, that

position on the list and an individual payo¤ – linked to post-electoral high o¢ ces – that varies according to the position on the list. Finally, we introduce media weights in the party output production function. These weights are decreasing with rank. Tresch (2009); Van Aelst et al. (2010); or Vos and Van Aelst (2018) report evidence that corroborates this assumption.

Buisseret et al. (2019) also propose a formal model of list composition and then test their predictions on Swedish municipal election data. Their model focuses on competence and leaves aside incentive e¤ects. Candidates di¤er in competence and are passive participants in the electoral contest.[4] The outcome of the election is determined by a complex calculus of voting. As in our model, parties that want to maximize their electoral success place their best candidates on marginal ranks. Yet, this is not due to incentive reasons, but to the fact that "a voter recognizes that her vote is likely to be inconsequential for the election prospects of candidates located within safe ranks" (Buisseret et al., 2019, p. 2). If parties also care about electing their best candidates and voters "recognize that high-quality leaders are the primary drivers of good policy outcomes" (p. 14), then placing the best candidates at the top of the list can be optimal.

Our theoretical predictions also help re…ne the empirical studies in the …eld. Indeed, we are not aware of any theoretical prediction on the e¤ect of the media and the importance of post-electoral high o¢ ces on candidates' ranking strategies of parties. For example, some contributions focus on the role of gender (Baltrunaite, Bello, Casarico and Profeta, 2014; Esteve-Volart and Bagues, 2012; Besley, Folke, Persson and Rickne, 2017). Others show that party loyalty matters, as Galasso and Nannicini (2015) do for the 2015 Italian elections (and especially for safe seats). Matakos, Savolainen, Troumpounis, Tukiainen and Xefteris

and Svitakova and Soltes (2020), for the Czech republic, …nd that candidate competence (as measured by earnings score or years of education) correlates positively with list rank, implying that parties put their best candidates at the top of their list. But in none of these works the role of media coverage and post-electoral job opportunities are taken into explicit consideration.

3 The model

Candidates and parties. Two parties are competing for n (odd) legislative seats.[5] Party j …elds a list of n candidates who exert e¤ort to contribute to their party electoral success. Candidate i in party j exerts e¤ort e at quadratic cost $K(e) = \frac{1}{2}c(e)e^2$. Candidates thus di¤er in their cost of e¤ort. We interpret this heterogeneity in costs as heterogeneity in the competence of candidates. A list for party j is a mapping $\{1,...,n\} \to \{1,...,n\}$ that assigns position m on the list to candidate i

such eecutive posi95(t)8(i)6(o)11(n)11(s)-983(a)10(n)12(d)-265(h)12(i)6gehces and that these

Candidate mj in position m on party j's list has thus the following bene…t function:

$$B \quad V \sum_{=} P \quad W \sum_{= maj} P$$

Timing

The timing of the game is as follows.

1- Nomination stage: Party leadership designs the list of candidates.

2- Campaign stage: Given party lists, candidates exert e¤ort.

3- Election stage: Given perceived party outputs, seats are allocated to parties.

4 Solving the model

4.1 Campaign stage: equilibrium e¤orts

In this subsection, we solve for the equilibrium of the campaign stage in which candidates choose e¤ort given the party lists and their position on their party list. Candidates exert e¤ort to increase the probability they get elected (simply to parliament or to parliament and a higher o¢ ce) through an increase in p . Candidate in position m in party j chooses e¤ort e to maximize:

$$B \quad K \quad e \quad V \sum_{=} P \quad p \quad W \sum_{= maj} P \quad p \quad -c \quad e \quad ^2:$$

Let $M \quad mC \quad p \quad p \quad ^{-+1}$ and $M \quad k \quad C_{maj} p \quad ^{maj} \quad p \quad ^{-maj+1}$: We then have:

Proposition 1. *In the Nash equilibrium of the game, candidate in position* m *on the list of*

party j *exerts e¤ort* e^* *and party* j*'s electoral output is given by* E^**, where:*

$$e^* = \frac{a}{c} E^* M V M W, \quad (1)$$

$$E^* = \sqrt{\sum_{=1} \frac{a^2}{c} M V M W}: \quad (2)$$

Proof. See appendix □

We characterize the equilibrium by taking the …rst-order conditions of candidates' maximization problems. In the appendix, we also check the second-order conditions and derive a su¢ cient condition under which the solution of the system of …rst-order conditions indeed maximizes candidates' expected payo¤.

If all candidates were of equal competence, the distribution of equilibrium e¤orts would follow the distribution of $a^2 M V M W$. As the distribution of binomial coe¢ cients is bell-shaped, the distribution of e¤ort inherits similar features (see Crutzen et al., 2020 for more details on the case with no media e¤ect and W). When candidates are heterogeneous in competence, equilibrium e¤orts also depend on how competence maps into parties' candidate ranking strategy.

4.2 Nomination stage

Given the above optimal choices of candidates, parties order candidates on their list to maximize their electoral success. In doing so, parties take into account the equilibrium e¤orts de…ned in Eq.(2) and (3) as well as the associated probabilities of winning seats. Party j's equilibrium electoral output E^* $\sqrt{\sum_{=1} \frac{m}{mj} M V M W}$ depends on the weights M and M , which are themselves a function of p . The party thus assigns candidates with marginal costs of e¤ort c to a position in which the incentive to exert e¤ort is proportional to p $a^2 M V M W$. To maximize party output, the list should assign the highest quality candidates to the position with the highest value of , the second highest quality candidate to the the position with the second highest value of , and so on and so forth.

To maximize their party's electoral success, the leadership assigns the most competent candidate to the position with the highest value of $\boldsymbol{M}$: As the distribution of weights $\boldsymbol{M}$ is hump-shaped and single-peaked, the distribution of competence across ranks needs to replicate this hump-shape, with the most competent candidate in position $\boldsymbol{np}$, if we ignore integer constraints. Indeed, if the party expects to win $\boldsymbol{np}$ seats, then the marginal bene…t of exerting e¤ort is highest for the candidate who is exactly at $\boldsymbol{np}$. More generally, other candidates are allocated in positions around the peak in decreasing order of competence following the values of $\boldsymbol{M}$. We thus have:

Proposition 3. *When candidates only care about getting a seat in parliament and the media treat all candidates equally, parties assign positions on the list so that the distribution of competence across ranks is hump-shaped, with the most competent candidate in position* $b\boldsymbol{np}c$*, the position corresponding to party* $\boldsymbol{j}$*'s equilibrium expected seat share.*

Proof. See appendix. □

The intuition behind Proposition 3 is simple. Candidates at the bottom and at the top of the party's list are respectively in hopeless and safe spots and face weak incentives to

Proposition 4. *The ideological bene…t* W *has no e¤ect on parties' optimal list strategies.*

An increase in ideological motivation, caused for example by an increase in the polarization of party platforms, makes the stakes of the election higher. Intuition would then suggest that parties have stronger incentives to put their best candidates on top of the list. This intuition turns out to be incorrect. The bene…t W impacts party output through $M \quad W$. Therefore, as M is the same for all candidates, a change in W does not a¤ect the ranking of the $M \quad V \quad M \quad W$, and thus the optimal list order does not depend on W. The recent

candidate at the top of the list, the second largest boost to the second candidate on the

Building on these facts, we now 386(w)-2o386t10(hs)8(e) 9(h)1(m)(f)6(86g)B(i)65(r386h)(.3)o11(n)84(h)-2916(a386)8(v)82(k).)386(

5.4 Party's popularity and list order

In most countries relying on proportional representation, a wide array of parties compete for seats. Some of them are major parties looking to win control of or at least participate in government, while other smaller parties are trying to push their agenda and get a few seats without a real chance to control the executive. Does the party's popularity and expected seat share influence the way they organize their list and rank their candidates? In the model, p corresponds to party j's popularity. Of course, the vector of p's is endogenous and determined in equilibrium, but these probabilities also reflect the competence of parties' candidates. We now discuss how the ranking of candidates on the list and the popularity of the party go together.

In proposition 3, we saw that a party would place their most competent candidate around the position corresponding to the expected number of seats. Thus, on average, under the conditions of proposition 3, small parties will place their best candidates earlier on their list than more popular parties. For instance, a party that expects to send only one candidate to the parliament will place its best candidate at the top of the list.

The effects of high offices discussed above depend on the value of $M \quad p$. The condition in proposition 5 is more easily met for higher values of p , that is for strong parties that are expected to win a large number of seats in parliament. Indeed, the effects of high offices are proportional to the probability that the party wins a majority. Thus, it is in large parties that the effects of high offices on incentives play an important role. As in the case analyzed above, electorally strong parties are thus more likely than weak parties to rank candidates in decreasing order of competence.

Media effect also have a different impact depending on the electoral strength of the party. The condition from proposition 6, $a \quad \sqrt{\frac{(\quad -\quad)}{1-\quad}\frac{j}{j}}a_{\quad+1}$, depends on the ratio $\frac{j}{1-\quad_j}$ which is increasing in p . This means that the media effect needs to be stronger in electoral strong parties.

6 Conclusion

We develop a model of electoral competition between parties under closed list proportional representation. Parties care about competence and incentives. A party orders its candidates

7 References

4): 387-399.

Galasso, Vincenzo, and Tommaso Nannicini, (2015). "So closed: Political selection in proportional systems." *European Journal of Political Economy,* 40: 260-273.

8 Appendix

Proof of proposition 1

Candidate m exerts e¤ort to increase the probability he gets elected through an increase in p .

The impact of an increase in that candidate m 's e¤ort on party j 's aggregate e¤ort is:

$$\frac{@E}{@e} \quad a :$$

thus, the impact of an increase in e on p is:

$$\frac{@p}{@e} \quad a \frac{E_{-}^{-1}}{E_{-} \quad E^{2}}$$
$$\frac{a}{E} p \quad p :$$

Di¤erentiating $P \quad p$, we obtain:

$$\frac{dP}{dp} \quad C \quad kp^{-1} \quad p^{-} \quad n \quad k \; p \quad p^{- -1}$$
$$C \; p^{-1} \quad p^{- -1} \; k \quad np :$$

Notice that the sign of the above is not always positive. This can be seen by noting the special case of k . If p increases, it is obvious that $P^{0} \; p$ is decreasing. As the above formula shows, $\frac{k}{j} \gtrless$ if and only if $k \gtrless np$.

So we get:

$$\frac{dP}{de} \quad \frac{a}{E} C \; p \quad p$$

We obtain

$$\frac{@B}{@e}\;\frac{@K\;e}{@e}\;\frac{a}{E}\;V\;\sum_{=}\;W\;\sum_{=\;Maj}\;!\;c\;e\;:$$

$$E\;\sum_{=1}\;a\;e\;\sum_{=1}\;a\;\frac{a}{c\;E}\;V\;\sum_{=}\;W\;\sum_{=\;Maj}\;!\;:$$

Let $\sum_{=}$ M : We have

$$M\quad mC\;p\quad p^{\;-\;+1}:$$

where

The sign of f

Rewriting the above, we obtain

$$\boldsymbol{E}^{-1}\boldsymbol{E}_{\_}{}^{j}$$

To …nish the proof of theorem 2, we consider a comparative static. The parameter corresponds to the increase or decrease in the cost parameter of a candidate. We want to see what happens when we change the cost parameter of one candidate. The direct e¤ect is to change $\boldsymbol{E}_1$, but that also changes $\boldsymbol{p}_1$; which leads to further changes in $\boldsymbol{E}_1$ and $\boldsymbol{E}_2$. We want to consider the general equilibrium e¤ect.

Equilibrium is de…ned by:

$$\boldsymbol{p}_1 \quad \boldsymbol{E}_1$$