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THE STRUGGLE FOR PREFERENCE VOTES: CAMPAIGN SPENDING IN OPEN LISTS PROPORTIONAL SYSTEMS

Piergiorgio Carapella

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Abstract

We analyse how candidates engage in campaign advertising in a proportional (PR) system with preference votes. Candidates are policy motivated and they compete in a two seats district. We compare our model to other setups, single district and closed list, and we show that in open lists intraparty competition drives candidate to spend more on campaign activities. We then test our model using an original dataset of Lombardy's Regional Elections. Campaign spending positively depends on intraparty competition, the candidate position in the list and on the vote share of the party, moreover, in closed lists the total level of spending is lower.

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1 Introduction

The question of how campaign finance influences politics, the selections of politicians, and policy implementation is obviously a very important issue. The perception that policies – and politicians - can be influenced by interest groups is one of the most serious concerns regarding the functioning of modern democracies, in particular given the increasing concentration of wealth and income experienced in the last twenty years (Fisher, 1999).

The topic has been extensively addressed, especially in the U.S., which has been traditionally characterized by limited public funding of parties or candidates, and by large donations by corporations and individuals (Chamon and Kaplan, 2013). However, the subject is now receiving increasing attention even outside the U.S., given the gradually switch from public funding to private ones happening also in Europe. Moreover, the results on the U.S. majoritarian system are not immediately transferable to other systems, given the large heterogeneity in electoral systems and other political dimensions.

The present work aims at analysing the mechanism of campaign spending in a open list proportional (PR) system and to compare the results under different electoral rules. We develop a model to study how candidates engage in campaign advertising in a PR system with preference votes. The model presents two types of voters, informed and uniformed, two parties with candidates that are policy motivated and compete in a two seats district. The results of the model are compared to other setups, single districts and closed lists.

Besides the concerning implications on policy distortion that we mentioned above, the impact of campaign spending on electoral outcomes has been extensively investigated, with controversial result. Jacobson (1978), with his pioneering investigation on congressional elections, stated that the impact of money is far more important for challengers than for incumbents, since the latter have already use their term in office to publicize themselves to the voters, whilst challengers should use campaign advertising to overcome the incumbency advantage. Green and Krasno (1988), using the same data, affirmed that, once challenger's quality has been accounted for, incumbents have positive and significant returns from campaign spending.

On the same topic, Erikson and Palfrey (1998) concentrated on estimating the actual incumbency advantage obtained from campaign spending. They found that money is very important for re-election but the effect decreases with seniority. More recently, Bombardini and Trebbi (2011) using a bilateral bargaining model between interest groups and U.S. congressmen, estimated that an additional vote costs nearly 145 dollars.

Moving from U.S. to proportional systems, we find less literature, probably due to the lack of organized data. We refer to Cox and Thies (1998) on Japanese election, Maddens et al. (2006) on Belgium and

Benoit and Marsh (2002) on Irish general election. All three studies found positive and significant effect of campaign spending on electoral outcomes and the impact is rather higher with respect to U.S.

One of the main differences, with PR and open lists systems, is that the effect of intraparty competition (Cox and Thies, 1998) should be much more relevant. With preference votes, the main opponent is within the same party[1], hence it should be easier for voters to switch their vote between candidates of the same party. On the other hand, in PR system it becomes harder for politicians to differentiate themselves on policy positions, since their ideology has to be concordant with the party line (Maddens et al., 2006), hence it is very costly for the candidates to signal their preferred policy.

In the theoretical literature, very few studies have analysed campaign spending in PR system. Grossmann and Helpman (1996), studied the optimal contributions by special interest groups in a two party setup with closed lists; they find that incentives are different with respect to majority systems. The objective of the party is to gain more seats, hence they could decide to advertise only the first candidate, creating a free-riding issue, or to distribute campaign financing among all the candidates in the lists, losing the informative content of campaign spending. We also refer to Erikson and Palfrey (2000) where the authors developed a campaign spending game with fundraising costs, to investigate how money influences the closeness of an electoral race between incumbents and challengers.

Our model shows that in open lists intraparty competition drives candidates to spend more on campaign activities, furthermore, in closed lists the cost of campaign advertising is borne only by the front-runner. Lastly, front-runners in large districts spend more with respect to their counterparts in single districts due to intraparty competition.

Using an original dataset on campaign expenditures of nearly 3000 candidates to Lombardy's Regional Council for three different elections from 2005 to 2013, we found empirical evidence to support some of the theoretical predictions of the model. In particular, a one per cent increase in the party vote share is associated to a increase, on average, of two thousand euros in campaign expenses. Furthermore, candidates in closed lists spend four thousand euros less with respect to open lists. Lastly, running in single districts is negatively correlated with campaign spending. We value the dataset as a contribution on its own, since these data are destroyed after five years[2].

The novelty of our contribution is twofold: no previous work have analysed campaign spending under different electoral rules and, to the best of our knowledge, there is no empirical analysis on Italy, which is very compelling because it is gradually moving to a more private funding system. Therefore, any work on campaign spending might be useful in predicting the effect on changes in funding schemes on future national electoral competitions[3].

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[1]In open-lists candidates have to gain preference votes and they share the party's electoral base.

[2]Due to the lack of digitization of Italy's public system, the candidates have to fill a paper and pencil form. These forms are then sent to the pulping mill shortly after the next election.

[3]In 2012, law n.96 have reduced the amount of public funding to parties and political movements. It also have strengthened

We focus on regional elections: Italy has twenty elected regional councils that are to be considered as professional legislative chambers. Councillors are summoned at least once a week and Regions have executive powers on several issues, such as health care, public transportation, local development and public procurement. We chose Lombardy for our analysis for two main causes: first, it is one of the biggest councils in Italy, secondly, in 2012 the electoral law changed from a mixed majoritarian/proportional system with open and closed lists to a completely proportional system with open lists. This gives an interesting element of variability to test both theoretically and empirically.

The structure of the paper is organized as follows: the following section illustrates the baseline model, the equilibrium and the comparisons with other electoral rules. Then we provide a short institutional background on campaign finance regulation and on Lombardy's electoral laws. Section 4 concludes with some tests of our theoretical predictions.

2   The Model

In a multiseat and open lists system, the main opponent is from the same party, so it is less costly for voters to switch preferences among politicians of the same coalition. Furthermore, as well established in the literature, with preference votes, it is more complex for politicians to distance themselves on policy positions, because the party label does not have the same efficacy as in majoritarian system (Katz, 1985). We also may add that as the district magnitude increases and having a limited policy space, it becomes very difficult for candidates to be able to differentiate themselves from their opponents. Therefore, money is a very important factor also in PR system and it is very compelling to analyse what drives campaign spending in this system with respect to majority voting.

We take as a reference the model on Grossman and Helpman (1996), who have analysed campaign financing of interest groups in proportional system but with closed list, so the main focus is on the parties' decisions. We take some intuitions of Erikson and Palfrey (2000), especially the idea of the campaign cost function, that had a similar environment but they focus their analysis mainly on the difference between incumbents and challengers, leaving out the party line.

The difference is that we have an open list-PR system with preference votes. There are two coalitions (parties) $Z = [L, R]$ a right wing and a left wing. Politicians policy positions are randomly drawn in $[0, 1]$ for the left coalition and in $[1, 2]$ for the right.

There are two agents, voters and politicians. They both maximize their utility. Candidates' utility is given by the preference function and the cost of campaigning. A candidate obtains a preference vote only if the voter writes fully their name in the ballot paper. We think that preference votes are

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the notion of co-financing, inducing parties to do a strong private fundraising to obtain public funding. At the municipal and regional level, candidates already are mostly privately financed with the party's funding that is neatly decreasing its importance.

the objective of the candidates, because, if they obtain enough votes, their political capital increases. Therefore they can use preference votes as leverage with the party for future office appointments, even if they do not win a seat in the current election.

Timing is as follows:

- t=0 Candidates' policy positions are randomly drawn from [0,1] for leftist candidates and from [1,2] for the rightist ones

- t=1 Politicians engage in campaign advertising

- t=2 Voters observe campaign spending and policy positions and vote

The baseline model exploits a two-seat district. We will explain the difference with single district and then we will expand the analysis to closed lists system. Since it is a two-seat district, the coalitions present two candidates each, j^L, k^L and j^R, k^R.

2.1 Voters

We assume there are two types of voters, informed and uninformed (Baron, 1984), and there is a continuum of voters that for simplicity we normalize to one.

Informed Voters

There is a fraction α of informed voters, whose utility derives from politicians' policy position $q_{j,k}$ and can observe the individual spending of the candidate. They are ideologically biased, so a fraction ℓ will always vote for coalition L. We are assuming a Hotelling-Downs electoral competition where politicians policy position are randomly drawn. Furthermore, candidates are not able to change their policy once elected. Informed voters utility is influenced by candidates' policy positions and individual spending.

Policy position and informed voters are uniformly distributed in $[0, 2]$, the fraction ℓ in $[0, 1]$ and $1 - \ell$ in $[1, 2]$. There is asymmetric information between politicians and voters, hence, due to intraparty competition, politicians have to advertise their policy position to informed voters.

Informed voters have heterogeneous preferences over the policy. Their utility is given by:

$$U^i = -|q_i - q_{j,k}| + \theta C_{j,k} \tag{1}$$

where q_i is the preferred policy position of the voters and $C_{j,k}^{L,R}$ represents campaign spending activities. We assume that voters are better off when they know the candidate. Their knowledge increases

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with campaign advertising (Coate, 2004b).

$\theta(S) \in [0, 1]$ is a parameter of intraparty competition, which is an increasing and concave function of S, the number of seats in the district.

The higher θ is, the more politicians are perceived as substitutes by the voters, hence campaign spending becomes more important for the voting decision.

Furthermore, we impose, without loss of generality, that $q_j \leq q_k$. Hence, the voter who is indifferent between the two policies will satisfy the following condition:

$$U^i(q_j) = U^i(q_k)$$

so the preferred policy position would be:

$$\bar{q}_i = \frac{q_k + q_j + \theta(C_j - C_k)}{2} \tag{2}$$

By assumption all the voter to the left of $\bar{q}_i$ will vote for j. So the vote shares of the two leftist candidates are:

$$\pi_j^L = \frac{q_k + q_j + \theta(C_j - C_k)}{2} \tag{3}$$

$$\pi_k^L = 1 - \frac{q_k + q_j + \theta(C_j - C_k)}{2} \tag{4}$$

Uninformed voters

On the other hand, the fraction $(1 - \alpha)$ of uniformed voters is influenced only by the overall spending of the coalition in the district, which is the sum of individual spending. They can be ideological biased with σ^i that is uniformly distributed in $\left[-\frac{1}{2\phi}, \frac{1}{2\phi} \right]$ (Persson and Tabellini, 2000).

A generic uninformed voter will vote for coalition L if:

$$C^L \geq C^R + \sigma^i$$

where $C^L = \sum_{j,k} C$. Hence, the fraction of uniformed voters that will vote for coalition L is given by:

$$\Pi^L = (\text{Prob } \sigma \leq \bar{\sigma}) = \phi \left(C^L - C^R + \frac{1}{2\phi} \right) \tag{5}$$

Since uniformed voters cannot directly observe the candidate, once they have decided for which coalition they intend to vote, they vote for politician j with some probability p_j, which positively depends on the candidate's relative position in the list. We assume that uninformed voters consider the

candidates' position in the list as a positive signal of quality. Therefore, they are more inclined to vote for candidates that are better positioned in the list.

In our baseline model we have two candidates, hence $p_k = 1 - p_j$; furthermore, we assume that these probabilities are the same for the two coalitions, hence $p_j^L = p_j^R$.

2.2 Politicians

Candidates maximize their utility which is given by the total number of preference votes $H(\cdot)$ obtained from both types of voters minus the cost of fundraising $K(\cdot)$. Preferences depend on politicians policy positions and on the party vote share. Candidates maximize their utilities by choosing the optimal level of campaign spending. Hence the objective function is:

$$V_{j,k}^{L,R} = H(\alpha, \ell, \theta, q, C) - K(C, \ell) \tag{6}$$

Every candidate runs if $V \geq 0$. Hence candidate j^L will maximize:

$$\max_{C_j} V_j^L = \alpha \ell \pi_j^L + (1 - \alpha) p_j \phi \left[C^L - C^R + \frac{1}{2\phi} \right] - K(C, \ell)$$

$K(C, \ell) = \frac{C^2}{\ell}$ is a cost function of fund-raising, and costs are decreasing with the party vote share ℓ, that is, the fraction of informed voters who vote for coalition L. Fund-raising is a costly activity due to the opportunity cost. In fact, politicians have to spare time from campaigning to participate in fund-raising events, make promises to interest groups and so on (Baron, 1989, Cox and Thies, 1998).

2.3 Equilibrium

At first, we analyse the equilibrium levels of spending if the informed voters are equally divided between the two coalitions, hence $\ell = \frac{1}{2}$. Maximizing equation (6) we find that in close races politicians have symmetric levels of spending equal to:

$$C_j^{L,R} = \frac{1}{4} \left(\frac{\alpha\theta}{4} + (1 - \alpha) p_j \phi \right) \tag{7}$$

$$C_k^{L,R} = \frac{1}{4} \left(\frac{\alpha\theta}{4} + (1 - \alpha) p_k \phi \right) \tag{8}$$

Once we have found the optimal campaign spending we can find the preference votes of the candidates. If coalitions are symmetric $C^L - C^R = 0$, we have:

$$H_j^L = \frac{1}{2}\alpha\left[\frac{q_k + q_j + \frac{1}{4}\phi(1-\alpha)(p_j - p_k)}{2}\right] + (1-\alpha)p_j \tag{9}$$

$$H_k^L = \frac{1}{2}\alpha\left[1 - \frac{q_k + q_j + \frac{1}{4}\phi(1-\alpha)(p_j - p_k)}{2}\right] + (1-\alpha)p_k \tag{10}$$

the results of the maximization can be easily interpreted. The two coalitions will get one candidate elected. Furthermore, candidate j^L gains more preference votes if $p_j \geq p_k + \lambda$, with $\lambda = \frac{\alpha - \alpha(q_k + q_j)}{\theta(1-\alpha)(\frac{1}{4}\phi+1)}$. If the candidates converge to the median on policy positions, than j^L will obtain more preference votes if $p_j \geq \frac{1}{2}$.

It is rather straightforward to generalize for unknown party shares. We have asymmetric level of spending, which depends on the expected vote share of the coalition. For sake of simplicity we write only the optimal level of spending for candidate j^L that is:

$$C_j^L = \frac{\ell}{2}\left(\frac{\alpha\theta\ell}{2} + (1-\alpha)\phi p_j\right) \tag{11}$$

Therefore spending is increasing in the vote share of the party, whilst it is increasing in intraparty competition and in the probability of receiving a vote from uninformed voters. The lower in the list a politician is, the less he spends on campaigning activities.

Also with asymmetric coalitions candidate j^L obtains more preference than the opponent if $p_j \geq p_k + \lambda_1$[4]. After having outlined the main results of the baseline model we can state the first proposition:

Proposition 1: Individual campaign spending is increasing in the vote share of the party, in intraparty competition and in the candidate's relative position in the list.

Corollary 1: Once they have maximized their campaign spending, candidate j obtains more preference votes if $p_j \geq p_k + \lambda$.

2.4 Comparative Statics

One of the main objectives of this paper is to compare the determinants and the level of spending in PR system under different electoral rules. We make two main comparisons, the first with single districts and the second with closed list, we then sketch a tentative solution for a case of district enlargement,

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[4]In the general case $\lambda_1 = \frac{\alpha\ell - \alpha\ell(q_k + q_j)}{\frac{\theta\alpha\ell^2\phi}{2} - \frac{\theta\alpha^2\ell^2\phi}{2} + \phi\Delta C + \frac{1}{2} - \alpha\phi\Delta C - \frac{1}{2}\phi^2}$, however, the same theoretical considerations of the symmetric equilibrium apply also in this case.

that is if the district switches from two seats to N seats.

2.4.1 Single District

In a single district there will be no intraparty competition, hence $\theta = 0$. We now have only two candidates, one for each coalition, and the objective function of the leftist is:

$$V^L = \alpha\ell + (1-\alpha)\phi \left[C^L - C^R + \frac{1}{2\phi} \right] - K(C,\ell) \tag{12}$$

which yields to the optimal level of spending in single district that is:

$$C^L = \frac{\ell}{2} \left(1 - \alpha\right) \phi \tag{13}$$

Comparing this result with the two-seat equilibrium of the previous section we can state that:

Proposition 2: In two-seat district candidate j will spend more if $p_j \geq 1 - \frac{\alpha\theta\ell}{2}$

Therefore, if the candidate's position in the list is not good enough, he will spend less with respect to the single district.

If we compare front-runners[5] in a large district, we could assume that $p_j \simeq 1$, the inequality is satisfied for every $\theta > 0$, this implies that:

Corollary 2: Front-runners in large districts will always spend more with respect to their counterparts in single districts, due to intraparty competition.

In the next section we provide an empirical test of this result.

2.4.2 Closed Lists

In closed lists politicians do not have to directly gain preference votes. In particular, we can use the same theoretical model to predict the level of spending in closed lists. In this framework, we are assuming that coalitions want to maximize their number of seats (Grossman and Helpman, 1996), which, for coalition L, is given by:

$$\max S^L = \alpha\ell + (1-\alpha)\phi \left[C^L - C^R + \frac{1}{2\phi} \right]$$

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[5]By front-runners we intend the first candidate in the list.

$$\text{s.t. } C^L - K(C, \ell) \le 0$$

Intraparty competition does not arise since politicians do not campaign on policy positions. They are covered by the party label as in single district. The optimal level of spending for the coalition is indeed the same as in single district, but it is divided between the two candidates in the list.

$$C^L = \frac{\ell}{2}(1 - \alpha)\phi \tag{14}$$

If the coalitions are symmetric, both coalitions gain one seat, reserved to the firsts in the list[6]. Thus front-runners spend C^L and the other candidates spend nothing.

To generalize with asymmetric party shares, for simplicity we assume there is a majority premium mechanism, so the left coalition gets two seats if $S^L - S^R > 0$. This will occur if the vote share is large enough, in particular if $\ell > \nu$, with $\nu = \frac{2\alpha + \phi - 1 + \phi\alpha}{2\phi - 2\phi\alpha + 2\alpha}$. However, this threshold is unknown *a priori* as it depends on ϕ, so we ensure that both coalitions will spend in campaign activities.

There is a free-riding issue that arises since the second candidate increases their utility if they do not spend anything in campaign activities. The best strategy for the second candidate is always not to engage in campaign advertising.

Therefore, we can state:

Proposition 3: In closed list, the total level of spending is lower with respect to open list and only the front-runner in the list bears the cost of campaign spending. Furthermore, if $\ell > \nu$ the second candidate will get elected without spending.

There are interesting shortcomings of this effect on the selection of candidates with closed list system, which we would like to address in future research on the topic. It could be interesting to understand if this electoral rule can affect the quality of elected politicians *via* campaign spending. In fact, it is assumable that during fund-raising candidates undergo a first stage of vetting process by donors and voters. If in closed list challengers do not have to raise money, they do not need to be recognized by voters and interest groups, which could affect the quality of candidates selected by the parties.

2.4.3 Redistricting

Now, as seen above, if the number of seats increases from one to two, candidates will spend more depending on their position in the list. If they are strong enough, they will spend more than their colleagues in single district. However, suppose that there is a change in the electoral law and the district

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[6]In closed lists candidates are elected according to their order in the lists.

magnitude changes from two to N, what will happen in this case? Our intuition is that there will be different reactions with respect to the candidates' position in the list.

As an example, we take the front-runner, e.g. j^L: on one hand, if the district size enlarges, this increases also the level of intraparty competition. On the other hand, the front-runner p_j spikes since they become front-runners in a very large district. So this suggests that since they already won the election in a two seats district, they will surely win again in a larger district. Therefore he has an incentive to spend less on campaign activities.

On the contrary, a candidate that resulted second in a two seats race, has more probability of winning a seat if there is a district enlargement, so they will spend more on campaign activities.

Conjecture 1: District enlargement has different effects for front-runners and for challengers. The former will decrease campaign spending while the latter will increase it.

In the next section we provide a short institutional background of Lombardy's electoral laws and then we provide several empirical tests of our theoretical predictions.

3 Institutional background

Lombardy is one of the biggest and wealthiest regions in Italy. The Regional Council of Lombardy is composed by one legislative chamber of 79 councillors who are elected in 12 provincial district. It is headed by the President who is directly elected as candidate of the winning coalition. The legal duration of the council is five years and the elections we are taking under scrutiny are those of 2005, 2010 and 2013[7]. In these elections the coalition of center-right has won all three times, in the first two with a large victory, in 2010 with more than a 20% difference in the vote share.

The first two elections were held under the *Tatarella* electoral law[8], which was a quite complicated mix of majority and proportional representation and contained open and closed lists. It worked as follows: 80 % of the councillors (64) were elected with a proportional system based on open provincial lists associated to a candidate President, while the residual seats (16) were assigned with a majoritarian system based on closed lists common to all districts.

The 2012 law is more straightforward: there are only open lists with proportional system and voters can either vote only for the list or give a preference vote for one councillor[9]. Two seats, out of 80, are

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[7]In 2012 the council was dismissed for a scandal that involved the former President and other councillors.

[8]The law n.43 of 1995, commonly known as *Tatarellum*, reformed all regional elections in Italy, by introducing the direct election of the Region's President.

[9]The law envisages gender equality, the succession between a man candidate and a woman in the list is mandatory.

reserved to the President and the candidate President of the best losing coalition[10].

Figure 1: District Magnitude

| (a) 2005 | (b) 2013 | (c) Districts |
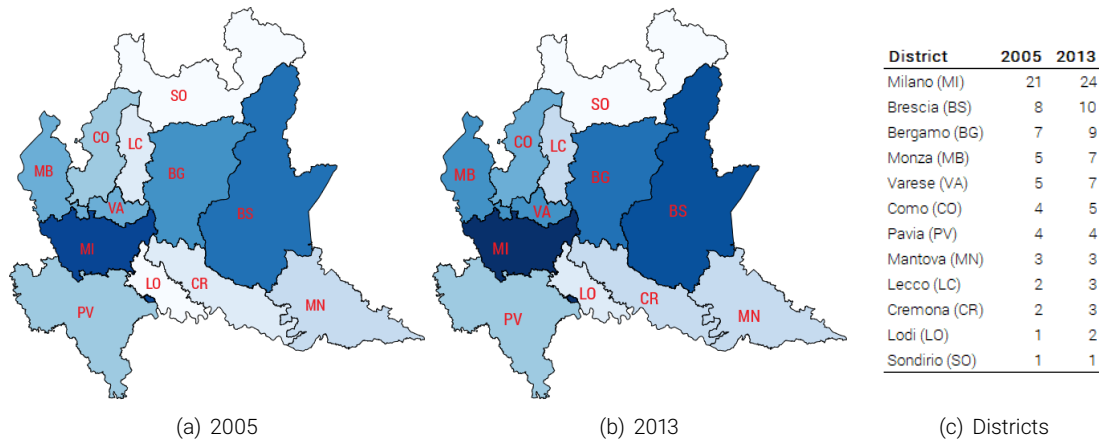
Given the increase from 64 to 78 directly elected councilors, the seats assigned to each district have changed, as presented in Figure 1.

3.1 Data on Campaign Spending

Our sample contains 2782 observations over three different elections from 2005 to 2013. In Table 1 there are some descriptive statistics on the whole sample. The average of total expenditure per candidate is slightly smaller for 2013, probably due to the higher number of candidates. In 2013, as required by the new electoral law, we find more women and candidates are younger in average.

Table 1: Summary Statistics by Election

Year	Male	Age	Tot. Exp	Fin.Third	Fin.Cand	N
2005	75.8	58.7	5,664.81	2,763.48	2,298.24	771
2010	70.7	52.4	6,686.35	3,354.54	2,834.78	698
2013	51.5	50.0	4,355.93	1,599.76	3,863.71	1,313

[1] *Male* reports the percentage of male candidates for each election. *Tot.Exp*, *Fin.Third*, *Fin.Cand* are averages for candidates and expressed in euros.

Tot.Exp is the total expenditure reported by the candidates, *Fin.Third* is the total financing raised either from private citizens or organizations, while *Fin.Cand* is the amount of candidates' own money given to the campaign. As Table 2 shows, right-wing candidates spent twice as much with respect to the left-wing[11], one reason being that the left-wing coalitions usually contain more and smaller parties.

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[10] More details on electoral laws and campaign finance regulation are found in the appendix.

[11] However, this effect is quite common, indeed also in other countries conservatives outspend democrats (Fisher, 1999)

However, if we focus on the two main parties, the Democratic Party (PD) and the People of Freedom party (PDL)[12], we notice that the candidates of the latter spent, in average, ten thousand euros more than the democrats.

Table 2: Average Campaign Spending and Finance

	Tot.Exp	Fin.Third	Fin.Cand		Tot.Exp	Fin.Third	Fin.Cand
Female	4789.6	2511.4	2347.9	*Right-Wing*	12790.1	7250.9	5864.8
	(9267.7)	(6419.3)	(5414.5)		(15489.2)	(12783.4)	(9270.2)
Male	9248.9	4755.7	4364.7	*Left-Wing*	6031.0	2775.1	2822.2
	(13914.2)	(10505.2)	(8417.1)		(10763.2)	(6923.9)	(6384.4)
PD	14488.9	7759.5	5404.9	*Large Districts[1]*	8086.6	4227.4	3921.9
	(14576.4)	(10799.9)	(8323.6)		(13780.4)	(10537.8)	(8407.2)
PDL	22721.9	14062.6	8092.7	*Small Districts*	7620.3	3877.7	3536.6
	(18447.9)	(16291.2)	(10740.5)		(11659.7)	(8164.9)	(6749.6)
LEGA	11411.2	6262.5	6439.2	*Incumbents[2]*	31568.0	18533.0	13432.6
	(12164.6)	(9508.9)	(8692.2)		(14207.2)	(19714.1)	(13468.0)
5-Star	953.8	623.5	336.1	*Challengers*	20789.0	11665.8	7920.8
	(2189.1)	(2467.2)	(276.3)		(16453.7)	(13555.6)	(11083.6)

[1] Larger than 7 seats.

[2] Averages for challengers and incumbents are only for elected candidates. For all the other categories we took candidates who obtained more than 100 preference votes.

# 4   Campaign Spending in Lombardy

Summarizing the results of the model we found that campaign spending positively depends on the level of intraparty competition and on the vote share of the party while negatively on the cost of fundraising. The objective function of the politicians is to maximize the number of preference votes and this is achievable by choosing the optimal level of campaign spending. Furthermore, the model predicts that front-runners in large districts tend to spend more with respect to single district due to intraparty competition (*Corollary 2*). We compare the means of the total expenditure of front-runners in all districts (Figure 2). As one can see[13], indeed, the front-runners of the two larger districts spend more with respect to single districts.

At last, we stated that in closed lists only the front-runner engages in campaign activities since the other candidates increase their utility if they not spend anything (Proposition 3). Figure 3 presents the average of total expenditure divided by the candidate position in the closed list. It appears that, indeed,

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[12]The Democratic Party was the current majority in Italy's Chamber of Deputies, while the People of Freedom party was the second largest party.

[13]The red bars in Figure 2 represent the two larger districts, Milano (MI) and Brescia (BS). In green the only two single districts, Sondrio (SO) and Lodi (LO).

Figure 2: Average expenditure of front-runners by district
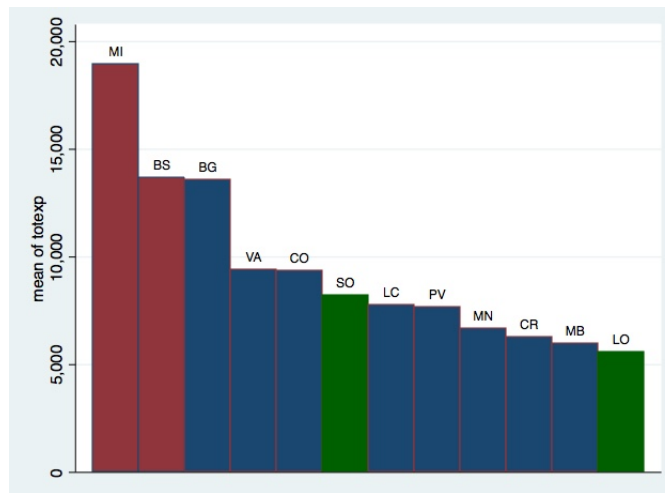
Districts are ordered by the averages of candidates' campaign spending.

the majority of campaign spending is done by front-runners who, among the 16 candidates (for each coalition) of the closed list, spends on average the 40% of overall coalition spending.

Figure 3: Average expenditure of closed list candidates by list position
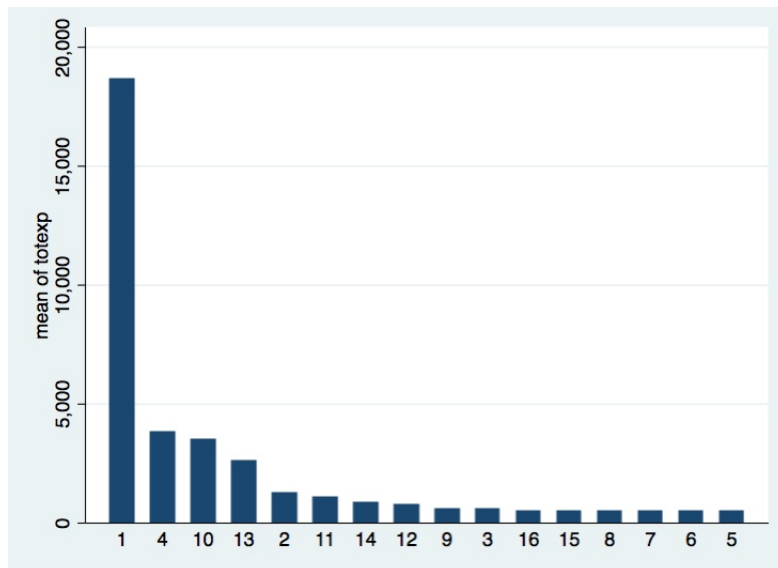
There are interesting theoretical predictions that we can test using data on campaign spending in Lombardy. We empirically analyse the components of campaign spending and we find evidence to support several predictions of the model, as shown in Table 3. We have a pooled cross-section dataset over three elections and the main regression equation is the following:

$$\text{Tot.Exp}_{idt} = \beta_0 + \beta_1 \text{Party Share}_{idt} + \beta_2 \text{Position}_{idt} + \beta_3 X_{idt} + D_d + T_t + \varepsilon_{idt}$$

Where $Party\ Share$ represents the vote share obtained by the party of candidate i in the district d in the election held at time t. $Position$ is the candidate's position in the open lists. Hence, higher values are associated with lower positions in the list, up to 25 for the district of Milan. Moreover, X_{idt} is a vector of covariates of candidates characteristics such as age, gender, incumbency status and we also include the square of Party Share to address for non-linear effects. D_d are the district dummies and T_t the year dummies for 2010 e 2013. The dependent variable is the total campaign expenditure reported by the candidate in the single election.

The first result is that candidates' position in the list, that we intend as a good proxy of p_j (the probability of receiving a vote from an uninformed voter) has a negative and significant coefficient. The lower politicians are the list the less they will spend because they have a lower probability to obtain preferences from uninformed voters. Moreover, a 1% increase in the party vote share is associated, on average, to an increase of about two thousand euros in campaign spending[14].

Furthermore, being an incumbent is associated with a sharp increase in campaign spending. As one could expect, for incumbents is easier to raise money, because they are already known by voters and potential donors, hence, they can spend more money on campaign advertising. Since the incumbents spend so much more, to give further consistency to the results we run the same the analysis on the sample of candidates who are not incumbents, and all the previous results are confirmed: campaign spending is increasing in the party vote share and in candidate' position in the list.

One of the key features of our model is to compare the difference between a proportional single district, basically a majoritarian system, and a multiwinner district with preferential voting. We conclude that in multiseat districts candidates spend more if there is enough intraparty competition. We tested this prediction (*Corollary 2*) on single districts in a regression framework. Our prediction is that if candidates have a high position in the list (p_j), they will spend more in a multi-seats race with respect to single district. To test this, we considered front-runners in very large districts, i.e. above 8 seats, and the candidates of single districts. As Table 3 (column 5) shows, the coefficient of *single* is indeed negative and significant[15], supporting our hypothesis that front-runners in large districts will always spend more due to intraparty competition.

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[14]*Proposition 1* states that campaign spending is increasing in the vote share of the party (ℓ) and in the candidates' position in the list. $Party^2$, which accounts for non-linearity, is negative and significant. It seems that party vote share is increasing at a decreasing rate.

[15]The dummy variable *single* takes value one if the candidates run in a single district, zero otherwise.

Table 3: Campaign Spending and Electoral Rules

	(1) All	(2) Challengers	(3) Large District	(4) Small District	(5) Single Dist	(6) Closed List
position	-258.8**	-256.9**	-240.1**	127.8		
	(50.43)	(50.17)	(52.28)	(104.7)		
male	2465.9**	2341.1**	2367.0**	2736.6**	5235.1*	2371.7**
	(324.5)	(310.1)	(516.2)	(370.1)	(2590.9)	(338.2)
age	12.50	14.85	49.47**	-5.064	100.1	11.88
	(11.67)	(11.32)	(18.18)	(14.53)	(114.2)	(12.25)
party share	2097.7**	2137.2**	11224.2**	1700.2**	930.0*	
	(217.2)	(212.3)	(1790.3)	(195.8)	(373.4)	
party share^2	-48.32**	-43.62**	-2206.8*	-36.14**	-1.977	
	(12.54)	(12.75)	(995.2)	(10.43)	(9.169)	
incumbent	19810.3**		23432.4**	17687.3**		23018.7**
	(1450.3)		(2635.4)	(1512.1)		(1334.6)
single					-16641.4**	
					(2239.1)	
closed						-4065.8**
						(947.8)
district effects	✓	✓	✓	✓		✓
year effects	✓	✓	✓	✓	✓	✓
R^2	0.360	0.165	0.363	0.432	0.255	0.257
N	2782	2650	1283	1499	149	2889

Robust standard errors in parentheses † p<0.1, * p<0.05, ** p<0.01

Results in the table refer to OLS regressions. In column (2) incumbents are excluded from the sample. Large district refers to candidates who run in districts with more than 8 seats. The dummy variable *single* takes value one if the candidate run in single district and zero if he run in a large district(>8 seats) and the sample contains only front-runners. Incumbency status is not available because there is not enough variability on this sample, there are only four incumbents. *Closed* takes value one if the candidate is in the regional closed list and zero if he competes in open lists. Party votes is not available in this sample because parties form large coalition in the regional closed list.

Proposition 3 states that in closed lists overall spending is lower with respect to open lists. The coefficient of *Closed* in column 6 is negative and significant. Candidates in closed list spend less with respect to open lists as they do not have to gain preference votes. On average, running in closed lists in associated to a decrease of four thousand euros in campaign expenses.

At last, in a small district there could be a lower level of competition and this implies that informed voters mostly concentrate on the policy dimension. On the other hand, the probability of receiving a vote from an uninformed voter is more distributed between the candidates, since the list is much shorter. This suggests that the position in the list should play a less important role in choosing the optimal level of campaign spending. The regression in column 4 supports this intuition. In small districts (below 8

seats) candidates' position in the list is no longer significant.

4.1 Robustness Checks

The main concern about endogeneity comes from the candidate position in the list. The reason being that parties know the candidates that are more able to raise money and they could put them on top of the lists. However, looking at the actual lists in Lombardy, often the candidates - at least for some parties - are displayed in alphabetical order. Furthermore, the 2012 electoral law obliged the parties to the succession between men and women in the lists, increasing the possibility of semi-random assignment of list position to the candidates. In large districts this mechanism could be different, usually the first candidates are not randomly assigned and are well known to the public.

Table 4: Robustness Checks

	(1) Milan All	(2) Milan 2013
position	-109.1*	-174.0**
	(51.72)	(59.13)
male	2059.0**	2113.5**
	(640.5)	(652.1)
age	18.97	11.81
	(19.67)	(22.79)
party share	623.1	-251.4
	(3443.7)	(3950.2)
party share^2	10290.4**	8588.7
	(3107.2)	(5527.7)
R^2	0.339	0.179
N	837	334

Robust Standard errors in parentheses [†]
$p < 0.1$, * $p < 0.05$, ** $p < 0.01$
Column (1) contains candidates from the 4th position to the last position of Milan district for the three elections. Column (2) refers to the 2013 election and I took candidates from the 6th to the last position.

One way to address this issue is to re-run the estimation on the larger district, i.e. Milan, and dropping the first candidates. Results are presented in Table 4, candidates' position in the list is still negative and significant supporting the results of Table 3.

Conclusions

The present work investigates the mechanism of campaign spending in open lists PR system with two-seat districts. We developed a model of campaign spending with two classes of voters and policy motivated politicians. Having multiseat district, with open lists a problem of intraparty competition arises. Voters cannot perfectly observe the policy positions and rely also on campaign spending when deciding who to vote for.

Our model predicts that intraparty competition increases the campaign spending activities of the candidate with respect to single district. We also use the same model to analyse a closed list framework and discover that, since candidates do not have to gain preference votes, campaign spending is lower and the cost is borne only by the first ones in the list. The best strategy for the other candidates is to not engage in campaign advertising, since their election depends only on the vote share of the coalition. At last, we sketch an hypothesis with more than two seats district and we forecast that we will have diverging effects between front-runners and challengers.

In Section 4 we test our predictions, using an original dataset on three regional elections in Lombardy from 2005 to 2013. We find some evidence to support the theoretical model. Campaign spending is increasing in the vote share of the party and in the candidates position in the lists. A 1% increase in the party vote share is associated, on average, to an increase of about two thousand euros in campaign spending. Furthermore, front-runners in very large districts spends less with respect to their colleagues in single district. Candidates in closed lists spend less in campaign activities, about four thousand euros on average. Finally, front-runners in closed lists spend the majority of the total coalition spending.

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Appendix

Campaign finance regulation in Italy

Campaign finance regulation in Italy began with law n. 195/1974, that divided public finance between reimbursement for electoral expenses and financing for ordinary administration of parties with direct financing to parliamentary groups. The regulation was then extended also to regional Councils and European representatives. This system was heavily reformed after the infamous *Mani Pulite* scandal, followed by a national referendum, in 1993.

The 1993 reform abolished financing for ordinary parties activities, leaving only compensations for electoral expenses and it introduced electoral thresholds to obtain the reimbursements. Parties had to obtain at least 3% of the vote share for the Lower House and 5% for the Senate. These thresholds were lowered by law n.43/1995 to 1% for the Chamber of Deputies and to 3% for the Senate, but these requirements became applicable also to Regional elections.

Regulation was substantially unchanged till the *Letta* reform of 2012, that sensibly reduced the amount of public financing and consequently led private contributions to become an increasingly important source of financing. Law n. 96/2012 reformed the subject in four principal ways:

- Halving the total amount of available public funding from 183 million to 91 million;

- Prevision that public contributions will match the 70% of the total spending of parties and political movements, divided into four different funds, Senate, Chamber of Deputies, Regional and European elections;

- Linking the remaining 30% of public funding to the parties own private funding, i.e. matching funds;

- Increasing the possibility to deduct political contributions for private citizens, increasing the deduction rate from 19% to 26%.

Lombardy had also regulated the system of financing with regional law n. 43/1995, that introduced campaign spending limits, which changed over time. For 2005 and 2010 the limit was 34.247,89 euros plus 0,05 cent for every voter in the district, whilst for 2013 the limit was raised to 38.802,85 plus 0,061 cent for every inhabitant in the district. The supervision of campaign financing procedures is entitled to the Courthouse of each Region's Capital. This supervision office has the mandate to collect and revise all the campaign financing statements for National, Regional and local elections[16].

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[16]Campaign spending supervision is mandatory only for municipalities with more than twenty-thousand inhabitants.

According to Italian legislation, candidates have three months after the elections to present their statement, which is a pre-filled paper and pencil form, after that they will be sanctioned[17] by the entitled courthouse. Candidates have to present a balanced statement, if the revenues are higher than expenditures, they have to give the profit to a third subject, usually a non-profit organization.

Regional electoral laws

Tatarellum: for each provincial list the candidates who gained more preferences votes were elected in the limits of the seats that each provincial list gained. The residual votes and the number of seats that were not assigned were shared among regional lists by dividing the residual votes of each list by the electoral regional quotient[18].

After all the 64 seats are assigned with the proportional mechanism, the remaining seats are assigned to the closed list liked to the winning president, who takes all the 16 seats with two exceptions:

- the winning regional list obtained 50% or more of the seats. If this occurs only 8 seats are given to the new majority and the others are distributed among the opposing lists.

- the winning regional list gained 40% or less of the seats. In this case 16 seats of the closed list are granted to the President elect and, if necessary, any additional seat to ensure to the new majority at least the 55% of total seats.

The 2012 electoral law includes also a majority premium for the winning coalition, which consists in:

- the winning coalition takes at least the 55% of the seats if it takes more the 40% of the total votes.

- the winning coalition takes at least the 60% of the seats if it takes less than 40% of the total votes.

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[17] For further information on these procedures we refer to national law n.515/93 and, for Lombardy, to the regional law n.43/95.
[18] The electoral regional quotient is the total of the residual votes divided by the number of residual seats.