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Keywords:
campaign finance, polarization, endogenous valence, public funding, salience

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Public funding of parties and political polarization

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Abstract

This work analyzes the impact of asymmetric financial constraints on the platforms of parties, using a formal model of elections. The main results show that when a party faces a tight financial constraint, the platform chosen in equilibrium is further away from its ideal point compared with the case when campaign expenses are unlimited. Moreover, we show that in the presence of asymmetric budget constraints, a financially advantaged party converges to the median voter and a disadvantaged one diverges away. The strength of the latter effect depends on the salience of the policy issue in question. The results are tested by using a dataset of party positions and salience and confirm the theoretical predictions.
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JEL Codes: D72, D78

I. INTRODUCTION

This study examines the interrelation between the financial constraints and platforms chosen by the parties competing in a two-party system. When voters vote for either of two candidates, they not only look at the platforms offered, but are also subject to campaign activities, which might increase the chance of voting for any party irrespective of the chosen platforms. Therefore, the parties face a tradeoff between choosing a platform appealing to the median voter and spending resources on campaign activities. When financial constraints are placed on the parties, this tradeoff will result in a different choice of platforms compared with the case when the parties are unconstrained financially.

The most natural institutional setting in which parties face financial constraints is associated with public funding. According to Austin and Tjernström (2003), of their 111

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analyzed countries, the public funding of parties is present in 65 countries. In only 12 of them is public funding equally distributed, whereas in other cases it is related to current (19 countries) or previous (25 countries) electoral success or current representation in the legislature (25 countries). Therefore, in the majority of countries that actually finance parties from their budget, the amount of money at the disposal of the parties is somehow related to past electoral performance. In this institutional environment, the natural result is that parties with past electoral success have access to a higher amount of financing than others. At the same time, in countries in which public financing occurs, parties access to other types of financing is typically constrained and therefore the share of private funds is much smaller than that of public financing.

The interrelation between public funding presence and choices of platforms by parties has been observed empirically by Köppl-Turyna (2014). Köppl-Turyna (2014) finds that for a sample of 45 developed countries, parties tend to locate themselves further away from the median voter when public financing occurs. A natural explanation for this phenomenon is the "barrier to entry" created by the public financing system. Parties with past electoral success have access to a substantially higher level of financing and therefore can remain closer to their ideal points, whereas disadvantaged candidates choose divergent platforms. In other words, platforms and campaign expenses are substitutes for maximizing the expected share of votes: when financing is constrained, electoral platforms are used to compensate. In this work, we analyze this relationship by using a formal model of elections and test the theoretical predictions in an empirical setting.

Counterevidence comes from Masket and Miller (2015), who analyze Arizona and Maines "Clean Election" laws, which provide public funding to state legislative candidates. The authors find no differences in legislative behavior between the candidates funded by public money compared with private donors.

Theoretical studies of the public funding of parties are rather scarce. Ortuño Ortin and

Schultz (2005) analyze a two-party model in which parties have access to public funding assigned on the basis of future electoral success. It is shown that a public funding system increases policy convergence. The effect is larger when more funding depends on vote shares. If parties have access to other lump-sum amounts of campaign finance, the effect is moderated. It is important to mention here that these authors analyze a symmetric case.

Troumpounis (2012) compares, using a two-party group turnout model, the extent to which two types of public funding systems affect parties mobilization efforts and the equilibrium turnout. By allowing one party to have larger support than the other, the author uncovers differences in the equilibrium structure: while in the unique equilibrium of per seat funding systems, both parties exert the same amount of effort, a per vote funding system results in an asymmetric equilibrium in which the advantaged party exerts more effort than its opponent.

Finally, the closest theoretical approach to the present one is Ortuño Ortín and Schultz (2012), who consider the public funding of political parties when some voters are poorly informed about parties candidates and campaigns are informative. For symmetric equilibria, it is shown that more public funding leads parties to choose more moderate candidates and that an increase in the dependence of the funding on vote shares induces further moderation and improves welfare. If parties are asymmetric, vote share-dependent public funding benefits the large party and makes it moderate its candidate, while the smaller party reacts by choosing a more extremist candidate. That said, the latter result is derived only as a numerical simulation.

This work complements previous approaches in several ways. First, the above-cited works concentrate on the informative aspect of campaigning, whereas we focus on the case when campaigning has a purely persuasive effect. Second, we directly consider the case of financial constraints as well as the interrelation of these constraints with other variables in the model, such as the policys salience. Moreover, albeit with a simpler model than

the mentioned literature, we derive analytical results in the case of asymmetric equilibria. Finally, we offer testable hypotheses and show their validity through an empirical investigation.

Our main theoretical results predict that in the presence of asymmetric budget constraints, the financially advantaged party converges to the median voter and the disadvantaged one diverges away. The strength of the latter effect depends on the salience of the policy issue in question. Further, we confirm the predicted effect in the empirical investigation.

The remainder of this paper is structured as follows. Section II describes the analytical results. Section III presents the results of the empirical estimation. Section IV concludes.

II. THE THEORETICAL MODEL

1. The structure of the model

The structure of the presented model is derived from the work of Herrera et al. (2008)), yet with important differences that allow the analysis of how asymmetric budget constraints affect platforms. Two policy-motivated parties L and R compete in a first-past-the-post setup. Decisions of the parties involve two components: the choice of a binding policy platform and choice of campaigning efforts. The ideal points are 0 for party L and 1 for party R. The platforms $l, r \in [0, 1]$ are simultaneously chosen in the first stage and after observing the policy choices, the campaign efforts $L, R \in [0, 1]$ are simultaneously chosen in the second stage. Strictly speaking, party R, given its ideal point at 1, chooses the departure from it, $1 - r$. After the platforms and campaign efforts have been announced, voting takes place. The parties' utility functions contain utility from obtaining the office, denoted $B > 0$, which includes the gain from winning the election such as perks from office, as well as disutility from a policy to be implemented after the election if it does not exactly

correspond to the parties ideal points. We assume that B is a lump-sum benefit, as this assumption matches the first-past-the-post setup, in which the size of the perks from office is less dependent on the actual margin of victory than in a proportional representation system. Specifically, the payoffs functions are

$$U^L = \begin{cases} B - l - L & \text{if L wins} \\ -(1-r) - L & \text{if R wins} \end{cases} \tag{1}$$

and

$$U^R = \begin{cases} B - r - R & \text{if R wins} \\ -(1-r) - R & \text{if L wins.} \end{cases} \tag{2}$$

The net payoffs include the benefits from office B, the ideological costs r and l, and the linear cost of campaign activities L and R.

The outcome of the election is determined by the voters, who are uniformly distributed on a unit interval $v \in [0, 1]$. Voters' preferences are a function of the policy distance between their ideal points, an idiosyncratic party bias b and bias towards party L b_v. The voter with ideal point v prefers party L whenever

$$-a|v - l| + b + b_v > -a|v - (1 - r)|, \tag{3}$$

and party R if the inequality is reversed. Idiosyncratic bias b is uniformly distributed on $[-\beta, \beta]$, where β will be assumed sufficiently high as not to predict with probability one the winner of the election. The parameter $a \geq 1$ in the utility of the voter measures the importance of the policy message relative to the idiosyncratic as well as party biases, that is it reflects the salience of the policy dimension to the voter.

Party bias b_v is uniformly distributed on $[-\alpha, \alpha]$, where α is assumed to be low enough,

that it is impossible to predict the results of the election in advance, that is $\alpha + 1 < \beta$. We model the campaign activity technology similarly to Herrera et al. (2008), yet under the assumption of perfect targeting, to concentrate on the main effects of interest. This assumption might seem strict; however, allowing for imperfect targeting does not change any of the main conclusions and complicates the analytical representation of the results. Campaign activity linearly increases the probability of winning for each party. For party L, the final electoral result would equal $L \cdot P(L)$, where $P(L)$ is the proportion of voters voting for L derived from (3) as explained below.

The most important assumption in our model is that parties can be financially constrained. For this, we introduce parameters Θ_L and Θ_R, which are the financial constraints of parties L and R, respectively. That is, in any equilibrium,

$$L \leq \Theta_L$$

$$R \leq \Theta_R$$

hold, and we assume without loss of generality that $\Theta_L > \Theta_R$.

The timing of the game is as follows:

1. The parties simultaneously choose positions l and r.
2. The parties simultaneously choose level of spending L and R given their respective budget constraints.
3. Nature draws b_v and b.
4. Voting takes place.

From (3) it follows that the probability that voter v favors party L equals[2]

$$P(v \text{ favors } L) = \begin{cases} P_1(L) = \frac{a+b-al-ar+\beta}{2\beta} & \text{if } v \in [0, l] \\ P_2(L) = -\frac{av}{\beta} + \frac{a+b+al-ar+\beta}{2\beta} & \text{if } v \in (l, 1-r] \\ P_3(L) = \frac{-a+b+al+ar+\beta}{2\beta} & \text{if } v \in (1-r, 1]. \end{cases} \tag{4}$$

Overall, the proportion of voters in favor of L equals

$$P(L) = \int_0^l P_1 dv + \int_l^{1-r} P_2 dv + \int_{1-r}^1 P_3 dv = \frac{(b - a(l-r)(-1+l+r) + \beta)}{2\beta}. \tag{5}$$

Given linear campaigning technology, the overall probability that L wins the election is given by

$$L \times P(L) > R \times (1 - P(L)) \tag{6}$$

where $L, R \in [0, 1]$, or equivalently that

$$b > a(l-r)(-1+l+r) + \frac{(-L+R)\beta}{L+R}. \tag{7}$$

By denoting by F_b the distribution of b, the expression above equals

$$1 - F_b(\hat{b}) = 1 - \frac{a(l-r)(-1+l+r) + \alpha + \frac{(-L+R)\beta}{L+R}}{2\alpha}. \tag{8}$$

In the second stage, the parties simultaneously choose their levels of campaign activities.

[2]Assuming, without loss of generality, that $l < 1 - r$ - indexes can be reversed.

Given (1), (2) and (8), the expected payoffs of parties L and R are

$$\pi_L = [1 - F_b(\hat{b})](B - l) + F_b(\hat{b})(-(1 - r)) - L \tag{9a}$$

$$\pi_R = F_b(\hat{b})(B - r) + [1 - F_b(\hat{b})](-(1 - l)) - R. \tag{9b}$$

The corresponding Lagrange functions are

$$L_L = \pi_L - \lambda_1(L - \Theta_L) \tag{10a}$$

$$L_R = \pi_R - \lambda_2(R - \Theta_R), \tag{10b}$$

and the corresponding Kuhn–Tucker conditions are

$$\frac{\partial L_L}{\partial L} = 0 \qquad \frac{\partial L_R}{\partial R} = 0 \tag{11a}$$

$$\frac{\partial L_L}{\partial \lambda_1} \leq 0 \qquad \frac{\partial L_R}{\partial \lambda_2} \leq 0 \tag{11b}$$

$$\lambda_1(L - \Theta_L) = 0 \qquad \lambda_2(R - \Theta_R) = 0 \tag{11c}$$

$$\lambda_1 \geq 0 \qquad \lambda_2 \geq 0. \tag{11d}$$

2. *Theoretical predictions*

2.1. Case 1: Unconstrained solution: $L^* < \Theta_L$ and $R^* < \Theta_R$

The unconstrained solution of Herrera et al. (2008) serves as a benchmark for the subsequent results. In this case, the optimal expenditure level is below the financial constraint

for both parties (i.e., neither constraint is binding). In this case, we have

$$L^* = R^* = \frac{\beta(1 - l - r + B)}{4\alpha}$$

and $\lambda_1 = \lambda_2 = 0$. If $1 - l - r + B \leq 0$ the expenditure of both parties in equilibrium equals zero.. We do not analyze this case any further. Hereafter, we assume, therefore from now on that $1 - l - r + B > 0$ to avoid dealing with uninteresting corner solutions. Otherwise, the levels of expenditure are given by L^* and R^*, the first-stage first-order conditions are symmetric and the platforms chosen in equilibrium are

$$p^*_{uncons} = l^*_{uncons} = r^*_{uncons} = \frac{1}{4}\left(2 + B - \frac{\sqrt{a\left(aB^2 + 4\alpha - 2\beta\right)}}{a},\right) \tag{12}$$

which is in essence a replication of Herrera et al. (2008), if we redefine $\bar{\beta} = \beta/a$ and $\bar{\alpha} = \alpha/a$. In this case, we have

$$\frac{\partial p^*_{uncons}}{\partial B} > 0$$

and

$$\frac{\partial p^*_{uncons}}{\partial a} \lesseqgtr 0,$$

dependent on the relation between α and β; that is if $2\alpha - \beta > 0$, then $\partial p^*_{uncons}/\partial a > 0$. We conclude that the relation between the platforms of parties in equilibrium and the importance of policy compared with the stochastic components depends on the strength of the latter. If $\alpha + 1 < \beta < 2\alpha$, that is the idiosyncratic bias is not too large, the parties converge to the median along with increasing a, and the opposite holds if the condition is not satisfied. This result is intuitive: when the policy dimension is important to voters, the parties gain support through a movement in the direction of the median voter. If the voters are easily impressionable (i.e., is a is low), parties prefer to invest in campaigning efforts and simultaneously bear a lower policy cost. *Polarization*, defined as $1 - r - l$, is *decreasing*

in the benefit from holding office and the effect of policy importance is ambiguous, as explained above.

2.2. Case 2: Constrained solution: $L^* = \Theta_L$ and $R^* = \Theta_R$

This subsection describes the main results to shed light on how asymmetric budget constraints affect platform choices. In this case, we have

$$\lambda_1 = -1 + \frac{(1 - l + B - r)\beta\Theta_R}{\alpha(\Theta_L + \Theta_R)^2} \tag{13a}$$

$$\lambda_2 = -1 + \frac{(1 - l + B - r)\beta\Theta_L}{\alpha(\Theta_L + \Theta_L)^2}, \tag{13b}$$

and the dual feasibility conditions place additional constraints on the parameter values. $\lambda_2 > \lambda_1$ because $\Theta_L > \Theta_R$, and the necessary condition for the solution to be dually feasible is

$$\Theta_R \leq \frac{\beta(1 - l - r + B)}{4\alpha}.$$

The first-stage solutions to the constrained problem are

$$l^*_{cons} = \frac{1}{2} + \frac{B}{4} - \frac{\sqrt{a\left(aB^2 + 4\alpha\right)}\left(2\beta(\Theta_L - \Theta_R) + \left(aB^2 + 4\alpha\right)\left(\Theta_L + \Theta_R\right)\right)}{4a\left(aB^2 + 4\alpha\right)\left(\Theta_L + \Theta_R\right)} \tag{14a}$$

$$r^*_{cons} = l^*_{cons} + \frac{\beta(\Theta_L - \Theta_R)}{\sqrt{a\left(aB^2 + 4\alpha\right)}(\Theta_L + \Theta_R)}. \tag{14b}$$

Proposition 1. *The platform of party L is strictly closer to its ideal point than the platform of party R iff $\Theta_L - \Theta_R > 0$.*

Proof. A brief inspection of (14a) reveals that $r^*_{cons} > l^*_{cons}$ iff $\Theta_L - \Theta_R > 0$. □

Replacing l and r in the expressions of the Lagrange multipliers yields

$$\lambda_1 = \frac{\sqrt{a\,(aB^2+4\alpha)}\beta\Theta_R + a\,(B\beta\Theta_R - 2\alpha(\Theta_L+\Theta_R)^2)}{2a\alpha(\Theta_L+\Theta_R)^2} \tag{15a}$$

$$\lambda_2 = \frac{\sqrt{a\,(aB^2+4\alpha)}\beta\Theta_L + a\,(B\beta\Theta_L - 2\alpha(\Theta_L+\Theta_R)^2)}{2a\alpha(\Theta_L+\Theta_R)^2}, \tag{15b}$$

A sufficient condition for a solution in which both parties are constrained to be feasible is

$$B \geq \frac{-\beta^2{\Theta_L}^2 + a\alpha(\Theta_L+\Theta_R)^4}{a\beta\Theta_L(\Theta_L+\Theta_R)^2}.$$

Thus, either the benefits from holding office are high enough or policy importance is low enough. In this case, we have

$$\frac{\partial l^*_{cons}}{\partial a} = \frac{aB^2(\beta(\Theta_L-\Theta_R)+\alpha(\Theta_L+\Theta_R)) + 2\alpha(\beta(\Theta_L-\Theta_R)+2\alpha(\Theta_L+\Theta_R))}{2\,(a\,(aB^2+4\alpha))^{3/2}\,(\Theta_L+\Theta_R)} > 0$$

$$\frac{\partial r^*_{cons}}{\partial a} = \frac{aB^2(\beta(-\Theta_L+\Theta_R)+\alpha(\Theta_L+\Theta_R)) + 2\alpha(\beta(-\Theta_L+\Theta_R)+2\alpha(\Theta_L+\Theta_R))}{2\,(a\,(aB^2+4\alpha))^{3/2}\,(\Theta_L+\Theta_R).}$$

The sign of the latter derivative depends on the parameters of the model; it can be shown that as long as

$$\alpha > \frac{\beta(\Theta_L-\Theta_R)}{\Theta_L+\Theta_R},$$

r^*_{cons} is increasing in a[3]. Therefore, similar to the unconstrained case, the effect of policy importance depends on the magnitude of the stochastic components of voters' utility functions.

Unlike in the symmetric case, however, the advantaged party always converges to the median voter as policy importance rises. The disadvantaged opponent converges to the median along with a only if α is high comparative to the difference in budgets. If $\Theta_L - \Theta_R$

[3]For space-saving purposes some derivations are not presented but can be obtained upon request.

is high, this condition is more difficult to satisfy: for a high difference in budgets, the disadvantaged party is likely to diverge from the median voter even if policy importance is high. The latter observation, which is the main result of the theoretical discussion, is tested by using an empirical investigation in the next section.

Additionally, the behavior of second derivatives reveals how the financial advantage of one party interacts with parameter a describing policy importance for voters. In other words, the following hold:

$$\frac{\partial^2 l^*_{cons}}{\partial a \partial \Theta_L} > 0$$

and

$$\frac{\partial^2 r^*_{cons}}{\partial a \partial \Theta_L} < 0.$$

In other words, holding Θ_R constant, the movement of platform l toward the median caused by the financial advantage is *stronger* for high values of a and the effect is opposite for platform r.

III. EMPIRICAL INVESTIGATION

1. Testable hypotheses

The first hypothesis that stems from the literature and theoretical model regards the relationship between issue salience and divergence of platforms from the median voter. In this discussion, it is important to distinguish between the issues that are salient to only certain parties and those important to voters. Extreme parties are expected to attach great importance to only certain groups of issues (e.g. green parties often propose extreme environmental policies and far-right parties proclaim radical stances on immigration issues). There often exists a one-to-one correspondence between policy extremism and the importance of a particular policy dimension to an individual party. On the other hand,

for dimensions of high importance to the general population, less extreme positions are expected, as the importance of median, "non-partisan" constituencies is of high relevance for electoral success.

Hypothesis 1. *Controlling for the importance of dimensions to individual parties and campaign financing regulations, we expect more platform convergence for the dimensions that appear more salient to voters.*

The second hypothesis stems from the asymmetric behavior of parties. Our theoretical model (which confirms the numerical simulations of Ortuño Ortín and Schultz (2012) for the case of informative campaigning) states that the financially advantaged party converges to the median voter, whereas the disadvantaged one is likely to diverge away. The higher the difference in budgets, the more likely it is that the disadvantaged party diverges away. Since, as mentioned in the Introduction, most party funding is allocated on the basis of electoral support, and since we do not have access to reliable data on the actual budgets of parties, we link electoral support to access to more financial means when public financing is present.

Hypothesis 2. *Direct public funding is associated with a position closer to the median voter for parties with high support and further from the median voter for parties with low support.*

Finally, the third hypothesis stems from the relationship between the behavior of the advantaged and disadvantaged parties and issue salience. As shown above, the effect identified in Hypothesis 2 should be stronger if policy salience is high.

Hypothesis 3. *The movement of the platform of a party with high support toward the median is stronger for high policy salience and the effect is opposite for the platform of a disadvantaged party.*

2. Data and Methodology

The data on platforms used in this study come from the work by Benoit and Laver (2006) based on expert assessment of platforms. The dataset used herein comprises platform estimates of 354 parties in 45 countries across 36 policy dimensions for a particular election year between 2000 and 2004[4] for a total of 2916 observations. The data are scaled on a 120 scale. The interpretation of particular values depends on the policy dimension. For example, low values on the Tax/Spending scale describe a socialist/social-democratic party, while low values in the Religion dimension correspond to conservative/Christian values. Certain policy dimensions are only present in certain countries (e.g. Quebecs independence from Canada). The data therefore form an unbalanced panel spanning policy dimensions and countries. The dependent variable in all regressions is the policy distance of an individual party from the median voter, which is the absolute difference between the experts estimate of the platform and 10.5[5] according to the formula:

$$\text{Distance}_{i,j,k} = |\text{Platform}_{i,j,k} - 10|, \tag{16}$$

for party i in country j across dimension k.

The data additionally comprise information on the importance of a particular policy dimension to the party, on a 020 scale. As noted in the Introduction, one needs to distinguish between the issues perceived as salient by parties and those of interest to voters. As the sample does not comprise information on the importance of issues to voters, we proxy for the general importance of an issue by using the *average importance* of a dimension across all the parties in a particular country. Table 1 presents the summary statistics for the most interesting dimensions across countries.

[4]A full list of countries can be found in the Appendix

[5]The number 10.5 lies exactly in the middle between 1 and 20.

Table 1: Average importance of the policy dimensions across countries.

Dimension[a]	Mean	Std. Dev
Taxes v. Spending	12.42	1.47
Social Issues	11.53	2.32
Privatization†	13.32	1.30
EU Joining†	14.91	1.41
Environment	10.36	2.09
Former Communists†	11.49	1.91
Religion†	11.67	1.71
Urban/Rural Development†	11.08	1.41
Immigration	13.02	2.07
Security (Israel only)	15.98	0
Quebec (Canada only)	13.57	0
Relations with West (Russia only)	13.34	0

[a] † denotes that the dimension is present in the particular subsample only.

To further analyze the relation between issue salience and party position, we present the same set of regressions using different data on the importance of policy dimensions. In the second set of regressions, we employ data from the Manifesto Project Database (Volkens et al., 2014). For each party and policy category, these data contain the number of instances certain aspects of policy were mentioned in the parties manifestos. This number of instances serves as the individual salience variable (*ImpManifesto*); this number averaged over all parties in a country is similar to the case of average salience above (*AvImpManifesto*).

The data are split into six categories of policies as well as subcategories reflecting diverse policy aspects. These categories, however, do not fully correspond to the coded policy dimensions of Benoit and Laver (2006) and do not contain all the policy dimensions in the main dataset used in this work. We match the categories present in the Manifesto database with the policy dimensions of Benoit and Laver (2006) (see Table 7 in the Appendix). Since not all categories are represented in the Manifesto data, the sample is necessarily smaller in this case, comprising 984 observations. This set of regressions serves mainly as a robustness check for the main regressions.

We perform panel estimations under diverse assumptions about the error structure. We allow for unobserved country effects and unobserved dimension effects. We present the results of the pooled OLS and twoway FE estimates.

An important issue worth considering (refer to Köppl-Turyna (2014) for further details) is the potential endogeneity of certain institutions with respect to the level of corruption and general governance of a country. Table 2presents the correlations between the analyzed institutions using two measures estimated by the World Bank: quality of the state and its independence from political pressure (Kaufmann et al., 2010). This table suggests that whereas the existence of the public funding of parties seems unrelated to the level of corruption, limits on contributions are implemented precisely in those countries in which the general level of governance is low, possibly to mitigate the influence of special interests on policies. A state legislative authority is likely to adopt strict rules to decrease the influence of special interest groups on platforms. If the legislator implements campaign finance institutions on the basis of divergence in platforms, they will be endogenous in the model. In this case, not correcting for the endogeneity of this institution will yield underestimated coefficients. As the influence of special interests can be an important factor in explaining the dependent variable in our estimations, we perform 2SLS regressions, in which we instrument for the limits on contributions by using exogenous measures found in the literature to be strongly related to corruption levels: urbanization rate and education level measured by tertiary education enrollment. The correlations of the instruments with the indices of governance quality are reported in Table 8 in the Appendix.

To test Hypothesis 1, the variables *Importance* and *AvImportance* are of main interest in the regressions. The first is of individual importance to a party, while the second serves as the average across all parties for a particular dimension. In accordance with Hypothesis 1, we expect a negative coefficient for the *AvImportance* variable, suggesting a movement toward the median voter along with high salience.

Table 2: Campaign finance institutions and the quality of governance.

Questions	GE[a]	CC[bc]
Is there a limit on individual contributions?	-0.5185	-0.5158
Do parties receive direct public funding?	0.0585	0.0798

[a]Government Effectiveness – capturing the perception of the quality of public services, the quality of the civil service and the degree of its independence from political pressures.

[b]Control of Corruption – capturing perceptions of the extent to which public power is exercised for private gain, as well as the "capture" of the state by elites and private interests.

[c]For both indicators a higher value denotes a higher quality of governance.

To test Hypothesis 2, we add the interaction of the direct public funding dummy with the vote share of the party obtained in the preceding election. Finally, to test Hypothesis 3, we examine the behavior of the triple interaction between the public funding dummy, electoral support and policy importance.

We control for additional variables that may affect policy polarization: the effective number of parties (see Laakso and Taagepera, 1979), the proportionality of the electoral system measured by using Gallagher index of proportionality (Gallagher, 1991), ethnolinguistic fragmentation, as defined in Desmet et al. (2009), and a dummy for post-communist democracies.

3. Results

Table 3 presents the results of the estimation for the full sample without the interaction terms. The reported weak identification tests are derived from Kleibergen (2002) and Paap (2006), while the overidentifying restrictions Hansen J statistics are obtained with Schaffer and Stillman (2010); both tests yield consistent statistics with robust standard errors. Regarding Hypothesis 1, Table 3 confirms that for issues of higher importance, all parties tend to locate closer to the center of the policy line. Whereas the importance of an issue to an individual party correlates with more extreme positions, average importance is negatively associated with the distance between the center of the policy line and the position of each party. The effect is highly significant in all specifications.

Table 3: Full sample results without the interaction terms.

	(1) Pooled OLS	(2) FE	(3) Pooled IV	(4) FE IV
Importance	0.48***	0.48***	0.50***	0.50***
	(18.81)	(18.82)	(18.49)	(18.55)
AvImportance	-0.15***	-0.13***	-0.15***	-0.15***
	(-4.51)	(-4.14)	(-3.98)	(-4.07)
Limits on Cont.	-0.11	-0.28	-0.29**	-0.39**
	(-0.86)	(-1.13)	(-2.44)	(-2.05)
Public Funding	0.84***	0.86**	0.76***	1.03***
	(4.12)	(2.65)	(4.12)	(3.06)
ENP	-0.05	-0.08	-0.04	0.02
	(-1.30)	(-0.85)	(-1.37)	(0.36)
Proportionality	-0.01	-0.01	-0.02	-0.03
	(-0.87)	(-0.38)	(-1.64)	(-1.19)
Ethnolinguistic Frag.	0.73*	0.98	0.65*	1.14*
	(1.79)	(1.46)	(1.84)	(1.76)
Post Comm.	-0.00	-0.15	0.06	-0.16
	(-0.00)	(-0.63)	(0.40)	(-0.76)
Constant	-0.86	-0.87	-0.97	-1.58**
	(-1.67)	(-1.38)	(-1.66)	(-2.48)
Dimension Effects	NO	YES	NO	YES
Country Effects	NO	YES	NO	YES
Observations	2916	2916	2699	2699
(Pseudo) R^2	0.335	0.344	0.435	0.434
K-P Wald	-	-	246.944	246.944
Hansen J	-	-	0.284	0.284

Robust standard errors clustered at the country level. Significance: * 0.1 ** 0.05 *** 0.01

Table 4: Direct public funding and the vote share of the party.

	(1) Pooled OLS	(2) FE	(3) Pooled IV	(4) FE IV
Importance	0.49***	0.49***	0.50***	0.50***
	(18.36)	(18.28)	(17.89)	(17.87)
AvImportance	-0.16***	-0.15***	-0.16***	-0.16***
	(-4.50)	(-4.36)	(-4.08)	(-4.06)
Limits on Cont.	-0.09	-0.22	-0.01	0.19
	(-0.84)	(-1.00)	(-0.11)	(1.10)
Vote share last election	0.01	0.00	0.01	0.00
	(0.60)	(0.27)	(0.59)	(0.39)
Public Funding	1.30***	1.34***	1.23***	1.43***
	(3.79)	(3.00)	(3.63)	(3.11)
Public Funding × Vote share last election	-0.04***	-0.04***	-0.04***	-0.04***
	(-3.86)	(-2.84)	(-3.61)	(-2.74)
ENP	-0.06*	-0.00	-0.05*	0.06
	(-1.72)	(-0.02)	(-1.70)	(0.83)
Proportionality	-0.01	-0.01	-0.02	-0.03
	(-0.96)	(-0.41)	(-1.39)	(-1.04)
Ethnolinguistic Frag.	0.60*	0.74	0.71**	1.33***
	(1.72)	(1.50)	(2.17)	(2.75)
Post Comm.	-0.07	-0.44**	-0.11	-0.51**
	(-0.58)	(-2.25)	(-0.76)	(-2.53)
Constant	-0.82	-1.61*	-0.98	-2.47**
	(-1.41)	(-1.73)	(-1.59)	(-2.64)
Dimension Effects	NO	YES	NO	YES
Country Effects	NO	YES	NO	YES
Observations	2916	2916	2699	2699
(Pseudo) R^2	0.358	0.454	0.368	0.462
K-P Wald	-	-	11.756	11.756
Hansen J	-	-	0.150	0.150

Robust standard errors clustered at the country level. Significance: * 0.1 ** 0.05 *** 0.01

Hypothesis 2 finds confirmation in Table 4 and Figure 1. The coefficient of the interaction term between public funding and the vote share in the last election has the expected negative sign and is significant at the 1% level. Whereas public funding overall is associated with platforms further away from the median voter, the effect becomes weaker as support increases. Figure 1 visualizes this effect: smaller parties locate further away from the median position as a result of access to public funding, whereas above a threshold of about 35% support, the effect turns negative and parties locate closer to the median if public funding is present. This finding confirms that public funding is associated with

the prevalence of large, successful parties closer to the median position, thereby pushing smaller competitors further away compared with the cases where no public funding is given to parties. It is however apparent from Figure 1 that only few observations are available above the predicted level.

Figure 1: Marginal effects of public funding conditional on the vote share

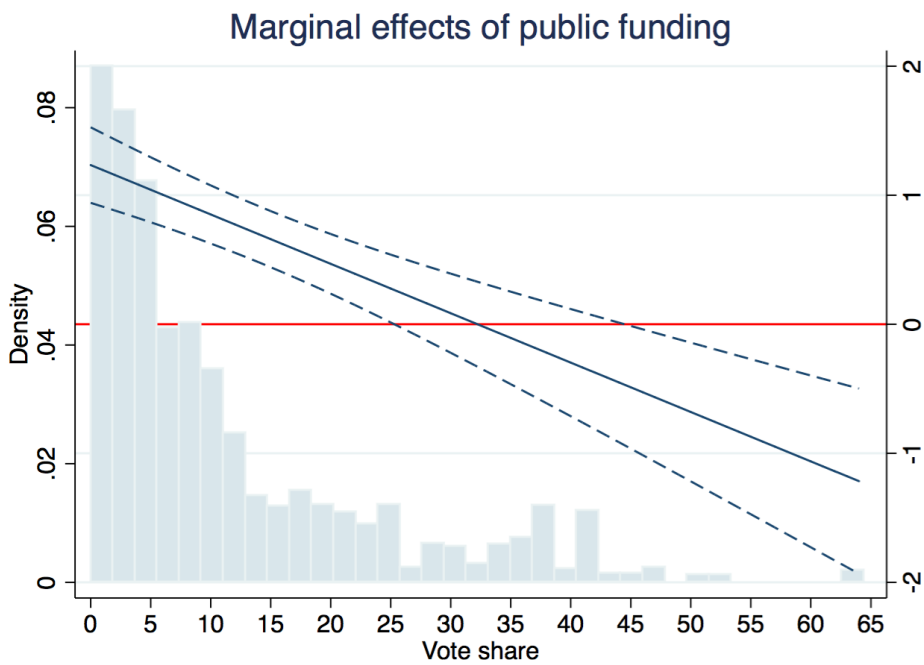


Table 5 and Figure 2[6] present the empirical investigation of Hypothesis 3. The coefficients have the expected signs but they are not significant at any conventional level. Nevertheless, as Figure 2 suggests, the effects work at least in the direction predicted by the model, although the effect is very weak. By comparing the positions of the yellow curve (corresponding to the 90th percentile of the salience distribution) with the blue one

[6]For the sake of better readability, the confidence intervals have been suppressed.

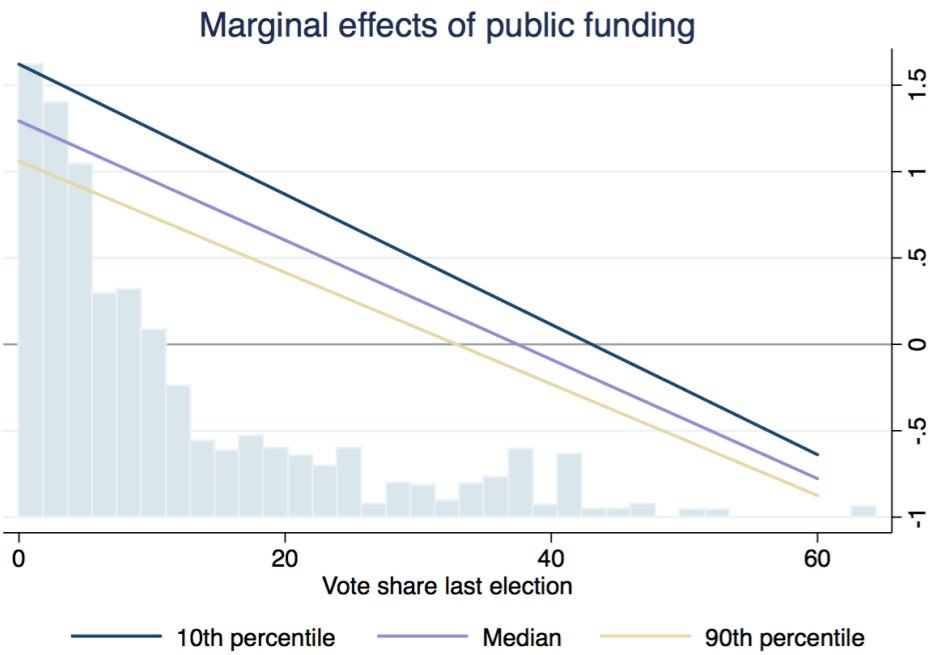
Table 5: Direct public funding and salience conditional on the vote share of the party.

	(1) Pooled OLS	(2) FE	(3) Pooled IV	(4) FE IV
Vote share last election	0.06	0.07	0.06	0.07
	(1.20)	(1.32)	(1.25)	(1.46)
Public Funding	2.65**	2.70**	2.41*	2.73**
	(2.12)	(2.15)	(1.89)	(2.21)
Public Funding × Vote share last election	-0.03	-0.05	-0.01	-0.04
	(-0.44)	(-0.91)	(-0.25)	(-0.78)
AvImportance	0.01	0.00	0.00	0.00
	(0.07)	(0.04)	(0.02)	(0.01)
Vote share last election × AvImportance	-0.00	-0.01	-0.00	-0.01
	(-1.02)	(-1.24)	(-1.07)	(-1.32)
Public Funding × AvImportance	-0.11	-0.11	-0.10	-0.11
	(-1.00)	(-1.21)	(-0.87)	(-1.18)
Public Funding × Vote share last election × AvImportance	-0.00	0.00	-0.00	0.00
	(-0.24)	(0.25)	(-0.38)	(0.12)
Importance	0.49***	0.49***	0.50***	0.50***
	(18.50)	(18.36)	(18.03)	(17.94)
ENP	-0.06*	0.00	-0.06*	0.06
	(-1.93)	(0.03)	(-1.97)	(0.93)
Proportionality	-0.01	-0.01	-0.02	-0.03
	(-0.98)	(-0.52)	(-1.44)	(-1.17)
Ethnolinguistic Frag.	0.65*	0.80	0.76**	1.41***
	(1.96)	(1.61)	(2.51)	(2.97)
Post Comm.	-0.06	-0.42**	-0.09	-0.50**
	(-0.50)	(-2.15)	(-0.68)	(-2.45)
Limits on Cont.	-0.10	-0.25	-0.03	0.17
	(-0.92)	(-1.07)	(-0.27)	(0.98)
Constant	-2.82**	-3.19***	-2.95**	-4.12***
	(-2.22)	(-2.93)	(-2.29)	(-3.77)
Dimension Effects	NO	YES	NO	YES
Country Effects	NO	YES	NO	YES
Observations	2916	2916	2699	2699
(Pseudo) R^2	0.358	0.454	0.368	0.462
K-P Wald	-	-	11.756	11.756
Hansen J	-	-	0.150	0.150

Robust standard errors clustered at the country level. Significance: * 0.1 ** 0.05 *** 0.01

(corresponding to the 10th percentile) we find that the effect of public funding pushing away from the median of low-support parties is weaker for issues of high importance.

Figure 2: Marginal effects of public funding conditional on the vote share at difference levels of salience.



4. Robustness

As a robustness check, we re-estimate all the equations by using an alternative dataset, as explained above. Tables 9, 10 and 11 in the Appendix present the estimation results. Whereas the evidence for Hypothesis 1 is slightly weakened, that for Hypothesis 2 remains highly significant. Interestingly, Hypothesis 3 also finds confirmation with the alternative estimation: the coefficients have the expected sign and turn significant at 5% level (they, however, lose significance once controlling for country-level and dimension effects).

IV. CONCLUSIONS

Recent empirical evidence has shown that the public funding of parties might be associated with them locating further away from the median voter. In this work, we presented a model of elections in which parties are financially constrained. The main results show that when a party faces a tight financial constraint, the platform chosen in equilibrium is further away from its ideal point compared with when campaign expenses are unlimited. Moreover, we show that the platform of a party facing a tighter financial constraint is further away from its ideal point than that of its opponent. These results show the theoretical foundations for the empirical observations made about the impact of the public funding of parties on their platforms. Additionally, we show that the effect of public funding might be nonlinear in that it affects parties with high budgets differently from financially constrained opponents.

Moreover, in the empirical section of this paper, we show that the predicted effects find confirmation in data. We find evidence that smaller parties locate further away from the median position as a result of access to public funding, whereas above a threshold of about 35% support, the effect turns negative and parties locate closer to the median if public funding is present.

Our results contribute to the discussion on the extent to which party-financing in-

struments affect the development of policies. Whereas most of the discussion revolves around limits to contributions to political parties, our results suggest that public funding is associated with potentially distorting effects, too. Hence, by creating unequal financial constraints, public funding not only causes the unequal distribution of funds but also changes the policy choices of disadvantaged parties.

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APPENDIX

Funding of Political Parties and Election Campaigns	Austin and Tjernström (2003)
Party and Campaign Funding in Eastern Europe: A Study of 18 Member Countries of the ACEEEO	Ikstens et al. (2001)
Money in politics: a study of party financing practices in 22 countries	Bryan and Baer (2005)
Evaluation Report on Slovenia on Transparency of Party Funding	GRECO (2007)
Evaluation Report on the United Kingdom on Transparency of Party Funding	GRECO (2008b)
Evaluation Report on Luxembourg on the Transparency of Party Funding	GRECO (2008a)
Evaluation Report on Turkey on Transparency of Party Funding	GRECO (2010b)
Evaluation Report on Greece on Transparency of Party Funding	GRECO (2010a)

Table 6: A list of countries in the sample

Albania	Greece	Norway
Australia	Hungary	Poland
Austria	Iceland	Portugal
Belgium	Ireland	Romania
Bosnia	Israel	Russia
Bulgaria	Italy	Serbia
Canada	Japan	Slovakia
Croatia	Latvia	Slovenia
Cyprus	Lithuania	Spain
Czech Republic	Luxembourg	Sweden
Denmark	Macedonia	Switzerland
Estonia	Malta	Turkey
Finland	Moldova	Ukraine
France	Netherlands	United Kingdom
Germany	New Zealand	United States

Table 7: Manifesto / Benoit and Laver data matching

Manifesto data	**Benoit and Laver data**
European Community/Union (per108, per110)	EU: Accountability (for EU countries)
European Community/Union (per108, per110)	EU Joining (for non–EU countries)
Federalism (per301)	Decentralization
Economy (per401, per402, per403)	Taxes vs. Spending
Environmental Protection (per501)	Environment
National Way of Life (per601, per602)	Nationalism
Traditional Morality (per603, per604)	Social
Agriculture and Farmers (per703)	Urban–Rural
Communist (per3052, per3053)	Former Communists

Table 8: Correlations between the instruments and the measures of governance quality

	GE[a]	CC[b]	RL[c]
Urbanization	0.46	0.47	0.41
Education	0.62	0.60	0.57

[a]Government effectiveness
[b]Control of corruption
[c]The rule of law

Table 9: Full sample results without the interaction terms - Manifesto Data

	(1) Pooled OLS	(2) FE	(3) Pooled IV	(4) FE IV
Importance	0.12***	0.11***	0.12***	0.11***
	(6.65)	(6.52)	(6.58)	(6.48)
Limits on Cont.	-0.17	-0.07	0.00	-0.00
	(-0.92)	(-0.40)	(0.00)	(-0.03)
Public Funding	0.68**	0.67**	0.72***	0.71***
	(2.66)	(2.69)	(2.85)	(2.86)
AvImportance	-0.08*	0.00	-0.07*	0.00
	(-1.86)	(0.06)	(-1.75)	(0.10)
ENP	-0.09	-0.08	-0.09	-0.07
	(-1.54)	(-1.30)	(-1.39)	(-1.22)
Proportionality	-0.00	0.01	-0.01	0.01
	(-0.13)	(0.49)	(-0.31)	(0.38)
Ethnolinguistic Frag.	0.65	0.37	0.71	0.41
	(1.10)	(0.69)	(1.19)	(0.80)
Post Comm.	-0.32	-0.46**	-0.34	-0.46*
	(-1.67)	(-2.08)	(-1.66)	(-1.99)
Constant	3.36***	2.29***	3.24***	2.23***
	(9.13)	(5.40)	(8.42)	(4.92)
Dimension Effects	NO	YES	NO	YES
Country Effects	NO	YES	NO	YES
Observations	984	984	951	951
(Pseudo) R^2	0.057	0.177	0.056	0.182
K-P Wald	-	-	246.944	246.944
Hansen J	-	-	0.284	0.284

Robust standard errors clustered at the country level. Significance: * 0.1 ** 0.05 *** 0.01

Table 10: Full sample results with the interaction between direct public funding and vote share - Manifesto Data

	(1) Pooled OLS	(2) FE	(3) Pooled IV	(4) FE IV
Importance	0.11***	0.11***	0.11***	0.10***
	(6.46)	(6.18)	(6.39)	(6.10)
AvImportance	-0.07*	0.01	-0.07	0.01
	(-1.76)	(0.19)	(-1.68)	(0.16)
Limits on Cont.	-0.18	2.63	0.02	0.82***
	(-1.05)	(1.11)	(0.14)	(3.28)
Vote share last election	0.02	0.06***	0.02	0.06***
	(1.20)	(4.25)	(1.47)	(4.31)
Public Funding	1.48***	-0.80***	1.55***	2.06
	(3.09)	(-4.03)	(3.17)	(1.61)
Public Funding × Vote share last election	-0.05***	-0.10***	-0.05***	-0.10***
	(-3.37)	(-5.76)	(-3.43)	(-5.64)
ENP	-0.12**	1.31	-0.12*	0.31
	(-2.20)	(1.65)	(-1.89)	(1.19)
Proportionality	0.00	0.10*	-0.00	0.08**
	(0.12)	(1.79)	(-0.15)	(2.43)
Ethnolinguistic Frag.	0.64	-16.97**	0.74	-1.70
	(1.05)	(-2.48)	(1.20)	(-0.25)
Post Comm.	-0.30	-4.08	-0.32	-1.30***
	(-1.57)	(-1.53)	(-1.56)	(-8.13)
Constant	3.19***	1.11	2.96***	-0.21
	(5.91)	(0.45)	(5.42)	(-0.22)
Dimension Effects	NO	YES	NO	YES
Country Effects	NO	YES	NO	YES
Observations	984	984	951	951
(Pseudo) R^2	0.173	0.234	0.060	0.185
K-P Wald	-	-	10.220	10.220
Hansen J	-	-	0.130	0.130

Robust standard errors clustered at the country level. Significance: * 0.1 ** 0.05 *** 0.01

Table 11: Direct public funding and salience conditional on the vote share of the party - Manifesto Data

	(1) Pooled OLS	(2) FE	(3) Pooled IV	(4) FE IV
Vote share last election	0.07***	0.09***	0.08***	0.09***
	(4.80)	(5.32)	(4.78)	(5.44)
Public Funding	2.59***	-0.41	2.71***	2.42
	(5.42)	(-1.24)	(5.54)	(1.63)
Public Funding × Vote share last election	-0.10***	-0.12***	-0.10***	-0.11***
	(-5.57)	(-6.49)	(-5.38)	(-6.50)
AvImportance	0.24***	0.14**	0.24***	0.14**
	(5.71)	(2.07)	(5.96)	(2.06)
Vote share last election × AvImportance	-0.02***	-0.01	-0.02***	-0.01
	(-3.21)	(-1.55)	(-3.26)	(-1.55)
Public Funding × AvImportance	-0.30***	-0.13*	-0.31***	-0.14*
	(-5.03)	(-1.73)	(-5.12)	(-1.84)
Public Funding × Vote share last election × AvImportance	0.02**	0.01	0.02***	0.01
	(2.65)	(1.16)	(2.80)	(1.27)
Importance	0.11***	0.10***	0.11***	0.10***
	(5.98)	(5.85)	(6.00)	(5.84)
ENP	-0.14**	1.36	-0.13**	0.33
	(-2.69)	(1.51)	(-2.27)	(1.12)
Proportionality	0.00	0.10	-0.00	0.08**
	(0.04)	(1.63)	(-0.23)	(2.19)
Ethnolinguistic Frag.	0.75	-17.20**	0.86	-1.94
	(1.38)	(-2.23)	(1.57)	(-0.26)
Post Comm.	-0.27	-4.26	-0.29	-1.35***
	(-1.47)	(-1.42)	(-1.46)	(-7.83)
Limits on Cont.	-0.16	2.75	0.03	0.83***
	(-0.95)	(1.04)	(0.22)	(2.93)
Constant	2.08***	0.57	1.83***	-0.58
	(3.91)	(0.21)	(3.41)	(-0.53)
Dimension Effects	NO	YES	NO	YES
Country Effects	NO	YES	NO	YES
Observations	984	984	951	951
(Pseudo) R^2	0.173	0.234	0.060	0.185
K-P Wald	-	-	10.220	10.220
Hansen J	-	-	0.130	0.130

Robust standard errors clustered at the country level. Significance: * 0.1 ** 0.05 *** 0.01