

Political Representation and Procurement Outcomes: Evidence from Regression Discontinuity Approach*

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Abstract

This paper provides evidence that the number of political parties represented in local councils matters to public spending in public procurement. My identification strategy, which is suitable for democracies with proportional elections, exploits threshold in the electoral vote share required for parties to be represented in municipal councils. Using fuzzy regression-discontinuity design, I compare procurement outcomes in a large number of municipalities where some parties either barely exceeded or failed to exceed the representation threshold. I find that councils with more political parties allocate fewer procurements to suppliers which are also political donors. These councils also achieve higher price savings and bidder competition in procurement. The representation by more parties is associated with greater benefits in councils, where incentives and opportunities for mutual monitoring among parties are stronger, such as in small-sized councils and councils with just a few parties.

Key words: political representation, public procurement, proportional elections, regression discontinuity

JEL classification: D72, H57, H72

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I. Introduction

In democratic theory, political parties are screened and disciplined through competitive elections (Manin, Przeworski and Stokes 1999). If voters can use information about the behavior of politicians to replace corrupt and low-performing incumbents, the threat of being replaced promotes electoral accountability and discourages waste in public spending (Ashworth 2012; Besley and Case 1995; Ferraz and Finan 2008, 2011). While media and nongovernmental organizations are indispensable for delivering information about politicians to voters (Olken 2007; Björkman and Svensson 2009; Reinikka and Svensson 2011), the extent of this information also depends on the number of political parties in the legislature that are capable and willing to audit an incumbent's performance (Arnold 1993; Gordon and Huber 2007; Gordon, Huber and Landa 2007; Ashworth and Shotts 2011).

In this paper I ask whether and how electoral accountability and the extent of wasteful spending in public contracting depend on the actual number of political parties that enter a legislature. Understanding these issues is important, as dozens of modern democracies have some type of multi-partisan proportional representation, for which my evidence is most relevant. At the same time, administrative inefficiencies and political corruption which could be deterred by greater accountability, have been shown to account for considerable losses of public resources in public contracting, which in OECD countries alone accounts for 13% of GDP (DiTella and Schargrodsky 2003; Bandiera, Prat and Valletti 2009; OECD 2013).

Previous literature has mostly used cross-country evidence to analyze whether low barriers to political entry, which are expected to produce more political parties, are associated with less corruption (e.g. Persson, Tabellini and Trebbi 2003). Separating the effect of the number of parties proved challenging, however, as barriers to political entry and other political institutions tend to be highly correlated across countries. Furthermore, the existing studies relied mostly on perceptions of political corruption rather than objective measures of inefficiency and misallocation of public funds.

This paper contributes to the existing literature by providing causal estimates of the impact of the number of political parties in legislatures on the efficiency of public spending, using a set of objective indicators from public procurement. Specifically, I provide evidence that the entry of additional parties reduces wasteful misallocation of procurements, as fewer public contracts go to donors to political parties in legislatures with more political parties. Additionally, legislatures with more parties allocate procurements more efficiently, as they increase price savings and bidder competition in procurement without changing the content of procurements or raising the overall level of procurement spending.

My evidence shows that the beneficial impact of the entry of additional parties is pronounced in legislatures where the ability and the incentives for mutual monitoring among parties are stronger, such as in small-sized legislatures and legislatures with fewer parties. Small legislature size namely highlights concerns for individual accountability of legislators, which makes them more responsive to being monitored (Persson and Tabellini 2000; Chang and Golden 2007). Furthermore, when there are only few parties in the legislature, parties cannot free-ride much on the costly monitoring performed by other parties. The entry of a third or a fourth party is therefore more important for electoral accountability than the entry of a fifth or a sixth party.

For identification of the effect of the number of parties in legislature, I exploit a common feature of proportional representation systems— the minimum requirement on the electoral vote share that qualifies a party to enter a legislature. If one can assume that sufficiently close to the electoral threshold a part of seat allocation can be viewed to be as good as random, then legislatures with some parties scoring close enough to either side of the threshold can be viewed as equal in all aspects, except for a disproportionately higher chance of the additional party entry above the threshold (Lee 2008; McCrary 2008; Pettersson-Lidbom 2008; Ferreira and Gyourko 2009; Folke 2014). As a result, any observed differences in public spending outcomes on opposite sides of the threshold can be attributed to the effect of the entry of the additional parties.

In this way, I can isolate the disciplining effect of the additional party entry on public spending from electoral selection effects, which remain constant below and above the electoral threshold. Furthermore, my empirical strategy separates the effect of the additional party entry from other political and institutional factors, such as barriers to political entry or cultural norms.

I apply my empirical strategy to a dataset connecting information about elections, political parties, procurement and political donors from a large number of municipalities in the Czech Republic. I make use of multiple objective measures of spending efficiency in procurement, such as procurement price savings and competition among bidders. Further, I use information about the allocation of procurements to suppliers which make financial contributions to political parties. Using information about the composition of electoral coalitions, I can show that my results are not due to strategic coalition-formation among parties or some other type of sorting of parties to legislatures.

My results are in line with the literature that studies the impact of political and institutional factors on electoral accountability. Moral hazard models in the spirit of Barro (1973) and Ferejohn (1986) predict that political challengers will discipline the behavior of incumbents if the difficulty of returning to office increases with the entry of challengers. This literature recognizes that political parties may not always have sufficient incentives and ability to monitor incumbents (Kunicova and Rose-Ackerman 2005). In line with the literature, my results show that the disciplining impact of a larger number of political entrants is concentrated in legislatures, where the opportunities and incentives for mutual monitoring among parties are pronounced.

My paper is further related to the literature analyzing the role of political challengers in elections. This literature has shown that incumbents running for reelection in competitive elections are more responsive to voters than those appointed in non-competitive retention systems (Gordon and Huber 2007; Lim 2013). The existing literature attributes the responsiveness of incumbents to the effect of monitoring by challengers, similarly to the evidence presented in this paper. In contrast to previous studies, however, my results do not suffer from potential selection of more responsive

types of candidates into more competitive systems, as I can compare legislatures differing solely by the probability of additional entrants to the legislatures.

The last strands of the related literature estimate the extent of wasteful spending in procurement and the economic returns to political connections (Fisman 2001; Faccio 2006; Khwaja and Mian 2005; Di Tella and Schargrotsky 2003; Straub 2014; Mironov and Zhuravskaya, forthcoming). My paper complements and adds to this literature.

The rest of the paper is organized as follows. Section II describes the election rules and the procurement system in the Czech Republic. Section III discusses the indicators of wasteful spending in procurement. Section IV gives details of the empirical strategy. Section V introduces data on procurement, elections and political donors. Section VI presents the results and the evidence of the additional party entry effects. Section VII inspects the robustness of the econometric specification and performs validity tests. Section VIII deals with the mechanisms of the political party entry effect. Section IX summarizes and concludes.

II. Institutional Background

In the Czech municipal elections, members of approximately six thousand legislatures are elected directly for four-year terms. The elections are proportional (PR) with a 5 % entry threshold, which is an important element in the identification strategy, as exceeding the threshold is a strong predictor of the entry of a party into a legislature.³

The elections involve national-level parties, local-level ‘movements’ and individual candidates. Political subjects draft candidate lists on their own, subject to the rule that the maximum number of candidates on each candidate list can be only as high as the number of seats in a legislature. The legislature size is proportional to the population living in a municipality and ranges from 5 to 55 legislators (Jurajda and München 2014).

The electoral system is an open-list system where voters can split votes across party lines using preferential votes. More specifically, voters may (but do not have to) mark

³ The allocation of seats is determined using d’Hondt’s method, which does not always guarantee a seat to every party above the electoral threshold.

one preferred candidate list, which is equivalent to marking all candidates on that list. Alternatively, voters may mark candidates across candidate lists.⁴ The open-list system creates a direct link between the individual performance of politicians and re-election incentives (Persson and Tabellini 2000). The incentives for mutual monitoring among politicians are therefore reinforced in an open-list system, especially in elections with a small district magnitude (Chang and Golden 2007), as in the case in a majority of the municipalities in the Czech Republic.⁵

Nevertheless, because electoral accountability does not depend only on the electoral rules but also on politicians' ability to exercise oversight (Kunicova and Rose-Ackerman 2005), I continue with the description of the regulatory structure of the Czech public procurement, which constitutes one of the largest spending processes in the Czech Republic. Yearly, about 13-16% of GDP (USD 31 billion in 2010) is spent on procurement of goods, construction works, and services, making it one of the largest procurement markets among OECD countries (OECD 2013). Municipalities represent a substantial fraction of this market as they spend 5% of GDP on procurement.

The primary responsibility for allocation and monitoring municipal procurement lies with politicians elected into municipal legislatures. The legislature members make direct executive decisions about the planning of procurements, the selection of suppliers and the realization of procurement projects. Their behavior can largely influence the contracting procedures and the outcomes in procurement, such as the competitiveness of procurement auctions, the price savings or the overall procurement budget. Legislature members can inspect procurements both during and after the contract-allocation process (Císařová and Pavel 2008). If they perceive inefficiencies or a risk of mismanagement or embezzlement of public resources, they can voice their concerns in the legislatures or publicly in media or in their political campaigns.

⁴ The total number of preferential votes is equal to the number of legislators if the voter does not mark any preferred list and it equals to the number of legislators minus one, if the voter marks a preferred list and then also individual candidates.

⁵ The legislature size in the Czech Republic is lower than 15 seats in 80% of municipalities in the sample.

Political parties outside the legislatures face many obstacles for obtaining information about the public spending in municipal procurement. The barriers to information include administrative, financial and time constraints, in the least. The entry of additional parties into legislatures may therefore facilitate the monitoring the spending behavior as such entry reduces all the mentioned barriers to information.

Other public institutions bear low oversight responsibilities over municipal procurement. The Czech constitution prohibits the Supreme Auditing Office, the institution that audits procurements of the central government, from auditing municipal spending for the reasons of fiscal decentralization. The other institution that can oversee procurement, the Czech Antitrust Office, has been known for its passive and formalistic approach (Transparency International 2009). Czech procurement has been therefore often criticized for a lack of effective institutional oversight and for high prevalence of political corruption. The World Economic Forum (2011) ranked the Czech Republic as low as 123rd among 142 countries in terms of the extent to which government officials show favoritism toward well-connected firms. A series of anecdotal corruption cases illustrate the extent of misallocation of public funds (Economist 2011, 2013).

III. Indicators of Wasteful Spending in Public Procurement

The primary issue in determining the economic impact of additional political parties on wastefulness of public spending is the question how to reliably proxy wasteful behavior. The existing studies can rarely show direct evidence of bribery or theft of public resources, because of the secretive nature of corruption.⁶ Documenting economic inefficiencies is similarly data-demanding as the decisions of public officials typically involve multiple dimensions and some benefits may arrive at costs of other. A growing body of literature therefore tries to provide indirect evidence of wasteful spending. This subfield of academic forensic economics uses discontinuities or changes in the economic incentives to estimate the prevalence of wasteful behavior (Zitzewitz 2012).

⁶ Important exceptions include, for example, Di Tella and Schargrotsky 2003; Bandiera, Prat and Valletti 2008; Ferraz and Finan 2008, 2011; Reinikka and Svensson 2004; Olken 2007; and Mironov and Zhuravskaya (forthcoming).

In this paper, I follow the approach of academic forensic economics and proxy wasteful behavior using a set of indicators of politicians' performance in public procurement. To analyze the appropriateness of the choice of these indicators, I consider the following simple theoretical setup.

In my setting, politicians seek to maximize their wealth and support from voters in elections. To attract finance, some politicians may solicit donations from potential suppliers in procurement. In exchange, the politicians provide preferential treatment to their donors once they get elected to legislatures. Preferential treatment can take various forms, for example, of a higher likelihood of allocating public procurements to political donors, overcharging the prices of procurement or blocking competition from other suppliers.

To deal with politicians is however a risky business for firms. Politicians may not get elected to office and may not succeed in securing preferential terms for their donors. Similarly, politicians enter a risky deal because detection of wasteful behavior is associated with costs, such as sanctions or legal fees or decrease in the probability of re-election. Voters namely prefer politicians who are not involved in illicit deals with firms, because their utility decreases when public resources get diverted for private gains of politicians and their donors.

Since electoral chances of each political party increase as the chances of other parties decrease, all parties may benefit from monitoring other parties and revealing undesirable information about their opponents. Some parties, however, may not want to monitor and accuse other parties, because mutual attacks may destroy current or future political coalitions and thereby the access to power and rents.

Nevertheless, once the number of political parties in legislatures increases and one observes in consequence a lower likelihood of allocating public procurements to political donors, then this change in access to procurements cannot be interpreted in a different way than less prevalent misallocation of procurement contracts to political donors.

At the same time, procurement prices may be elevated as a sign of wasteful spending in procurement. High prices can represent either wasteful behavior due to shirking and administrative inefficiency of public procurement or due to the intentional overcharging procurement prices. The motivation for the latter case would be that the created surplus can be split among political parties and their donors (Bandiera, Prat and Valletti 2008).

One needs to nonetheless consider alternative explanations for high prices in procurement, such as a greater content of procurements which would justify higher price. For this reason, I consider only procurements on construction works where the planned value of procurements comes from external project architects. These experts use standardized norms to estimate the planned value of each procurement project based on a list of components in procurement projects. The planned value of procurement therefore matches closely the planned content of procurements (Pavel 2013). Observing low prices associated with an unchanged content of procurements can therefore indicate less wasteful spending.

Further necessary condition for the hypothesis that low prices are a sign of less wasteful spending behavior is that the overall level of procurement spending does not grow too much or does not deteriorate due to the entry of additional parties. For example, the impact of the entry of additional parties may be that politicians split illicit rents among a larger number of parties. Politicians can in such case wastefully spend more resources on the overall level, even though that the procurement prices may be low at the level of individual procurements. This “common-pool” problem in public spending typically arises because parties in coalitional governments fail to fully internalize the fiscal cost of spending (Persson, Roland and Tabellini 1997).

On the other hand, even a decrease in the overall level of procurement spending associated with low procurement prices and stable content of procurements may be consistent with wasteful behavior. The reason is that the additional entrants may hijack the overall procurement spending process by raising critique to any step the incumbents make. In such case, all procurement projects are blocked from being finished and voters can be losing welfare, because public goods do not arrive to them

on time or do not arrive at all. One therefore needs to test that the procurement process does not deteriorate due to the entry of additional parties into legislatures.

Finally, I conjecture that legislatures trying to reduce waste in public procurement will not try to restrict competition between suppliers in procurement, but rather make their auctions open for any suppliers. Even though that there is a large debate in the procurement literature as to which of the more or less restrictive auction formats is more effective at selecting optimal contractors (e.g. Manelli and Vincent 1995; Bajari and Tadelis 2001), I assume that more politicians held accountable by the entry of numerous political parties will tend to opt for more competitive auctions.

Before I proceed to the details of the empirical strategy, let me summarize the main hypotheses regarding wasteful spending of politicians in procurement: 1) legislatures with additional entrants allocate fewer procurements to the donors of political parties, 2) legislatures with additional entrants allocate procurements at lower prices without changing the content of procurement or the overall level of procurement spending, 3) procurements in legislatures with additional entrants are allocated in auctions which involve more bidders compared to legislatures without additional entrants.

IV. Empirical Strategy

The most challenging issue in estimation of the effect of numerous political parties on public spending is the likely endogeneity of political entry. Voters select their representatives in free and democratic elections and the likely correlation between unobserved voters' preferences and the entry of numerous parties would lead to biased OLS estimates of the additional party entry effects.

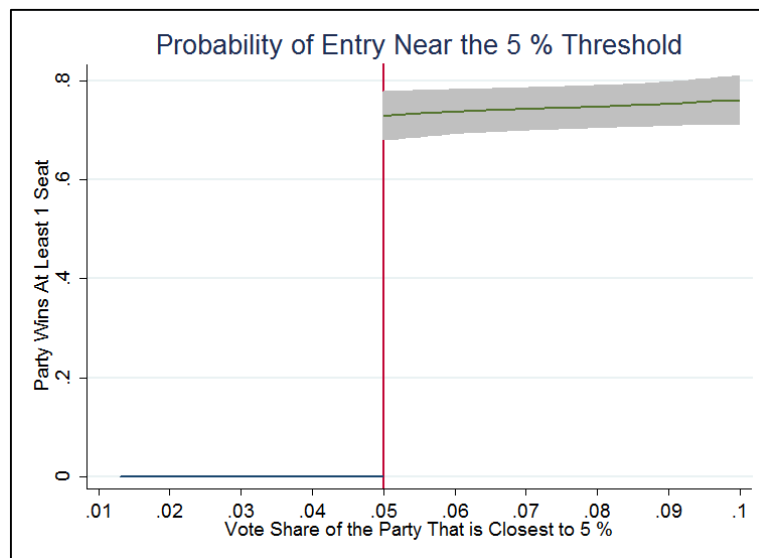
Nevertheless, an attractive feature of proportional electoral system is that the entry of political parties into legislatures is tied to a fixed minimum requirement on the electoral vote share. This electoral threshold creates a discontinuous relationship between the vote share of parties and their likelihood of entering legislatures. If one can assume that parties close enough to the threshold exceed the entry requirement as well as randomly, then one can use regression discontinuity (RD) design to estimate the additional party

entry effect without bias. Similar RD methods have been often used in political economy, for example, by Lee (2008), Lee, Moretti, and Butler (2004), McCrary (2008), Pettersson-Lidbom (2008), Ferreira and Gyourko (2009), and recently by Folke (2014) with application to proportional elections.

Figure 1 inspects the relationship between the vote share of parties and the likelihood of their entry into legislatures. In particular, the figure focuses on the parties that scored in municipalities the closest to the electoral threshold. According to the figure, 75 % of all parties that barely crossed the threshold received at least one seat in the legislature. No seat could be won if a party scored anywhere below the threshold. The discontinuity translates into a jump in the number of parties in legislatures, as shown in Figure A.1 in the Appendix. The number of parties in legislatures jumps from an average of 5.5 parties to almost 6 parties once the party closest to the threshold exceeds the entry requirement. The average number of seats allocated to the party which barely crossed the threshold is very close to 1 as shown in Figure A.2 in the Appendix.

FIGURE 1

Relationship between the Vote Share and Probability of Entry into Legislature



Notes: The figure shows the probability of winning at least one seat in the legislature when a party closest in the legislature exceeds the electoral threshold. The grey area is the 90% confidence interval.

As Figure 1 illustrates, the threshold does not predict additional party entry perfectly. If that were the case, it would be sufficient to assume continuity of covariates at the

threshold to identify the causal effect of the additional party entry on the inspected outcomes. One would merely need to compare the average outcomes in legislatures where the parties closest to the threshold barely exceeded the threshold with the average outcomes in legislatures where such parties scored barely below the threshold. Nonetheless, because seat allocation method may not always attribute seats even to parties that exceed the threshold, one needs to use a discontinuity design in a fuzzy form in estimation (Angrist and Lavy 1999; Hahn, Todd, and van der Klaauw 2001; Imbens and Lemieux 2008; Lee and Lemieux 2010; van der Klaauw 2002).

Since the probability of party entry gradually increases only over a range above the electoral threshold, one also needs to use data outside of this range to estimate the baseline relationship between the party entry and the outcomes. The *instrumental variables* (IV) technique can be used to estimate this baseline relationship, where instruments would consist of higher-order non-linear terms of the vote share of the party scoring the closest to the threshold. These higher-order terms are included in the *control function*.

The outlined IV technique can be implemented as follows. The outcome equation is assumed to take the following form:

$$(1) \quad Y_i = BX_i + \beta_1(Additional_Entry)_i + f(Vote_sh)\phi + u_i + \varepsilon_i,$$

where Y is the inspected outcome, X is a vector of pre-determined covariates, *Additional_Entry* indicates the entry of a party that scored the closest to the threshold into the legislature, meaning that such party won at least one seat in the legislature, $f(Vote_sh)$ is the *control function* of the order of q , u is the unobserved effect, such as the preferences of voters, and ε is the error term.

The first-stage equation is then assumed to be given by:

$$(2) \quad Additional_Entry_i = \Gamma X_i + \gamma_1 \mathbf{1}[Vote_sh \geq c]_i + f(Vote_sh)\phi + \gamma_2 u_i + \eta_i,$$

where $\mathbf{1}[Vote_sh \geq c]$ is an indicator equal to one if a party closest to the threshold exceeds 5% and zero otherwise, η is the error term and other variables are as before.

One drawback of the outlined IV approach is that it relies on knowing the functional form of the baseline relationship between the vote share of parties and the outcomes. If, for example, the relationship is highly non-linear and one would specify it as linear, the estimates may simply pick up the underlying non-linearities (Jacob and Lefgren 2004). In this paper, this concern is addressed by cross-validating the control function.

Another concern in estimation is that political parties may be able to manipulate their vote share relative to the threshold based on factors correlated with the outcomes. In such a case, the exclusion restriction embodied in the assumption that the binary indicator $\mathbf{1}[Vote_sh \geq c]$ is correctly excluded from the outcome equation, would not be valid. To examine the assumption of parties crossing the threshold as well as randomly, one needs to inspect the continuity of the assignment variable at the threshold. This can be done, for example, using McCrary's (2008) density discontinuity test. Moreover, I inspect the continuity of numerous covariates at the threshold, which importantly include the number of parties running for elections and the number of political subjects on coalitional candidate lists. If the observable covariates are continuous at the threshold, parties should not be able to sort into legislatures and one should be confident in interpreting the estimates in a causal manner.⁷

The RD design nevertheless identifies the average causal effect only "locally" (Hahn et al. 2001), that is only for legislatures where the additional party scored close enough to the threshold. One needs to carefully consider whether the estimated *local average treatment effects* (LATEs) are externally valid even for observations further away from the threshold or for observations in different institutional settings.

For robustness, I also use a semi-parametric estimation approach to try to obtain consistent estimates of the additional party entry effects. This approach consists of disregarding the observations outside of a narrow bandwidth of the electoral threshold and estimating the 2SLS regressions without covariates or the control function. This method helps assessing the robustness of the parametric approach because estimates

⁷ According to Folke (2014), sorting of political parties into legislatures is less likely in a proportional electoral system, given that the allocation of seats is not automatic at the entry threshold.

from parametric and semi-parametric approaches should be similar provided that the control function was specified correctly. The only difference can concern a higher sampling variability of the semi-parametric approach.

V. Data and Summary Statistics

The primary data originate from the Czech public register of public procurements, where information about procurements is mandatorily published once the contract-allocation process is governed by the Public Procurement Act. I draw information from this register about all construction procurements awarded by municipal legislatures between the 2006 and 2010 municipal elections. Altogether, these data correspond to over 8,700 public contracts, worth approximately CZK 195 billion (approximately USD 10 billion).

The procurement data include detailed information about individual procurements, such as contractual prices and planned values of procurements, unique IDs of procuring municipalities and suppliers who won the procurements, as well as information about the number of bidding suppliers in procurement auctions.

I merge this procurement dataset with information about political parties running for the 2006 elections. The electoral data contain information about the identity and vote shares of all political parties running for elections and the resulting allocation of seats in municipal legislatures. The procurement and electoral datasets can be merged for 1,198 out of over 6,300 legislatures. The rest of the cases are typically small municipalities which did not award any construction procurements during the sample period.⁸

I complement these data with unique information about political donations from procurement suppliers to political parties. This dataset is available from the Parliament of the Czech Republic and covers all political donations made by firms to political parties between the 2006 and 2010 elections. The data on donations can be merged however only with suppliers which eventually won some public procurements.

⁸ I assess continuity of multiple municipal covariates to ensure that sample selection is not an issue near the electoral threshold. Furthermore, I disregard electoral information about several large cities with multiple electoral districts, such as the capital city of Prague, from the dataset.

Finally, I add to my dataset information about municipal fiscal policies and descriptive characteristics of the municipalities. This information is important for inspecting the continuity of the overall municipal spending and municipal characteristics around the electoral threshold. These data originate from the Czech Ministry of Finance and Czech Statistical Office. For the detailed description of all variables used in the empirical analysis and their data sources, see Table A.1 in the Appendix.

Summary statistics of the final merged dataset are presented in Table 1. The table starts by showing procurement and fiscal outcomes and ends with pre-determined covariates. According to the table, an average procurement makes up a substantial part of the municipal budget. In particular, such procurement is worth CZK 19.5 million according to its planned value, while the average annual municipal budget is CZK 95.39 million.

The allocation of procurements to political donors is pervasive. The table shows that 33% of municipalities allocated at least one public procurement contract to some donor of a political party. Economic returns on such donations seem very large as the sum of contractual prices of procurements allocated to donors exceeded 753.75 times the sum of donations from suppliers. One needs to take into account, however, that the contractual prices cover all costs that donors bear in the realization of procurements. One can moreover expect that in cases of political corruption a substantial part of payments from suppliers to politicians will not be recorded in the official dataset of political donations, so our calculated returns on political donations are likely overstated. If they are, however, overstated in the same way in all legislatures with political parties scoring either barely above or barely below the electoral threshold, respectively, one can use this indicator of economic returns on political donations to infer the impact of the entry of additional party on the misallocation of the procurements to political donors.

Table 1 further shows the average price savings in procurement, which are calculated as the percentage difference between the contractual price of procurement and its planned value. These price rebates reach on average 8 percent of the planned value and can therefore contribute to sizable savings of resources in procurement. The average number of suppliers bidding in the procurement auctions is 5.63 suppliers.

TABLE 1

Summary Statistics

Variables:	Mean	S.D.	Min	Max
<i>Procurement outcomes</i>				
Indicator for political donations	0.33	0.47	0	1
Returns on political donations	753.75	1,526.12	8.13	11,219
Price savings in procurement	-0.08	0.20	-0.84	2.96
Planned value of procurement (mil. CZK)	19.50	19.69	5.59	292.15
Number of bidding suppliers	5.63	2.53	1	28
<i>Fiscal outcomes</i>				
Annual fiscal revenue (mil. CZK)	94.19	256.40	0.55	5,036.13
Annual fiscal expenditure (mil. CZK)	95.39	266.25	0.52	5,222.74
Annual budget deficit	0.01	0.13	-0.46	1.49
<i>Covariates</i>				
Population size (in ths.)	4.55	11.14	0.02	165.24
# of parties in elections (per ths. capita)	5.73	12.26	0.04	126.44
# of distributed seats in legislature	13.75	6.30	5	47
# of members of electoral coalitions	1.04	0.19	1	2
Average age of elected representatives	46.49	3.78	32.60	60.71
# of women among representatives	3.32	1.97	0	14
# of politicians from national-level parties	6.70	6.86	0	42

Notes: Variable definitions are provided in table A.1 in the Appendix. Percentages are expressed on a scale between 0 and 1.

Regarding the municipal fiscal policies, the average municipal budget revenue (CZK 94.19 million) only slightly exceeds the average budget expenditure (CZK 95.39 million). The average deficits are only 1 percent of the budget revenue.

The rest of the variables are pre-determined covariates. The table shows that municipalities have on average 4.55 thousand inhabitants. Per 1,000 inhabitants, 5.73 political parties run for elections. These parties can win on average 13.75 seats in legislatures. Coalitional candidate lists near the threshold are rare, as candidate lists which scored the closest to the threshold consist on average only out of 1.04 parties.

The table finally shows the average age of the elected politicians, the average number of female representatives and the average number of representatives from national-level

parties. These figures suggest that the elected politicians are on average 46.49 years old. Women win on average 3.32 seats in the legislatures, which corresponds to 24.22% of the average number of seats in legislatures. The candidates from national-level parties win on average 6.7 seats, which corresponds to 48.73% of the average number of seats.

VI. Empirical Analysis of the Additional Party Entry

I divide the empirical analysis into two parts. I start with a comparison of procurement outcomes for legislatures with some political parties either just below or just above the electoral threshold, respectively. Then I continue with the parametric 2SLS estimation outlined in the empirical strategy. The first part provides initial insights on the levels of the inspected indicators below and above the electoral threshold, respectively. The second part takes into account the actual entry of parties into legislatures. The specification checks and the validity tests follow in the next section.

Table 2 starts the empirical analysis by comparing the inspected procurement indicators for legislatures with some political parties scoring either just below or just above the threshold, respectively. The table considers a restricted sample that includes only legislatures where some party scored within 2-percentage-point bandwidth from the electoral threshold, i.e. in the range [0.03, 0.07] of the vote share of parties.

The table indicates that if some political party scored just above the threshold, then the economic returns on political donations from procurement suppliers, defined as the sum of the contractual prices of procurements allocated to political donors over the sum of their political donations, are 58 % lower in the affected legislature compared to the legislatures with some party scoring just below the threshold. The difference is significant at the 5% level. Furthermore, the legislatures with some party above the threshold achieve almost twice as high price savings in procurement compared to legislatures with a comparable party just below the electoral threshold. The price savings are defined as the percentage difference between the contractual price of procurement and the planned value of procurement, expressed as the percentage of the latter. The difference in price savings across the legislatures is again significant at the 5% level.

The differences in other outcomes and covariates are not significant in Table 2, although legislatures with some party just above the threshold seem to attract slightly more suppliers into their procurement auctions. Importantly, the fiscal outcomes in municipalities seem not to be affected.

The same results are visualised in Figure 2, which uses kernel-weighted local polynomial smoothers (with 1% bandwidths) to plot the procurement indicators in municipalities with some parties scoring either just below or just above the electoral threshold, respectively. Figure A.3 in the Appendix visualises the absence of discontinuities in municipal fiscal outcomes and covariates at the electoral threshold.

TABLE 2

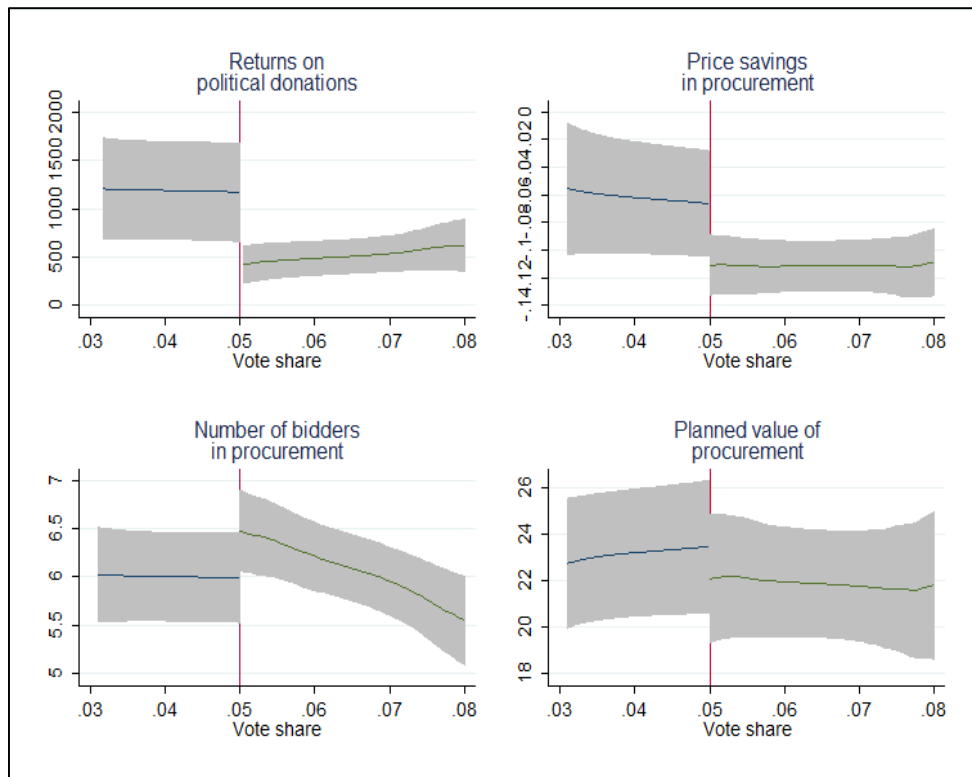
Descriptive Results - Sample Restricted around the Electoral Threshold

Variables:	Below Threshold [0.03, 0.05] (1)	Above Threshold [0.05, 0.07] (2)	Difference in Means (2) - (1)
<i>Procurement outcomes</i>			
Returns on political donations	1,204.75	508.09	-696.67 **
Price savings in procurement	-0.06	-0.11	-.05 **
Planned value of procurement (mil. CZK)	23.41	22.78	-.64
Number of bidding suppliers	5.99	6.43	.44
<i>Fiscal outcomes</i>			
Annual fiscal revenue (mil. CZK)	322.64	323.87	1.23
Annual fiscal expenditure (mil. CZK)	327.75	330.57	2.81
Annual budget deficit	-0.00	0.003	0.003
<i>Control variables</i>			
Population size (in ths.)	15.26	14.80	-.46
# of distributed seats in legislature	20.45	20.44	-.00
# of parties in elections (per ths. capita)	2.01	2.11	.10
# of members of electoral coalitions	1.10	1.08	-.02
Average age of representatives	47.96	47.86	-.10
# of women among representatives	4.60	4.30	-.29
# of politicians from national-level parties	13.70	13.63	-.07

Notes: 103 observations come from legislatures with some party scoring just below the threshold and 138 from legislatures with some party scoring just above the threshold. Percentages are expressed on a scale between 0 and 1. The differences in means are tested using one-sample two-group t-tests, ***p<0.01, **p<0.05, *p<0.1.

FIGURE 2

Discontinuities in the Procurement Outcomes



Notes: The variable on the horizontal axis is the vote share of political parties that scored the closest to the electoral threshold in a given municipality. The grey areas are the 90% confidence intervals, unadjusted for the *actual* entry of political parties into legislatures.

However, the results presented so far did not take into account whether political parties near the electoral threshold actually receive any seats in legislatures. I therefore continue the analysis by estimating the parametric 2SLS specification outlined in the empirical strategy, which can correct for the actual entry of parties into legislatures.

Table 3 presents the main estimates of the 2SLS specification (i.e. equations (1) and (2)). The estimation takes into account a full set of covariates and a control function of the sixth order ($q=6$) suggested by the cross-validation procedure.⁹ The table also reports evidence from the first stage, which stresses the predictive power of the used instrument.

⁹As the order of the control function increases, the post-estimation t-tests from the first stage regression indicate that the sextic term is statistically significant ($t=2.22$) at the 5% level, while the septic term is not significant ($t=-0.66$) at any standard level of statistical significance.

TABLE 3**The Impact of Additional Parties on Public Procurement Outcomes**

Dependent variables:	Log (Returns on political donations)	Price savings	Log (Planned value of procurement)	Log (Number of bidding suppliers)
	(1)	(2)	(3)	(4)
Second stage:				
Party Wins \geq 1	-1.566***	-0.086**	-0.121	0.192**
Seats	[0.411]	[0.044]	[0.144]	[0.090]
Order of the CF	Sixth	Sixth	Sixth	Sixth
Covariates	Yes	Yes	Yes	Yes
First stage:				
1[Vote_sh \geq c]	0.723***	0.653***	0.653***	0.653***
	[0.075]	[0.048]	[0.048]	[0.048]
R ²	0.650	0.515	0.515	0.515
Adj. R ²	0.551	0.477	0.477	0.477
Observations	393	1,196	1,196	1,195

Notes: Each column is a separate regression estimated on our whole sample using 2SLS outlined in equations (1) and (2). The regressions also include, but do not report, dummy variables for 73 Czech geographical districts. Robust s.e. are in brackets, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3 shows that the entry of the additional parties improves procurement outcomes along several dimensions. First of all, the additional party entry leads to lower returns on political donations for procurement suppliers, meaning that political donors receive smaller or fewer procurements from legislatures with the additional party compared to legislatures where some party barely failed to enter. The estimated coefficient in column (1) corresponds to 156.6% lower returns on political donations in municipalities with an additional party. The estimate is highly statistically significant at 1% level.

The estimate on political returns needs to be interpreted with caution, however, as the contractual price of procurement in the nominator of this outcome variable includes all the costs that suppliers bear will during the realization of procurement projects. At the same time, political donations in the denominator may represent an incomplete fraction of the overall payments between politicians and procurement suppliers, because much of such payments may not be recorded in the dataset of official political donations.

Other columns in Table 3 analyze further indicators that may reflect wasteful spending in public procurement. In particular, column (2) demonstrates that procurement price savings are 8.6 percentage points larger in absolute values in municipalities with some additional party compared to legislatures without such it. The magnitude of the effect corresponds to 70.9% increase in the price savings. The result is significant at 5% level.

Increased price rebates, however, do not necessarily imply less wasteful spending. Low prices could be, for example, a sign that procurements have smaller material content. For this reason, column (3) estimates the impact of the additional party entry on the planned value of procurements, which approximates the procurement content. The estimate shows that higher price savings are not associated with a simultaneous drop in the planned value of procurements and therefore the procurements allocated below and above the threshold should be comparable in terms of their content.

An alternatively explanation why low prices may not imply less wasteful spending, is that politicians start splitting larger budgets among a larger number of political parties, while keeping the prices of individual procurements low. Table 4 shows that this is not the case, because the increase in the price rebates is not observationally associated with simultaneous changes in the municipal budget outcomes, such as budget revenues, budget expenditures and budget deficits, respectively. This evidence suggests that the entry of additional parties does not lead to overall higher municipal spending. At the same time, Tables 4 suggests that the entry of additional party does not lead to deterioration of the procurement process. According to the table, comparable amount of public spending is allocated in all municipalities with some party near the electoral threshold, irrespective of the entry of additional political parties.

Finally, the last column (4) in Table 3 presents evidence that the competition among procurement suppliers increases due to the entry of an additional party into legislature. In particular, legislatures with the additional party attract 19.2% more bidders into their auctions. Wider participation of suppliers can reflect either less restrictions on the entry of suppliers into procurement competition or a greater trust in the fairness of the procurement process. Either way, this result is in line with the expectation that more

accountable legislatures will not try to restrict the competition between procurement suppliers to only a limited number of firms, but rather make procurement open for any willing suppliers. The estimated effect is significant at 5% level.

TABLE 4
The Impact of Additional Entrants on Fiscal Outcomes

Dependent variables:	Log (Budget revenue)	Log (Budget expenditure)	Budget deficit
	(1)	(2)	(3)
Second stage:			
Party Wins ≥ 1	-0.049	-0.021	0.027
Seats	[0.082]	[0.088]	[0.022]
Order of the CF	Sixth	Sixth	Sixth
Covariates	Yes	Yes	Yes
First stage:			
1[Vote_sh $\geq c$]	0.653*** [0.048]	0.653*** [0.048]	0.653*** [0.048]
R ²	0.515	0.515	0.515
Adj. R ²	0.477	0.477	0.477
Observations	1,196	1,196	1,196

Notes: Each column is a separate regression estimated on our whole sample using 2SLS outlined in equations (1) and (2). The regressions also include, but do not report, dummy variables for 73 Czech geographical districts. Robust s.e. are in brackets, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

VII. Specification Checks and Validity Tests

In this section, I discuss the robustness of the empirical specification and perform a set of validity tests of whether the entry of additional parties into legislatures can be considered as good as random.

Since a major concern in the parametric discontinuity design is a correct specification of the control function, I start by estimating the additional party entry effects semi-parametrically. This means that I consider only legislatures where the vote share of some political party fell within a 1-percentage-point bandwidth around the electoral threshold. A 2SLS estimation procedure is applied to this restricted sample, while the covariates and the control function are not included in the specification as they should be irrelevant in the very close neighbourhood of the threshold. This estimation

procedure can verify the robustness of the parametric specification, as the estimates from parametric and semi-parametric approaches should be similar if the control function was specified correctly in the parametric approach.

The results of the semi-parametric estimation are provided in Table 5. The table shows that the estimated party entry effects are remarkably similar to those obtained in the parametric estimation. The estimates are less statistically significant, which is however typical for semiparametric approach, which may suffer from a higher sampling variation. The striking similarity of the estimates, nevertheless, provides a strong support for the parametric specification.

TABLE 5
The Results of Semi-parametric Estimation

Dependent variables:	Log (Returns on political donations)	Price savings	Log (Planned value of procurement)	Log (Number of bidding suppliers)
Second stage:	(1)	(2)	(3)	(4)
Party Wins ≥ 1	-1.189**	-0.054	-0.111	0.132
Seats	[0.472]	[0.037]	[0.136]	[0.095]
Order of the CF	None	None	None	None
Covariates	No	No	No	No
Observations	86	167	167	167

Notes: Each column is a separate regression estimated using 2SLS outlined in equations (1) and (2). Only observations with the partisan vote share within the range of [04 – 06] % are included. Robust standard errors are in brackets, ***p<0.01, **p<0.05, *p<0.1.

The issue of the proper specification of the control function is further addressed in Table A.2 in the Appendix. This table shows in columns (1) – (4) the estimates of the 2SLS specification with cubic, quartic, quintic, and hexic order of the control function (q=3; q=4; q=5; q=6), respectively. The table illustrates that the magnitude of the estimates remains stable with respect to the order of the control function. In particular, panel A demonstrates stable additional party entry effects on the procurement indicators, while Panel B finds no statistically significant effects on the fiscal outcomes. The control function therefore seem to sufficiently pick up the baseline relationship between the vote share of the political parties and the inspected outcomes.

Tables A.3 and A.4 in the Appendix consider alternative measures of the additional party entry. In particular, these tables provide the estimates of the 2SLS specifications as in equations (1) and (2), but Table A.3 uses the number of political parties elected into legislatures as the outcome variable in the first-stage regression, while Table A.4 uses the number of seats allocated to the party scoring the closest to the threshold as the first-stage outcome. The tables report the results for four different functional form specifications of the control function in order to inspect the robustness of the estimates. Again, the presented results are very much consistent with the estimates presented earlier, irrespective of the choice of the variable representing the additional party entry.

The rest of the section inspects the validity of the research design. For example, the crucial assumption for the regression discontinuity is that parties near the electoral threshold exceed the threshold as well as randomly. The testable implication of this assumption is that one should not be able to predict the vote share of parties close to the threshold by any of the observable covariates. This indirect validity test can be implemented as follows: a regression of the indicator $\mathbf{1}[Vote_sh \geq c]$, which equals one if a party closest to the threshold exceeds the threshold and zero otherwise, is run on the pre-determined covariates and the control function. Afterwards, a statistical test is performed whether the covariates can predict the indicator for exceeding the threshold.

TABLE 6

Is the Vote Share Near the Threshold as Well as Randomly Assigned?

Dependent variable: Indicator that political party's vote share exceeds the electoral threshold	
Log (population)	0.016 [0.014]
# of distributed seats in legislature	0.119 [0.502]
# of parties running for elections	-0.002 [0.002]
# of electoral coalition members	0.002 [0.045]
Average age of representatives	0.001 [0.001]
# of woman representatives	-0.005 [0.004]
# of representatives from national-level parties	0.000 [0.002]
F - test	0.92
p - value	0.492
Observations	1,198

The OLS regression also includes, but does not report, the coefficients on the quintic control function and district dummies. Robust standard errors are in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6 presents the results of this indirect validity test. The coefficient estimates on all covariates are not individually different from zero and also not jointly, as can be seen from the F -statistic of 0.92 with a corresponding p -value of 0.492. The covariates therefore cannot predict whether the political party that is the closest to the threshold will exceed the threshold. This provides a strong support for claiming that parties near the threshold exceed the entry requirement as well as randomly.

The assumption of the quasi-randomness of the additional party entry can be further tested using McCrary's (2008) discontinuity test, which detects undesirable sorting of parties into legislatures. The concern is that parties near the threshold may be involved in some sort of electoral fraud to exceed the threshold or they may try to form strategic electoral coalitions to enter legislatures. Such entry would consist a problem for the causal interpretation of the estimates if sorting of parties into legislatures was based on the characteristics correlated with the inspected outcomes.

The McCrary's test is implemented in Table 7 as a Wald test of the null hypothesis that there is no discontinuity in the vote share of parties at the 5% electoral threshold. First, I inspect the continuity of the vote share for all political parties that participated in the 2006 municipal elections and then also for all parties that scored in respective municipalities the closest to the electoral threshold.

TABLE 7
McCrary's Density Discontinuity Test

	The Vote Share – All Parties	The Vote Share of Parties Closest to 5%
Discontinuity Estimate	-.150 [.119]	-.181 [.190]
Observations	24,294	1,133

Notes: Standard errors are given in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7 finds no evidence of discontinuities in the density distributions of the vote share. This finding is consistent with the notion of fair and democratic elections where parties near the threshold cannot manipulate their vote share relatively to the entry minimum. Figures A.4 and A.5 in the Appendix visualise these negative results of McCrary's test.

The last condition for causal interpretation of the estimates is the continuity of covariates at the electoral threshold. I test this assumption in Table 8 using a series of placebo tests which try to detect additional party entry effects on covariates that were known before the entry of the additional party or simultaneously with it. No significant results should be found if the covariates are continuous at the threshold.

TABLE 8

Placebo Tests of Whether the Entry of Parties Can Predict Covariates

Dependent variables:	Log (Population)	# of seats in legislatures	# of parties in elections	# of members in electoral coalition	Avg. age of reps	# of woman reps	# of national reps
Second stage:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Party Wins \geq 1 Seats	0.291	-0.002	-0.568	0.005	0.575	-0.265	1.207
	[0.231]	[0.001]	[0.461]	[0.053]	[0.601]	[0.442]	[1.550]
Sample	Full	Full	Full	Full	Full	Full	Full
Order of CF	Fifth	Fifth	Fifth	Fifth	Fifth	Fifth	Fifth
First stage:							
1[Vote_sh\geqc]	.729***	.729***	.729***	.729***	.729***	.729***	.729***
	[0.045]	[0.045]	[0.045]	[0.045]	[0.045]	[0.045]	[0.045]
R ²	0.320	0.320	0.320	0.320	0.320	0.320	0.320
Adj. R ²	0.316	0.316	0.316	0.316	0.316	0.316	0.316
Observations	1,198	1,198	1,198	1,198	1,198	1,198	1,198

Each column is a separate 2SLS regression, which includes a quintic control function. Robust standard errors are presented in brackets.*** p<0.01, ** p<0.05, * p<0.1

Table 8 confirms the prior that the entry of additional political parties cannot predict any of the observable covariates. In particular, the entry of additional parties cannot predict municipal population, the number of seats in legislatures, the number of parties that participate in elections, the number of members on coalitional candidate lists near the threshold, the average age of elected representatives, the number of elected women and also not the number of representatives from national-level parties. These characteristics seem to be continuous at the electoral threshold, reinforcing the trust in the assumption of continuity of all covariates at the electoral threshold.

To summarize, based on the results of a multitude of specification and validity tests, this paper cannot reject the claim that the entry of additional parties into legislatures near the electoral threshold can be viewed to be as good as random. The results of these tests therefore strongly support causal interpretation of the obtained estimates.

VIII. When the Entry of the More Parties Matters Most

If the entry of additional parties into legislatures reduces wasteful spending in procurement due to the promoted accountability of politicians, the factors which influence both the probability of party entry and the level of accountability should increase the relevance of additional parties. For example, if legislatures do not include many political parties, the entry of additional parties is expected to count more in explaining the variation in wasteful spending. Likewise, the impact of additional parties may be pronounced in legislatures with fewer seats, because additional parties are individually less important in larger legislatures. The incentives of parties in larger legislatures for monitoring incumbents may be weaker, as parties can free-ride on monitoring performed by other parties. A similar prediction can be made for less populous municipalities. If the distance between the voters and politicians is small and voters can monitor the behavior of politicians themselves, just as in the case of small municipalities, the entry of additional parties into legislatures may not add much to the electoral accountability.

In this section, I consider three channels of the additional party entry effect: the number of parties in legislatures, municipal population, and the number of seats in legislatures. For estimation, I use a 2SLS procedure as in equations (1) and (2), however, respectively adjusted for the interactions between additional party entry and the three variables that may channel the party entry effect. Table 9 shows the results of this analysis.

In accordance with the theoretical expectations, Panel A shows that the effect of the additional party entry is much smaller when the number of political parties in legislatures is high compared to results in Table 3, which does not consider interaction effects. The additional party entry affects still significantly reduces the returns on political donations, increases price savings and the number of bidders in procurement,

but the estimated effect is smaller in magnitude. Similarly, Panel B reports that the impact of additional party entry is much smaller than the estimates in Table 3 when the additional party entry is interacted with the size of municipal population. Finally, Panel C finds a much smaller effect of the additional party when there are fewer seats in legislatures.

TABLE 9

Heterogenous Impact of the Entry of Additional Parties

Dependent variables:	Log (Returns on political donations)	Price savings	Log (Planned value of procurement)	Log (Number of bidding suppliers)
Panel A	(1)	(2)	(3)	(4)
(Party Wins ≥ 1 Seats) * (# of Parties)	-0.320*** [0.074]	-0.014** [0.007]	-0.022 [0.023]	0.033** [0.014]
Order of the CF	Sixth	Sixth	Sixth	Sixth
Covariates	Yes	Yes	Yes	Yes
Sample	Full	Full	Full	Full
Panel B	(1)	(2)	(3)	(4)
(Party Wins ≥ 1 Seats) * Log (Population)	-0.204*** [0.047]	-0.010** [0.005]	-0.015 [0.016]	0.023** [0.010]
Order of the CF	Sixth	Sixth	Sixth	Sixth
Covariates	Yes	Yes	Yes	Yes
Sample	Full	Full	Full	Full
Panel C	(1)	(2)	(3)	(4)
(Party Wins ≥ 1 Seats) * (# of Seats in Legislatures)	-0.075*** [0.018]	-0.004** [0.002]	-0.006 [0.006]	0.009** [0.004]
Order of the CF	Sixth	Sixth	Sixth	Sixth
Covariates	Yes	Yes	Yes	Yes
Sample	Full	Full	Full	Full

Each entry is a separate 2SLS regression. The regressions include, but do not report, the sextic control function (q=6) and a set of covariates. Robust s.e. are in brackets, ***p<0.01, **p<0.05, *p<0.1.

Altogether, the results in Table 9 suggest that political parties are more important for public spending when incentives and opportunities for mutual monitoring among

parties are stronger. These results reinforce the theory that the entry of additional parties improves public spending due to reinforcing monitoring among politicians rather than due to implementing the desired policies of the additional entrants.

IX. Conclusion

Does the number of political parties matter for the efficiency of public spending? This paper examined how the entry of additional parties into legislatures affects wasteful spending behavior of politicians in public procurement. Because the entry into political representation cannot be treated as exogenous, the paper exploited quasi-random variation in the vote share of parties near the threshold in proportional elections that qualifies entry into legislatures. Exceeding this threshold could strongly predict the entry of additional parties in legislatures. Using data on public procurement, municipal elections and political party donations in legislatures in the Czech Republic, the paper could isolate the disciplining effect of the additional party entry on wasteful spending in procurement from electoral selection effects and other institutional factors.

The results in this paper show that the entry of additional parties into legislatures discourages wasteful behavior of politicians in public procurement. The legislatures with additional entrants restricted the allocation of procurements to political donors so that the economic returns on political donations from procurement suppliers dropped in dozens of percents compared to the legislatures without additional political entrants. At the same time, legislatures with additional parties increased price savings in procurement and attracted more suppliers into their auctions. All these improvements in the optimality of procurement allocation, efficiency and competitiveness were achieved without simultaneous changes in the planned content of procurements, additional budgetary requirements or changes in observable demographic and political covariates. Importantly, political parties were not found to sort into legislatures or to form strategic electoral coalitions to exceed the electoral threshold. The results are robust to a variety of econometric specifications and all the performed validity tests strongly suggest causal interpretation.

It is important to note that the estimates bear a LATE interpretation (Hahn et al. 2001). For the results originate from a country with open-list elections, the link between the performance of politicians and re-election incentives may be stronger in this paper compared to other countries with closed-list elections (Persson and Tabellini 2000). Legislators in closed-list systems are often more accountable to parties that nominated them and less to voters. Hence, the impact of additional parties on accountability may be less strong in closed-list elections. Similarly, the estimates may be conditional on other institutional factors. It would be interesting and challenging at the same time to find out what the party entry effects are in more salient environments, such as in elections to national legislatures. The impact on electoral accountability might be also different in countries with a different cultural attitude towards political corruption. All these important and interesting questions remain open for future research.

Finally, given the results in this paper it is natural to ask whether electoral thresholds should be reduced or entirely abolished, and more generally, whether the barriers to political entry of political parties should be lowered. Although Persson, Tabellini and Trebbi (2003) provide evidence showing that factors that lower the barriers to political entry are associated with less political corruption, my paper is unable to test whether a decrease in the electoral threshold would produce greater accountability. The research design in this paper can only compare the behavior of politicians in legislatures with and without additional political entrants, respectively. The paper therefore cannot predict, for instance, how politicians would behave if thresholds were halved or entirely cancelled. Moreover, the excessive fragmentation of political representation might become a concern if the electoral threshold was to be abolished (Tavits, 2007). A low clarity of governmental responsibility and difficulties in finding agreements in fragmented legislatures might reduce the overall quality of governance in the long run. To sum up, despite finding that political parties importantly constrain wasteful public spending, further research is needed to assess whether the entry of political parties also affects other aspects of governance and ultimately improves voters' welfare.

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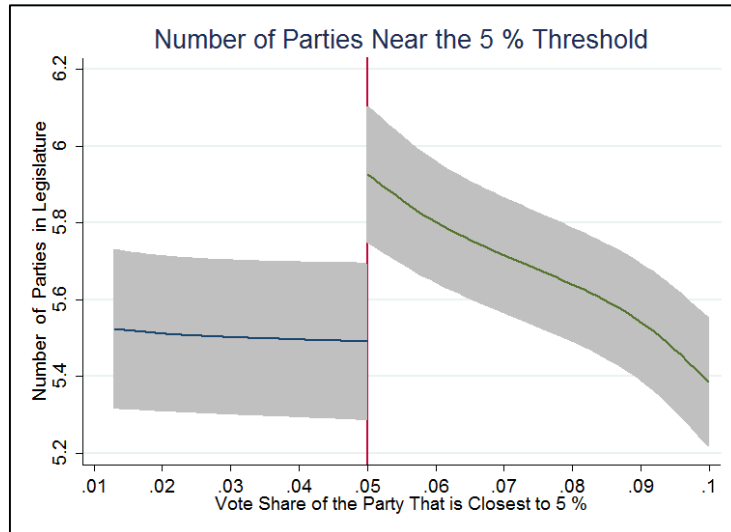
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Appendix

FIGURE A.1

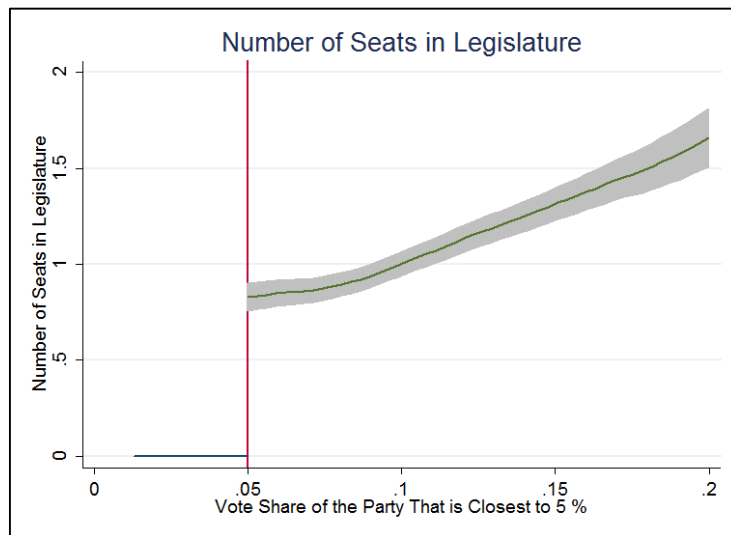
Number of Parties in Legislatures Near the 5 % Electoral Threshold



Notes: The figure shows the number of parties with a positive number of seats in legislatures as a function of the vote share of the party that is closest to the electoral threshold. The grey area is the 90% confidence interval.

FIGURE A.2

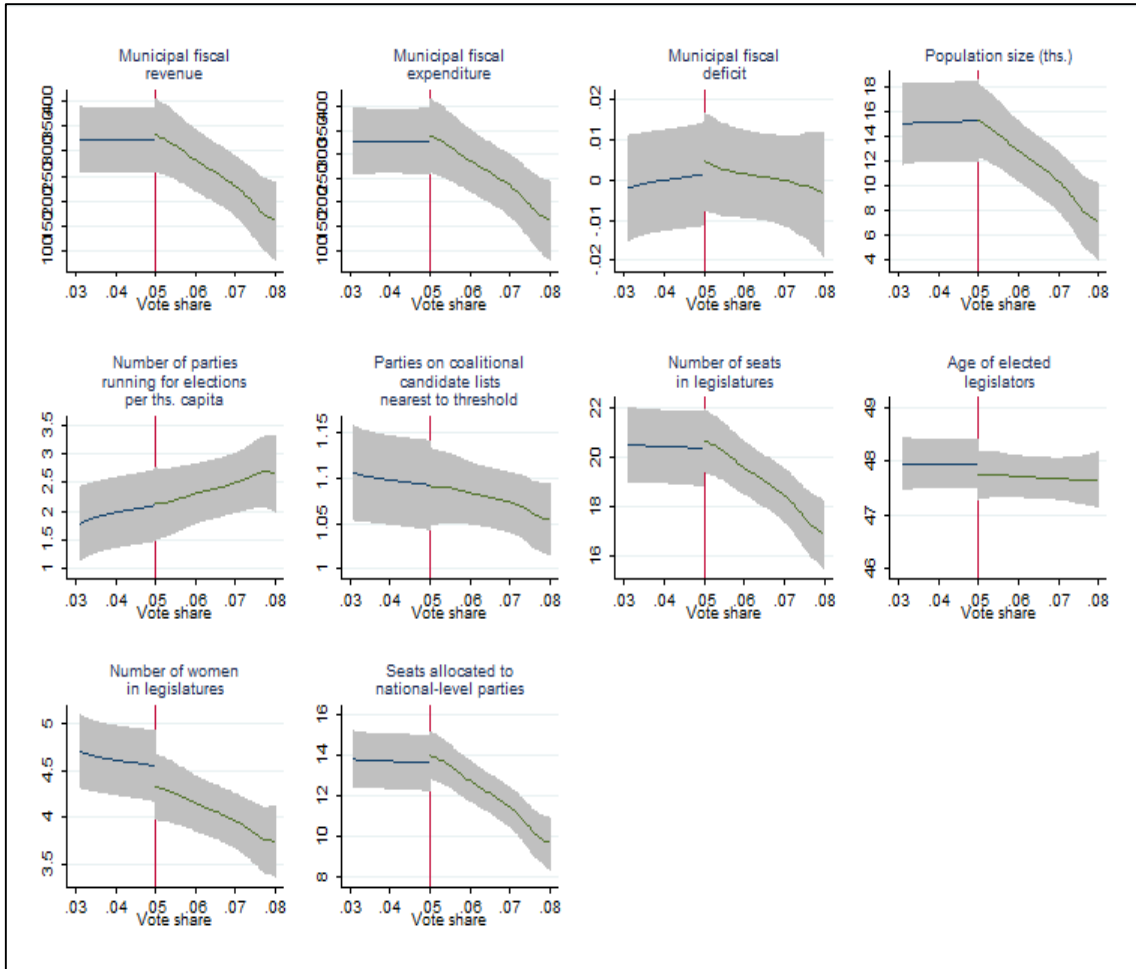
Number of Seats Allocated to the Additional Party



Notes: The figure shows the number of seats allocated to the party with the vote share closest to the electoral threshold as a function of this vote share. The grey area is the 90% confidence interval.

FIGURE A.3

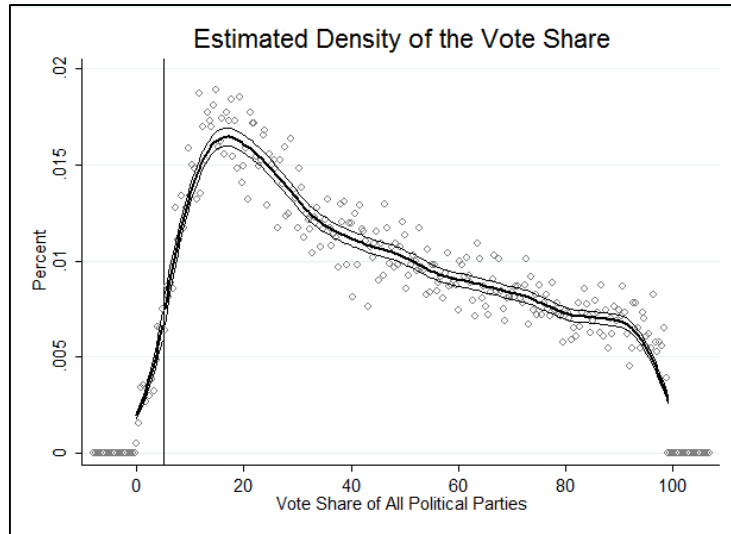
Discontinuities in the Fiscal Outcomes and Covariates



Notes: The variable on the horizontal axis is the vote share of political parties that scored the closest to the electoral threshold in municipalities. The grey areas are the 90% confidence intervals, unadjusted for the *actual* entry of political parties into legislatures.

FIGURE A.4

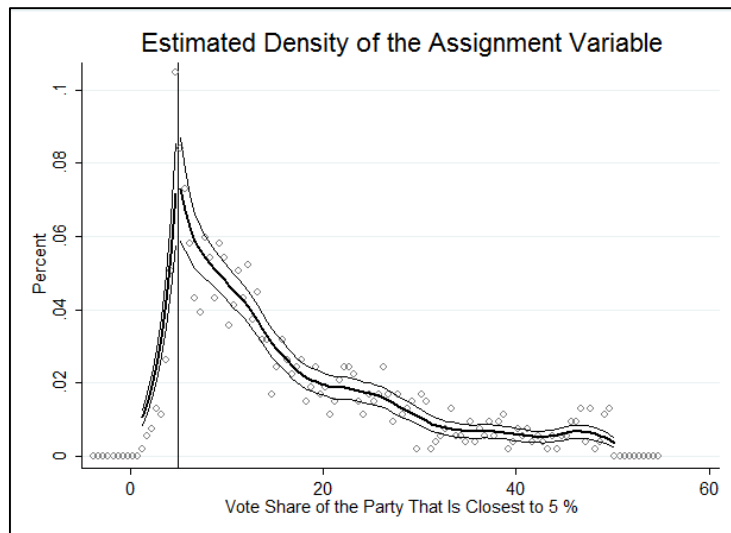
McCrary's Density Discontinuity Test – All Parties



Notes: The scatter-plot is the histogram of the vote share of all political parties running for elections. The solid line beneath the empirical distribution is a local linear smoother fitted to the empirical distribution, estimated as in McCrary (2008). The figure shows confidence intervals of the estimator.

FIGURE A.5

McCrary's Density Discontinuity Test – Parties the Closest to the 5 % Threshold



Notes: The scatter-plot is the histogram of the vote share of all political parties that scored the closest to the electoral threshold in municipalities. The solid lines beneath the empirical distribution is a local linear smoother fitted to the empirical distribution, estimated as in McCrary (2008). The figure shows confidence intervals of the estimator.

TABLE A.1
Variable Definitions and Data Sources

Variable	Variable definition	Data Source
Procurement outcomes		
Returns on political donations	The sum of contractual prices of all procurements allocated to donors to political parties over the sum of the value of donations	Parliament of the Czech Republic, Public Register of Public Procurements
Price savings (rebates)	The difference between the contractual price and the planned value of procurement, expressed as the percentage of the latter	Public Register of Public Procurements
Planned value of procurement (mil. CZK)	The planned value of procurements in CZK millions, expressed in 2005 prices	Public Register of Public Procurements
Number of bidding suppliers	The number of suppliers that took part in a procurement auction	Public Register of Public Procurements
Fiscal outcomes		
Annual fiscal revenue (mil. CZK)	Annual budget revenue in a municipality in CZK millions, calculated as a four-year average in municipal budget revenue, all revenues expressed in 2005 prices	Ministry of Finance of the Czech Republic
Annual fiscal expenditure (mil. CZK)	Annual budget expenditure in a municipality in CZK millions, calculated as a four-year average in municipal budget expenditure, all expenditures expressed in 2005 prices	Ministry of Finance of the Czech Republic
Annual budget deficit	Annual budget deficit in a municipality, calculated as a four-year average in the municipal budget deficit	Ministry of Finance of the Czech Republic
Covariates		
Population size (in ths.)	Size of municipal population in thousands of inhabitants	Statistical Office of the Czech Republic
# of parties in elections (per ths. capita)	Number of political parties running for elections in a municipality per 1 thousand of inhabitants	Statistical Office of the Czech Republic
# of distributed seats in legislature	Number of seats in a legislature in a municipality	Statistical Office of the Czech Republic
# of members of electoral coalitions	Number of coalition members on a candidate list that scored the closest to the electoral threshold	Statistical Office of the Czech Republic
Average age of elected representatives	Average age of politicians elected into a municipal legislature	Statistical Office of the Czech Republic
# of women among representatives	Number of female politicians elected into a municipal legislature	Statistical Office of the Czech Republic
# of politicians from national-level parties	Number of politicians from national-level parties elected into a municipal legislature	Statistical Office of the Czech Republic

TABLE A.2**Sensitivity Analysis with Respect to the Control Function Specification**

Panel A. Public Procurement Outcomes				
Specification:	(1)	(2)	(3)	(4)
Log (Returns on political donations)	-1.023*** [0.310]	-1.174*** [0.358]	-1.337*** [0.386]	-1.566*** [0.411]
Price savings	-0.053 [0.035]	-0.071* [0.039]	-0.070* [0.039]	-0.086** [0.044]
Log (Planned Value of Contracts)	-0.074 [0.105]	-0.065 [0.120]	-0.126 [0.125]	-0.121 [0.144]
Log (Number of Bidding Suppliers)	0.069 [0.064]	0.070 [0.075]	0.132* [0.078]	0.192** [0.090]
Sample	Full	Full	Full	Full
Covariates	Yes	Yes	Yes	Yes
Order of the CF	Third	Fourth	Fifth	Sixth
Panel B. Fiscal Outcomes				
Specification:	(1)	(2)	(3)	(4)
Log (Budget revenue)	-0.088 [0.057]	-0.082 [0.066]	-0.055 [0.071]	-0.049 [0.082]
Log (Budget expenditure)	-0.090 [0.061]	-0.069 [0.071]	-0.047 [0.075]	-0.021 [0.088]
Budget deficit	-0.002 [0.016]	0.014 [0.018]	0.006 [0.019]	0.027 [0.022]
Sample	Full	Full	Full	Full
Covariates	Yes	Yes	Yes	Yes
Order of the CF	Third	Fourth	Fifth	Sixth

Notes: Each entry is a separate regression estimated using 2SLS outlined in equations (1) and (2). Robust standard errors are presented in brackets, ***p<0.01, **p<0.05, *p<0.1

TABLE A.3**Number of Political Parties as the Measure of Additional Party Entry**

Panel A. Public Procurement Outcomes				
Specification:	(1)	(2)	(3)	(4)
Log (Returns on political donations)	-0.839** [0.341]	-0.780** [0.317]	-0.942** [0.406]	-1.172** [0.521]
Price savings	-0.037 [0.025]	-0.052* [0.031]	-0.042* [0.025]	-0.052* [0.028]
Log (Planned Value of Procurement)	-0.051 [0.073]	-0.047 [0.089]	-0.076 [0.077]	-0.073 [0.089]
Log (Number of Bidding Suppliers)	0.048 [0.045]	0.051 [0.055]	0.080 [0.049]	0.116** [0.057]
Sample	Full	Full	Full	Full
Covariates	Yes	Yes	Yes	Yes
Order of the CF	Third	Fourth	Fifth	Sixth
Panel B. Fiscal Outcomes				
Specification:	(1)	(2)	(3)	(4)
Log (Budget revenue)	-0.061 [0.041]	-0.060 [0.051]	-0.033 [0.044]	-0.029 [0.050]
Log (Budget expenditure)	-0.062 [0.044]	-0.051 [0.054]	-0.028 [0.046]	-0.013 [0.053]
Budget deficit	-0.001 [0.011]	0.010 [0.013]	0.004 [0.012]	0.016 [0.014]
Sample	Full	Full	Full	Full
Covariates	Yes	Yes	Yes	Yes
Order of the CF	Third	Fourth	Fifth	Sixth

Notes: Each entry is a separate regression estimated using 2SLS outlined in equations (1) and (2). Robust standard errors are presented in brackets, ***p<0.01, **p<0.05, *p<0.1

TABLE A.4

Number of Seats for the Additional Party as the Measure of Party Entry

Panel A. Public Procurement Outcomes				
Specification:	(1)	(2)	(3)	(4)
Log (Returns on political donations)	-1.077*** [0.367]	-0.933*** [0.312]	-0.941*** [0.288]	-1.153*** [0.336]
Price savings	-0.086 [0.060]	-0.050* [0.029]	-0.066* [0.038]	-0.079* [0.042]
Log (Planned Value of Procurement)	-0.119 [0.173]	-0.046 [0.086]	-0.118 [0.119]	-0.111 [0.133]
Log (Number of Bidding Suppliers)	0.112 [0.107]	0.050 [0.054]	0.125 [0.077]	0.177** [0.089]
Sample	Full	Full	Full	Full
Covariates	Yes	Yes	Yes	Yes
Order of the CF	Third	Fourth	Fifth	Sixth
Panel B. Fiscal Outcomes				
Specification:	(1)	(2)	(3)	(4)
Log (Budget revenue)	-0.142 [0.091]	-0.058 [0.047]	-0.051 [0.067]	-0.045 [0.075]
Log (Budget expenditure)	-0.145 [0.097]	-0.049 [0.051]	-0.044 [0.071]	-0.019 [0.080]
Budget deficit	-0.003 [0.025]	0.010 [0.013]	0.005 [0.018]	0.025 [0.021]
Sample	Full	Full	Full	Full
Covariates	Yes	Yes	Yes	Yes
Order of the CF	Third	Fourth	Fifth	Sixth

Notes: Each entry is a separate regression estimated using 2SLS outlined in equations (1) and (2). Robust standard errors are presented in brackets, ***p<0.01, **p<0.05, *p<0.1