Vitezslav, T., & Geys, B. (2018). Political donations and the allocation of public procurement contracts. *European Economic Review, 111*(January), 443-458
Doi: https://doi.org/10.1016/j.euroecorev.2018.11.004

Political Donations and the Allocation of Public Procurement Contracts

Vitezslav Titl[a,b,*], Benny Geys[c]

[a] *Katholieke Universiteit Leuven, Department of Economics, Naamsestraat 69, B-3000 Leuven, Belgium*
[b] *Vrije Universiteit Brussel, Department of Applied Economics, Pleinlaan 2, B-1050 Brussels, Belgium*
[c] *BI Norwegian Business School, Department of Economics, Nydalsveien 37, N-0442 Oslo, Norway*

Abstract

We study whether and when firms' donations to political parties induce favouritism in public procurement allocations. Our analysis builds on a unique, comprehensive dataset covering *all* public procurement contracts and *all* corporate donations to major political parties in the Czech Republic over the period from 2007 to 2014, and exploits changes in political control over regional governments within this period for identification purposes. We find that firms donating 10% more to a political party gaining (losing) power witness an increase (decrease) in the value of their public procurement contracts by 0.5 to 0.6%. Importantly, and in line with theoretical expectations, these effects only arise for contracts allocated under less restrictive procurement allocation processes. Assessing the underlying mechanisms, we show that donating firms receive more small contracts allocated under less regulated procurement procedures, face less competition in more regulated and open procurement procedures, and tend to win with bids further above the estimated cost of the procurement contract.

JEL classifications: H57, D72, C23.

Keywords: Political connections, Public procurement, Campaign contributions, Czech Republic

*Corresponding author: Vitezslav Titl. We gratefully acknowledge insightful comments and suggestions from the editor (Steffen Huck), an anonymous associate editor, three anonymous referees, Emma Aisbett, Scott Ashworth, Audinga Baltrunaite, Bruno Baranek, Frank Bohn, Emanuele Bracco, Friedrich Breyer, Joshua D. Clinton, Emanuele Colonnelli, Decio Coviello, Guido De Bruyne, Giovanna D'Inverno, Andrea Di Miceli, Kristof De Witte, Etienne Farvaque, Carsten Hefeker, Daniel Horn, Joshua Holm, Marcelin Joanis, Eelke Jong, Tommy Krieger, Benoit Le Maux, Joanna Maldonado, Tommaso Orlando, Jan Palguta, Annemiek Schilpzand, Rutger Schilpzand, Guido Schwerdt, Lars Siemers, Heinrich Ursprung and participants at the 2015 European Public Choice Society Meeting, 2016 'Frontiers of Political Micro-Economics' workshop (University of Lille), 2017 Royal Economic Society Meeting, 2017 European Economic Association Meeting, 2017 ZEW Public Finance Conference, Journees Louis-Andre Gerard-Varet 2018 as well as seminars at BI Norwegian Business School, the Hungarian Academy of Sciences, and Universities of Konstanz, Leuven, Nijmegen and Siegen. The authors also gratefully acknowledge financial support from FWO Vlaanderen (grant number G068518N).

Email addresses: vitezslav.titl@kuleuven.be (Vitezslav Titl), Benny.Geys@bi.no (Benny Geys)

1. Introduction

A critical concern about political decision-making within any well-functioning democracy is that particular groups of citizens should not unduly influence legislators, legislation and/or the allocation of public funds in their favour (Gilens, 2012; Hodler and Raschky, 2014). Such favouritism distorts spending allocations away from the normative principles that ideally drive them and can, from a theoretical perspective, lower social welfare and increase inequality across social groups (Bramoullé and Sanjeev, 2016). As procurement contracts awarded by public-sector institutions reflect 15% to 20% of GDP in many developed countries (OECD, 2013), distortions in their allocation could have severe economic implications. From both an academic and public interest point of view, it is therefore essential to understand under which conditions firms donating to political parties might gain an advantage in the allocation of procurement contracts, as well as how contracting authorities manage any such favouritism.[1]

In this paper, we address these issues using a novel and comprehensive dataset from the Czech Republic, which covers *all* public procurement contracts and *all* corporate donations to major political parties over the period 2007-2014. The role of money in politics has already attracted considerable academic attention. Within this broad literature, the stream closest to our analysis studies whether public authorities influence procurement allocations in favour of firms donating to political parties.[2] These studies provide evidence for the existence of preferential treatment towards donating firms by exploiting narrow elections (Boas et al., 2014; Arvate et al., 2018; Brogaard et al., 2016) or a ban on donations to political parties (Baltrunaite, forthcoming). Yet, knowing that there exists an effect of corporate donations on the *probability* of receiving procurement allocations does not clarify the *financial extent* of the impact of such donations. The question how much an additional dollar donated is worth in terms of additional contracts has thus been left open, and our first contribution lies in the credible quantification of the dollar value of firm's donations to political parties in terms of procurement contracts.

Still, public authorities' willingness and/or ability to steer procurement contracts towards their favoured firms is likely to be circumscribed by the institutional context. Recent work indeed shows that authorities' discretionary power plays a critical mediating role in determining the outcomes of public procurement processes (Spagnolo, 2012; Coviello and Mariniello, 2014; Palguta and Pertold, 2017; Coviello et al., 2018). More specifically, Coviello and Mariniello (2014) and Coviello et al. (2018) find that procurement contracts allocated with more discretion are more likely to be awarded to smaller local firms and more often land with the same subset of firms. Closely related, Palguta and Pertold (2017) find that anonymously owned companies are more likely to win such high discretion procurement contracts.[3] To the best of our knowledge, no previous study has analysed the impact of public authorities' discretionary power – as reflected in the set

[1] Clearly, our focus on the link between firms' political contributions and procurement allocations is not meant to ignore that firms also employ other non-market strategies – such as lobbying – to influence political processes (Ansolabehere et al., 2003). Furthermore, firms' donations may also yield other, less visible benefits including, for instance, regulatory forbearance (Gordon and Hafer, 2005, 2007).

[2] There is a large and closely related literature linking firms' donations to congressional voting patterns. This has generally been supportive of the idea that firms' donations affect politicians' behaviour in role-call votes (Chappell, 1982; Wright, 1990; Stratmann, 1995; Wawro, 2001). More recently, Fouirnaies and Hall (2018) show that firms also use donations to gain access to policy-relevant committees in US state legislatures.

[3] In similar vein, Arvate et al. (2018) suggest that only experienced parties – defined as having longer tenure in a particular political assembly – are able to benefit their donors. This finding is closely related to recent work by Coviello and Gagliarducci (2017, p. 61) showing that politicians' tenure in office progressively leads to collusion and "deteriorates the functioning of the procurement process".

of restrictions formally and institutionally imposed upon the allocation process for procurement contracts – on the volume of contracts awarded to donor firms. Extending previous work in this direction reflects our second contribution. We thus examine not only whether political connections established through corporate donations lead to an increase in the value of firms' public procurement contracts, but also whether the importance of corporate donations is moderated by public authorities' available flexibility in the contract allocation procedure (Johnson et al., 1998; Kwon, 2014; Acemoglu et al., 2016).

Existing studies have predominantly concentrated on identifying the causal effect of firms' donations (and political connections more generally) on the outcome of public procurement processes. Less attention has been awarded to the potential mechanisms explaining these outcomes, as well as how public authorities benefit their favoured firms. Our third contribution to the literature takes up this issue by investigating whether public authorities implement different strategies depending on their available flexibility in the contract allocation procedure. On the one hand, public authorities have an incentive to underestimate the size of contracts (or split contracts into smaller units) whenever possible, because smaller contracts can be allocated under less restrictive procurement procedures. This would suggest that in such settings donor firms would receive more smaller contracts. On the other hand, when large contracts cannot be split easily, public authorities might instead attempt to reduce the number of bidders (e.g., by setting restrictive qualification criteria in open procurement processes). Such behaviour would imply that corporate donors face less competitors in these settings. The richness of our data provides an important opportunity to assess these propositions, and thereby increase our understanding of the mechanisms behind any observed favouritism toward donating firms.

Our empirical analysis relies on a difference-in-differences approach exploiting changes in political control over regional governments in the Czech Republic. Our main findings suggest that corporate donors of the political party in power obtain a statistically significant and substantively meaningful increase in the total value of procurement contracts in the year following the donation. No significant effects are observed for contemporaneous donations, which reflects the often considerable time lag in the allocation process. In terms of effect size, we find that increasing donations to the party in power by 10% is associated with an increase in the value of the firm's procurement contracts by 0.4% to 0.5%. Similarly, firms donating 10% more to a political party gaining power in an election witness an increase in the value of their procurement contracts of 0.5% to 0.6%. Evaluated at the means of donations and procurement contract values, our results imply that an additional donation of 20 CZK (equal to circa $1 in the studied period) is linked to additional regional procurement contracts worth approximately 2000 CZK (circa $100). Given that the average profitability of Czech firms is approximately 9.5% (Bank for the Accounts of Companies Harmonized (BACH)), firms' donations to political parties appear to be profitable investments for the donating firms.

In line with theoretical expectations regarding the relevance of more/less restrictive procurement processes (Johnson et al., 1998; Kwon, 2014; Acemoglu et al., 2016), we also show that political donations only affect donor firms' procurement success for contracts allocated under less restrictive procedures. Furthermore, we find that donating firms receive more smaller contracts, which indicates that public authorities appear to intentionally exploit the more flexible procedures allowed for smaller contracts to favour donating

firms. When open procurement procedures are required,[4] we find that donating firms winning such contracts tend to face less competition. Taking both results together strongly suggests that public authorities use different tactics to favour donor firms, and are able to change their approach depending on what is required in specific circumstances. Our key findings persist under various robustness checks, and we also rule out the possibility of reverse causality (whereby firms would 'reward' parties via donations after receiving contracts) by showing that firms' donations tend to precede receiving first contracts.

The next section discusses the institutional and political setting in the regions of the Czech Republic. Section 3 then presents our empirical specification and the identification strategy based on exploiting the shifts in the party in power. Section 4 brings forward our main findings showing the effects of donations on the volume of public procurement contracts. Section 5 provides a brief discussion of the results and a conclusion.

2. Institutional setting and data

We focus our analysis on the regional government level in the Czech Republic. This level of government was devised in 1997 (Act no. 347/1997 Coll.), and began functioning from 1 January 2000. Since then, the Czech Republic is administratively divided in 13 regions (excluding the capital of Prague, which constitutes its own region). While the regions continue to have at best limited revenue autonomy, they have considerable competences in economic policies including transport, regional development and tourism, as well as some delegated powers in education, health care and environmental protection (Hooghe et al., 2016).

Each region is administered using a parliamentary system consisting of two main bodies: the Regional Council ("Zastupitelstvo kraje"; henceforth 'Council') and the Board of Councillors ("Rada kraje"; henceforth 'Board'). The Council – which is the legislative body of the regions – is directly elected every four years using a system of proportional representation, and has 45 to 65 members depending on the population size of the region. The Board – which is the executive body of the regions – is (s)elected from the members of the Council by the parties holding a majority position in the Council. These parties also appoint the *Hejtman*, which is a position equivalent to a state Governor in the US setting.

Table 1 presents the distribution of seats across political parties in the 13 regional Councils and Boards over the period 2004-2016, as well as the number of regions where each party held the *Hejtman* position. In the 2004-2008 legislative period, the Civic Democratic Party (ODS) held a strong majority position in regional Councils and Boards, and delivered the *Hejtman* in 12 out of the 13 Czech regions. After the 2008 regional elections, it lost almost half of its seats in the regional Boards and most of its Council members. Moreover, the *Hejtman* position in all 13 Czech regions was now occupied by the Czech Social Democratic Party (CSSD). Following the 2012 regional elections, the significant strengthening of the Communist party KSCM weakened the position of CSSD in terms of both Council and Board positions, and the party lost the *Hejtman* in three regions (note that ODS lost further representation in this period). These transfers of political power will be exploited in our empirical analysis to identify the effect of firms' political donations on the allocation of public procurement contracts. As described in more detail below, our identification strategy is thus based on within-firm changes in donations to a party gaining/losing power (for a similar

[4] This is generally the case for larger contracts above a specific value (more details below).

approach, see Cingano and Pinotti, 2013; Goldman et al., 2013).

TABLE 1 HERE

Private-sector firms in the Czech Republic – as in several other countries including Lithuania (up to 2012), Brazil (up to 2016), Germany and the United Kingdom – can donate directly to political parties. In the studied period, firms did not face any restrictions in terms of the donated amount. They could also deduct any donations in excess of 2,000 CZK (circa $100) from their taxable income, with a limit at 5% of total taxable income. Firm donations often represent an important source of party funding, and account for up to 33% of the budget available to big parliamentary parties in the period under analysis (Titl et al., 2015). Nonetheless, and crucially, *all* contributions to Czech political parties must be disclosed in the annual reports of the parties. Failure to comply with this legal obligation can trigger the suspension of the party's operational allowance by the Ministry of Finance. This is a substantial punishment since these allowances constitute another important source of party funding. Consequently, it appears that all parties comply and present complete lists of donors in their annual reports. These reports are submitted to the Parliamentary Library, where they are available to the public and provide full disclosure about all (legal) corporate donations to political parties.[5] We collected information on these donations including firm-specific identification numbers from a website maintained by *Econlab z.s.* (a Czech NGO).

Our dataset covers *all* donations by firms to the major Czech political parties from 2007 to 2014. The official data make no distinction between national, regional or local party branches, and thus provide only the overall level of donations by a firm to a specific party. Summary statistics about these corporate donations (to ODS, CSSD, and the party holding power in the region of a firm's headquarters) are provided in Table 2. This table indicates that the average contribution by firms to the party in power in a given year is just under 1,260 CZK (circa $63). This is very low since many firms do not donate at all to political parties. The average contribution in a given year to the party in power among donating firms is 109,570 CZK (circa $5,479). From the summary statistics, we also see that ODS receives more donations than CSSD. This is due to its right-wing, liberal economic character, relative to the left-wing, socialist character of CSSD.[6]

Public procurement contracts account for about 17% of GDP in the Czech Republic. All qualification prerequisites, the set of possible evaluation criteria and the different types of allocation procedures are described in Act No. 137/2006 Coll. on Government Procurement. This law also imposes that only contracts above a certain minimal value – set at 2,000,000 CZK (excluding VAT; circa $100,000) for public service contracts and 6,000,000 CZK (excluding VAT; circa $300,000) for public works – have to be published in the government's online-system (and thus are certainly allocated using procurement auctions). Smaller contracts still have to follow the general principles prescribed by the law – including the organization of a procurement

[5]There might clearly be additional payments to political parties in direct exchange for favours. Yet, these are illegal and cannot be taken into account here. While Mironov and Zhuravskaya (2016, p. 287) find evidence using data on Russian firms that "cash is tunneled to politicians in exchange for procurement contracts", any effects observed in our analysis should be viewed as independent of such outright corruptive practices. The same holds for the potential effects of any personal contributions made by wealthy CEOs, which are not covered by our data.

[6]It happens only rarely that a firm donates to both parties in the same year. In the dataset described in Table 2, this arises in 43 instances. Such donations to both parties occur mostly during national and regional election years, but are always highly uncommon (less than 2% of donors in any given year donate to both parties). Excluding these observations has no effect on the findings reported below.

auction. Yet, they do not have to be published in the on-line system and thus might not appear in our dataset. The share of published contracts in the overall level of procurement contracts has been estimated at 63% for the period 2008-2014 (Chmelová and Štípek, 2017). Still, this percentage is likely to be significantly higher for the region-level contracts we analyse since they in general administer larger geographical units and public bodies than most other public contractors including, for instance, municipalities (and thus are more likely to exceed the minimal publication threshold) (Chmelová and Štípek, 2017). In general terms, two main types of procurement competitions are used – i.e. first-price auctions and competitions where multiple criteria including price, delivery time, warranties, and so on are considered. We refer to these as the 'lowest price' and 'economic advantageousness' procedures, respectively. In our dataset, the share of first-price procurement auctions is 61%.

Importantly, although the key characteristics of the procurement allocation procedures are described in the law, the actual implementation of these procedures is administered by the public authorities allocating procurement contracts (that is, in our case, the regional governments). Specifically, the evaluation committees assessing the various bids – consisting of at least five members with at least one representative of the contracting authority – are suggested by the regional administration and formally appointed by the *Hejtman* subject to approval from the regional Council (which is headed by the *Hejtman*). In the period under analysis these regional administrators are most often political appointees rather than (Weberian ideal-type) career civil servants. In fact, only in 2015 did the Czech Republic finally introduce the so-called Public Servant Act addressing – in part – repeated criticism from the European Commission and (inter)national anti-corruption organizations related to the (lack of) independence of state officials, separation of political appointees from non-political staff, a general and politically independent selection procedure for civil servants as well as a clear definition of their rights and career progression. Hence, throughout the period relevant for our analysis, the legal framework surrounding the procurement process and the widespread politicization of the civil service left significant scope for political influence in the procurement allocation process. As a result, political parties and regional politicians had – and, in practice, often used – the ability to influence procurement contract allocations via a number of mechanisms: e.g., imposing excessively detailed prerequisites on bidders, putting high weight on very specific evaluation criteria, and so on (illustrative examples are discussed in Bezkorupce, 2015).

Our dataset includes *all* public procurement contracts awarded by the 13 Czech regions (including contracts awarded via companies directly owned by the regions) from 2007 to 2014. Table 2 provides summary statistics about the value of firms' public procurement contracts from regional governments as well as regional governments and their associated firms.[7] The average value of firms' annual procurement contracts awarded by the regions is about 750,000 CZK (circa $37,500), which constitutes approximately 10% of the average value of all procurement contracts awarded by all Czech public institutions. Most of the contracts awarded by regions and their subsidiaries are allocated directly by the regions (circa 82%). We should also note that roughly 1.1% of all Czech firms active in 2010 appear in our database of procurement

[7]The exact value of firms' public procurement contracts is not always easy to determine, since the values stated on the Czech governments' on-line system publishing the procurement contracts lack a uniform standard. We extract the data in standardised form (and excluding VAT) from a website maintained by *Econlab z.s.*. The methodology of their standardisation process is described at `http://wiki.zindex.cz/doku.php?id=en:objem_zakazek`).

contractors (3,562 contractors versus 340,471 active firms), whereas 180 firms in our database on party donors (1,395 firms) are listed as procurement contractors (12.9%). While donor firms might have a higher likelihood to win procurement auctions (Baltrunaite, forthcoming), this large difference suggests they are also more likely to participate in such auctions.

The full dataset includes about 155,000 firm-year observations. Yet, information on firms' revenues is only available for about one third of the sample. Given that this constitutes an important control variable to account for the effect of firm size (see also Witko, 2011), much of our analysis will be restricted to roughly 50,000 observations. Still, we will show that excluding this control from the analysis and exploiting the complete dataset provides very similar results.

TABLE 2 HERE

3. Empirical strategy and estimation model

To analyse the role of firms' donations to political parties for the allocation of public procurement contracts, we start from the following baseline empirical specification:

$$log(ProcurementValue_{i,t}) = \alpha_i + \alpha_t + \gamma X_{i,t} + \beta log(Donations_{i,t-s}) + u_{i,t} \quad (1)$$

where $ProcurementValue_{i,t}$ is the combined value of all public procurement contracts supplied by firm i in year t.[8] Throughout the main analysis, we thereby focus on two closely related operationalisations. In the first case, we only include procurement contracts awarded directly by the 13 Czech regions, whereas in the second case we furthermore include procurement contracts awarded via any companies owned by the Czech regions. Our vector of control variables in $X_{i,t}$ includes firm revenues (since larger companies can donate more and might be capable of executing larger procurement contracts), and a full set of year fixed effects (α_t). We also include a full set of firm fixed effects α_i, such that inferences are effectively drawn from variation in donations and contracts over time within firms.[9] $u_{i,t}$ is the error term. Given our use of firm-year data, we cluster our standard errors at the firm level (Cameron and Miller, 2015).

The central independent variable $Donations_{i,t-s}$ in this baseline specification is the sum of all contributions by firm i in year $t-s$ (with $s = 0$ or 1) to the party in power in the regional governments (i.e. ODS up to 2008 and CSSD afterwards).[10] Note that we are flexible with respect to the exact specification of the lag structure, since it is *a priori* unclear whether contemporaneous or lagged donations would provide a better fit of the model (Stratmann, 1995). Given our theoretical expectations, we hypothesize that $\beta > 0$.

[8] Figures A.3 and A.4 in the Online Appendix show both the log-transformed and non-transformed data on donations and procurement contracts, and provide strong justification for the log-transformation.

[9] We also experimented with the additional inclusion of (linear) industry-specific time trends, which explicitly allows firms' unobservable characteristics to be on distinct industry-specific temporal trends. This also covers the possibility that firms in sectors expecting to have more public contracts in the future – or firms anticipating a move into sectors with more public contracts – may increase their donations ahead of their growth. Our findings are robust to the inclusion of such time trends, and generally strengthen both statistically and substantively under this specification (see Tables B.3 to B.6 of the Online Appendix). Even so, we refrain from making this our baseline specification as it drastically reduces the available sample (due to the longer time series required for estimating such models).

[10] To avoid losing all observations where a firm receives no procurement contracts and/or makes no political donations in a given year, we added 1 to each of the logged variables before taking logs.

Still, an important concern with the specification in equation (1) is that it conflates two sources of variation in the donations variable. That is, $Donations_{i,t-s}$ captures changes in the party in power (even absent any change in donations by firms) as well as changes in firms' donations to particular parties over time. Moreover, while the second source of variation is of key theoretical interest, the parameter β in equation (1) may in principle be affected by the possibility that contracts influence donations. Firms might indeed increase their donations to a party that procures contracts for them. We return to this reverse causality concern in Section 4.4.

Coefficient estimates can also become confounded by the fact that "shared ideological proclivities" may be the cause of both donations and procurement allocation choices (Boas et al., 2014, p. 416). This produces an upward bias if firms that would win procurement contracts anyway donate to the party in power because they are ideologically close. To address this, we follow Cingano and Pinotti (2013), Goldman et al. (2013), and Boas et al. (2014) in exploiting changes in political control over regional governments in the Czech Republic in 2008 and 2012 for identification purposes. This allows analysing how the effect of donations to specific parties alters when these parties' power shifts (i.e. a focus on the second source of variation in donations outlined above). Specifically, we rely on a difference-in-differences approach comparing the effect of donations (i.e. first difference between non-donating and donating firms) on contracts before/after a change in power (i.e. second difference). Since firms' political donations are a continuous rather than an indicator variable, we exploit "an explanatory variable with differing treatment intensity" across firms (Berrebi and Klor, 2008, p. 208):

$$\begin{aligned} log(ProcurementValue_{i,t}) = \alpha_i + \alpha_t + \beta_1 log(DonationsToCSSD_{i,t-s}) + \\ + \beta_2 AfterShiftInPower_t * log(DonationsToCSSD_{i,t-s}) \\ + \beta_3 log(DonationsToODS_{i,t-s}) \\ + \beta_4 AfterShiftInPower_t * log(DonationsToODS_{i,t-s}) + \gamma X_{i,t} + u_{i,t} \end{aligned} \tag{2}$$

where the dependent variable is defined as before, and $AfterShiftInPower_t$ is an indicator variable separating the period before the shift in power ($AfterShiftInPower_t = 0$) from the period after the shift in power ($AfterShiftInPower_t = 1$). In this specification, it naturally becomes important to separate donations to various parties – i.e. those winning and losing power. Hence, the central independent variable is split into $DonationsToCSSD_{i,t-s}$ and $DonationsToODS_{i,t-s}$ which reflect the sum of political donations by firm i to CSSD (i.e. the party gaining power in 2008, but losing some of it in 2012) and to ODS (i.e. the party losing power in 2008) in year $t-s$. The key variable of interest in equation (2) is the interaction between $AfterShiftInPower_t$ and $DonationsToCSSD_{i,t-s}$ (or $DonationsToODS_{i,t-s}$). We expect $\beta_2 > 0$ when a party gains power and $\beta_4 < 0$ when a party loses power. Hence, equation (2) directly distinguishes the effects of donations to winning and losing parties. Still, we chose to retain the party names in our variable names at this point – rather than more generic terms such as 'winner' and 'loser' – because the winner of the 2008 regional election (CSSD) becomes the loser of the 2012 elections.

Valid identification of corporate donations' effects in equation (2) requires two important assumptions. On the one hand, donors and non-donors should be on a similar trend in terms of procurement contracts

prior to the shift in power ('parallel trend' assumption). We will provide evidence in the next section that our results are not driven by such diverging pre-treatment trends across donors and non-donors. On the other hand, assignment to the treatment should be as good as random. As a first assessment of this assumption, Table 3 summarizes the results of t-tests evaluating differences between donating and non-donating firms along a number of firm characteristics (including firm age, revenues, assets, operating and financial results, and capital). No statistically significant differences are observed beyond firms' revenues, which we include as a control variable in our analysis. Still, in our setting this assumption would naturally also be violated if (certain types of) firms adjust their donations prior to the regional elections towards the (expected) future winner. Figure A.2 in the Online Appendix, however, shows that Czech firms do not massively donate to the future winner of the regional elections. The level of donations peaks during national election years (i.e. 2006 and 2010), but the two main parties attract roughly equal levels of donations during the two main regional election years under analysis (i.e. 2008 and 2012). We should also note that focusing donations on the (expected) winner of regional elections would require firms to follow different donation strategies across the Czech regions during regional election years – and thus donate to multiple parties in the same year. As mentioned in footnote 6 only very few firms document donations to both parties in the same year. As such, assignment to the treatment (i.e. change in regional power) will effectively be unrelated to corporate donations.

TABLE 3 HERE

4. Results

4.1. Main results

The results from estimating equation (1) on the full sample of observations over the 2007-2014 period are provided in Table 4. We present two sets of results. Columns (1) to (4) focus on the public procurement contracts directly awarded by the 13 Czech regions, while columns (5) to (8) also include procurement contracts awarded via any companies owned by the Czech regions. In both cases, we present results using either contemporaneous (columns (1) and (5)) or lagged values (columns (2)–(4) and (6)–(8)) of firms' donations to the party in power. Given the distribution of political power across the regions discussed in Table 1, this concerns donations to ODS prior to 2008 and CSSD after 2008. We also include either current or lagged revenues as a control variable.

TABLE 4 HERE

The results in Table 4 suggest that a one-year lag in the specification of our donations variable is optimal, which will be our preferred lag structure in the remainder of the analysis. Contemporaneous donations show no statistically significant relation to firms' public procurement contracts, but there is an important and statistically significant relation when using lagged donations.[11] This is at odds with

[11] Inclusion of linear industry-specific time trends does not affect our main inferences (see Table B.3 in the Online Appendix).

previous work on the relation between firm donations and role-call votes, where contemporaneous donations are found to have higher explanatory power (Stratmann, 1995). Yet, such delay in the responsiveness of procurement contracts to firms' political donations appears reasonable given the often considerable time lag in the allocation process.[12] Focusing therefore on the results in columns (2), (3) and (4), we find evidence in line with the idea that public procurement allocations by the Czech regions favour firms donating to the party in power. Specifically, in the more saturated specifications including also (lagged) revenues, a 10% increase in the value of donations to the party in power is associated with an increase in the value of firms' procurement contracts in the following year by 0.4% to 0.5%. Evaluated at the mean donation and mean procurement contract value of donating firms, this would imply that an additional donation of 10,957 CZK (circa $550) would be linked to additional regional procurement contracts worth approximately 1,008,624 to 1,260,781 CZK (circa $50,430 to $63,000). Clearly, these are *not* profits, but the value of additional contracts. Even so, our estimates suggest that donations would be profitable as long as more than 1% of firms' procurement contract value translates into bottom-line profit. This is likely to hold since the average profitability of Czech firms (measured as earnings before interest, tax, depreciation and amortization over revenues) was about 9.5% in 2012 according to the Bank for the Accounts of Companies Harmonized (2014). Assuming similar profitability rates for procurement contractors, donations would appear to be profitable for the donating firms (we return to the size of this effect in our concluding discussion). Specifications using current or lagged revenues as a control variable provide qualitatively similar findings for our main variable of interest, but suggest that the coefficient estimate of current revenues may be biased upwards due to endogeneity problems. Extending the analysis to also include contracts awarded via any companies owned by the Czech regions (columns (5) to (8)) provides similar – but substantively somewhat smaller – effect sizes for the effect of firms' donations.

Still, as discussed above, a concern with the analysis in Table 4 is that donations to the party in power may conflate multiple sources of variation in the donations variable. To accommodate this, we can look at corporate donations to particular parties (rather than the party in power) and improve identification by exploiting two important shifts in political power following the regional elections of 2008 (when ODS lost power to CSSD) and the regional elections of 2012 (when CSSD lost some of the power it gained in 2008; see Section 2). The results in Table 5 focus on the landslide election of 2008 using the difference-in-differences approach presented in equation (2).

TABLE 5 HERE

Throughout all specifications included in Table 5, donations to ODS show a weak positive association to the value of firms' procurement contracts before the 2008 regional elections, which declines further towards zero after the firm loses power at the regional level in 2008. In contrast, donations to CSSD initially display a mostly negative effect on the value of firms' procurement contracts, but such donations become more 'useful'

[12]From the available data, the average time lag between launching a public call to signing the procurement contract is estimated at about 10 to 11 months (for contracts to regions and to regions and their subsidiaries, respectively). Still, this estimate should be treated with some caution since the number of procurement contracts where we have both the launch and the signing date is relatively limited (i.e. approximately 34% of all contracts).

in terms of government contracts after that party gained power in the 2008 regional elections. This increase is statistically significant at the 10% level in four out of six models (and at the 15% level in the other two models). Specifically, a 10% increase in donations to CSSD is associated with an *increase* in the value of a firms' procurement contracts by approximately 0.5% to 0.7% once the party came to power (rather than an insignificant effect prior to 2008). Overall, therefore, donations to a given party appear to obtain a better (worse) return in terms of firms' total value of public procurement contracts when this party gains (loses) power. Table B.4 in the Online Appendix confirms this result when including linear industry-specific time trends.

In Table 6, we turn to the smaller political shift following the regional elections of 2012, when CSSD lost a substantial share of its seats in the regional Councils and Boards as well as three *Hejtman* (see Section 2).[13] This table follows the same format as Table 5. The only difference is that $After\ Shift\ In\ Power_t$ now is an indicator variable equal to 1 in the period after the 2012 regional elections (0 in the period prior to these elections). Note also that we do not include donations to ODS in this specification, since its relatively marginal additional loss of regional power in 2012 is unlikely to have a strong impact on its donor firms. This is confirmed when adding separate variables for $DonationsToODS_{i,t-s}$ and its interaction with $After\ Shift\ In\ Power_t$. Both variables remain statistically insignificant. We also restrict the sample to observations after 2008, such that we effectively concentrate on the period where CSSD held substantial regional power – but lost some of this power after the 2012 elections.

TABLE 6 HERE

The results in Table 6 again confirm that donations to a particular party (in this case, CSSD) have a better return in terms of firms' total value of public procurement contracts when this party holds more political power. Particularly, a 10% increase in donations to CSSD is associated with an *increase* in the value of these firms' procurement contracts by approximately 0.5% before the 2012 regional elections (in line with the effect size observed in Table 5). After the party loses a significant amount of political power in the 2012 elections, the marginal effect of donations to CSSD drops to or below zero. Although the direction of the change in the donation-procurement relation is in line with expectations, its strength is perhaps surprising given that CSSD still remained the strongest party in the majority of Czech regions. A partial explanation can be that the Czech Communist Party (KSCM) came to control the *Hejtman* in two regions and CSSD often had to form a coalition with KSCM or other parties in other regions. This might have mitigated the ability of CSSD to favour its donors.[14] Finally, it is important to note that lack of data prior to 2007 prevented us from testing the parallel trends assumption in Table 5. Yet, the results obtained in that table naturally imply that there was no downward trend in the donation-procurement relation for CSSD before the 2012 election. As such, our results in Table 6 cannot be driven by such a pre-existing trend, which strengthens our inferences at this point.

[13]This analysis also helps mitigate potential concerns that our results in Table 5 might be affected by the severe economic downturn hitting the Czech Republic in 2008-2009. GDP growth rates fell from more than 5% in 2006 and 2007 to almost -5% in 2009. Economic conditions were more stable – if not very positive – around the 2012 regional elections.

[14]It is worth noting that KSCM receives virtually no money from donors. In the studied period, the share of donations in the total income of the party was about 3%.

Before proceeding, two important issues should be discussed. First, we more explicitly exploit region-level variation in the 2012 regional election outcomes in Section C of the Online Appendix using a difference-in-difference-in-difference model. That is, we compare non-donating and donating firms (i.e. first difference) before/after regional election years (i.e. second difference) depending on whether or not a change in power occurs in a particular region (i.e. third difference). Consistent with our key line of argument, these findings confirm that changes in donations' effects around the 2012 elections are fully concentrated in the regions with a shift in power (see the Online Appendix for details). Note that we can only implement this for the 2012 elections, since there was only one region without a change in power in 2008 (which makes it impossible to differentiate the power-shift effect in this region from a simple regional effect for this election).

Second, as a more general specification we also implemented a model interacting donations to CSSD and ODS with a full set of year dummies. Even though we lack statistical power in this design due to a relatively low number of donating firms receiving contracts in any given year, this approach nonetheless allows a closer examination of the exact dynamics in the studied relationship. Figure 1 shows the key results by plotting the coefficients and corresponding confidence intervals from the interactions between the donation variables and the full set of year dummies. The results in Figure 1 first of all confirm the lack of evidence for pre-existing trends driving our results. Furthermore, these year-on-year findings highlight that the effect of donations to CSSD generally increases between 2009 and 2012 (after it gained power in the 2008 regional elections) and drops down again in 2013-2014 (after it lost power in the 2012 regional elections). The results for ODS are less clear-cut (reflecting their lower precision also in the main text), but likewise display the expected lower point estimates particularly in the 2010-2013 period. Overall, therefore, the general pattern of the results in Figure 1 is consistent with the key findings presented above, which effectively reflect average effects over legislative periods. Still, it is worth commenting on the coefficient for ODS in 2014, which displays an unexpected positive value. We verified that this is not driven by a concentration of successful firms in one or few specific regions (e.g., where ODS had a larger seat share in the regional council), nor by exceptional characteristics of these procurement contracts or their allocation process. Yet, this estimate is based on only seven firms obtaining 11 contracts, which may undermine the credibility of this point estimate.[15] It is also not robust to different specifications since, as noted above, including donations to ODS in the regressions underlying Table 6 leads to statistically insignificant results for ODS (p-value on the interaction term equals 0.84).

FIGURE 1 HERE

4.2. Heterogeneity across contract types: The role of more/less restrictive procurement allocation processes

Our findings thus far are supportive of the notion that firms' donations to political parties benefit their access to public procurement contracts. In this section, we assess the more or less restrictive nature of the employed procurement allocation processes – which differ in the de facto amount of discretion they provide decision-makers – as a potential source of heterogeneity in the donation-procurement relation. From a

[15]This is a substantially smaller number of ODS-linked firms receiving contracts compared to the 19.5 firms on average per year in 2007-2008, and 14.75 firms on average per year in 2009-2012. Note that this declining trend in itself is entirely consistent with our key results.

theoretical perspective, a substantial literature in economics and political science has argued that "more discretion increases the returns to corruption effort" (Kwon, 2014, p. 769). The extent of discretion in public decision-making processes thus often becomes a "key determinant of underground activity" (Johnson et al., 1998, p. 391), and substantially augments the risk that dishonest officials will misallocate public resources (often to their own benefit) (Palguta and Pertold, 2017). Consistent with such line of argument, existing studies indicate that increased discretion in public procurement procedures favours small local firms (Coviello and Mariniello, 2014) and firms that hide their ownership (Palguta and Pertold, 2017). Interestingly, Acemoglu et al. (2016) suggest that the value of political connections is positively related to politicians' executive power. In our setting, this would imply that corporate donations may have a stronger impact on (the outcome of) public procurement processes when public authorities' discretion – and thus their decision-making power – is larger. The legislative and institutional framework in the Czech Republic allows testing this proposition. It provides not only a considerable range of evaluation criteria and allocation procedures available to public authorities (which vary substantially in terms of the restrictiveness and public visibility they impose), but also maintained a highly politicized civil service at least up to 2015 (see above).

Our analysis specifically exploits two distinct subsets of procurement allocation procedures. The first concerns contracts awarded based on the criterion of being 'economically advantageous' (ekonomická výhodnost), or 'lowest price' (nejnižší cena). While the latter framework imposes a clear decision criterion and leaves limited leeway for public authorities, the former framework provides substantially more flexibility since Czech public procurement legislation does not describe in detail how 'economically advantageous' should be understood (Act No. 137/2006 Coll. on Government Procurement). Hence, favourable treatment of donor firms would be more likely to succeed in the 'economically advantageous' framework. The second differentiation between subsets of procurement allocation processes is related to the value of the contract (see also Palguta and Pertold, 2017; Coviello et al., 2018). Procedural restrictions were more stringent for contracts with a total value exceeding 4,997,000 CZK (circa $249,850) – or 125,451,000 CZK in case of construction works (circa $6,272,550).[16] Below this threshold, contracts are not regulated by EU law. In the Czech setting, this means that contracting authorities may use the simplified so-called 'below-the-threshold' procedure. Public authorities may thereby directly ask a minimum of five firms to provide bids, and are required to publish only the final outcome (e.g., a winner of the tender). Furthermore, contracts concluded under the below-the-threshold procedure are not published in the Official Journal of the European Union, and contracting authorities can choose shorter time limits for the delivery of bids. All these elements provide a setting more tenable to favouring some firms over others. Consequently, and also because smaller contracts are simply less visible to the public, we hypothesize that the donation-procurement relation is substantively stronger for smaller procurement contracts compared to larger ones.

Table 7 presents the results. In panel I, we separate between procurement contracts awarded based on the criterion of being 'economically advantageous' (columns (1) and (2)), or 'lowest price' (columns (3) and (4)). In Panel II, we distinguish between procurement contracts whose value remains underneath the threshold value inducing tighter regulation of the allocation process (columns (1) and (2)) and contracts

[16]These exact figures are valid for the years 2010 and 2011. In other years, they differ slightly based on the CZK/EUR exchange rate as well as the Communications of the European Commission.

whose value exceeds this limit (columns (3) and (4)).

TABLE 7 HERE

The results in Table 7 consistently corroborate that less restrictive allocation procedures leaving more decision-making discretion to public authorities benefit donor firms. Table B.6 in the Online Appendix confirms this result when including linear industry-specific time trends. The donation-procurement relation only materializes for contracts awarded under the 'economically advantageous' criterion, and for contracts with a value below the threshold imposing more stringent regulatory controls. Table B.2 in the Online Appendix furthermore illustrates that the effects from shifts in political power – as documented in Table 5 – predominantly arise among the two types of allocation procedures with more extensive discretion.

4.3. Underlying mechanisms

In this section, we examine a number of potential mechanisms underlying the favouritism to donor firms documented in the previous two sections. In particular, we investigate whether corporate donors *(i)* get more contracts of particular types (especially those allocated under less restrictive procurement procedures), *(ii)* face less competition in the procurement auctions they win, and *(iii)* can extract more rent from the obtained contracts. Throughout these analyses, the number of observations available is more limited since it requires a focus on firms actually obtaining contracts (for the first and third issue) or the limited set of procurement auctions where we know the full set of bidders (for the second issue).

With respect to the first issue, we take as dependent variable the number of contracts gained by firm i in year t (Witko, 2011), and estimate a set of conditional fixed-effects over-dispersion models that account for the high concentration of zeros in this dependent variable. The main explanatory variable is a dummy equal to 1 when a firm donated to the party in power (i.e. ODS up to 2008 and CSSD afterwards) in year $t-1$, and 0 otherwise. We estimate this model for all contracts, as well as for subsets of contracts differing in the restrictiveness of the procurement process (as defined above). The results are presented in Table 8 and show that the number of contracts is significantly higher for donor firms particularly for below-the-threshold contracts. They are effectively the same between donor and non-donor firms above the threshold. Further, donor firms gain more contracts both under the 'lowest price' and 'economic advantageousness' procedures, though the effect is marginally stronger in the latter case. These findings for the 'lowest price' contracts might appear surprising, but the results in Table 9 – which look at differences in the number of bidders in each procurement auction (the second issue raised above) – provide a potential explanation. This table shows that the number of bidders is significantly lower in lowest-price auctions won by donor firms. As public authorities may target a contract to the favoured firm in the below-the-threshold and 'economic advantageousness' procedures, this is significantly harder when using 'lowest price' auctions. Hence, in this setting, the contracting authorities appear to reduce competition faced by donor firms by limiting the number of bidders.

TABLES 8 and 9 HERE

Turning finally to donor firms' potential ability to extract higher rents from procurement contracts, we calculate the ratio of the winning bid (or 'realised price') over the price estimate of a contracting authority before the tender is launched (which should reflect their best estimate of the real cost of executing the contract; i.e. 'anticipated price'). Higher values of this *price ratio* indicate winning bids further above the estimated cost of the contract, and thus a higher potential to extract rents. Using this price ratio as the dependent variable, Table 10 shows consistent positive and significant point estimates for the donations variable across all specifications.[17] Still, the estimated effect sizes remain substantively very small. The coefficient in the log-log specification, for instance, implies that a 1% change in donations is linked to a 0.05% change in the price ratio. Using an indicator variable as our main explanatory variable (i.e. equal to 1 when a firm donated to the party in power, 0 otherwise), we find that having donated is on average linked to a 0.61% increase in the price ratio. Although some care is needed in interpreting these findings – since both prices in this price ratio might be considered endogenous – these results appear at least consistent with the notion that donor firms might be able to extract more rent from the procurement process.[18]

TABLES 10 HERE

4.4. Robustness checks

This section first of all provides a further assessment of the most likely direction of causality in our results, which is important to exclude the possibility that grateful firms might increase their donations to a party that procures contracts for them. More specifically, we examine whether the value of firms' donations changes *after* a firm wins its first procurement contract. The results are presented in Table 11, where the dependent variable is the level of donations to the party in power by firm i in year t. The central independent variable is an indicator variable equal to 1 in the period following a firm's first public procurement contract (0 otherwise). We provide three operationalizations differing in when we switch 'on' this indicator variable: i.e. in the year of the first procurement contract (*First Contract*), in the following year (*First Contract t–1*) or after two years (*First Contract t–2*). This is important as the absence of an immediate impact may not preclude impact in following years: e.g., obtaining a procurement contract may require increased investments for its execution, which may reduce the capacity for donations in the short run – though not in the long(er) run. The findings confirm that firms do not appear to significantly change their political donation behaviour after they received their first public procurement contract.[19] This is reassuring since it affirms that there is no strong relationship running from procurement contracts to donations. Rather, it

[17] More detailed analysis of different types of contracts and allocation procedures highlights that this finding is driven by above-the-threshold contracts and contracts awarded using the lowest-price procedure (see Table B.7 in the Online Appendix).

[18] Contracting authorities might inflate their estimated price for large contracts (possibly to mask expected inefficiencies from allocating contracts to donor firms) or under-estimate it for contracts close to the threshold (to benefit from a lower administrative burden and the higher flexibility of below-the-threshold procedures). Any such under-estimation would bias the effect of donations on the resulting price ratio downwards (which may explain why we observe no significant effect for below-the-threshold contracts in Table B.7 in the Online Appendix). From this perspective, it is interesting to observe that Figure B.5 in the Online Appendix shows an increasing ratio of realised to anticipated prices when approaching the threshold used to distinguish between below-the-threshold and above-the-threshold contracts. This is consistent with increased under-estimation of anticipated prices below the threshold.

[19] Note that some care is due in the interpretation here as we obviously cannot observe procurement contracts allocated before our data set starts.

appears that firms' donations come first and procurement contracts arrive subsequently.

TABLE 11 HERE

Second, one might worry that firms have a predisposition to channel donations towards ideologically congruent parties representing their industry's interests. When this party wins the election, implementation of its major spending priorities could then benefit the donating firm without reflecting any form of preferential treatment. When the other party wins, the firm is in a worse position. To exclude this alternative explanation of our findings, we analyse the year-by-year distribution of procurement allocations across 14 policy sectors over the period 2007-2014. This indicates that the majority of procurement spending by the Czech regions over this period is spent on construction (60%), transport (11%), and health, social and educational services (9%).[20] Importantly, we find no evidence of clear positive shifts in procurement allocations shares for certain policy areas following the 2008 regional elections combined with substantial reversals following the 2012 regional elections (which would mirror the rise and fall of CSSD's power at the regional level) (see Figure A.1 in the Online Appendix). This makes a party-driven 'policy shift' less likely as an explanation for our findings.

Finally, we would want to exclude that the effects we attribute to the shifts in political power in 2008 and 2012 arise in every year – even when no shift in power at the regional level occurs. To address this, we implement a placebo check for a year where no change in power occurs. This turns out to be less than straightforward since there are usually elections taking place at different levels of government during the analyzed period, which might have direct and/or indirect implications for the balance of power at the regional level. The exception is 2011, when there were only Senate by-elections in one district out of 81 districts. Replicating our analysis using the same specification as in Table 5 (except that $After\ Shift\ In\ Power$ is now set to 1 after 2011 rather than after 2008), the coefficient on our central interaction terms remain statistically insignificant (see Table B.1 in the Online Appendix). This strongly suggests that the previously observed shifts in the donation-procurement relation in 2008 and 2012 are driven by the shifts in political power in those years, rather than some recurrent effect arising in every year.

5. Conclusion

Although the potential economic implications of firms' political connections have been repeatedly studied (Khwaja and Mian, 2005; Faccio, 2006; Claessens et al., 2008; Goldman et al., 2013; Straub, 2014; Auriol et al., 2016; Acemoglu et al., 2016; Schoenherr, forthcoming), the impact of political donations on public procurement contracts has not been comprehensively explored. Using a novel and representative dataset of public procurement contracts, firms' political donations and firm-level information from the Czech Republic, we show that donor firms obtain a higher total value of public procurement contracts in the year following their donation to the party in power. Moreover, *changes* in parties' political power influence donor firms' procurement success – which we document for two separate instances of election-induced shifts in the

[20] For companies owned by the Czech regions, medical equipment is a major additional source of procurement allocations (i.e. more than 40% of procurement spending). This reflects the fact that this group includes many regionally-owned hospitals.

power composition of Czech regional governments. Our results furthermore indicate that the effect of donations on procurement contracts only arises under less restrictive procurement allocation processes, which extends recent evidence showing the importance of public authorities' discretionary power in the procurement allocation process (Spagnolo, 2012; Coviello and Mariniello, 2014; Palguta and Pertold, 2017; Coviello et al., 2018). In terms of the underlying mechanisms, we find that donating firms receive more small contracts (with fewer restrictions in the allocation process), face less other bidders in more open procurement procedures, and win with bids higher above the estimated cost of the contract.

Why do these benefits from donations arise? The rich theoretical debate on this issue suggests at least two possibilities (Gordon et al., 2007). On the one hand, political donations may lead to procurement contracts as a result of direct quid pro quo exchanges between parties and firms. On the other hand, a more indirect channel may exist when donations buy access to (possibly longer-term) relationships between parties and firms. Existing evidence for the former channel remains weak, such that – also in our setting – "contributions are often best understood as purchases of good will" (Gordon et al., 2007, p. 1057). Given that our results uncover substantial financial benefits to firms – in terms of the value of procurement contracts – from their political donations, it is perhaps surprising to observe that most firms in our sample do not donate at all. Furthermore, most donations remain relatively small, with the largest donation accounting for 'only' 35 million CZK (circa $1.75 million). This is reminiscent of the traditional question raised about the remarkable absence of more money in US politics. For a review and discussion of this closely related literature on donation decisions, see Ansolabehere et al. (2003). In our setting, this low level of donations most likely reflects the uncertain benefits and high administrative costs associated with such direct, public support to parties (Gordon et al., 2007). Also, only few firms in our sample donate to both parties even though this might be a way for firms to hedge their bets, and can provide insurance against the risk associated with changes in political power. A similar observation is made by Brogaard et al. (2016) in the US setting. This strongly suggests that donations are not viewed by firms as part of a direct quid pro quo exchange, but rather as investments in longer-term relationships with a particular party (Langbein, 1986; Gordon et al., 2007).

From a policy perspective, it is important to discuss the potential implications of favouritism in procurement contract allocations for taxpayers. As argued more generally about the role of corruption in Méon and Sekkat (2005), Méon and Weill (2010) and Dreher and Gassebner (2013), such favouritism might in principle be either beneficial (e.g., when it greases the wheels and makes procurement run smoothly) or harmful (e.g., when it allocates procurement contracts to inefficient firms). Unfortunately, our dataset does not include information about contract renegotiations, costs overruns and/or time delays, such that we cannot provide a direct empirical assessment of such issues. Previous work has shown, however, that favouritism is linked to increased contract renegotiations and cost overruns (Schoenherr, forthcoming) as well as a higher likelihood of awarding procurement contracts to the same firm (Coviello and Gagliarducci, 2017). There is no inherent reason to believe that similar results would not likewise exist in our Czech setting, although cost overruns there are legally capped at 20% of the original contract value. Recent work using Czech data has also shown that favouritism to party donors in procurement contract allocations is associated with significantly higher cost inefficiency levels within the Czech regional public sector (Titl et al., 2018). Overall, therefore, it would appear that the sand exceeds the grease.

Finally, we should note that our results have relevance beyond the Czech setting studied here. At least in other EU member states where firms can directly donate to political parties, similar effects might arise because the limits for below-the-threshold contracts are the same across the entire European Union (and similar provisions also exist in, for instance, the United States) (Palguta and Pertold, 2017; Coviello et al., 2018). As such, our results suggest that EU regulation (and/or supervision) over public procurement contracts might be beneficial in terms of the efficiency of such contract allocations, and a case can be made to extend it also to smaller procurement contracts. Even so, our data lacked information about delivered quality, possible renegotiations, administrative costs, and so on. Hence, we were unable to assess the overall welfare implications of the observed manipulation in procurement contract allocations, which remains an important avenue for further research. Closely related studies analysing network ties between firms and politicians suggest such welfare implications could be meaningful. For instance, Cingano and Pinotti (2013) illustrate that distortions in the public expenditures of Italian local governments induced by favouritism towards firms with political connections have substantial social welfare implications (for similar evidence from a Chinese setting, see Fisman and Wang, 2015).

References

References

Acemoglu, D., Johnson, S., Kermani, A., Kwak, J., Mitton, T., 2016. The value of connections in turbulent times: Evidence from the united states. Journal of Financial Economics 121 (2), 368–391.

Ansolabehere, S., Figueiredo, J. M. d., Snyder, J. M., 2003. Why is there so little money in u.s. politics? Journal of Economic Perspectives 17 (1), 105–130.

Arvate, P., Barbosa, K., Fuzitani, E., 2018. Party expertise, campaign donation and government contracts: Evidence from an electoral quasi-experiment. INSPER Working Paper, nr. 377/2018.

Auriol, E., Straub, S., Flochel, T., 2016. Public Procurement and Rent-Seeking: The Case of Paraguay. World Development 77, 395–407.

Baltrunaite, A., forthcoming. Political contributions and public procurement: Evidence from lithuania. Journal of the European Economic Associaton.

Bank for the Accounts of Companies Harmonized, Oct. 2014. Financial structure and profitability of European companies. Outlook, Bank for the Accounts of Companies Harmonized.

Berrebi, C., Klor, E., 2008. Are voters sensitive to terrorism? direct evidence from the israeli electorate. American Political Science Review 102 (3), 279–301.

Bezkorupce, 2015. Korupce ve veřejných zakázkách.
URL `http://wiki.bezkorupce.cz/wiki/korupce_ve_verejnych_zakazkach`

Boas, T. C., Hidalgo, F. D., Richardson, N. P., 2014. The spoils of victory: Campaign donations and government contracts in brazil. Journal of Politics 76, 415–429.

Bramoullé, Y., Sanjeev, G., 2016. Favoritism. Journal of Development Economics 122, 16–27.

Brogaard, J., Denes, M., Duchin, R., 2016. Political influence and government investment: Evidence from contract-level data. Mimeo.

Cameron, A. C., Miller, D. L., 2015. A practitioner's guide to cluster-robust inference. Journal of Human Resources 50 (2), 317–372.

Chappell, H. W., 1982. Campaign contributions and congressional voting: A simultaneous probit-tobit model. The Review of Economics and Statistics 64 (1), 77–83.

Chmelová, P., Štípek, V., 2017. Analýza vývoje trhu veřejných zakázek v České republice v letech 2008–2015 [Analysis of the Development of the Public Procurement in the Czech Republic in the Years 2008-2015]. Politická ekonomie 65 (3), 316–334.

Cingano, F., Pinotti, P., 2013. Politicians at work: The private returns and social costs of political connections. Journal of the European Economic Association 11 (2), 433–465.

Claessens, S., Feijen, E., Laeven, L., 2008. Political connections and preferential access to finance: The role of campaign contributions. Journal of Financial Economics 88 (3), 554–580.

Coviello, D., Gagliarducci, S., 2017. Tenure in Office and Public Procurement. American Economic Journal: Economic Policy 9 (3), 59–105.

Coviello, D., Guglielmo, A., Spagnolo, G., 2018. The effect of discretion on procurement performance. Management Science 64 (2), 715–738.

Coviello, D., Mariniello, M., 2014. Publicity requirements in public procurement: Evidence from a regression discontinuity design. Journal of Public Economics 109, 76–100.

Dreher, A., Gassebner, M., 2013. Greasing the wheels? The impact of regulations and corruption on firm entry. Public Choice 155 (3-4), 413–432.

Faccio, M., 2006. Politically connected firms. American Economic Review 96 (1), 369–386.

Fisman, R., Wang, Y., 2015. The mortality cost of political connections. Review of Economic Studies 82 (4), 1346–1382.

Fouirnaies, A., Hall, A. B., 2018. How Do Interest Groups Seek Access to Committees? American Journal of Political Science 62 (1), 132–147.

Gilens, M., 2012. Affluence and Influence: Economic Inequality and Political Power in America. Princeton University Press, Princeton.

Goldman, E., Rocholl, J., So, J., 2013. Politically Connected Boards of Directors and The Allocation of Procurement Contracts. Review of Finance 17 (5), 1617–1648.

Gordon, S., Hafer, C., 2005. Flexing muscle: Corporate political expenditures as signals to the bureaucracy. American Political Science Review 99 (2), 245–261.

Gordon, S., Hafer, C., 2007. Corporate influence and the regulatory mandate. Journal of Politics 69 (2), 300–319.

Gordon, S., Hafer, C., Landa, D., 2007. Consumption or investment? on motivations for political giving. Journal of Politics 69 (4), 1057–1072.

Hodler, R., Raschky, P. A., 2014. Regional Favoritism. Quarterly Journal of Economics 129 (2), 995–1033.

Hooghe, L., Marks, G., Schakel, A. H., Osterkatz, S. C., Niedzwiecki, S., Shair-Rosenfield, S., 2016. Measuring Regional Authority: A Postfunctionalist Theory of Governance (Vol. 1). Oxford University Press, Oxford.

Johnson, S., Kaufmann, D., Zoido-Lobaton, P., 1998. Regulatory discretion and the unofficial economy. American Economic Review 88 (2), 387–392.

Khwaja, A. I., Mian, A., 2005. Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market. Quarterly Journal of Economics 120 (4), 1371–1411.

Kwon, I., 2014. Motivation, discretion, and corruption. Journal of Public Administration Research and Theory 24 (3), 765–794.

Langbein, L., 1986. Money and access: Some empirical evidence. Journal of Politics 48 (4), 1052–1062.

Mironov, M., Zhuravskaya, E., 2016. Corruption in procurement and the political cycle in tunneling: Evidence from financial transactions data. American Economic Journal: Economic Policy 8 (2), 287–321.

Méon, P.-G., Sekkat, K., 2005. Does corruption grease or sand the wheels of growth? Public choice 122 (1-2), 69–97.

Méon, P.-G., Weill, L., 2010. Is corruption an efficient grease? World Development 38 (3), 244–259.

OECD, 2013. Government at a glance Paris: OECD Publishing.

Palguta, J., Pertold, F., 2017. Manipulation of procurement contracts: Evidence from the introduction of discretionary thresholds. American Economic Journal: Economic Policy 9 (2), 293–315.

Parliament of the Czech Republic, 2006. Act no. 137/2006 coll. on government procurement Czech Republic, Prague.

Schoenherr, D., forthcoming. Political connections and allocative distortions. Journal of Finance.

Spagnolo, G., 2012. Reputation, competition and enty in procurement. International Journal of Industrial Organization 30, 291–296.

Stratmann, T., 1995. Campaign contributions and congressional voting: Does the timing of contributions matter. Review of Economics and Statistics 77, 127–136.

Straub, S., 2014. Political firms, public procurement, and the democratization process. TSE Working Papers 14-461.

Titl, V., De Witte, K., Geys, B., 2018. The efficiency implications of political donations. Katholieke Universiteit Leuven, Mimeo.

Titl, V., Palanský, M., Skuhrovec, J., 2015. Analyses of czech political party donations. Prague Center for Applied Economics, Mimeo.

Wawro, G., 2001. A panel probit analysis of campaign contributions and roll-call votes. American Journal of Political Science 45 (3), 563–579.

Witko, C., 2011. Campaign contributions, access, and government contracting. Journal of Public Administration Research and Theory 21, 761–778.

Wright, J. R., 1990. Contributions, lobbying, and committee voting in the u.s. house of representatives. American Political Science Review 84 (2), 417–438.

Table 1: Members of the regional Councils and Boards by parties within the period 2004-2016.

Party	2004-2008			2008-2012			2012-2016		
	Hejtman	Council	Board	Hejtman	Council	Board	Hejtman	Council	Board
ODS	12	291	85	0	180	15	0	102	6
CSSD	0	105	8	13	280	96	10	205	78
KDU-CSL	1	72	26	0	56	3	0	61	11
KSCM	0	157	0	0	114	5	2	182	17
Others	0	50	10	0	45	10	1	125	18

Note: ODS is the Civic Democratic Party, CSSD is the Czech Social Democratic Party, KDU-CSL is the Christian and Democratic Union - Czechoslovak People's Party, and KSCM is the Communist Party of Bohemia and Moravia.

Table 2: Summary statistics on firms' donations, procurement contracts and revenues (2007–2014)

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Donations to ODS	154,665	1,962	44,996	0	4,750,000
Donations to CSSD	154,665	1,481	174,956	0	35,000,000
Donations to the Party in Power	154,665	1,259	142,700	0	35,000,000
Contracts to Regions	154,665	748	19 420	0	4,351,000
Contracts to Regions and Subsidiaries	154,665	912	22,480	0	4,351,000
Revenue	50,355	387,200	3,462,000	0	243,600,000
Number of firms			17,185		

Notes: N represents the number of observations (the level of observation is firm-year). Values of donations are in CZK, while values of procurement contracts and firm revenues are in thousands of CZK. 1$ was equivalent to roughtly 20 CZK in the studied period (2007-2014). *Source*: Authors.

Table 3: Firms' characteristics – donating vs. non-donating firms

VARIABLE	(1) Age	(2) Revenue	(3) Assets	(4) Operating Assets	(5) Operating Result	(6) Financial Result	(7) Capital
Mean donating	15.40239	232,000	190,000	103,000	11,500	10,300	77,900
	(.2190498)	(27,900)	(27,600)	(18,100)	(1,851)	(1,809)	(10,500)
Mean non-donating	15.05585	400,000	655,000	419,000	22,800	27,300	186,000
	(.1033669)	(39,800)	(233,000)	(213,000)	(5,542)	(6,501)	(37,300)
Observations	4,868	9,941	4,729	4,729	4,725	4,728	4,729
Difference	-.3465387	167,000	465,000	174,000	11,300	17,000	108,000
P-value	0.1521	0.0426**	0.3466	0.4829	0.3350	0.2167	0.1717

Notes: Age is stated in years and the rest of the variables in thousands of CZK. 1$ was equivalent to roughtly 20 CZK in the studied period 2007-2014. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1 *Source*: Authors.

Table 4: Baseline results using panel fixed effects estimation on full sample.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES		Contracts to Regions				Contracts to Regions and Subsidiaries		
Donations	0.0110				0.00401			
	(0.00885)				(0.00913)			
Lagged Donations		0.0292***	0.0410***	0.0492***		0.0258***	0.0338**	0.0368**
		(0.00759)	(0.0145)	(0.0150)		(0.00802)	(0.0154)	(0.0157)
Revenue			0.153***				0.191***	
			(0.0180)				(0.0219)	
Lagged Revenue				0.0699***				0.0621***
				(0.0180)				(0.0204)
Observations	137,480	137,480	48,451	47,794	137,480	137,480	48,451	47,794
R-squared	0.002	0.002	0.003	0.002	0.002	0.002	0.004	0.002
Number of firms	17,185	17,185	10,481	10,457	17,185	17,185	10,481	10,457
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: The dependent variable is the (log) total value of public procurement contracts of firm i in year t. Columns (1) to (4) analyze all contracts awarded by the 13 Czech regions, while columns (5) to (8) also include contracts awarded via any companies owned by the Czech regions. The main explanatory variable *Donations* is the (log) sum of all contributions in year t to the party in power in the regional governments (i.e. ODS up to 2008 and CSSD afterwards). *Revenue* is the (log) total amount of revenues of firm i in year t. Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. Dataset includes full sample from 2007 to 2014. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Difference-in-differences results exploiting the 2008 shift in regional power.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Contracts to Regions			Contracts to Regions and Subsidiaries		
Lagged Donations ODS	0.0178**	0.0386	0.0382	0.0205**	0.0413	0.0410
	(0.00897)	(0.0352)	(0.0352)	(0.00957)	(0.0384)	(0.0384)
Lagged Donations CSSD	0.0158	-0.0148	-0.0148	0.0107	-0.0441	-0.0441
	(0.0106)	(0.0325)	(0.0324)	(0.0135)	(0.0584)	(0.0584)
Lagged Donations ODS	-0.0180*	-0.0260	-0.0260	-0.0201*	-0.0298	-0.0297
* After Shift In Power	(0.0109)	(0.0353)	(0.0353)	(0.0116)	(0.0388)	(0.0388)
Lagged Donations CSSD	0.0559**	0.0678*	0.0679*	0.0535*	0.0901	0.0902
* After Shift In Power	(0.0271)	(0.0399)	(0.0399)	(0.0275)	(0.0625)	(0.0624)
Lagged Revenue			0.0528***			0.0364
			(0.0191)			(0.0241)
Observations	103,110	36,993	36,993	103,110	36,993	36,993
R-squared	0.002	0.001	0.001	0.002	0.001	0.001
Number of firms	17,185	10,230	10,230	17,185	10,230	10,230
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

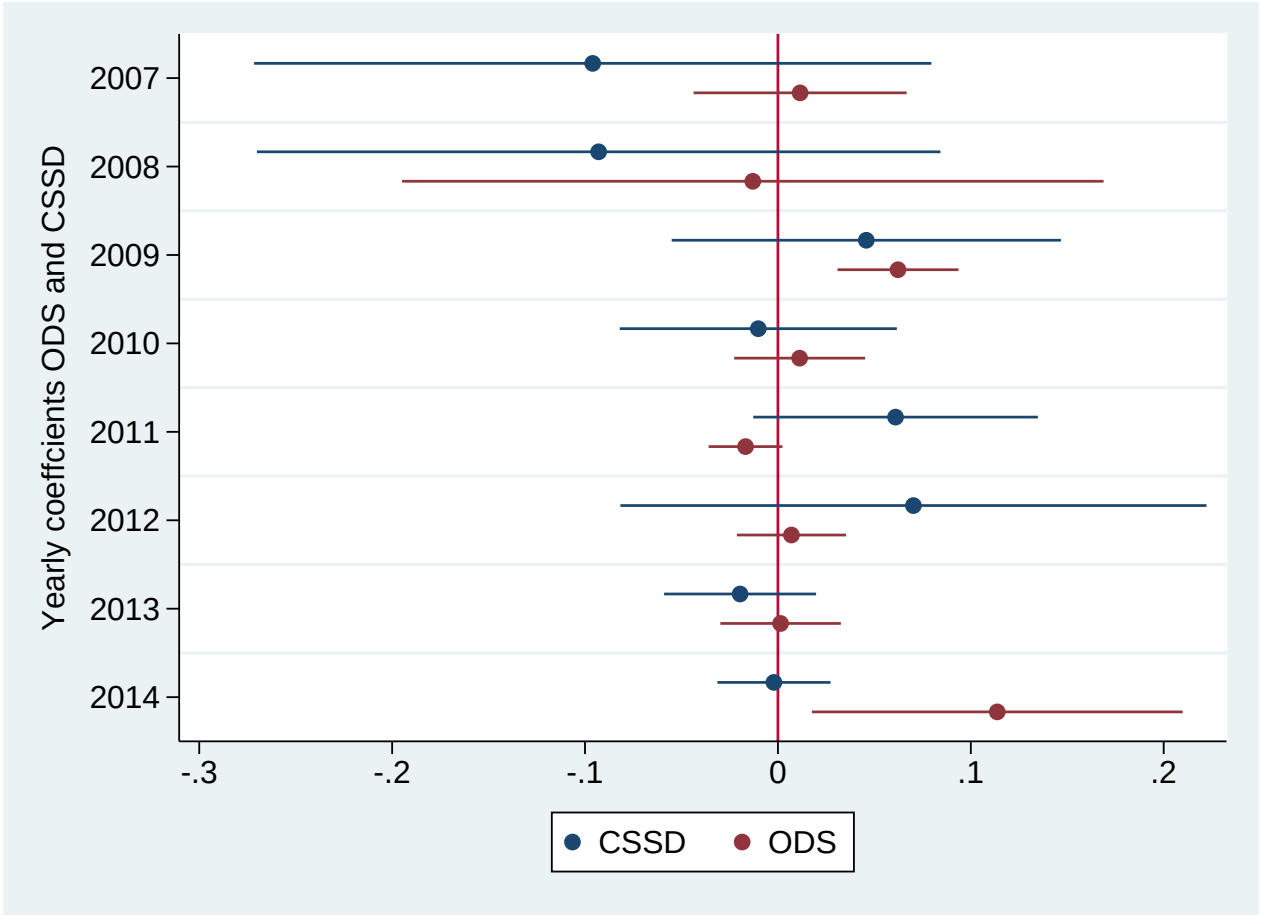
Notes: The dependent variable is the (log) total value of public procurement contracts of firm i in year t. Columns (1) to (3) analyze all contracts awarded by the 13 Czech regions, while columns (4) to (6) also include contracts awarded via any companies owned by the Czech regions. *Donations CSSD* and *Donations ODS* reflect the (log) sum of all contributions in year t to those parties, while $After\ Shift\ In\ Power$ is an indicator variable equal to 0 in the period prior to the 2008 regional elections (1 in the period after the elections). *Lagged Revenue* is the one-year lag of the (log) total amount of revenues of firm i in year t. Columns (2) and (5) replicate the results from Columns (1) and (4) on the sample for which lagged revenue data are available, which is the same sample as employed in columns (3) and (6). Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. Dataset covers 2007 to 2011 (to avoid influence from the 2012 election). *** p<0.01, ** p<0.05, * p<0.1

Table 6: Difference-in-differences results exploiting the 2012 shift in regional power.

	(1)	(2)	(3)	(4)
VARIABLES	Contracts Supplied to Regions		Contracts Supplied to Regions ans Subsidiaries	
Lagged Donations CSSD	0.057**	0.051*	0.054*	0.045
	(0.028)	(0.029)	(0.028)	(0.030)
Lagged Donations CSSD	-0.057**	-0.064**	-0.074**	-0.074**
* After Shift In Power	(0.027)	(0.028)	(0.035)	(0.031)
Lagged Revenue		0.067***		0.059***
		(0.019)		(0.022)
Observations	103,110	45,300	103,110	45,300
R-squared	0.001	0.002	0.001	0.001
Number of firms	17,185	10,455	17,185	10,455
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Notes: The dependent variable is the (log) total value of public procurement contracts of firm i in year t. Columns (1) and (2) analyze all contracts awarded by the 13 Czech regions, while columns (3) to (4) also include contracts awarded via any companies owned by the Czech regions. *Donations CSSD* reflects the (log) sum of all contributions in year t to this party, while $After\ Shift\ In\ Power$ is an indicator variable equal to 0 in the period prior to the 2012 regional elections (1 in the period after the elections). *Lagged Revenue* is the one-year lag of the (log) total amount of revenues of firm i in year t. Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. Dataset covers 2009 to 2014 (to avoid influence from the 2008 election). *** p<0.01, ** p<0.05, * p<0.1

Figure 1: The time pattern in the relationship between the donations and the volume of contracts



Notes: The figure plots coefficients and corresponding confidence intervals for the interactions between the (log) value of donations and yearly dummy variables. It shows year-by-year pattern in the relationship between donations and contracts. Source: Own calculations.

Table 7: Results using panel fixed effects estimation on sub-samples with different procurement allocation processes.

VARIABLES	(1) Contracts to Regions	(2) Contracts to Regions and Subsidiaries	(3) Contracts to Regions	(4) Contracts to Regions and Subsidiaries
		Panel I		
	ECONOMICALLY ADVANTAGEOUS		LOWEST PRICE	
Lagged Donations	0.033**	0.026*	0.017	0.010
	(0.014)	(0.014)	(0.013)	(0.014)
Lagged Revenue	0.018	0.009	0.058***	0.066***
	(0.015)	(0.016)	(0.014)	(0.016)
Observations	47,794	47,794	47,794	47,794
R-squared	0.002	0.002	0.006	0.007
Number of firms	10,457	10,457	10,457	10,457
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
		Panel II		
	BELOW THRESHOLD		ABOVE THRESHOLD	
Lagged Donations	0.040***	0.032**	0.006	0.003
	(0.015)	(0.015)	(0.007)	(0.007)
Lagged Revenue	0.073***	0.074***	0.001	-0.007
	(0.016)	(0.016)	(0.012)	(0.013)
Observations	47,794	47,794	47,794	47,794
R-squared	0.002	0.002	0.002	0.001
Number of firms	10,457	10,457	10,457	10,457
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Notes: The dependent variable is the (log) total value of public procurement contracts of firm i in year t. Columns (1) and (3) analyze all contracts awarded by the 13 Czech regions, while columns (2) and (4) also include contracts awarded via any companies owned by the Czech regions. In Panel I, we separate between procurement contracts awarded based on the criterion of 'economically advantageous' (columns (1) and (2)), or 'lowest price' (columns (3) and (4)). In Panel II, we distinguish between procurement contracts whose value remains underneath the threshold value inducing tighter regulation of the allocation process (columns (1) and (2)) and contracts whose value exceeds this limit (columns (3) and (4)). The main explanatory variable *Donations* is the (log) sum of all contributions in year t to the party in power in the regional governments (i.e. ODS up to 2008 and CSSD afterwards). *Lagged Revenue* is the one-year lag of the (log) total amount of revenues of firm i in year t. Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. Dataset includes full sample from 2007 to 2014. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Results with the number of contracts as outcome variable.

VARIABLES	(1) Contracts	(2) Below Threshold	(3) Above Threshold	(4) Lowest Price	(5) Advantageousness
Lagged Dummy Donated	0.632***	0.722***	0.546	0.473***	0.562***
	(0.130)	(0.136)	(0.390)	(0.183)	(0.169)
Observations	15,791	13,263	5,791	11,855	7,583
Number of firms	1,974	1,658	724	1,482	948
Firm FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Notes: The dependent variable is the number of public procurement contracts that firm i was awarded in year t. The main explanatory variable *Dummy Donated* is a dummy variable equal to 1 when a firm donated to the party in power (i.e. ODS up to 2008 and CSSD afterwards) in year t, 0 otherwise. Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Results using the (log) number of bidders as outcome variable.

VARIABLES	(1) Below Threshold	(2) Above Threshold	(3) Lowest Price	(4) Advantageousness
		Panel I – nr. of bidders		
Lagged Dummy Donated	-0.118	1.443	-1.892**	-0.145
	(0.566)	(2.824)	(0.802)	(0.548)
Observations	2,605	825	2,152	1,321
R-squared	0.048	0.144	0.098	0.039
Number of firms	1,554	596	1,339	880
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
		Panel II – log(nr. of bidders)		
Lagged Donations	-0.00288	0.0188	-0.0183*	-0.00299
	(0.00717)	(0.0201)	(0.0100)	(0.00791)
Observations	2,605	825	2,152	1,321
R-squared	0.037	0.201	0.119	0.021
Number of firms	1,554	596	1,339	880
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Notes: In Panel I, the dependent variable is the number bidders in the public procurement contracts that firm i was awarded in year t. In Panel II, the dependent variable is the logarithm of this number. The main explanatory variable *Dummy Donated* is a dummy variable equal to 1 when a firm donated to the party in power (i.e. ODS up to 2008 and CSSD afterwards) in year t, 0 otherwise. Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 10: Results using the ratio of the realised to anticipated price as outcome variable.

VARIABLES	(1) Price Ratio Regions	(2) Price Ratio Regions and Subsidiaries	(3) Price Ratio Regions	(4) Price Ratio Regions and Subsidiaries
Lagged Donations	0.0504***	0.0489***		
	(0.0161)	(0.0142)		
Lagged Dummy Donated			0.613***	0.601***
			(0.197)	(0.177)
Observations	3,148	3,805	3,148	3,805
R-squared	0.039	0.030	0.043	0.034
Number of firms	1,792	2,099	1,792	2,099
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Notes: The dependent variable is the logarithm of the price ratio between the combined sum of realised prices and the combined sum of anticipated prices for the public procurement contracts that firm i was awarded in year t. The main explanatory variable is either *(i) Donations*, which is the (log) sum of all contributions in year t to the party in power (i.e. ODS up to 2008 and CSSD afterwards) (Columns (1) and (2)), or *(ii) Dummy Donated*, which is a dummy variable equal to 1 when a firm donated to the party in power in year t and 0 otherwise. Columns (1) and (3) analyze all contracts awarded by the 13 Czech regions, while columns (2) and (4) also include contracts awarded via any companies owned by the Czech regions. Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Results for the effect of firms' first procurement contract on party donations.

	(1)	(2)	(3)
	FE	FE	FE
VARIABLES	Donations	Donations	Donations
First Contract	0.0166		
	(0.0229)		
First Contract $t-1$		0.0351	
		(0.0255)	
First Contract $t-2$			0.0188
			(0.0258)
Observations	16,088	16,088	16,088
R-squared	0.008	0.008	0.008
Number of firms	2,011	2,011	2,011
Firm FE	YES	YES	YES
Year FE	YES	YES	YES

Notes: The dependent variable *Donations* is the (log) sum of all contributions from firm i in year t to the party in power in the regional governments (i.e. ODS up to 2008 and CSSD afterwards). In column 1, the main explanatory variable $FirstContract$ equals 1 in the period immediately following a firm's first public procurement contract (0 otherwise). In columns (2) and (3), we allow for one or two years to pass, respectively, after the firm's first public procurement contract. Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. *** p<0.01, ** p<0.05, * p<0.1