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Political Donations and the Allocation of Public Procurement Contracts

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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 2007-2014, 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, these gains from political donations accrue predominantly to firms with previous procurement experience, and only arise for contracts allocated under less restrictive procurement allocation processes. Established firm-level political relationships and politicians' discretionary power thus present crucial moderating factors for the impact of political donations on the procurement process.

JEL classifications: H57, D72, C23.

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

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1. Introduction

A critical concern about the determination of government policies 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; Glaeser and Ponzetto, 2014; Hodler and Raschky, 2014). Such political favouritism distorts spending allocations away from the normative principles that ideally drive them, which from a theoretical perspective “lowers aggregate social welfare [and] creates inequality across social groups” (Bramoullé and Sanjeev, 2016, p. 23). In this article, we evaluate the potential role of firms’ donations to political parties as a mechanism underlying political favouritism in government decisions. We thereby particularly focus on the process awarding public procurement contracts. As procurement contracts allocated by public-sector institutions reflect 15 to 20% of GDP in many developed countries (OECD, 2013), distortions in these allocations are likely to have severe economic implications. From both an academic and public interest point of view, it is therefore essential to understand whether – and under which conditions – firms donating to political parties gain an advantage in the allocation of procurement contracts.¹

When politicians influence public procurement allocations in favour of their party’s donor firms, these firms can be expected to receive more – or more valuable – contracts (Witko, 2011; Boas et al., 2014; Arvate et al., 2016; Brogaard et al., 2016; Baltrunaite, 2017). The fear for such potential conflicts of interest has induced bans on direct corporate donations to politicians and political parties in many countries (e.g., Belgium, Canada, France, Israel, Luxembourg, and the United States; IDEA, 2015). Interestingly, Baltrunaite (2017) shows that the introduction of such a ban in Lithuania in 2012 reduced the probability of corporate donors winning procurement contracts by five percentage points (relative to non-donors). This change in outcomes before and after the ban provides strong evidence for the existence of preferential treatment in procurement allocations linked to firms’ political donations. Similar results have likewise been obtained using regression-discontinuity designs exploiting narrow electoral victories in Brazil (Boas et al., 2014; Arvate et al., 2016) and the United States (Brogaard et al., 2016).^{2,3}

While previous scholarship provides convincing evidence of a significant (local) *average* effect of corporate donations on public procurement outcomes, it fails to address potential sources of *heterogeneity* in this relation. This is unlikely to generate an accurate depiction of reality, and furthermore implies that an overall ban on direct corporate donations might be less efficient than more targeted public policies. In contrast, we argue that the donations-procurement relation is critically moderated by firms’ previous procurement

¹Clearly, 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, firm’s contributions may also yield other, less visible benefits including, for instance, regulatory forbearance (Gordon and Hafer, 2005, 2007).

²Such studies estimate a local average treatment effect around close elections and show that donating firms witness a boost in contracts when their candidate narrowly wins. Although exploiting narrow electoral victories improves the ability to draw causal inferences, it may lack external validity due to its focus on close elections (Hainmueller et al., 2015). It also cannot address the effect of an additional dollar donated in situations where a party wins more convincingly – i.e. in situations where it can arguably have a stronger influence over the allocation of procurement contracts (Baltrunaite, 2017). We therefore exploit an alternative identification strategy based on changes in political power (more details below).

³While the literature on the political determinants of public procurement contracts is relatively small, there is a large and closely related literature linking political donations to congressional voting patterns. This has generally been supportive of the idea that corporate donations affect politicians’ behaviour in role-call votes (Chappell, 1982; Wright, 1990; Stratmann, 1995; Chin et al., 2000; Wawro, 2001). More recently, Fourinaies and Hall (forthcoming) show that interest groups also employ campaign contributions to gain direct as well as indirect access to policy-relevant committees in US state legislatures. Direct access thereby refers to campaign donations for committee members, while indirect access refers to donations for those who influence committees’ procedural rules and committee assignments.

experience and politicians' discretion over the contract allocation procedure. On the one hand, previous experience matters because it establishes a working relationship between firms and the political actors in charge of the procurement process. This is important not only because reputational mechanisms play a central role in procurement processes (Spagnolo, 2012). It also constitutes a valuable complement to firm's donations in gaining access to key decision-makers. As such, pre-existing relationships and network ties can have notable implications for the value of corporate donations when key contracting decisions are made (Witko, 2011; Goldman et al., 2013). On the other hand, political actors' discretionary power over decision-making processes has long been linked to the potential to engage in corruptive practices (Johnson et al., 1998; Kwon, 2014). In public procurement allocation procedures, discretion can therefore work to "increase the risk that dishonest officials will collude with some suppliers" (Palguta and Pertold, 2017, p. 294). As such, it can boost the value of corporate donations in terms of firms' access to procurement contracts. Overall, we expect that political connections established through corporate donations lead to an increase in firms' public procurement contracts. Yet, the importance of corporate donations will be moderated by firms' existing working relationships with the political actors in charge of the procurement process (Spagnolo, 2012) as well as politicians' executive power (Johnson et al., 1998; Kwon, 2014; Acemoglu et al., 2016).⁴

We test these theoretical propositions using data from the Czech Republic. This setting has a number of important advantages. First, firms in the Czech Republic – as in several other countries including Lithuania (up to 2012), Brazil (up to 2016), Germany and the United Kingdom – are allowed to donate directly to political parties. Yet, political parties are legally obliged to disclose complete lists of donors, and can face fines when the list of donors is not provided or incomplete. Thus, parties are incentivized to disclose complete donor lists and all parliamentary parties comply.⁵ Second, full information on *all* public procurement contracts above a relatively limited value is publicly available – including, for instance, the details of the firm awarded the contract, the date and value of the contract, and so on.⁶ As such, we have access to a unique, comprehensive dataset covering *all* public procurement contracts and *all* corporate donations to major political parties in the Czech Republic over the period 2007-2014. Finally, and important from a methodological perspective, the Czech Republic has experienced significant shifts in partisan control at the regional level during the studied period. This can be exploited for identification purposes since it implies that the party receiving a firm's donations may experience gains/losses of political power over time. Our identification strategy thus is based on within-firm changes in donations to a party gaining/losing power. Exploiting the longitudinal nature of the data thereby allows us to control for unobserved heterogeneity and time-varying shocks, which improves our ability to draw causal inferences (for a similar approach, see Cingano and Pinotti, 2013; Goldman et al., 2013).

Our main findings suggest that corporate donors of the political party in power obtain a statistically

⁴In similar vein, Arvate et al. (2016) 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), which shows that politicians' tenure in office progressively leads to collusion and "deteriorates the functioning of the procurement process".

⁵There might 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.

⁶This threshold is set by Act No. 137/2006 Coll. on Government Procurement, and differs depending on the type of contract. For instance, for public service contracts the threshold lies at 2,000,000 CZK (excluding VAT; circa \$80,000), while the threshold for public works contracts is set at 6,000,000 CZK (excluding VAT; circa \$240,000).

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 is reasonable given 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 with 0.5% to 0.6%. Importantly, the observed effects of donations are particularly strong among donors with previous public procurement experience, whereas no significant effect is uncovered for donor firms lacking such experience. This corroborates our theoretical argument that existing relationships enhance the impact of corporate donations in the public procurement process. Furthermore, our findings highlight the critical moderating role of politicians' discretionary power: i.e. corporate donations only matter for procurement contracts allocated under less restrictive procedures where politicians enjoy more discretion. This finding extends recent studies showing that discretion significantly increases the probability that *i*) procurement contracts are allocated to smaller firms within the region of the public administration (Coviello and Mariniello, 2014), *ii*) the same firms are repeatedly allocated contracts by the same public buyer (Coviello et al., 2017), and *iii*) contracts are allocated to anonymous firms hiding their owners (Palguta and Pertold, 2017).

These results persist under several robustness checks, and contribute to two main strands of literature. The first literature is concerned with the potential political influence of corporate donations, and generally focuses on roll-call votes in the US Congress (see footnote 3) or firms' stock valuations and returns (Jayachandran, 2006; Claessens et al., 2008). Yet, measurement of firms' stockmarket performance leaves the mechanisms driving this performance unaccounted for, whereas roll-call votes are "difficult to link back to the interests of individual donors, since multiple firms may profit from a particular policy" (Boas et al., 2014, p. 416). Closer to our work, Witko (2011), Boas et al. (2014), Arvate et al. (2016), Brogaard et al. (2016), and Baltrunaite (2017) analyse how corporate donations influence firms' access to public procurement contracts in Brazil, Lithuania and the US. This identifies public procurement contracts as an important source of added value to politically connected firms. We contribute to this literature by studying key sources of heterogeneity in the donations-procurement relation (i.e. previous procurement experience and the contract allocation procedure). Moreover, we exploit large shifts in partisan control of regional governments to achieve credible identification of the relations of interest, and focus on the value of procurement contracts gained due to corporate donations rather than the number of additional contracts (Witko, 2011), the change in corporate donors' winning probability (Baltrunaite, 2017), or the effect of close election victories (Boas et al., 2014; Arvate et al., 2016; Brogaard et al., 2016). This is important since knowing that there exists an effect of corporate donations on procurement allocations does not mean that we know the extent of their impact – nor the circumstances under which such relation is most likely to arise.

Second, our findings add to the literature evaluating the effects of politicians' discretionary power. Discretion is often perceived as providing political actors with at least the opportunity for "capturing for themselves a portion of the value of what they allocate" (Wade, 1982, p. 288). Several empirical studies confirm that such opportunities are also taken up by showing that "discretion is an important cause of unofficial activity" (Johnson et al., 1998, p. 389) and "positively associated with (...) bureaucrats' corruptibility" (Kwon, 2014, p. 782). Recent work suggests a similar negative impact of discretion on

the outcomes of public procurement processes (Spagnolo, 2012; Coviello and Mariniello, 2014; Coviello et al., 2017; Palguta and Pertold, 2017). Our findings contribute to this literature by showing that greater discretion induces a significantly higher payoff associated with corporate donations in public procurement processes. This is an important observation since it suggests that formal restrictions on corporate donations should be particularly tight where political actors’ leeway on final decisions is larger (but might remain less restrictive in other settings).

The next section discusses the institutional and political setting in the Czech Republic. Section 3 then presents the theoretical background of our empirical analysis, and derives our empirical specification. Section 4 brings forward our main findings, before Section 5 provides a brief concluding discussion.

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, however, 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.⁷

⁷Although the analysis focuses on the regional government level where the shifts in political power were most pronounced, equivalent changes likewise took place at central and municipal government level. The 2010 municipal elections, for instance, saw CSSD gain significant power in local councils at the expense of ODS. Likewise, ODS was the strongest party in the central government coalition between 2007 and 2009, but its position in the coalition government ruling between 2010 and 2013 was substantially weaker. In 2014, CSSD replaced ODS as the dominant political party also at the central government level.

TABLE 1 HERE

Unlike in many other countries, private-sector firms in the Czech Republic can contribute directly to political parties and face no restrictions in terms of the amount they can contribute. Such donations in effect can 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 obligation by, for instance, presenting only a partial or incomplete list 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. We collected information on these donations including firm-specific identification numbers from a website maintained by *Econlab z.s.* (a Czech NGO).

Our final 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 branches of political parties, 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 where a firm’s headquarters is located) 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 \$50). 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 \$4,384). From the summary statistics, it is also clear that ODS receives more donations than CSSD. This is due to the right-wing, liberal economic character of this party, relative to the left-wing, socialist character of CSSD.⁸

Public procurement contracts account for about 17% of GDP in the Czech Republic. The allocation process for these contracts is governed by central government legislation. 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. Importantly, however, the actual implementation of these procedures is administered by the public authorities allocating procurement contracts (that is, in our case, the regional governments). This implies that politicians can retain significant influence on the allocation process – and the civil servants administering this process – via a number of mechanisms. First, contracting authorities sometimes misuse the detailed prerequisites set out in the legislative framework to limit competition. Examples of such activities include the imposition of unnecessarily rigid technical requirements, the need to have specific certificates, or the requirement that contractors should have an annual turnover multiple times the value of a contract (Bezkorupce, 2015). Such constraints reduce the number of firms qualifying for a specific procurement contract, and thereby guide the process in the direction of the preferred firm. Second, contracting authorities often are free to set the evaluation criteria – as well

⁸It happens only rarely that a firm donates to both parties in the same year. In the dataset described in Table 2, this arises in 13 instances. Excluding these observations has no effect on the findings reported below.

as the weights given to the various criteria – employed during the allocation process. They can use this flexibility to steer the outcome in their desired direction. For instance, by putting high weight on specific criteria (e.g., a fine due by the firm in case of delay), authorities have been known to award procurement contracts to firms performing exceptionally well on this criterion, even though their overall bid may not otherwise have been the most beneficial (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.⁹ The average value of firms’ annual procurement contracts awarded by the regions is about 750,000 CZK (circa \$30,000), 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 is allocated directly by the regions (circa 82%).

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. Theoretical background and empirical strategy

3.1. Theoretical framework

To better specify the potential role of firms’ political donations for public procurement contracts as well as motivate our estimation equation and identification strategy, we set up a simple model economy in which monopolistically competing firms form connections with politicians via political contributions. The model is adjusted from Cingano and Pinotti (2013), and develops a framework consistent with the institutional setting in the Czech regions (see above).

Suppose the economy is populated by a measure of firms I using the following technology to produce private goods:

$$Y_i = A_i f(X_i) \tag{1}$$

where $f(\cdot)$ is a constant returns to scale production function translating inputs X_i into outputs Y_i , and A_i is zero-mean log-normally distributed productivity shifter (note that i is an element of the measure I). Formally, $\log(A_i) = \vartheta_i$, where ϑ_i is zero-mean normally distributed. The government can buy some

⁹The 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.

of the output produced by firm i as an input for the production of public goods. One can think of this transaction between firms and the government as the outcome of a procurement allocation process (see below). After obtaining inputs from (possibly multiple) firms, the government combines these into public goods (G) according to the following constant elasticity of substitution (CES) technology:

$$G = \left[\int_I Q_i^{\frac{\sigma-1}{\sigma}} di \right]^{\frac{\sigma}{\sigma-1}} \quad (2)$$

where $\sigma > 1$ is the elasticity of substitution among different firms' goods, and Q_i is the amount of firm i 's product purchased by the government (with $Q_i \leq Y_i$).

Ideally, politicians efficiently assign contracts across firms constrained by the aggregate level of public expenditure (E). The government's budget constraint thereby is such that $\int_I P_i Q_i di \leq E$, where P_i is the market price of the good from firm i (which the government takes as given). However, politicians might also deviate from this efficient allocation of procurement contracts when they are influenced by firms' political donations. This possibility can be operationalised by specifying the government's utility function such that:

$$\tilde{U} = \left[\int_I B_i^{\frac{1}{\sigma}} Q_i^{\frac{\sigma-1}{\sigma}} di \right]^{\frac{\sigma}{\sigma-1}} \quad (3)$$

The key element here is the parameter B_i . This reflects a demand shifter, which is assumed to be co-determined by the amount of political donations of firm i to the party in power (i.e. $B_i = B(\text{Contributions}_i)$, where Contributions_i equals the total value of political donations from firm i).

In equilibrium, governments maximize their utility subject to their budget constraint, while firms maximize their profits. Solving the model for the equilibrium procurement revenues of each firm (henceforth denoted as $\text{ProcurementValue}_i$ instead of Q_i) – we obtain¹⁰:

$$\text{ProcurementValue}_i = \left(\frac{\sigma\omega}{\sigma-1} \right)^{1-\sigma} A_i^{\sigma-1} \left[B_i \left(\frac{E}{\int_I B_i P_i^{1-\sigma} di} \right) \right] \quad (4)$$

It is easy to see from equation (4) that the value of firm i 's public procurement contracts depends directly on the parameter B_i . Hence, any firm's donations to the party in power have the ability to affect firm-specific procurement revenues. Note that it is straightforward at this point to let the role of firms' contributions to political parties differ depending on firm characteristics (such as previous procurement experience) or decision-makers' discretion in the procurement process. This merely requires imposing that such variables affect the nature of the function $B(\cdot)$ translating corporate donations into the demand shifter B_i .

Before we derive our empirical specification from equation (4), it is important to stress two issues. First, the result in equation (4) naturally raises questions about a firm's decision to donate to political parties: i.e. when to engage in donations, and how much to donate. We do not examine this here since we are predominantly interested in the effect of donations on procurement allocations, *given that donations have taken place*. For a review and discussion of the closely related literature on donation decisions, see Ansolabehere et al. (2003). Yet, for our identification strategy it will be important that firms do not simply contribute to the party they expect to win an upcoming election. We will provide empirical evidence on this

¹⁰For derivation details, see Appendix A.

important point when describing our empirical strategy in the next section (see also Figure A.2 in the Online Appendix). Second, we have consciously left the mechanism underlying the parameter B_i unspecified. The rich theoretical debate on this issue suggests at least two possible mechanisms (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 “contributions are often best understood as purchases of good will” (Gordon et al., 2007, p. 1057). We will return to both issues in our concluding discussion.

3.2. Empirical strategy

We can transform equation (4) into empirically testable form by imposing a more specific functional form on the demand shifter B_i . Particularly, assuming a log-normally distributed demand shifter whose error term depends on year and firm specific shocks allows log-linearizing the equation:

$$\log(B_{it}) = \beta \cdot \log(\text{Contributions}_{it}) + a_i + a_t + \epsilon_{it} \quad (5)$$

where a_i is a firm-specific time-invariant effect, a_t is a year fixed effect, and ϵ_{it} is a zero-mean normally distributed error. Plugging equation (5) into equation (4), log-linearizing it around $A = B = 1$ and allowing for a time lag between corporate contributions and procurement contracts, we obtain our baseline empirical specification:

$$\log(\text{ProcurementValue}_{it}) = \alpha_i + \alpha_t + \gamma X_{it} + \beta \log(\text{Contributions}_{it-*}) + u_{it} \quad (6)$$

where $\text{ProcurementValue}_{it}$ is the combined value of all public procurement contracts supplied by firm i at time t . 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_{it} 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. u_{it} is the error term, where we allow for clustering at the firm level. Summary statistics for the controls are included in Table 2.

The central independent variable $\text{Contributions}_{it-*}$ in this baseline specification is the sum of all contributions by firm i at time $t-*$ (with $*$ = 0 or 1) to the party in power in the regional governments (i.e. ODS up to 2008 and CSSD afterwards).¹¹ 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 contributions would provide a better fit of the model (Stratmann, 1995). Given our theoretical expectations, we hypothesize that $\beta > 0$. Still, even though specifications in line with equation (6) have been employed in the existing literature (Witko, 2011), an important concern with this approach is that it conflates two sources of variation in the

¹¹To 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.

donations variable. On the one hand, the sum of contributions to the party in power can change when the party in power changes (even absent any change in donations by firms). On the other hand, it can change when firms donate more or less to particular parties over time. While the second source of variation is of key theoretical interest, it 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 4.3.

Coefficient estimates can also become confounded by the fact that “shared ideological proclivities may be the cause of both campaign contributions and legislators’ votes” (or, in our setting, 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 contributions to specific parties alters when these parties’ power shifts. 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) (Angrist and Pischke, 2009). 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):

$$\begin{aligned}
\log(\text{ProcurementValue}_{it}) = & \alpha_i + \alpha_t + \beta_1 \text{AfterShiftInPower}_{it} + \beta_2 \log(\text{ContributionsToCSSD}_{i,t-*}) + \\
& + \beta_3 \text{AfterShiftInPower}_{it} * \log(\text{ContributionsToCSSD}_{i,t-*}) \\
& + \beta_4 \log(\text{ContributionsToODS}_{i,t-*}) \\
& + \beta_5 \text{AfterShiftInPower}_{it} * \log(\text{ContributionsToODS}_{i,t-*}) + \gamma X_{it} + u_{it}
\end{aligned} \tag{7}$$

where the dependent variable is defined as before, and *AfterShiftInPower* is an indicator variable separating the period before the shift in power (*AfterShiftInPower* = 0) from the period after the shift in power (*AfterShiftInPower* = 1). In this specification, it naturally becomes important to separate donations to various parties. Hence, the central independent variable is split into *ContributionsToCSSD_{i,t-*}* and *ContributionsToODS_{i,t-*}* which reflect the sum of political contributions by firm *i* to CSSD (i.e. the party gaining power in 2008) and to ODS (i.e. the party losing power in 2008) at time *t* − *. The key variable of interest in equation (7) is the interaction between *AfterShiftInPower* and *ContributionsToCSSD* (or *ContributionsToODS*). We expect $\beta_3 > 0$ when a party gains power and $\beta_5 < 0$ when a party loses power. Hence, equation (7) directly distinguishes the effects of donations to winning and losing parties.

Valid identification of corporate donations’ effects in equation (7) 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). On the other hand, assignment to the treatment should be as good as random, which in our setting would naturally be violated if (certain types of) firms adjust their donations prior to the regional elections towards the (expected) future winner. We will provide evidence

in the next section that our results are not driven by diverging pre-treatment trends across donors and non-donors. With respect to the second assumption, Figure A.2 in the Online Appendix shows that Czech firms do not predominantly 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). Note also that focusing donations on the (expected) winner of regional elections is further complicated in our setting since firms then would have 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 8, however, only very few firms document donations to multiple parties in the same year. As such, assignment to the treatment (i.e. change in regional power) will effectively be unrelated to corporate donations.

4. Results

4.1. Main results

The results from estimating equation (6) on the full sample of observations over the 2007-2014 period are provided in Table 3. We present two sets of results. Columns (1) to (3) focus on the public procurement contracts directly awarded by the 13 Czech regions, while columns (4) to (6) 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 (4)) or lagged values (columns (2), (3), (5) and (6)) of firms' donations to the party in power. In practice, 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 3 HERE

The results in Table 3 first of all 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. This is at odds with 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) and (3), we find substantial evidence in line with the idea that public procurement allocations by the Czech regions favour firms donating to the party in power. Specifically, 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

¹²From 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).

donation of 10,957 CZK would be linked to additional regional procurement contracts worth approximately 1,008,624 to 1,260,781 CZK. 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 (We return to this effect size 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) and (6)) 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 3 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 to 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 4 focus on the landslide election of 2008 using the difference-in-differences approach presented in equation (7). The main coefficients of interest are those for the interaction between *After Shift In Power* and the donations variables, and we expect this interaction to be positive for CSSD (which gained power) and negative for ODS (which lost power). Once again, we provide separate results for the public procurement contracts awarded directly by the 13 Czech regions (columns (1) to (3)) and the extension including contracts awarded via any companies owned by the Czech regions (columns (4) to (6)).

TABLE 4 HERE

Although most coefficient estimates remain statistically insignificant at conventional levels, the expected pattern in their signs is validated throughout Table 4. That is, 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' 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 three out of six models (and at the 15% level in the other three 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 – in line with our theoretical predictions.

Table 5 further investigates this impact of the 2008 shift in regional political power, and concentrates exclusively on the subset of firms that at some point in our observation period donated to either ODS or CSSD. Viewing such donations as an indication of political connections between a firm and a political party, the firms donating to ODS (CSSD) lose (gain) connection to politicians in power in 2008. As such, firms connected via donations to ODS (CSSD) can be expected to see their access to procurement contracts dete-

riorate (improve). Table 5 reflects the results from estimating equation (7) after replacing *DonationsCSSD* with an indicator variable *Donated to CSSD* equal to 1 if the firm ever donated to CSSD (0 if it only ever donated to ODS) and restricting the sample to two periods from 2007 to 2008 (*AfterShiftInPower* = 0) and from 2011 to 2012 (*AfterShiftInPower* = 1). We chose both time periods to have a symmetric period at the end of each electoral term, which avoids potential biases due to the time needed to settle into a new political office and influence the allocation of procurement contracts. Formally, the specification is the following:¹³

$$\begin{aligned} \log(\text{ProcurementsValue}_{it}) = & \delta_1 \text{Donated to CSSD}_{it} + \delta_2 \text{AfterShiftInPower}_{it} + \\ & \delta_3 \text{AfterShiftInPower}_{it} * \text{Donated to CSSD}_{it} + X_{it}\delta + u_i \end{aligned} \quad (8)$$

All models in Table 5 are strongly supportive of our theoretical predictions. Given that the analysis here only includes donors to ODS and CSSD, the coefficient estimates for *Donated to CSSD* effectively capture the difference in access to procurement contracts between firms linked to CSSD and ODS prior to the 2008 election. This difference is not statistically significant. Yet, after the 2008 shift in power from ODS to CSSD, firms connected to the losing party witness a statistically significant drop in procurement revenues (i.e. roughly 42% to 44% compared to period before the regional elections).¹⁴ The party in government thus appears to punish firms that donate to the opposition party, which can be viewed as a rational response in a system where the two main parties act as a supplier-duopoly facing a large number of firms capable of fulfilling contracts. In sharp contrast, firms connected to CSSD saw the total value of their procurement contracts from the Czech regions increase with 48% to 62% compared to the period before the regional elections. This effect of the regional shift in power is even larger when also taking into account contracts awarded via any companies owned by the Czech regions (columns (3) and (4)). Interestingly, given the insignificant difference between firms linked to ODS and CSSD before the 2008 election, the near-symmetry in the results here strongly suggests that procurement contracts were shifted from political donors of ODS towards political donors of CSSD after the latter party took control of all Czech regional governments.

TABLE 5 HERE

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).¹⁵ This table – which returns to estimating the effect of an additional dollar donated (Tables 3 and 4) rather than the effect of being politically connected via donations (Table 5) – follows the same format as Table

¹³This alternative estimation approach is in line with earlier work on the socio-economic effects of firms' political connections as measured by, for instance, board memberships or personal ties (e.g., Goldman et al., 2013). The focus here thus is on the change in the value of procurement contracts awarded to firms connected via donations to CSSD (rather than ODS) around the 2008 regional elections.

¹⁴The effect sizes are calculated as $\exp(-0.552) - 1$ and $\exp(-0.571) - 1$, respectively. The same formula is used throughout the description of this table.

¹⁵This analysis of the 2012 elections also helps mitigate potential concerns that our results in Tables 4 and 5 might be affected by the severe economic downturn hitting the Czech Republic in 2008-2009. GDP growth rates indeed 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.

4. The only difference in the underlying specification is that *After Shift In Power* now is an indicator variable equal to 1 in the period after the 2012 regional elections (0 in the period prior 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.¹⁶ 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 this firms’ procurement contracts by approximately 0.5% before the 2012 regional elections (in line with the effect size observed in Table 4). However, after the party loses a significant amount of 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 our 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.¹⁷ Even so, auxiliary difference-in-difference-in-difference models presented in section C of the Online Appendix illustrate that the general mitigation in the effect of donations to CSSD on the value of firms’ procurement contracts after 2012 is significantly stronger in regions where CSSD effectively lost control of the *Hejtman*. That is, the effect of donations to CSSD on procurement contracts in regions where this party loses power after 2012 is significantly negative, while it is not significantly different from zero (though still negative) in regions where the party hung on to power after 2012. Hence, consistent with our theoretical arguments, the observed changes in donations’ effects on firms’ procurement contracts around the 2012 elections are fully concentrated in the regions with a shift in power.¹⁸ Finally, it is important to note that lack of data prior to 2007 prevented us from testing the parallel trends assumption in Tables 4 and 5. Yet, the results obtained in these tables 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 the casual nature of our inferences at this point.

4.2. Heterogeneity across firms and contract types

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 two important potential sources

¹⁶This is confirmed when adding separate variables for *DonationsODS* and its interaction with *After Shift In Power*. Both variables remain statistically insignificant.

¹⁷It 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%.

¹⁸As there is only one region without a change in *Hejtman* in 2008, we could not implement a similar extension for the 2008 regional elections analysed above.

of heterogeneity in this donation-procurement relation: *i*) firm’s previous procurement experience, and *ii*) politicians’ discretionary power.

4.2.1. *The role of procurement experience*

From a theoretical perspective, firms with previous procurement experience might be expected to yield a greater return from their political donations for two related reasons. First, such firms have already built up relations to politicians via their procurement experience and this can establish mutual trust. Such existing network ties are likely to benefit corporate donations’ ability to open doors and provide further access to politicians (Langbein, 1986). Second, past contracting experience helps build the “perception that the contractor can meet technical program needs” (Witko, 2011, p. 675). This may be more than just a perception, as Coviello et al. (2017, p. 5) find strong evidence that “contractors who have won in the past systematically deliver current works faster”. Such reputational considerations are particularly relevant when – as is the case in most procurement contracts – important quality aspects of goods and services cannot easily be explicitly contracted ex-ante or evaluated ex-post (Spagnolo, 2012). Firm-specific reputation can then make it easier for politicians favouring a given firm (e.g., because it is a donor to the party) to intervene in the allocation process to the donating firm’s advantage. Firm-specific reputation and mutual trust gained from previous procurement experience thus are likely to increase the impact of corporate donations on (the outcome of) public procurement processes.

To assess this hypothesis, we split our sample into frequent and infrequent suppliers. The former are defined as firms that for every year in the 2007-2014 period were awarded at least one procurement contract from any region in the two years preceding the year of observation. Hence, we implement a moving two-year window over the procurement time series, and set *FrequentSuppliers* equal to 1 for any firm that consistently obtains at least one procurement contract at any stage of this moving window. All other firms are designated as infrequent suppliers. Table 7 presents results from a replication of the results in Table 3 on the subsets of frequent suppliers (columns (1) and (2)) and infrequent suppliers (columns (3) and (4)). Once again, we provide separate results for the public procurement contracts awarded directly by the 13 Czech regions (columns (1) and (3)) and the extension including contracts awarded via any companies owned by the Czech regions (columns (2) and (4)).

TABLE 7 HERE

The results in Table 7 confirm that donations from frequent suppliers (compared to donations from infrequent suppliers) show a stronger association with the value of public procurement contracts awarded in the following year. This is true in statistical terms since the estimated coefficient for infrequent suppliers remains statistically insignificant, whereas the estimated coefficient for frequent suppliers is statistically significant beyond the 90% confidence level. It also holds in substantive terms since the estimated effect size for frequent suppliers is much larger than that for infrequent suppliers.¹⁹ As such, it appears that the return

¹⁹Table B.2 in the Online Appendix shows that similar results are observed when analysing the complete sample and adding an interaction between lagged donations and *FrequentSuppliers*. Moreover, the effects from shifts in political power observed in Table 4 are likewise entirely concentrated among the subsample of frequent suppliers (see Table B.3 in the Online Appendix).

on donations accrues predominantly to firms with previous procurement experience. This is consistent with the idea that building and maintaining working relationships with politicians is likely to pay off for firms. Nonetheless, it might also be that donations are only considered profitable by firms that are efficient at fulfilling contracts. If so, our results might reflect the existence of two sets of firms: i.e. ‘competent’ firms that give donations to help them get the next contract, and ‘incompetent’ firms that rationally abstain from donating and generally do not receive contracts.

4.2.2. The role of politicians’ discretionary power

A second potential source of heterogeneity in the donation-procurement relation links to the discretionary power of politicians in the public procurement allocation procedure. 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 political actors’ 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 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 politicians’ discretion – and thus their decision-making power – is larger. The legislative framework in the Czech Republic allows testing this proposition, since it provides a considerable range of evaluation criteria and allocation procedures available to public authorities. These procedural aspects can vary substantially in terms of the restrictiveness and public visibility they impose.

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 decision 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, politicians interested in favouring their 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 Coviello et al., 2017; Palguta and Pertold, 2017). Procedural restrictions are more stringent for contracts with a total value exceeding 4,997,000 CZK (circa \$200,000) – or 20 million CZK in case of construction works (circa \$800,000). 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 and the negotiated procedure without publication. 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 8 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 whose value exceeds this limit (columns (3) and (4)).

TABLE 8 HERE

The results in Table 8 consistently corroborate that higher political discretion in the allocation procedure benefits politicians interested in favouring their donor firms. 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 C.4 in the Online Appendix furthermore illustrates that the effects from shifts in political power – as documented in table 4 – predominantly arise among the two types of allocation procedures with more extensive political discretion. Overall, therefore, our findings provide strong support for the proposition that political discretion increases the value of firms’ political donations in procurement allocation processes.

4.3. Robustness checks

While our difference-in-differences approach exploiting shifts in political power is helpful for the identification of causal effects (Cingano and Pinotti, 2013; Goldman et al., 2013; Boas et al., 2014), this section first of all provides a further assessment of the direction of causality in our results. This 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 9, where the dependent variable is the level of donations to the party in power by firm i at time 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). The findings confirm that firms do not appear to significantly change their political donation behaviour after they received their first public procurement contract. This is reassuring since it affirms that there is no strong relationship running from procurement contracts to donations. Rather, it appears that firms’ donations come first and procurement contracts arrive subsequently.

TABLE 9 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 five main 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 4 (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, 2017), the impact of political donations on public procurement contracts has not been comprehensively explored. Based on a theoretical framework where monopolistically competing firms establish connections with regional politicians via political contributions, we hypothesize that donating firms might enjoy preferential treatment in public procurement competitions. Using a novel and comprehensive dataset of public procurement contracts, political campaign contributions and firm-level information from the Czech Republic, we show that firms’ contributions to the political party in power are linked to a higher total value of public procurement contracts in the following year. Moreover, *changes* in parties’ political power influence politically connected firms’ procurement success – which we document for two separate instances of election-induced shifts in the power composition of Czech regional governments. The observed effects are particularly strong among firms that supply contracts repeatedly, which is in line with theoretical work stressing the importance of reputational mechanisms in procurement (Spagnolo, 2012). 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 politicians’ discretionary power in the procurement allocation process (Spagnolo, 2012; Coviello and

²⁰For 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.

Mariniello, 2014; Coviello et al., 2017; Palguta and Pertold, 2017).

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 also remain relatively small, with the largest donation accounting for ‘only’ 35 million CZK (circa \$1.4 million). This is reminiscent of the traditional question raised about the remarkable absence of more money in US politics (Ansolabehere et al., 2003), and 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 (as documented in Table 5). 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).

Finally, from a policy perspective, 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) (Coviello et al., 2017; Palguta and Pertold, 2017). 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 substantia (see, for instance, Cingano and Pinotti, 2013; Fisman and Wang, 2015).

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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. Values of donations are in CZK, while values of procurement contracts and firm revenues are in thousands of CZK. *Source:* Authors.

Table 3: Baseline results using panel fixed effects estimation on full sample.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Contracts to Regions			Contracts to Regions and Subsidiaries		
Donations	0.011 (0.009)			0.004 (0.009)		
Lagged Donations		0.041*** (0.015)	0.049*** (0.015)		0.034** (0.015)	0.037** (0.016)
Revenue		0.153*** (0.018)			0.191*** (0.022)	
Lagged Revenue			0.070*** (0.018)			0.062*** (0.020)
Observations	137,480	48,451	47,794	137,480	48,451	47,794
R-squared	0.002	0.003	0.002	0.002	0.004	0.002
Number of firms	17,185	10,481	10,457	17,185	10,481	10,457
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 at time 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. The main explanatory variable *Donations* is the (log) sum of all contributions 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 at time t . 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 4: Difference-in-differences results exploiting the 2008 shift in regional power.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	FE	FE	FE	FE	FE	FE
	Contracts to Regions			Contracts to Regions and Subsidiaries		
Lagged Donations ODS	0.041 (0.038)	0.039 (0.035)	0.038 (0.035)	0.021** (0.010)	0.041 (0.038)	0.041 (0.038)
Lagged Donations CSSD	-0.044 (0.058)	-0.015 (0.033)	-0.015 (0.032)	0.011 (0.014)	-0.044 (0.058)	-0.044 (0.058)
After Shift In Power	0.137* (0.078)	0.103 (0.071)	0.097 (0.071)	0.227*** (0.024)	0.141* (0.078)	0.137* (0.078)
Lagged Donations ODS * After Shift In Power	-0.030 (0.039)	-0.026 (0.035)	-0.026 (0.035)	-0.020* (0.012)	-0.030 (0.039)	-0.030 (0.039)
Lagged Donations CSSD * After Shift In Power	0.090 (0.062)	0.068* (0.040)	0.068* (0.040)	0.054* (0.028)	0.090 (0.063)	0.090 (0.062)
Lagged Revenue			0.053*** (0.019)			0.036 (0.024)
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

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The dependent variable is the (log) total value of public procurement contracts of firm i at time 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. *DonationsCSSD* and *DonationsODS* reflect the (log) sum of all contributions 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 at time 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. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Difference-in-differences results focusing on firms connected via donations to ODS or CSSD.

VARIABLES	(1) Contracts Supplied to Regions	(2) Contracts Supplied to Regions	(3) Contracts Supplied to Regions and Subsidiaries	(4) Contracts Supplied to Regions and Subsidiaries
After Shift In Power	-0.552*** (0.109)	-0.571*** (0.094)	-0.554*** (0.109)	-0.572*** (0.094)
Donated to CSSD	0.206 (0.355)	0.197 (0.302)	-0.309 (0.421)	-0.311 (0.307)
Donated to CSSD * After Shift In Power	0.943** (0.439)	1.057*** (0.400)	1.308** (0.620)	1.402** (0.571)
Lagged Revenue	0.513*** (0.032)	0.436*** (0.029)	0.507*** (0.033)	0.431*** (0.029)
Observations	1,025	1,432	977	1,384
R-squared	0.288	0.227	0.279	0.217

Notes: The dependent variable is the (log) total value of public procurement contracts of firm i at time 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. *Donated to CSSD* is a dummy variable equal to 1 if a firm ever donated to CSSD (0 if it only ever donated to ODS), 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). *LaggedRevenue* is the one-year lag of the (log) total amount of revenues of firm i at time t . Standard errors clustered at the firm level are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

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

VARIABLES	(1)	(2)	(3)	(4)
	Contracts Supplied to Regions	Contracts Supplied to Regions	Contracts Supplied to Regions	ans Subsidiaries
Lagged Donations CSSD	0.057** (0.028)	0.051* (0.029)	0.054* (0.028)	0.045 (0.030)
After Shift In Power	0.067*** (0.025)	0.248*** (0.041)	0.066** (0.027)	0.243*** (0.046)
Lagged Donations CSSD * After Shift In Power	-0.057** (0.027)	-0.064** (0.028)	-0.074** (0.035)	-0.074** (0.031)
Lagged Revenue		0.067*** (0.019)		0.059*** (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 at time 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. *DonationsODS* reflects the (log) sum of all contributions 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 at time t . 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 7: Results using panel fixed effects estimation on sub-samples of frequent and infrequent suppliers.

VARIABLES	(1)	(2)	(3)	(4)
	Contracts to Regions	Contracts to Regions and Subsidiaries	Contracts to Regions	Contracts to Regions and Subsidiaries
	FREQUENT SUPPLIERS		INFREQUENT SUPPLIERS	
Lagged Donations	0.120*** (0.041)	0.085* (0.044)	0.007 (0.007)	0.005 (0.007)
Lagged Revenue	0.056 (0.039)	0.044 (0.043)	0.042** (0.015)	0.032* (0.019)
Observations	24,241	24,241	23,553	23,553
R-squared	0.007	0.007	0.006	0.007
Number of firms	5,181	5,181	5,276	5,276
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 at time 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. Frequent suppliers (in columns (1) and (2)) are defined as firms that for every year in 2007-2014 period were awarded at least one procurement contract from any region in the two years preceding the year of observation. All other firms are designated as infrequent suppliers (in columns (3) and (4)). The main explanatory variable *Donations* is the (log) sum of all contributions 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 at time t . 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 8: 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** (0.014)	0.026* (0.014)	0.017 (0.013)	0.010 (0.014)
Lagged Revenue	0.018 (0.015)	0.009 (0.016)	0.058*** (0.014)	0.066*** (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*** (0.015)	0.032** (0.015)	0.006 (0.007)	0.003 (0.007)
Lagged Revenue	0.073*** (0.016)	0.074*** (0.016)	0.001 (0.012)	-0.007 (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 at time 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 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 at time t . 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 for the effect of firms' first procurement contract on party donations.

VARIABLES	(1) FE Donations
First Contract	0.017 (0.023)
Observations	16,024
Number of firms	2,003
R-squared	0.008
Firm FE	YES
Year FE	YES

Notes: The dependent variable *Donations* is the (log) sum of all contributions from firm i at time t to the party in power in the regional governments (i.e. ODS up to 2008 and CSSD afterwards). The main explanatory variable *FirstContract* is an indicator variable equal to 1 in the period following a firm's first public procurement contract (0 otherwise). Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix A. Derivation of the equilibrium and our empirical specification

Regional governments are assumed to maximize their utility as given in equation (3) subject to the following budget constraint:

$$\int_I P_i Q_i di = E \quad (\text{A.1})$$

The first order conditions (FOCs) with respect to Q_i of the associated maximization problem yields:

$$\lambda P_i = \left(\int_I B_i^{\frac{1}{\sigma}} Q_i^{\frac{\sigma-1}{\sigma}} di \right)^{\frac{1}{\sigma-1}} B_i^{\frac{1}{\sigma}} Q_i^{-\frac{1}{\sigma}} \quad (\text{A.2})$$

In equilibrium, this equality evidently has to hold for every firm i in I . Taking the FOCs with respect to Q_i and $Q_{i'}$, and diving them by each other, we obtain:

$$\frac{P_i}{P_{i'}} = \left(\frac{B_i}{B_{i'}} \right)^{\frac{1}{\sigma}} \left(\frac{Q_i}{Q_{i'}} \right)^{-\frac{1}{\sigma}}$$

This is equivalent to:

$$Q_i = \left(\frac{P_{i'}}{P_i} \right)^{\sigma} \frac{B_i}{B_{i'}} Q_{i'} \quad (\text{A.3})$$

In order to derive the aggregate demand for each firm i , we first plug equation (A.3) into the budget constraint (A.1). This yields:

$$\int_I P_i \left(\frac{P_{i'}}{P_i} \right)^{\sigma} \left(\frac{B_i}{B_{i'}} \right) Q_{i'} di = E$$

Simple rewriting of this equation and plugging the result back into equation (A.3) brings us to an expression representing the aggregate demand Q_i for each variety i :

$$Q_i = P_i^{-\sigma} \left(\frac{B_i E}{\int_I B_i P_i^{1-\sigma} di} \right) \quad (\text{A.4})$$

Before deriving the firm's revenues from public procurement contracts, we now first have to find the equilibrium price allowing firms to maximize their profits. This can be derived by setting up the firm's profit maximization problem:

$$\max_{P_i} P_i Q_i - Q_i \frac{\omega}{A_i} \quad (\text{A.5})$$

where $\frac{\omega}{A_i}$ is a firm-specific marginal cost. The FOC with respect to P_i is given by:

$$\begin{aligned} Q_i + P_i \frac{\partial Q_i}{\partial P_i} - \frac{\partial Q_i}{\partial P_i} \frac{\omega}{A_i} &= 0 \\ \Leftrightarrow 1 + \frac{P_i}{Q_i} \frac{\partial Q_i}{\partial P_i} - \frac{\omega}{A_i} \frac{P_i}{Q_i} \frac{\partial Q_i}{\partial P_i} &= 0 \end{aligned} \quad (\text{A.6})$$

Using the fact that the elasticity of substitution among varieties for our CES utility function is equal to σ (i.e. $\sigma = -\frac{P_i}{Q_i} \frac{\partial Q_i}{\partial P_i}$), we can write (A.6) as:

$$P_i = \frac{\sigma}{\sigma - 1} \frac{\omega}{A_i} \quad (\text{A.7})$$

Hence, the equilibrium price set by each firm i equals a mark-up over its marginal cost ($\frac{\omega}{A_i}$).

Equations (A.4) and (A.7) jointly determine the firms' level of revenues ($P_i Q_i$). Hence, we can use them to write firms' revenues from public procurement contracts as:

$$ProcurementValue_i = P_i Q_i = \left(\frac{\sigma \omega}{\sigma - 1} \right)^{1-\sigma} A_i^{\sigma-1} \left[B_i \left(\frac{E}{\int_I B_i P_i^{1-\sigma} di} \right) \right] \quad (\text{A.8})$$

Log-linearizing equation (A.8) yields:

$$\begin{aligned} \log(ProcurementValue_i) &= (1 - \sigma) \log \left(\frac{\sigma \omega}{\sigma - 1} \right) + \\ &(\sigma - 1) \log(A_i) + \log(B_i) + \log(E) - \log \left(\int_I B_i P_i^{1-\sigma} di \right) \end{aligned} \quad (\text{A.9})$$

Replacing $\log(B_i)$ in equation (A.9) with the expression provided in equation (5) immediately generates our baseline empirical specification as stated in equation (6).²¹

²¹Note that $\int_I B_i P_i^{1-\sigma} di$ is just a constant (specifically representing the firms' price level).

Online appendix

Political Donations and the Allocation of Public Procurement Contracts

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Validity checks and robustness analysis

This online appendix summarizes the results of several validity checks regarding assumptions underlying our analysis as well as a number of robustness tests and extensions. Starting with the former in Appendix A, the interpretation of our main results requires that firms do not have a predisposition to channel donations towards ideologically congruent parties representing their industry’s interests. Implementation of this party’s major spending priorities after an electoral victory would then be beneficial to the donating firm without reflecting any form of preferential treatment. In order to exclude this concern, we evaluated the year-by-year distribution of procurement allocations across five main policy sectors over the period 2007-2014. Ideally, these should show no clear shifts following the 2008 and 2012 regional elections mirroring the rise and fall of CSSD’s power at the regional level. Figure A.1 indicates that this is the case. There is 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.

Another key assumption underlying our identification strategy (particularly in Tables 4 and 6 in the main text) is that firms do not adjust their donations towards the (expected) future winner of the regional elections. This would violate the random assignment of firms to the treatment (i.e. gain/loss of power for the party receiving its donations) and lead to biased inferences. Figure A.2 provides evidence that such winner-targeting strategy appears absent from firm donations – i.e. 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).

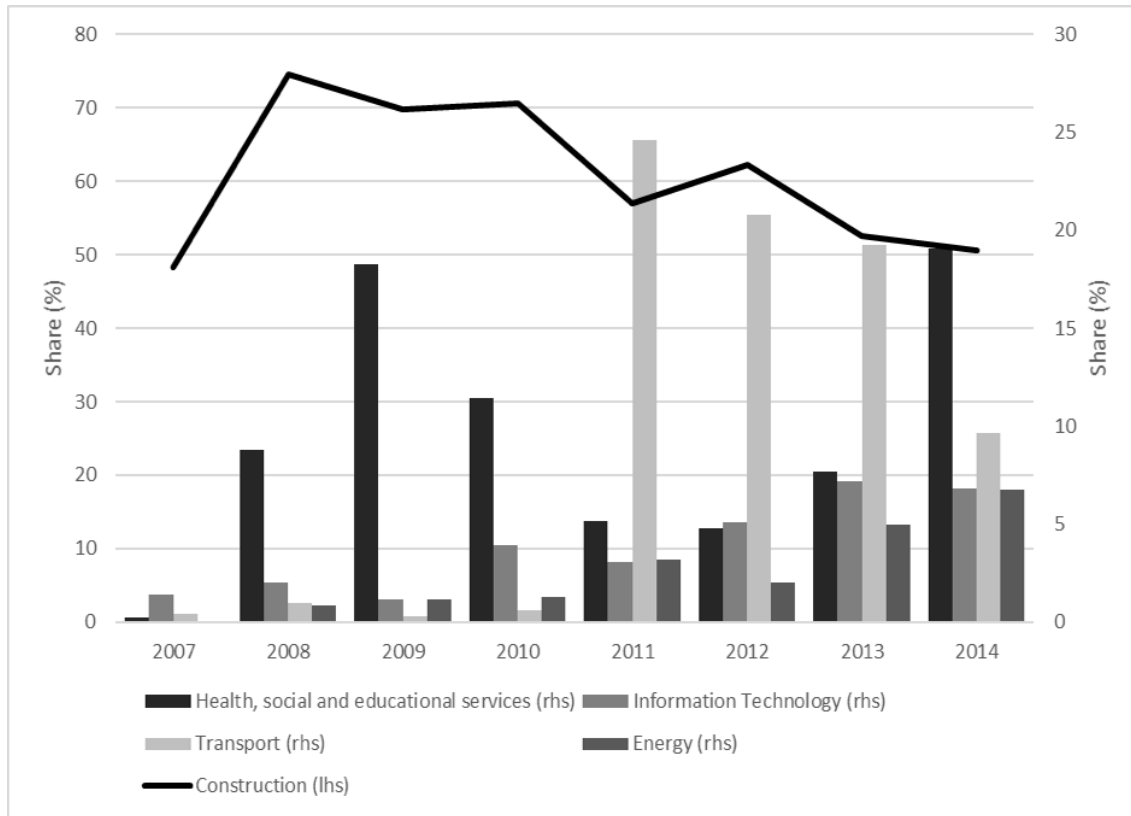
In Appendix B, we turn to a first set of robustness checks and extensions. Table B.1 implements a placebo check for a year where no elections nor a change in power occurs at any level of government (i.e. 2011). This shows that the coefficient on our central interaction terms remain statistically insignificant. The effects observed in the main text thus appear driven by the shifts in political power in 2008 and 2012, rather than some recurrent effects arising in every year. Then, Tables B.2, B.3 and B.4 show that our results on the heterogeneous effects of corporate donations are robust to using difference-in-differences estimations. Table B.2 indicates that the effect of donations on the value of contracts is much larger for frequent suppliers than for infrequent suppliers. Tables B.3 and B.4 show that the effect from shifts in political power on the procurement-donation relation is entirely concentrated among frequent suppliers and allocation procedures with larger political discretion, respectively.

Finally, Appendix C moves the level of observation from the firm-year level (employed in the main text) to the firm-region-year level. Although ODS or CSSD always deliver the vast majority of *Hejtman*, five different parties hold *Hejtman* positions in our observation period (see Table 1 in the main text). Hence, moving to the firm-region-year level allows exploiting additional variation concerning the party in power across regions by further specifying donations to the party in power *in a given region*. Table C.5 replicates the results from our baseline specification (Table 3) at this level of observation. The findings confirm our baseline results that donations are statistically significantly related to higher public procurement revenues. More importantly, Table C.6 implements a difference-in-difference-in-difference model comparing the effect of donations before/after a regional shift in power depending on whether or not a specific region witnesses a shift in power.¹ The two-way interaction *Lagged Donations CSSD * After Shift In Power* as well as the three-way interaction *Lagged Donations CSSD * After Shift In Power * Shift in Power* are the key variables of interest. Both coefficient estimates are negative and statistically significant at conventional levels. This implies that although there is a general mitigation in the effect of donations to CSSD on the value of firms’ procurement contracts after 2012, this mitigation is stronger in the regions where there is an actual shift in power. Wald tests further illustrate that the sum of all three donations variables ($0.0041 - 0.0089 - 0.0136 = -0.0184$) is statistically significantly different from zero at 90% confidence or better in all specifications. The effect of donations to CSSD on procurement contracts in regions where this party loses power after 2012 thus is significantly negative – in line with our theoretical expectations. In contrast, the effect of donations to CSSD on procurement contracts after 2012 in regions without a change in power ($0.0041 - 0.0089 = -0.0048$) is never significantly different from zero. Hence, the observed changes in donations effects around the 2012 elections are fully concentrated in the regions with a shift in power.

¹Note 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). This limited number of regions without shifts in power in 2008 is also the reason why we employ firm-year observations in the main text.

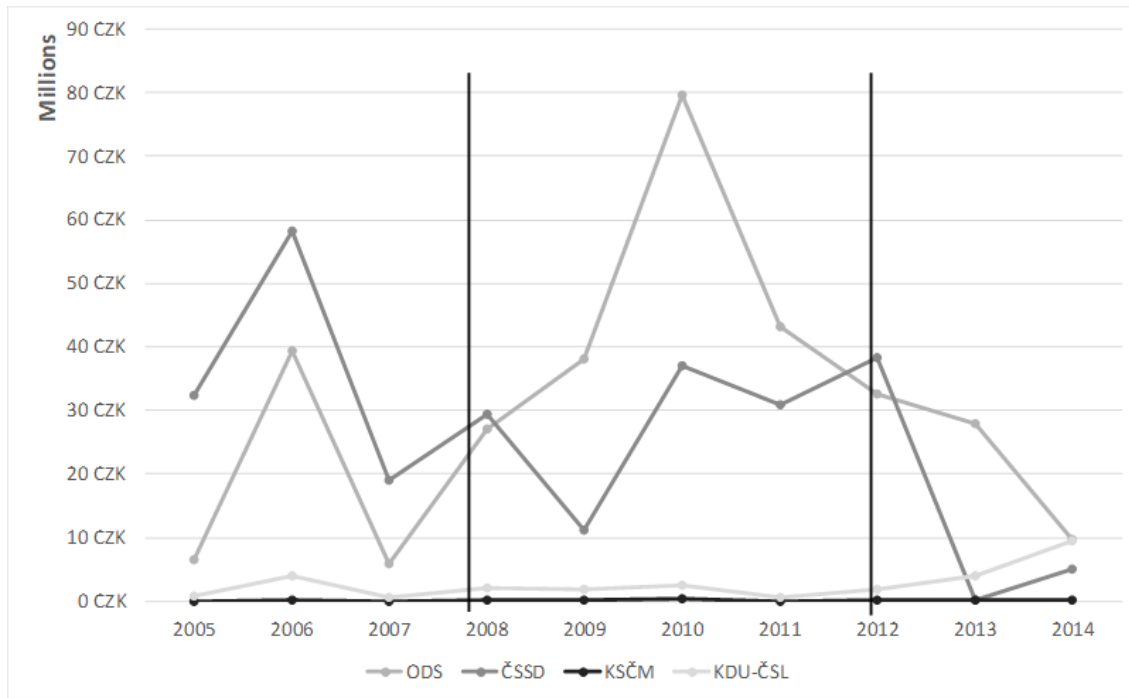
Appendix A. Validity checks

Figure A.1: Development of procurement allocation shares for five main procurement areas, 2007–2014



Notes: The figure depicts the share of procurement allocation expenditures for five main policy areas over the period 2007-2014. The sharp increase in transport spending starting in 2011 is linked to the implementation in 2009 of a new European regulation on public passenger transport services (EC Regulation 1370/2007). Source: Own calculations.

Figure A.2: Development of donations to major political parties, 2005–2014



Notes: The figure shows how the values of donations to major political parties evolved in the period from 2005 to 2014. Two black vertical lines mark the regional elections years 2008 and 2012. The figure shows that firms did not give more donations to the future winner just before the regional elections. This is important since it means that selection to treatment is random. Note that the visible spikes in years 2006 and 2010 are the Czech parliamentary elections. Source: Own calculations.

Appendix B. Robustness checks and extensions

Table B.1: Difference-in-differences results where *After Shift In Power* is set to 2011

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	FE	FE	FE	FE	FE	FE
	Contracts to Regions			Contracts to Regions and Subsidiaries		
Lagged Donations ODS	0.00731 (0.00522)	0.0161* (0.00905)	0.0158* (0.00905)	0.00920* (0.00553)	0.0158* (0.00944)	0.0157* (0.00944)
Lagged Donations CSSD	0.0382** (0.0160)	0.0425 (0.0298)	0.0425 (0.0298)	0.0329** (0.0167)	0.0375 (0.0306)	0.0375 (0.0306)
After Shift In Power	0.170*** (0.0216)	0.170*** (0.0657)	0.166** (0.0656)	0.222*** (0.0240)	0.209*** (0.0732)	0.207*** (0.0731)
Lagged Donations ODS * After Shift In Power	-0.00544 (0.0129)	-0.0118 (0.0205)	-0.0121 (0.0205)	-0.0117 (0.0126)	-0.0178 (0.0193)	-0.0181 (0.0193)
Lagged Donations CSSD * After Shift In Power	0.152 (0.121)	0.0439 (0.116)	0.0445 (0.116)	0.130 (0.126)	0.00194 (0.132)	0.00236 (0.132)
Lagged Revenue			0.0530*** (0.0191)			0.0366 (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 at time 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. *DonationsCSSD* and *DonationsODS* reflect the (log) sum of all contributions to those parties, while *After Shift In Power* is an indicator variable equal to 0 in the period prior to the 2011 (1 in the period after 2011). *Lagged Revenue* is the one-year lag of the (log) total amount of revenues of firm i at time 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table B.2: Full-sample results using a dummy for differentiating frequent and infrequent suppliers

VARIABLES	(1)	(2)
	FE	FE
	Contracts to Regions	Contracts to Regions and Subsidiaries
Lagged Donations	0.0178*** (0.00662)	0.0187*** (0.00682)
Lagged Donations * Dummy Frequent Supplier	0.0912** (0.0417)	0.0525 (0.0437)
Lagged Revenue	0.0708*** (0.0180)	0.0626*** (0.0204)
Observations	47,794	47,794
R-squared	0.003	0.002
Number of firms	10,457	10,457
Firm FE	YES	YES
Year FE	YES	YES

Notes: The dependent variable is the (log) total value of public procurement contracts of firm i at time t . Column (1) analyzes all contracts awarded by the 13 Czech regions, while column (2) includes contracts awarded via any companies owned by the Czech regions. Frequent suppliers are defined as firms that for every year in 2007-2014 period were awarded at least one procurement contract from any region in the two years preceding the year of observation (*Dummy Frequent Supplier* = 1). All other firms are designated as infrequent suppliers (*Dummy Frequent Supplier* = 0). *Donations* is the (log) sum of all contributions 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 at time t . Year and firm fixed effects are included throughout. Note that the *Dummy Frequent Supplier* is omitted since firm fixed effects are included. Standard errors clustered at the firm level are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table B.3: Difference-in-differences estimation on sub-samples of frequent and infrequent suppliers (cf. Table 4).

VARIABLES	(1)	(2)	(3)	(4)
	Contracts to Regions	Contracts to Regions and Subsidiaries	Contracts to Regions	Contracts to Regions and Subsidiaries
	FREQUENT SUPPLIERS		INFREQUENT SUPPLIERS	
Lagged Donations ODS	0.105 (0.0977)	0.0777 (0.102)	0.00321 (0.00638)	0.0219 (0.0189)
Lagged Donations CSSD	-0.0919 (0.120)	-0.177 (0.201)	0.00252 (0.00343)	-0.00135 (0.00650)
Lagged Donations ODS * After Shift In Power	-0.0682 (0.0978)	-0.0472 (0.102)	-0.00126 (0.00656)	-0.0199 (0.0198)
Lagged Donations CSSD * After Shift In Power	0.234* (0.132)	0.302 (0.208)	-0.0111* (0.00584)	-0.00791 (0.00824)
Lagged Revenue	0.0664 (0.0426)	0.0549 (0.0477)	0.0198 (0.0132)	-0.00896 (0.0238)
Observations	18,612	18,612	18,381	18,381
R-squared	0.003	0.004	0.004	0.005
Number of firms	5,059	5,059	5,171	5,171
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 at time 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. Frequent suppliers (in columns (1) and (2)) are defined as firms that for every year in 2007-2014 period were awarded at least one procurement contract from any region in the two years preceding the year of observation. All other firms are designated as infrequent suppliers (in columns (3) and (4)). *DonationsCSSD* and *DonationsODS* reflect the (log) sum of all contributions to those parties, while *After Shift In Power* is an indicator variable equal to 0 in the period prior to the 2008 (1 in the period after 2008). *Lagged Revenue* is the one-year lag of the (log) total amount of revenues of firm i at time t . 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 B.4: Difference-in-differences estimation on sub-samples with different procurement allocation processes (cf. Table 4).

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 ODS	-0.000679 (0.0316)	0.0120 (0.0337)	0.0231 (0.0287)	0.0143 (0.0301)
Lagged Donations CSSD	-0.0135 (0.0301)	-0.0184 (0.0310)	0.0102 (0.0136)	-0.0149 (0.0312)
After Shift In Power	0.0589 (0.0599)	0.113* (0.0667)	-0.0124 (0.0547)	-0.0233 (0.0578)
Lagged Donations ODS * After Shift In Power	0.00970 (0.0321)	-0.00544 (0.0344)	-0.0174 (0.0286)	-0.00597 (0.0300)
Lagged Donations CSSD * After Shift In Power	0.0601* (0.0350)	0.0594* (0.0356)	0.0287 (0.0269)	0.0466 (0.0393)
Lagged Revenue	0.0160 (0.0158)	0.00272 (0.0181)	0.0409*** (0.0143)	0.0478** (0.0191)
Observations	36,993	36,993	36,993	36,993
R-squared	0.001	0.001	0.002	0.003
Number of firms	10,230	10,230	10,230	10,230
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Panel II				
	BELOW THRESHOLD		ABOVE THRESHOLD	
Lagged Donations ODS	0.0325 (0.0349)	0.0317 (0.0349)	-0.00785 (0.0134)	-0.000187 (0.0181)
Lagged Donations CSSD	-0.0231 (0.0315)	-0.0248 (0.0314)	0.0121 (0.00853)	-0.0200 (0.0291)
After Shift In Power	0.0515 (0.0673)	0.0413 (0.0676)	0.0781*** (0.0265)	0.0684* (0.0372)
Lagged Donations ODS * After Shift In Power	-0.0237 (0.0349)	-0.0243 (0.0350)	0.0107 (0.0123)	0.00261 (0.0176)
Lagged Donations CSSD * After Shift In Power	0.0588 (0.0380)	0.0539 (0.0386)	-0.0110 (0.0211)	0.0208 (0.0345)
Lagged Revenue	0.0504*** (0.0172)	0.0480*** (0.0175)	0.00284 (0.0108)	-0.00958 (0.0136)
Observations	36,993	36,993	36,993	36,993
R-squared	0.001	0.001	0.001	0.001
Number of firms	10,230	10,230	10,230	10,230
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 at time 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)). *DonationsCSSD* and *DonationsODS* reflect the (log) sum of all contributions to those parties, while *After Shift In Power* is an indicator variable equal to 0 in the period prior to the 2008 (1 in the period after 2008). *Lagged Revenue* is the one-year lag of the (log) total amount of revenues of firm i at time t . Year and firm fixed effects are included throughout. Standard errors clustered at the firm level are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix C. Extensions using observations at firm-region-year level

Table C.5: Baseline specification using firm-region-year observations (cf. Table 3).

VARIABLES	(1) FE Contracts to Regions	(2) FE Contracts to Regions and Subsidiaries	(3) FE Contracts to Regions	(4) FE Contracts to Regions and Subsidiaries	(5) FE	(6) FE
Lagged Donations	0.00186* (0.00103)	0.00442*** (0.00154) 0.0117*** (0.00266)	0.00653*** (0.00180)	0.00212* (0.00112)	0.00461*** (0.00165) 0.0157*** (0.00321)	0.00653*** (0.00196)
Revenue						
Lagged Revenue			0.00866*** (0.00274)		0.00711** (0.00336)	
Observations	406,671	127,891	127,891	406,671	127,891	127,891
R-squared	0.001	0.001	0.001	0.001	0.001	0.001
Number of firm-regions	50,834	30,199	30,199	50,834	30,199	30,199
Firm-region 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 at time t from region r . 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. The main explanatory variable *Lagged Donations* is the (log) sum of all contributions to the party in power in the regional government. *Revenue* is the (log) total amount of revenues of firm i at time t . Year and firm-region 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 C.6: Difference-in-differences-in-differences results exploiting the 2012 shift in regional power (cf. Table 6).

VARIABLES	(1)	(2)	(3)	(4)
	FE	FE	FE	FE
	Contracts to Regions		Contracts to Regions and Subsidiaries	
Lagged Donations CSSD	0.00405 (0.00387)	0.00405 (0.00368)	0.00427 (0.00392)	0.00427 (0.00378)
After Shift In Power	0.237*** (0.0659)	0.237*** (0.0585)	0.318*** (0.0808)	0.318*** (0.0657)
Shift in Power	0.0503 (0.0408)	0.0503 (0.0417)	0.120** (0.0476)	0.120** (0.0489)
Lagged Donations *	-0.00888** (0.00406)	-0.00888** (0.00432)	-0.0106** (0.00459)	-0.0106** (0.00466)
After Shift In Power	-0.0136* (0.00755)	-0.0136* (0.00777)	-0.0184** (0.00818)	-0.0184** (0.00824)
Lagged Donations				
* After Shift In Power * Shift in Power	0.00902*** (0.00274)	0.00902*** (0.00261)	0.00751** (0.00336)	0.00751** (0.00321)
Lagged Revenues				
Observations	127,891	127,891	127,891	127,891
R-squared	0.001	0.001	0.001	0.001
Number of firm-regions	30,199	30,199	30,199	30,199
Firm-region FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Clustered standard errors	Firm	Firm-Region	Firm	Firm-Region

Notes: The dependent variable is the (log) total value of public procurement contracts of firm i at time t from region r . 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. *DonationsCSSD* reflects the (log) sum of all contributions 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). *Shift in Power* is a dummy variable equal to 1 for those regions where the party in power changed in the 2012 regional elections (0 otherwise). *Lagged Revenue* is the one-year lag of the (log) total amount of revenues of firm i at time t . Year and firm-region fixed effects are included throughout (which causes the interactions *Lagged DonationsCSSD*Shift in Power* and *After Shift In Power*Shift in Power* to be omitted because of collinearity). Standard errors in parentheses are clustered at the firm level in Columns (1) and (3) or the firm-region level in Columns (2) and (4). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$