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Institutional quality, campaign contributions, and favouritism in US federal government contracting

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Abstract

The corrupting power of money in US politics has long been debated with emerging evidence pointing out that campaign contributions help funnel money to politically connected companies. However, it is yet unclear how exactly such mechanisms might work and what are the curbs on politically driven contracting. To address these gaps we compile the full dataset of published federal contracts and registered campaign contributions for 2004-2015, linked to each other on the company level. We develop corruption risk indices in government contracting which capture tendering practices and outcomes potentially characterised by favouritism. Using contract-level regression models with a wide range of fixed effects, we find that a large increase in donations going from 1 thousand USD to 1 million USD increases risks by a little over one tenth of a red flag on a 0-7 red flag scale. The effects are largely partisan, that is donating to the governing party matters the most. Moreover, company donations can influence tendering corruption risks most where the federal agency has a low baseline institutional quality: in such cases, large donations to the president's party (749,000 USD or more) add 2.6 red flags.



1. Introduction

When the 2018 Federal Budget Bill (Appendix, Budget of the U.S. Government, Fiscal Year 2018, 728 (a)) stated that “None of the funds made available in this or any other Act may be used to recommend or require any entity submitting an offer for a Federal contract to disclose any of the following information as a condition of submitting the offer: (1) Any payment consisting of a contribution, expenditure, independent expenditure, or disbursement for an electioneering communication...” it is hard to escape the suspicion that the legislative intent is to hide the links between companies’ campaign contributions and federal contracts they win. This suspicion is yet more disturbing given numerous scandals of potential corruption in federal contracting linked to campaign contributions and other forms of influencing high-level decision makers; consider for example the 300 million USD Puerto Rico electricity grid reconstruction contract awarded to a company with only 2 full-time employees⁴, but with an owner heavily supporting the Trump presidential campaign⁵.

In fact, the corrupting effect of money in elections has long been debated, in particular in the US where legal battles, intensive media attention, and extensive scholarship have all provided evidence for either side of the debate (Ansolabehere, de Figueiredo, & Snyder, 2003). There is now mounting evidence that companies donating to federal election campaigns win more contracts (Bromberg, 2014), receive favourable sentences (Fulmer & Knill, 2013) or beneficial regulation (McKay, 2018). Moreover, other forms of establishing political connections between legislators and government suppliers are also said to facilitate favoured treatment such as hiring politicians and top appointees (Goldman, Rocholl, & So, 2013).

However, what the scholarly literature on the US has no answer to up until now is how exactly can politicians benefitting from donations steer federal contracts to donating firms and whether federal spending characterised by favouritism is conditional on bureaucratic quality in the spending agencies. Some evidence on the politicisation of agency spending suggests substantial variation across federal agencies and offices (Gordon, 2011). While extensive research from around the globe points out that partisan favouritism and corrupt contracting crucially depend on non-meritocratic and non-independent bureaucracies to allocate contracts to cronies (Boas, Hidalgo, & Richardson, 2014; Broms, Dahlström, & Fazekas, 2017; Charron, Dahlström, Fazekas, & Lapuente, 2017). With extensive political control of government bureaucracies at hand, politicians can make sure that tenders are tailored to their connected companies who, in turn, do not have to compete for contracts on a level playing field (Dávid-Barrett & Fazekas, 2016).

In order to fill this gap in the literature by exploring to what extent political influence over the bureaucracy can lead to contract allocation characterised by favouritism in the US, we set out the following research question:

How do political party contributions bias the award of US federal government contracts favouring donating firms?

We combine two unique datasets to explore this question and test our hypotheses. First, we collected and cleaned the complete federal contracting dataset from the official government

⁴ <https://www.reuters.com/article/us-usa-puertorico-power/puerto-rico-whitefish-defend-controversial-power-contract-idUSKBN1CU020>

⁵ https://en.wikipedia.org/wiki/Whitefish_Energy



website for 2004-2015. Second, we collected Bonica's political contributors dataset and matched individual donations to government suppliers (Bonica, 2016).

Our research question implies that we seek to explain whether a federal contract was awarded under circumstances facilitating favouritism such as non-competitive tendering procedures or surprisingly lacking contenders in formally competitive tenders. Using federal contractors' donations as a main explanatory variable, a range of results ensue contributing to the literature. In our contract-level regression models with an extensive set of fixed effects (e.g. federal agency's office or supplier company), we find that substantial donations to federal campaigns increase the likelihood of corrupt contract allocation: donations going from 1 thousand USD to 1 million USD increase CRI score by a little over one tenth of a red flag on a 0-7 red flag scale. Given that the average contract has about 2 red flags, this is a small, but non-negligible increase, 5% compared to the mean. We also find that the impact is rather partisan, that is the observed average donations impact is largely down to donations to the president's party while donations to opposition remain largely ineffectual. Crucially for understanding the bureaucratic dynamics enabling contracting characterised by favouritism, the impact of donations on contracting corruption risks is considerably larger where the contract is awarded by federal agencies and offices which have a low institutional quality as measured by lagged average corruption risk. When the federal office's past 12-month average CRI is 2 standard deviations above the federal average, large donations to the president's party (749,000 USD or more) add 2.6 red flags – a spectacularly large risk increase.

Compared to past studies in this field which largely focused on selected agencies or states, we base our findings on a complete dataset of transparent contracts as well as campaign contributions. Hence, our broad-based contribution to the literature is twofold. First, expanding on the long standing US literature on the political economy of redistribution and bureaucratic responsiveness to political stimuli, we conclude that politicians benefitting from extensive corporate donations are able to influence tendering terms and bid evaluation to the degree that specific donating firms benefit directly. This requires a level and depth of influence upon the minute budget execution which must be worrying to the American public. Second, our effect sizes are modest on average, becoming large only when a highly politically engaged company (i.e. large donator) meets a comparatively low quality federal bureaucracy (i.e. high past organisational corruption risk). This suggests that strengthening bureaucratic quality in general and the procurement office in particular in lower quality federal bureaucracies offers an effective tool against the corrupting effect of money in politics.



2. Theory

The theories we test link two fundamental political science concepts: political campaign donations and favouritism in government contracting (for a conceptual overview see: Fazekas & Cingolani, 2016 which we extensively draw on in this section). Political campaign donations in electoral democracies refer to the “(legal and illegal) financing of [...] electoral campaigns (in particular, campaigns by candidates and political parties, but also by third parties)” (Falguera, Jones, & Ohman, 2014, p. 2). Such financing can take many forms, for example it can simply be a monetary transfer, but also in-kind support such as allowing the party to use company premises at a discounted price. Campaign donations can originate from and arrive through a diversity of channels many of which may be used deliberately to hide the link between private and public interests. For example, if laws preclude direct donations by corporations, then their employees could offer individual donations instead.

Favouritism in government contracting⁶, or high-level institutionalised corruption in public procurement, is a distinct phenomenon from other forms of corruption which are widely discussed in the literature such as bribery or bureaucratic corruption (Heidenheimer & Johnston, 2001; Johnston, 1996). Given the focus of the empirical analysis on government contracting, it is sufficient to adopt a corruption definition which closely fits this context (OECD, 2007). In addition, our corruption definition focuses exclusively on government favouritism, as isolated instances of low-level bribery is relatively uncommon in public procurement (Fazekas, Tóth, & King, 2016). In public procurement, corruption refers to the allocation and performance of public procurement contracts by bending prior explicit rules and principles of good public procurement in order to benefit a closed network while denying access to all others (Mungiu-Pippidi, 2015). The goal of such corruption is to steer the contract to the favoured bidder without detection, often recurrently and in an institutionalised fashion (World Bank, 2009). This can be done in a number of ways, including avoiding competition (e.g. unjustified sole sourcing or direct contract awards), favouring a certain bidder (e.g. tailoring specifications to a particular company) and sharing insider information (Fazekas & Kocsis, 2017). Such corruption may involve bribery and transfers of large cash amounts as kickbacks, but it is more typically conducted through broker firms, subcontracts, offshore companies and bogus consultancy contracts. By implication, not everything designated as corruption in this article represents illegal activity.

Favouritism in government contracting and campaign donations are best conceptualised as an exchange of favours between private actors (companies) and public actors (politicians) on a regular, institutionalised basis (della Porta & Vannucci, 1999). It consists of a stable flow of mutual favours – private money and public contracts – among the high-level members of the corrupt network. The favour from private to public actors can take the form of money or in-kind benefits, while the favour from public to private actors constitutes preferential treatment in public procurement tenders and contract execution (OECD, 2017). In order to grant access to government contracts, candidates for public office must win elections which is a risky endeavour requiring considerable financial resources. While connections to and favours from political decision makers can be obtained in a multitude of ways such as lobbying (Rajwani & Liedong, 2015), campaign donations represent a major form of private to public links necessary for supporting a corrupt network. To make the whole enterprise worthwhile (i.e. lucrative), private actors (companies, etc.) need to extract rents from government contracts:

⁶ We use the terms government contracting, public procurement or public tendering as interchangeable throughout this article.



they should be productive enough to benefit from higher than standard competitive prices or lower than standard competitive quality or lower than originally contracted quantity. The desire to keep such money flows secret makes the use of high secrecy jurisdictions for policy capture and rent extraction commonplace (Shaxson & Christensen, 2014). As courts are typically not available to enforce agreements and contracts among members of a corrupt group, they have to develop private and informal means for controlling each other's actions (Grodeland, 2005). Trust among key individuals and mutual blackmail are central to collective action of corrupt groups (Gambetta, 2009). Corrupt groups achieving intra-group trust and effective means of enforcing agreements have the capacity to broker deals over many months, even years, making the exchange of campaign donations for government contracts very complex hence hard to precisely pin down (i.e. not necessarily 100 USD of donation for 200 USD of contracts). The involved payments often belong to a broader scheme rather than a narrow one-to-one exchange. The central characteristic of the corrupt exchange of government contracts and political campaign financing is that it trespasses the classic and legally well-established public-private divide. On the one hand, private actors get influence over government decisions about contracts while, on the other hand, political actors get influence over private companies' decisions on finances, profit allocation, hiring or subcontracting (Hellman, Jones, & Kaufmann, 2003).

However, the exact processes through which such exchanges take place are far from clear in many countries like the US. The first question to clarify is who exactly should receive the campaign donations and subsequently deliver favoured treatment in government contracting in return (OECD, 2017, Chapter 2). Is it the head of the government, the president himself, or a much broader governing party, or even more broadly any member of the ruling political elite: government or opposition alike? Naturally, answers to these questions are unlikely to be binary, rather different donations are likely to have different degrees of impact on public tendering providing for diverse avenues for companies to reach political power. Some might prefer to donate only to the most likely winning presidential candidate while others might spread their 'bets' by donating to a range of political campaigns and parties. Given the uncertainty of electoral success and imposed constraints on political discretion, some strategies might be optimal for some firms while not for others, compare for example defence companies' campaign donation strategies with the healthcare industry (McKay, 2018).

The broadest possible impact mechanism of political campaign donations on federal contracting assumes no specific payback conditions such as control of bureaucracy (Gordon, 2011), rather it treats donations as a generic 'entry ticket' to the political class. It allows the company to pull the strings in diverse ways leading to preferential treatment. Hence, any donation, whether it goes to a particular race or the winning versus the losing candidate or the party holding majority or minority in Congress (Bromberg, 2014), has some degree of influence over the favoured treatment of bidding firms. For example, interviewees of Bromberg (2014) noted some instances in which, "A company who is competing will write their Senator or their Representative and will say 'Any support you can get me' and we will generally get an inquiry letter stating, 'We understand they've applied, we want to make sure you give them all the fair treatment.'" Such a broad, arguably rather blunt hypothesis does not preclude that the quantity of donations matters, that is a company has to be noticed by the political elite to be able to build and use connections: small connections might matter less or not at all compared to large donations. These broad considerations lead to the hypothesis:

H1: Donating to any political party increases company corruption risks in federal contracting.



However, past literature on the US has emphasized the partisan nature of companies' political influence and the importance of being connected to holders of key government posts such as the presidency rather than connections to the opposition (Boas et al., 2014; Goldman et al., 2013). Such links between donations and contracting necessitates that elected officials influence bureaucrats who in practice draft tendering terms, assess bids, and oversee contract performance (Dávid-Barrett & Fazekas, 2016). Political influence over permanent bureaucracies has a lengthy literature, political appointments representing a key mechanism (Lewis, 2010). Through directing political appointees directly to steer contracts in particular directions (Gordon, 2011) or exploiting the weaknesses in bureaucratic meritocracy and independence (Charron et al., 2017), the party holding majority and the head of government in particular can influence the minute detail of public tendering to favour a certain company. In the US context, such influence is overwhelmingly wielded by the president who has extensive appointment and budgeting powers. In a heavily partisan atmosphere, it is also conceivable that what matters is not only whether a company donated to power holders but also whether it donated to the opposition with the latter even disadvantaging the firm. Behind these considerations lies the following hypothesis:

H2: Donating to the party in power increases company corruption risks in federal contracting more than donating to the opposition.

If either of H1 and H2 are confirmed then our theory begs the question what makes public bureaucracies susceptible to general outside political pressure or more precisely political pressure from within the government. This is no simple question as public procurement is so tightly regulated across OECD countries, especially the US (Schooner, Nash, & O'Brian-Bakey, 2013), that directing a contract to a particular company by favouring it throughout the tendering or contract implementation process appears to be a high tally. However, if there are agencies which are prone to discretionary as opposed to rules-based spending bringing about higher risks of favouritism in general, they may also be more ready to manipulate federal contracting on specific political requests. Conversely better quality, higher integrity agencies should be better able to withstand political pressures for corrupting the contracting process (Charron et al., 2017). Given that the US federal bureaucracy is generally still regarded as one characterised by high degrees of meritocracy and impartiality (Dahlström et al., 2015), it may well be that political campaign donations can only lead to favoured treatment of donating firms in the lowest quality agencies with no impact at all in medium to high quality agencies. By implication, we hypothesize:

H3: Donating to political party campaigns increases company corruption risks in federal contracting only if agency bureaucratic quality is low.



3. Data and measurement

3.1 Data

Contract data from transaction data

We collected transaction level data on federal contracts⁷ from usaspending.gov, the US government's online repository of federal spending, containing virtually all federal contracts in the United States from 2004-2015, inclusive. The obtained payment-level data was aggregated to the contract level, totalling more than 2.1 million contracts. In order to aggregate transaction level data to contract observations, we used the contract's unique identifier. We consider the first instance of an identifier as the canonical source for information regarding the corresponding contract. The federal contracting database includes information on all contracts above a mandatory reporting threshold (\$25,000 for most of our period) awarded by federal agencies regulated by the Federal Acquisition Regulation (FAR).⁸ We followed the protocol outlined in other works on public procurement for data cleaning and coding (see Charron et al. 2017; David-Barrett et al. 2017). This allows for a relatively clean comparison with research on procurement corruption in other contexts. To avoid excessive noise from less competitive markets common in low value procurement, the analysis is conducted only on high-value contracts, that is above \$180,000⁹. This is the monetary threshold for World Trade Organization Government Procurement Agreement¹⁰ rules (i.e. internationally competitive public procurement). This restriction cuts our sample size to a little under half a million contracts.

We extracted and aggregated the following records for each transaction made in the context of a contract.

- Sum of dollars obligated – the sum of all dollars transferred from buyer to supplier.
- Date the contract was signed.
- Place of contract's performance.
- The estimated total value of the contract per the first transaction.
- The buyer's office and agency identifier.
- The supplier's Dun and Bradstreet (DUNS) number and name, and the DUNS number and name of its parent company, if listed.
- The registered location of the supplier.
- The detailed Product Service Code (PSC) of the contract, capturing broadly the type of good or service provided by the contract.
- Tender advertisement: whether the contracting opportunity was listed on FedBizOpps, the online portal for advertising business opportunities from the federal government.
- The procedure type used to award the contract.
- The number of bidders submitting offers to supply the contract.

⁷ This includes so-called indefinite delivery vehicles that are, in essence, multi-year rolling contracts.

⁸ There are a number of legally mandated exceptions and exchanges with domain experts that suggest that administrative error may bias the database to a small degree. Nevertheless, we assess that our claim to complete representation of federal purchasing is adequate. For information on the Federal Acquisition Regulation see <https://www.acquisition.gov/browsefar>.

⁹ We found no indication of gaming around this threshold suggesting that our chosen sample adequately approximates the true full population of federal contracts above \$180,000.

¹⁰ <https://e-gpa.wto.org/en/ThresholdNotification/FrontPage>



We use four fields in our data to identify a supplier: the listed Dun and Bradstreet DUNS number, the supplier's parent company's DUNS number, and the listed names of the supplier and parent company. As a single entity doing business in the US can have multiple DUNS numbers, we link all entities with the same name and sharing either a DUNS or parent company DUNS number. Given a collection of linked DUNS numbers associated to the same entity, we use the most frequent DUNS number as the canonical record. We record a dictionary of company names and DUNS numbers associated with a canonical DUNS number for later use in matching with disbarment data and campaign contributions.

Disbarment data

We also collected a list of companies disbarred from participating in federal contracts from the Office of Federal Contract Compliance Programs (OFCCP). As this data includes DUNS numbers, we matched these companies to our contract-level data using the DUNS number dictionary described in the previous subsection. A supplier can be disbarred if it is charged or convicted of offenses such as fraud, embezzlement, bribery, or collusion with other bidders.

Matching vendors to political contributions

We also collected and matched campaign contributions data to the contracting dataset. The Database on Ideology, Money in Politics, and Elections (DIME) includes campaign contributions from individuals and legal entities from 1979 to 2014 to candidates for federal office in the United States as well as to political party organizations (such as the Democratic and Republican national committees), grouped by congressional term. Data on contributions from individuals includes two fields for an individual's employer. We used standard text processing methods (lowercasing, removing punctuation, removing business entity suffixes such as "Inc." or "Ltd.") on these names and linked them to contract supplier names (also processed) associated to contracts via DUNS numbers, as discussed above. For each supplier, we record the sum of their contributions to Republican and Democratic campaigns in each two-year congressional period from January 2003 to December 2014.

At the contract level we note the supplier's total contributions to both parties in the current and previous congressional terms. For example, for a supplier winning a contract in October 2011 we record the donations made by employees of the company to Republicans and Democrats from January 2009 to January 2011 as previous term donations, and donations made to either party between January 2011 and January 2013 as current term donations.

3.2 Indicators

Our dependent variable is the corruption risk of the contract awarded by a federal agency to a vendor. To measure corruption risks we focus on deviations from standard competitive tendering in otherwise competitive markets (i.e. widely sold goods and services) which increase the likelihood of favouring a donor company over its competitors. Hence, our risk indicators by no means suggest illegal behaviour of outright corruption, rather they capture situations in which it is easier hence more likely to abuse discretion in favour of one vendor over its competitors. These indicators aim to capture risky characteristics both in the tendering process itself, i.e. decisions federal agencies make, and in the outcomes of the tendering process, i.e. results characterising the competitive environment. Based on an extensive review of the literature (Fazekas & Kocsis, 2017; Klasnja, 2016; Lewis-Faupel, Neggers, Olken, & Pande, 2016), we identified the following risk factors on the contract level:



- *Single bidding*: the contract was awarded in a tender where only one company bid. Favoring a company by artificially eliminating its competitors (e.g. by tailoring the terms in nuanced ways to the favored company) is likely to result in only one bid submitted on an otherwise competitive market (recall, we restricted the sample to high-value internationally competitive tenders according to WTO rules).
- *No publication*: the tendering opportunity was not announced on FedBizOpps¹¹, the federal government's online platform for contracting opportunities. As companies know about contract opportunities, simply avoiding the publication of the call for tenders makes it easier to avoid competition from non-favored companies.
- *Non-competitive procedure type*: whether the contract was awarded in a fully open and competitive procedure. If a contract is awarded by a procedure which is not fully open and competitive, for example by direct award, it is comparatively much easier to favor one company over others.
- *Non-open solicitation type*: whether the contract is awarded in a procedure type which minimizes buyer discretion such as sealed bid auction. When a contract is directly negotiated with a supplier or only a simplified quote is asked from a pre-selected contractor, it is easier to set terms allowing the supplier to earn extra profit margins, that is reap benefits of a favored position.
- *Cost overrun*: If the total dollars obligated at the completion of the contract exceed the initial estimated total contract value. Overspending on the initially awarded contract can signal that the buyer was not adequately enforcing initial contractual terms allowing the supplier to enjoy disproportionate profit.
- *Supplier tax haven registration*: If the supplier (typical country of origin in our supplier groups as described above) is registered in a tax-haven as defined by the Tax Justice Network's objective scoring of banking and corporate registry transparency (Tax Justice Network, 2013). When excessive profits are earned and some of them are channeled back to politicians, secrecy is paramount, hence using at least one tax haven registered company in the supplier's ownership network facilitates favoritism in government contracting.
- *Supplier debarred*: If the supplier (or any of its linked entities in our supplier groups as described above) appears on the official list of disbarred firms. Debarments are often made on the basis of falsifying information or colluding with public buyers to manipulate competition. Hence, debarment may signal the proven incidence of corruption for the supplier.

Based on this long list of risk factors we adopt two variants of the dependent variable, a simple and a complex one. The simplest measure of corruption risk is single bidding. The complex measure, which we will call the Corruption Risk Index (CRI), is a simple weighted average of all seven factors, i.e. mean of these seven binary indicators.

We, by no means, claim that the risk indicators above only signal favoritism. They may stem for a range of legitimate reasons like product specificity, i.e. the requirements of the buyer permitting only one company to bid, or compelling urgency, i.e. bureaucratic error leading to tight project timeline necessitating a quick, noncompetitive award. However, our preferred interpretation is that the frequent incidence of many such 'red flags' signal risks correlated with underlying favoritism. Our claims on validity of these indicators as corruption risk indicators is based on three arguments: supportive results in the most recent literature, micro-level validity

¹¹ <https://www.fbo.gov/>



exploiting the input-output relationships among indicators, and correlations with perception data.

First, previous work on political influence in government contracting in the US and Europe amply shows that high level actors in the government do interfere in the contracting process for political purposes. Probably, most relevant is the argument by Gordon (2011) who specifically shows that representatives of the George W. Bush's White House held a presentation to representatives from the GSA, a large government buyer of goods and services, urging them to channel extra spending to targeted congressional districts held by at-risk Republican incumbents. Gordon's findings indicate that this pressure from above resulted in a significant increase in the dollars obligated by the agency in those districts, but no increase in the number of contracts awarded. Gordon also noted that single bidder contracts were significantly more likely to see an increase in dollars obligated during the period in question while multiple bidder contracts remained unmoved. Similarly, research from Sweden, Italy or selected Central and Eastern European countries have found such indicators valid (Broms et al., 2017; Coviello & Gagliarducci, 2017; Fazekas & King, 2018).

Second, micro-level validity of the proposed corruption proxies can be tested by exploiting the input-output relationships among them, that is we expect single bidding to be an outcome predicted by risk factors of the tendering process while it is also expected to be positively associated with risks of the contract implementation process. Simple regressions confirm our expectations about single bidding being predicted by no publication, non-competitive procedure, non-open solicitation procedure, and cost overrun (Appendix A, Table A2). This is reassuring given comparable regression findings for EU countries (Fazekas & Kocsis, 2017). Also in line with comparable European results, tax haven registered firms are more likely to win single bid contracts. Finally, company debarment is the most straightforward risk indicator we could identify as it rests on a concluded legal case.

Third, the validity of our corruption risk measures is further supported by their association with survey-based corruption perceptions indicators. Three existing measurements of perceived high-level corruption in US states can be used for validity testing: i) Corruption in American States Survey of reporters (2014)¹²; ii) a survey of State House reporters measuring corruption in state governments (1999) (Boylan & Long, 2003), and iii) GALLUP Perception of Corruption survey aggregated to the state level (2006-2014) (Brezzi & Ramirez, 2016). Simple bivariate correlations are confirmatory for all three sources, albeit not particularly strong, ranging around 0.2-0.3 which is hardly surprising given the expected partial disconnect between corruption in US states and the federal agencies based in those states (Appendix A, Table A3).

We define several independent variables to operationalize our hypotheses. As noted above, at the contract-level campaign contributions by employees of the supplier are aggregated by political party, and whether they are in the current or previous congressional term, relative to the contract signing date. We also create a dummy variable for whether the supplier has donated at all in the given term. We track the political party controlling the White House and the House of Representatives to test whether contributions to a party in power increases corruption risk more than donations to the party out of power. Finally, we track the a 12-month moving average of the buyer agency's average CRI for each contract to measure an agency's overall bureaucratic quality (Broms et al., 2017).

¹² <https://ethics.harvard.edu/blog/measuring-illegal-and-legal-corruption-american-states-some-results-safra>



We include several variables in all our models which characterise the competitive environment more broadly. Recognizing that different markets may have different contracting norms, we control for the sector of the contract, the state of contract performance, and the year the contract was awarded. We also control for the (log-transformed) total contract value.

Basic descriptive statistics on the most relevant variables used in the analysis can be found in in Appendix A (Table A1).

3.3 Causal identification

Testing our three hypotheses requires identifying the causal effect of an increase in political donations by firm i in period t on the corruption risk of subsequent contracts won by that firm. Finding a natural experiment in this setting is challenging. Large firms are highly strategic actors that scarcely make any donations as-if-randomly. Furthermore, rules surrounding federal donations are largely uniform over the period and industries studied, preventing the use of regression discontinuity. Finally, most credible correlates of political donations likely also have a direct effect on corruption, making the use of instrumental variables difficult.

Given the difficulties surrounding the use of a natural experiment, we take advantage of the breadth of the data to identify the causal effect of political donations on corruption. Our specifications control for important features of contracts, including its value, and use a wide range of fixed-effects to make comparisons within very narrow units, in which there is little room for omitted variable bias. Specifically, we use buyer (buying office within the agency) and seller (unique company groupings as defined above) fixed-effects, as well as state of contract performance, main industry of the purchased products and year of contract award fixed-effects. In other words, the effect of political donations on corruption risks is identified off the variation within a given commercial relationship in a specific place, industry, and year. Making such narrow comparisons makes the assumption of no omitted confounders more credible.

Our main specification is:

$$CRI_{ijkst} = \beta \text{donation}_j + x'_i \gamma + \delta_j + \delta_k + \delta_s + \delta_m + \delta_t + \epsilon_{ijkst}, \quad (1)$$

where CRI_{ijkst} is the corruption risk of contract i between agency j and firm k in state s , industry m , and year t , and x_i is a vector of individual controls. Since firm donations are aggregated by congressional term, we cluster the error term, ϵ_{ijkst} , by firm and congressional term. We estimate this model using OLS.

We test the robustness of our results against alternative model specifications. We first use the same strategy to examine the effect of donations on a component of the CRI: whether the auction had a single bidder, and estimate those models using a logistic regression. We also examine an alternative way of making within-agency and within-firm comparisons. The main specification uses a fixed-effect for the agency, δ_j , and one for the firm, δ_k . Doing so, we pool with other partners of the firm-agency dyad. This introduces interference, but also allows borrowing strength. We show that results are largely robust to a more restrictive specification with a dyadic fixed-effect δ_{jk} . Finally, we also rerun our main specification after excluding defence contracts as the defence industry, its political engagement and industry structure largely defined by government purchasing decisions may bias our average results. Robustness tests can be obtained upon request from the authors.



4. Results

First, hypothesis 1 is tested which puts forwards that companies' political party donations increase their corruption risks in federal contracting. Using our main OLS specification in equation (1), we test three different formulations of campaign donations: i) whether a company donated any amount in the current or previous congressional term; ii) logarithm of the company's total donations, and iii) three categories of the donation distribution (no to little donation, medium donation value, high donation value). The results in Table 1 confirm our hypothesis and further refine it. While donating any amount to any political party has no statistically significant impact on corruption risks (model 1), donating substantial amounts has a clear positive impact, that is increasing corruption risks in government contracting (models 2&3). Donations over about 8,548 USD (33rd percentile of the donation distribution) start to have a positive overall impact with corruption risks increasing as donations increase. To demonstrate this, take for example a large increase in donations going from 1 thousand USD to 1 million USD which increases CRI score by 0.12, that is a little over one tenth of a red flag (recall CRI is defined as a simple average of 7 red flags with the average contract having about 2 red flags). The effect of log donations in model 2 is graphically depicted to further highlight effect magnitude (Figure 1). To better understand the non-linear impact of donation value on corruption risks, we used the 8,548 USD threshold for defining no to minor donations while we also defined a high donation band threshold as 749,000 USD (for the details on how we defined the thresholds see Appendix B). In the categorical specification (model 3), high value donations increase CRI by 0.1, that is one tenth of a red flag, compared to the no to minor donations. These effects while statistically significant are rather small which may be due to the fact that we pulled donations to the governing majority as well as opposition and losing candidates potentially diluting effect sizes. Now, we turn to this issue by testing hypothesis 2.

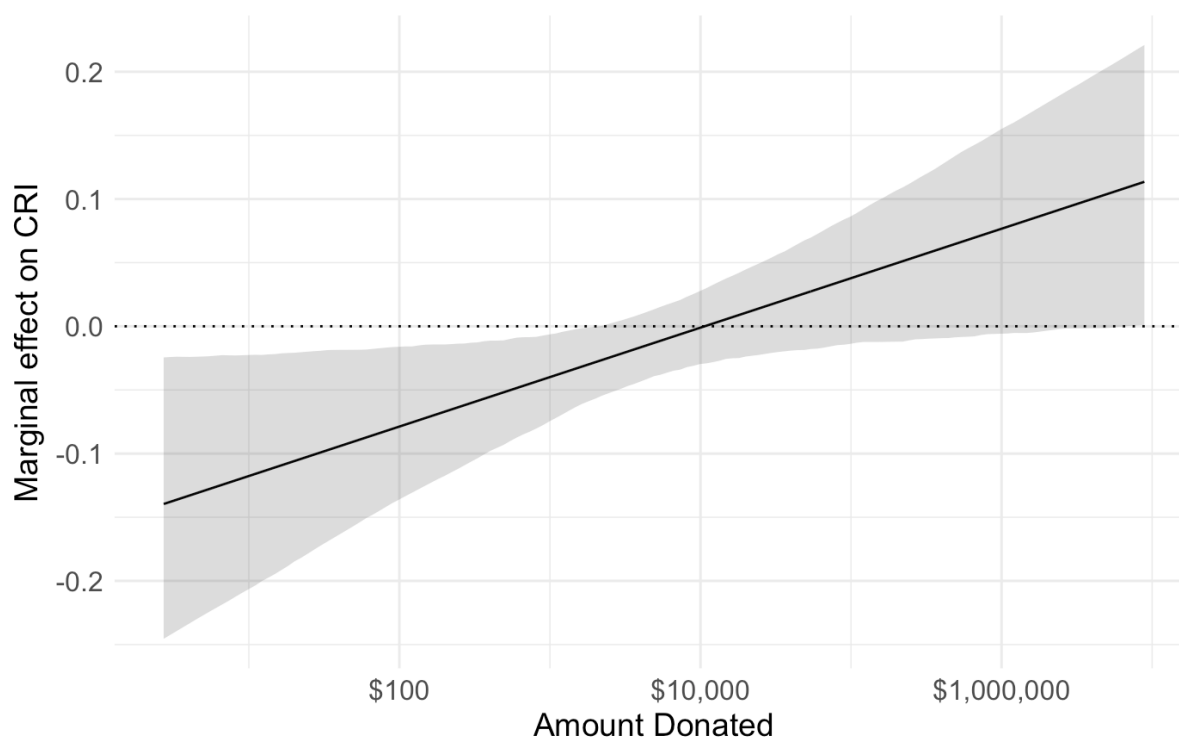


**TABLE 1. ORDINARY LEAST SQUARES REGRESSION RESULTS, DONATING TO ANY
POLITICAL PARTY, 2004-2015, US FEDERAL GOVERNMENT**

	<i>Dependent variable:</i>		
	Corruption Risk Index (CRI)		
	(1)	(2)	(3)
Donation dummy	-0.020 (0.015)	-0.156** (0.078)	
Donation (log)		0.017* (0.009)	
Medium donation			0.034 (0.021)
High donation			0.112** (0.045)
Contract value (log)	-0.132*** (0.019)	-0.132*** (0.019)	-0.132*** (0.019)
Agency FE	Yes	Yes	Yes
Supplier FE	Yes	Yes	Yes
State of performance FE	Yes	Yes	Yes
Contract sector FE	Yes	Yes	Yes
Congressional term FE	Yes	Yes	Yes
Observations	476,486	476,486	476,486
R ²	0.567	0.567	0.567

Note: Standard errors clustered by supplier and congressional term. *p<0.1; **p<0.05; ***p<0.01

**FIGURE 1. MARGINAL EFFECT OF LOG DONATIONS ON CONTRACTING CORRUPTION RISKS
(MODEL 2 IN TABLE 1).**





Second, we test hypothesis 2 which states that companies' corruption risks in federal contracting increase more if they donated to the party in power rather than to the opposition. For the purposes of this analysis, we zoom in on which party controls the presidency as US presidents have extensive powers when it comes to appointments and budgeting in major spending agencies, while who is controlling Congress would make the analysis intractable due to how power is shared among different actors. In order to concentrate on different corruption risk patterns resulting from donating to the governing party versus the opposition, we restricted the sample to contracts won by donor firms, hence dropping sample size from a little under 500,000 contracts to a little under 70,000 contracts. Building on the previous results, we look at two variants of the donation predictor: i) logarithm of the company's total donations to the governing party and the opposition, and ii) three categories of the donation distribution (little donation, medium donation value, high donation value, using the same cut-points as for hypothesis 1).

In Table 2, we find consistent support for hypothesis 2, albeit only large donations seem to make a difference. The linear effect of donations to the party holding the presidency is positive in both model 1 and 3, albeit it remains insignificant in both cases. This suggests that the partisan nature of any donation amount does not differentiate donor firms, leading to no discernible difference in their corruption risks. However, when we turn to the categorical variant of the donation predictor, high value donations have a positive significant impact of substantial size. Donating a large amount to the party holding the presidency increases corruption risks by 0.1, that is one tenth additional red flag. Taken into consideration that large donations lead to higher corruption risks in federal government contracting (Table 1 model 3), these results show that most of the observed positive impact is down to donations to those holding power. Interestingly, what seems to dominate effects is the absolute value of donations to the party in power while there is no evidence of punishment for donating to the opposition simultaneously. This points out that in spite of the highly partisan nature of politics, donations exercise a much less divisive impact on companies' treatment in federal tenders.



TABLE 2. ORDINARY LEAST SQUARES REGRESSION RESULTS, DONATING TO GOVERNMENT VS OPPOSITION, 2004-2015, US FEDERAL GOVERNMENT, DONATOR SUPPLIERS ONLY

	<i>Dependent variable:</i>			
	Corruption Risk Index (CRI)			
	(1)	(2)	(3)	(4)
Donation to President's party (log)	0.0003 (0.002)		0.0002 (0.002)	
Medium donation to President's party		0.019 (0.021)		0.019 (0.020)
High donation to President's party		0.093** (0.038)		0.093** (0.040)
Donation to other party (log)			-0.0004 (0.003)	
Medium donation to other party				0.019 (0.032)
High donation to other party				0.001 (0.040)
Contract value (log)	-0.090*** (0.015)	-0.090*** (0.015)	-0.090*** (0.015)	-0.090*** (0.015)
Agency FE	Yes	Yes	Yes	Yes
Supplier FE	Yes	Yes	Yes	Yes
State of performance FE	Yes	Yes	Yes	Yes
Contract sector FE	Yes	Yes	Yes	Yes
Congressional term FE	Yes	Yes	Yes	Yes
Observations	66,762	66,762	66,762	66,762
R ²	0.552	0.552	0.552	0.552

Note: Standard errors clustered by supplier and congressional term. *p<0.1; **p<0.05; ***p<0.01

Third, we test hypothesis 3 which postulates that companies' political campaign donations increase their corruption risks in federal contracting in particular when the bureaucratic quality of the buying agency is low. For measuring companies' donation activities we will draw on variants used in hypothesis 1 as well as 2. We consider total donations as well as donations to the party of the president, and we also look at a continuous measure of donations as well as a categorical variant using the same cut-points as before. So far, our regressions included fixed effect for each office within a federal agency picking up all time invariant characteristics of federal bureaucracies. To test the interaction of donations with bureaucratic quality, we additionally include the 12-month moving average of the buyer agency's average CRI. Hence, our interaction terms capture the interactions of donations with changing agency bureaucratic quality while holding time-invariant agency office characteristics constant.

In Table 3, we find consistent and strong support for hypothesis 3 in all specifications. For example, in model 2 using all political donations (i.e. not only those to the party of the president) taking its logged continuous variant, we see that the interacted impact curves' slope differs greatly (Figure 2). In this model, when the agency's 12-month CRI average is 2 standard deviations below the federal average, the impact of donations is negligible and statistically insignificant. Whereas, where agency past 12-month average CRI is 2 standard



deviations above the federal average, a large increase in donations going from 1 thousand USD to 1 million USD increases CRI score by 0.7, that is a little under three quarters red flag (recall CRI is defined as a simple average of 7 red flags with the average contract having about 2 red flags). Or even more staggeringly, in model 5, large donations to the president's party (749,000 USD or more) in high risk agencies (past 12-month average CRI is 2 standard deviations above the federal average) add 2.6 red flags to the contract compared to contracts of no to minor donator companies. Looking at the results pertaining to hypothesis 3 in the context of the two previous hypotheses, we find that the biggest influence of political donations on favouring donator companies arises when all necessary ingredients are in the right place: the donation is large enough to be noticeable for politicians, it goes to the holders of government power, and contracts are awarded in an agency which is weakly equipped to withstand political pressure.

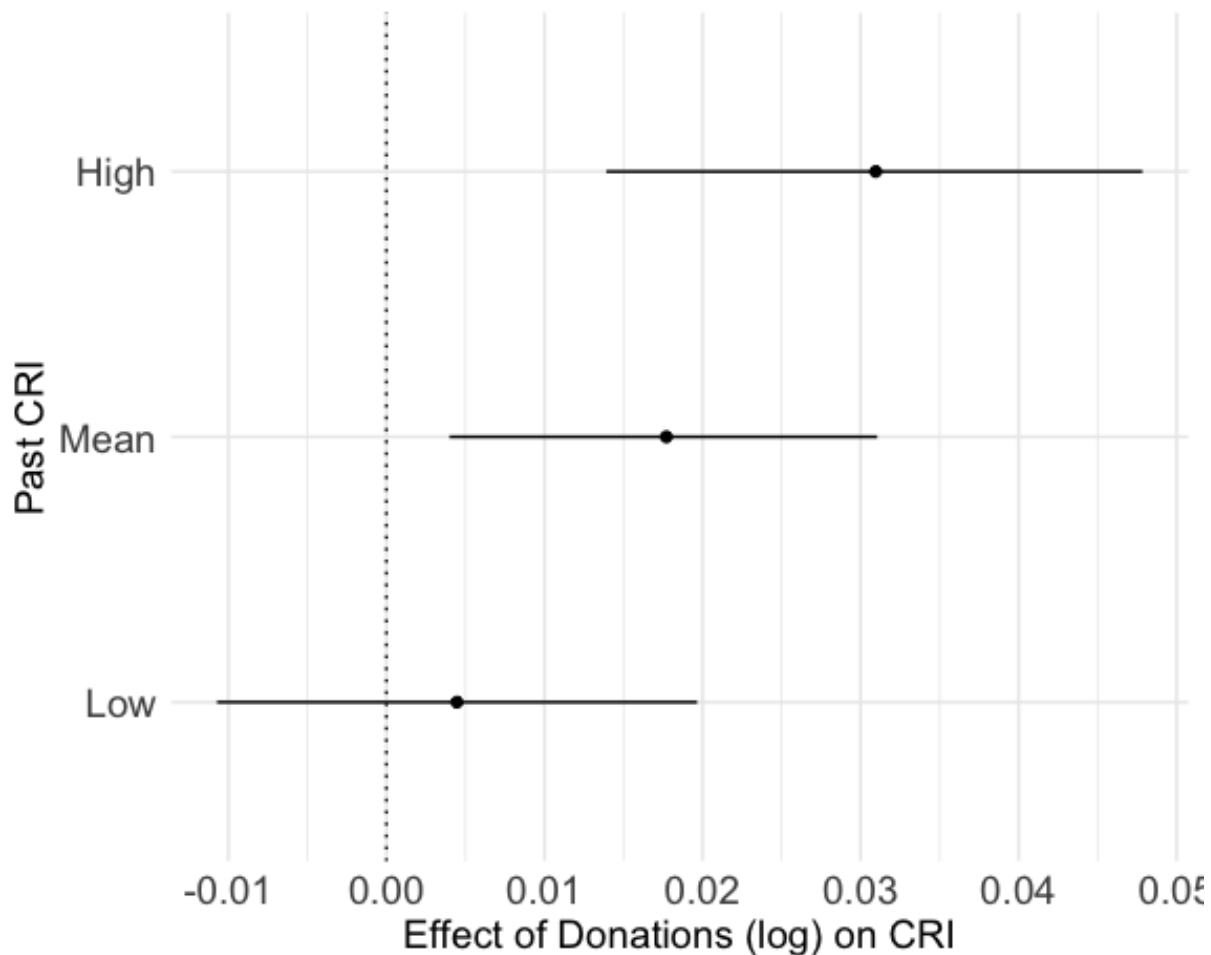
TABLE 3. ORDINARY LEAST SQUARES REGRESSION RESULTS, INTERACTIONS BETWEEN DONATIONS AND BUREAUCRATIC QUALITY, 2004-2015, US FEDERAL GOVERNMENT

	<i>Dependent variable:</i>				
	Corruption Risk Index (CRI)				
	(1)	(2)	(3)	(4)	(5)
Donation dummy	-0.107*** (0.042)	-0.148** (0.059)			
Donation (log)		0.007 (0.007)			
Medium donation			-0.058 (0.052)		
High donation			-0.098* (0.052)		
Donation to President's party (dummy)				-0.123 (0.106)	
Donation to President's party (log)				0.004 (0.017)	
Medium donation to President's party					-0.091 (0.068)
High donation to President's party					-0.109** (0.049)
Buyer's average CRI previous year	0.666*** (0.078)	0.663*** (0.078)	0.681*** (0.072)	0.670*** (0.083)	0.683*** (0.080)
Donation dummy × Buyer's avg. CRI prev. year	0.355*** (0.130)				
Donation (log) × Buyer's avg. CRI prev. year		0.037*** (0.013)			
Medium donation × Buyer's avg. CRI prev. year			0.315*** (0.115)		
High donation × Buyer's avg. CRI prev. year			0.655*** (0.170)		
Don. to Pres. (log) × Buyer's avg. CRI prev. year				0.039** (0.017)	
Med. don. to Pres. (log) × Buyer's avg. CRI prev. year					0.393** (0.174)
High don. to Pres. (log) × Buyer's avg. CRI prev. year					0.755*** (0.207)
Contract value (log)	-0.126*** (0.018)	-0.126*** (0.018)	-0.126*** (0.018)	-0.126*** (0.025)	-0.126*** (0.025)
Agency FE	Yes	Yes	Yes	Yes	Yes
Supplier FE	Yes	Yes	Yes	Yes	Yes
State of performance FE	Yes	Yes	Yes	Yes	Yes
Contract sector FE	Yes	Yes	Yes	Yes	Yes
Congressional term FE	Yes	Yes	Yes	Yes	Yes
Observations	391,047	391,047	391,047	391,047	391,047
R ²	0.576	0.576	0.576	0.576	0.576

Note: Standard errors clustered by supplier and congressional term. *p<0.1; **p<0.05; ***p<0.01



FIGURE 2. MARGINAL EFFECT OF LOG DONATIONS INTERACTED WITH AGENCY PAST CORRUPTION RISKS ON CONTRACTING CORRUPTION RISKS (MODEL 2 IN TABLE 3).





5. Conclusion

We hope to have contributed to the long lasting debate on the corrupting power of money in US politics, with new evidence how campaign contributions help funnel money to politically connected companies in federal contracting. We used a novel large-scale dataset encompassing all published federal contracts and registered campaign contributions for 2004-2015. As a main dependent variable, develop corruption risk indices in government contracting which capture tendering practices and outcomes potentially impacted by favouritism such as non-competitive tendering or cost overrun during contract implementation. In the absence of random assignment or quasi random natural experiment, we developed an elaborate regression model with an extensive range of fixed effects: buyer (buying office within the agency) and seller (unique company groupings as defined above) fixed-effects, as well as state of contract performance, main industry of the purchased products, and year of contract award fixed-effects.

In many different specifications, we find that on average company donations somewhat increase the risk of favouritism in government contracts, while big donations to the party of the president substantially increase the risk of favouritism in contracting when the agency itself has low institutional quality. In particular, we find that a large increase in donations going from 1 thousand USD to 1 million USD increase CRI score by a little over one tenth of a red flag on a 0-7 red flag scale. The effects are largely partisan, that is donating to the governing party matters the most. Company donations can influence tendering corruption risks most where the federal agency has a low baseline institutional quality (past 12-month average CRI is 2 standard deviations above the federal average): large donations to the president's party (749,000 USD or more) add 2.6 red flags. Looking at the results pertaining to how corruption risks, campaign donations, and institutional quality interact we can point out that the biggest influence of political donations on favouring donator companies arises when all necessary ingredients are in the right place: the donation is large enough to be noticeable for politicians, it goes to the holders of power, and contracts are awarded in an agency which is weakly equipped to withstand political pressure.

Clear policy lessons can be drawn from our research. When political party finance reform is not possible or when the evidence points out that it is ineffectual (Fazekas & Cingolani, 2017), traditional bureaucratic reform may limit the corrupting effect of money in politics. Weber is well and alive. Increasing the insulation of procurement officials from political pressure, supporting their professionalization, and monitoring risk indicators would limit the capacity of any president or political party to favour companies who donated to their campaigns.



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Appendix A: Descriptive statistics

TABLE A1. DESCRIPTIVE STATISTICS OF MAIN VARIABLES USED IN THE ANALYSIS

Statistic	N	Mean	St. Dev.	Min	Max
Single Bidding	476,102	0.391	0.488	0	1
CRI	476,486	2.128	1.576	0.000	6.000
Contract value (log)	478,398	13.168	1.483	11.513	23.457
Donation dummy	478,398	0.140	0.347	0	1
Donation (log)	478,398	1.503	3.881	0.000	16.931
Buyer's average CRI previous year	392,359	2.091	1.265	0.000	6.000

TABLE A2. BINARY LOGISTIC REGRESSION RESULTS ON CONTRACT LEVEL, 2004–15

model	(1)	(2)	(3)	(4)	(5)
dependent variable	single bidding				
no publication	1.052*** (0.000)				0.516*** (0.000)
non-competitive procedure type		4.015*** (0.000)			5.184*** (0.000)
non-open solicitation type			2.283*** (0.000)		0.139*** (0.000)
cost overrun				0.631*** (0.000)	0.374*** (0.000)
controls					
year	Y	Y	Y	Y	Y
state	Y	Y	Y	Y	Y
sector	Y	Y	Y	Y	Y
log contract value	Y	Y	Y	Y	Y
agency size (log contract number)	Y	Y	Y	Y	Y
observations	299,279	501,592	475,132	399,066	299,163
R^2	0.089	0.393	0.216	0.066	0.454

p-values in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



TABLE A3. BIVARIATE CORRELATIONS ON THE STATE-LEVEL CROSS SECTION USING AVERAGE SCORES FOR PERCEPTIONS AND OBJECTIVE RISK INDICATORS (2006-2014), N=51

	<i>single bidding</i>	<i>no publication</i>	<i>non-competitive procedure type</i>	<i>non-open solicitation type</i>	<i>cost overrun</i>	<i>supplier tax haven registration</i>	<i>supplier debarred</i>
GALLUP Perception of Corruption	-0.09	0.142	-0.086	0.011	0.025	0.145	-0.143
CiA Survey, Illegal Corr. Executive	0.212	0.422	0.192	0.232	0.111	0.026	0.114
CiA Survey, Legal Corr. - Executive	0.071	0.256	0.059	0.07	0.052	0.138	0.09
Boylan-Long 1999-survey score based on Q6 (how your state ranks?)	0.173	0.215	0.147	0.171	-0.038	-0.009	0.143
Boylan-Long 1999-survey score based on questions about corr. perception	0.041	0.212	0.028	0.082	-0.018	0.007	0.024
<i>Computed correlation used pearson-method with pairwise-deletion.</i>							



Appendix B: Defining donation value thresholds

We saw (model 2, Table 1) that larger donations have a larger effect on CRI scores. We use that increasing effect to split the distribution of donation values into three categories. Model 1 in Table 1 tells us that, on average, the effect of donating any money at all has an insignificant effect on CRI scores. The linear specification in model 2 tells us that donating any money at all has a negative effect on CRI scores, but that higher-value donations increase the CRI-score. Suspecting that is an artefact of the linear specification, we define low-value donations as the donations that have a negative-to-null effect on CRI scores.

With d_j a binary indicator that equals 1 if company j donated any money and p_j the amount donated, the specification in model 2 reads

$$CRI_{ijk smt} = \alpha d_j + \beta \log p_j + x'_i \gamma + \delta_j + \delta_k + \delta_s + \delta_m + \delta_t + \epsilon_{ijk smt},$$

The threshold p_1 for low-value donations solves $\alpha + \beta \log p_1 = 0$. This implies

$$p_1 = \exp -\frac{\alpha}{\beta}$$

Plugging-in point estimates from model 2, we obtain that p_1 is about \$8,548.

Similarly, we define the threshold for high-value donations p_2 as the threshold for which donations have a significantly larger effect on CRI-scores. To do so, we reestimate our main specification using, instead of continuous donations, a discrete version that uses low-value donations defined using p_1 as a reference category and try out a series of values for p_2 , using quantiles of the distribution of donated amounts. Figure 3 shows the results, for thresholds of .6, .7, .8, and .9. It highlights a tradeoff in selecting the optimal threshold: considering higher threshold values increase effect size, but reduces sample size, hence decreasing the precision with which results are measured. As such, while effect size increases from thresholds ranging from .6 to .8, it markedly decreases for a threshold of .9, while uncertainty increases sharply. Because of this, we select a threshold of .8, at which large donations have a markedly higher effect on CRI scores than intermediate donations, and where we have sufficiently many such donations for that effect to be measured with enough precision.



FIGURE 3. SELECTING A HIGH THRESHOLD VALUE FOR DONATIONS.

