Lights on the Shadows of Public Procurement

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Abstract

Transparency is widely promoted as an essential condition for good governance, and as an effective tool against public sector corruption more specifically. Although the empirical evidence on the impact of transparency on corruption is growing, empirical evidence remains mixed. Recent critique holds that a main reason for the lack of robust empirical evidence is that both conceptualization and available measures of government transparency are broad and sometimes imprecise. This paper seeks to develop a more precise conceptualization and measure of transparency in the field of public procurement that is actionable for the stakeholders of government decisions.

We use data of more than 4 million public procurement contracts between 2006-2015 to investigate the impact of transparency on high-level corruption risks in public procurement across Europe. We also link data from a unique large-scale regional survey to the public procurement dataset to study interactions between transparency and the wider public demand for accountability.

We find a strong negative impact of overall tender transparency on corruption risks. The results also show that ex-ante transparency, i.e. transparency before the contract is awarded, has a stronger effect on corruption risks than ex-post transparency, i.e. the availability of information after the contract has been awarded to a bidder. This suggest that providing information to the parties involved in the bidding process rather than to outside observers, is the main condition for wider public accountability to emerge. However, the effectiveness of this type of transparency is strengthened in contexts where there is also a wider societal demand for reduced corruption. In sum, our results suggest that transparency can reduce corruption risks if the information is both relevant to inside observers and actionable.

Keywords – public procurement; transparency; corruption; measurement

1 Transparency and corruption in public procurement

Public procurement, purchases of goods and services by government entities, has been identified as an area particularly at risk of corruption (Rose-Ackerman 1999; Murillo 2015; da Cruz et al. 2015; OECD 2005). Corruption can occur at each stage of the procurement process, but according to Dorn et al. (2008) the preparatory stage where the scope and terms of the job, as well as the criteria for selecting the winner are decided, should be particularly at risk.

Although the argument of transparency's ability to reduce corruption carries intuitive appeal, many obstacles to the hypothesized impact mechanisms, such as the reliance on a receiver that is both willing and capable of taking action, may well prevent positive impacts from arising. OECD (2005) notes the risk that increased transparency may simply move anti-competitive practices and corruption out of the formal procedure. For example, if the transparency of the procurement process is increased, the potential bidders may choose to agree on a division of the market (i.e. "you take that tender and I take that one") or to compensate competitors for submitting uncompetitive bids. This means that even if the formal process is impeccable, the result of it could be that the public authority ends up with a winning bid that is inferior to what would have arisen in a truly competitive procedure—at the expense of the taxpayers.

While acknowledging potential barriers to the effectiveness of transparency as an anticorruption tool, a lack of it certainly makes corruption easier to conduct. Without transparency, neither public officials nor bidding firms need to engage in creative ways of evading monitoring. Therefore, we formulate our first hypothesis:

> H1: Higher levels of transparency decrease corruption risks in public procurement.

Hypothesizing a general effect of transparency on reduced corruption does not, however, imply that all types of information are equally important. In the area of public procurement, we argue that a main distinction can be

drawn between ex ante transparency, i.e. the availability of information before the contract is awarded, and ex-post transparency, i.e. the availability of information after the contract has been awarded to a bidder.

1.1 Ex ante and ex post transparency against corruption

Generally, ex ante transparency implies that all information needed to propose a winning bid is released in the call for tenders and that the criteria for selecting the winner are clearly stated. This kind of transparency is predominantly relevant for bidding firms who plan to bid or are in the process of submitting a bid since it allows firms to identify suitable calls, developing bids in accordance to the preferences of the public agency, and researching their own as well as others' relative strengths. Accordingly, ex ante transparency is to a large extent an internal matter: it allows actors that are directly involved in the process, such as bidding firms in a specific sector, to compete on equal terms, thereby securing a competitive process.

Ex post transparency predominantly imply that information about the outcome of the process is communicated to the wider public. It is useful for the wider public, including journalists, and for the government, as they primarily care about actual money spent, actual deadlines for completing the project, and the actual contractor delivering on the contractual terms. Firms certainly make use of ex post information to evaluate their competitiveness and occasionally to appeal the decision, but generally the process is over for competing firms once the contract is awarded, and transparency at this stage is more about informing the outside world what is going on within the sector.

Given the nature of the public procurement sector as "shadowy" (OECD 2005), i.e. technical, delegated to bureaucrats, and often not at the center of public or media attention, the primary users of ex post information can, we argue, be expected to be less engaged and less motivated to use the information than the primary users of ex ante transparency.

Taken together, this implies that ex ante transparency may serve a corruption reducing function rather independently from ex post transparency by securing the conditions for a competitive process where firms - insiders as well as current outsiders - can challenge each other on fair terms. Ex post transparency, on the other hand, is dependent to a larger extent on external - and in this case less motivated or capable - actors to actually have an effect on corruption. In addition, and in line with the recent argument by Reynaers and Grimmelikhuijsen (2015), internal or ex ante transparency is often necessary to achieve meaningful external or ex post transparency as it is difficult to properly evaluate the output of the process without knowledge of the ex ante conditions. We therefore formulate the following hypothesis:

H2. Ex ante transparency is more strongly decreases corruption risks than ex post transparency.

1.2 The role of voters' attitude

Although insiders play an important role as receivers and users of ex ante information - especially under "shadowy conditions" - the surrounding society largely determines the scope and conditions for how this information can be utilized for effective anticorruption pressure. Ultimately, the design and implementation of public procurement processes are decided politically, which means that they are dependent on voters. The literature on electoral accountability and its relationship with information on government performance (e.g. Eggers, 2014; Ferraz and Finnan, 2008; Larreguy et al, 2014; also World Bank World Development Report 2016, chapter 3) suggests, however, that exposure of corruption do not necessarily result in losses for incumbents; to some extent because information is not communicated or circulated, and to some extent because voters don't care or have other priorities.

This implies that for transparency to work as intended, voters have to be willing and able to punish corrupt politicians by switching to alternative parties. In the absence of such an environment of electoral accountability, insiders do not have to fear that an exposure of dubious affairs will result in a political turnover and a potential change in procurement procedures policy, which means that they have few incentives to abstain from questionable practices. Similarly, insiders detecting actual abuses may see no point in "blowing the whistle" as any change is unlikely, only when a powerful coalition of insiders and the broader voter base can change effectively happen (Johnston & Kpundeh, 2002). Therefore, our third hypothesis reads:

H3. Transparency is more strongly decreases corruption risks in contexts where voters predominantly respond to corruption scandals by switching to another party.

2 Data and methodology

We use official government public procurement data from Europe to test our three hypotheses. The data contain information on individual public procurement tenders for the 28 EU member states (EU28) - and other European states such as Switzerland and Norway - between 2006 and

2015, including, for example, contract value, the deadline for submitting bids, and the assessment criteria used. They derive from the European Union's Tenders Electronic Daily (http://ted.europa.eu/), which is the mandatory online publication of tenders which are regulated by the Public Procurement Directive that aims to foster a single market in government contracts. This means that large (both national and EU-funded) contracts are included in the database, with publication thresholds varying over time, while being approximately 125,000 Euro for service contracts and 4,000,000 Euro for public works contracts. The full contract level public procurement database can be downloaded at digiwhist.eu/resources/data.

Using TED data, we created an organisation level panel database to capture public procurement characteristics annually over time, both independent and dependent variables. Organisation-year level indices represent the simple average of all contracts awarded by the organisation and year in question. In order to avoid distortion from less competitive markets such as defence, markets with less than three public procurement contracts a year were excluded from the analysis as market size is strongly correlated with number of companies on the market, hence competitiveness.

2.1 Measuring corruption risks

We use a simple indicator of corruption risk as dependent variable: when only one bid was submitted on a tender in a competitive market. Hence, the percentage of single bidder contracts awarded in all the awarded contracts of a contracting authority is the most straightforward measure we use to capture corruption risks (Fazekas-Kocsis, 2017)) and, we argue, this indicates a climate very favourable for the type of corruption we envision in our theory. As this – like most other measures of corruption – is not a direct measure of corruption, one clear potential pitfall is that it is not actually capturing grand corruption, but something else, such as lack of competitive markets or low administrative quality. While occasionally a single-bid process may be perfectly legitimate, we argue that a large share of single-bid contracts gives us a good indication of whether the process of procurement involves dubious practices and grand corruption.

2.2 Measuring transparency

In order to measure our independent variable, that is, transparency in public procurement, we counted the number of missing pieces of information in two types of public procurement notices: call for tenders and contract award notices. This is the most basic test of transparency, i.e. is the information which is by law required to be published in announcements likely to be actually present.

Our ex ante transparency index comprises following pieces of information:
- eligible language information
- selection method
- list of criteria used to evaluate bidders
- duration of the contract
- precise CPV codes
- publicly available call for tenders

The same list for the ex post transparency index is as follows:
- name of the winner
- NUTS codes of the place of implementation
- information on subcontracting
- contract value
- information on the usage of EU funds

In order to measure the effect of transparency on single bidding in general - that is, without differentiating between ex post and ex ante - we constructed a measure of general transparency as the average of ex ante and ex post transparency taken together.

2.3 Measuring voter attitudes to corruption

For measuring voter responses to corruption by political parties on the regional level we use data from a large survey of 85,000 individuals in 24 European countries (Bauhr-Charron, 2017). The survey was conducted in 2013 using the local language of each country. It solicited views of a randomly selected sample between 1,200 and 10,500 respondents per country, provides a high degree of measurement reliability per region due to the large sample size. While there is no single best way to measure voter responses to corruption among politicians, the survey measured it using the following question:

> "Now imagine that party was involved in a corruption scandal; which of the following would be most likely?
> (a) still vote for the preferred party, (b) vote for an alternative party not involved in the corruption scandal, (c) not vote at all."

Response (c) most closely represents our idea of exit, as the respondent is clearly choosing to abstain from the democratic process. Response (b) most directly captures our idea of accountability, or voice, as the respondent intends to vote, but decides to punish the corrupt party (despite it being their first preference) by voting for another party. Loyalty is coded "1" if the respondent chose response (a), "still vote for the preferred party", and "0" if otherwise. Each of these dummy variables then were aggregated to the regional level using standard population weights.

2.4 Empirical models

In order to test the effects of transparency on the share of single bidder contracts, we conducted panel data regressions in the organizational level database.

The main explanatory variables that we put to test are the transparency variables: overall transparency, ex ante transparency and ex post transparency, three continuous scores reflecting the share of missing information in public procurement notices in an organization in a year.

The three different transparency measures are either entered separately, or ex post and ex ante transparency entered jointly in panel regressions. In addition, vectors of covariates are added that will differ by the type of estimation carried out, but in its fullest form of the model, it contains both general regional characteristics and variables which describe the tenders conducted by the contracting authority such as the logarithm of the average contract value, and the share of different types of procurement (i.e. services, supplies and works). Regional variables include economy and employment related covariates at the regional level.

All these covariates are in theoretical terms potential additional explanatory factors for corruption in a country (Fazekas & Cingolani, 2016). Overlooking them could easily lead to omitted variable bias where changes in both the explanatory and dependent variable may be driven by these omitted aspects.

In order to test interaction effects between voter responses to corruption and transparency, we also run multilevel modelling estimations including a wider set of controls on the region and agency levels: purchase type (supplies, works, construction), logarithm of contract value, GDP at current market prices, employment rates, fertility rate, agency type, and agency sector. While a cross-sectional set-up is less adequate for identifying causal relationship, we had no better option due to the lack of time series data on voter attitudes towards political corruption.

3 Results

In order to test our first hypothesis (H1: higher levels of transparency decrease corruption risks), we ran simple pooled OLS as well as fixed effects panel regressions without as well as with regional controls. The results support H1 in all regression models: increasing transparency by one additional information item decreases single bidding by 0.4-0.7 % points across the different models (full results are available upon request). While a decrease of about 0.4-0.7% in single bidding due to an additional missing information item might not sound substantial, given that single bidder contracts are on average 7.1% more expensive than contracts with 2 or more bidders, the associated annual price savings across

Europe are substantial. As a back-of-the-envelope calculation, take in-creasing transparency by 5 items on average in Europe (out of 10 items considered) which would decrease single biding by 2-3.5 % points translating into a 0.14-0.25% cheaper procurement tendering, that is about 3.6-6.3 billion EUR savings per year across the EU.

In order to explore the second hypothesis on the different effects of ex ante and ex post transparency (H2), we run the same panel regressions with the two transparency indicators entered, this time without regional controls (Table 1). We find noteworthy differences between the two different forms of transparency. The effect of ex ante transparency is statistically significant and large in every specification, decreasing corruption risks, that is across the different models increasing ex ante transparency by one additional information item decreases single bidding by about 0.6 % points. In our preferred, most complete model (model 2 in Table 1), a one standard deviation increase in ex ante transparency (36.8 points) decreases single bidding by 1% points. However, the effect of ex post transparency is very small and insignificant in the model. These results lend considerable support to H2.

Table 1. Fixed effects panel regressions

Model	(1)	(2)
Dependent variable	Corruption risk (single bid %)	Corruption risk (single bid %)
Ex ante transparency		-0.0278***
		0.000
Ex post transparency		0.0119
		-0.191
Purchase type: Supplies (ratio) *ref cat: Services*	0.0129	0.031
	-0.981	-0.955
Purchase type: Works (ratio) *ref cat: Services*	-7.134***	-7.140***
	0.000	0.000
Logarithm of contract value (net, EUR)	0.152	0.16
	-0.138	-0.118
Constant	19.01***	19.62***
	0.000	0.000
Observations	112106	112106
overall R²	0.034	0.023

Another way of demonstrating the evidence we gathered in support of H2 is the visual representations of predicted single bidder % as a function of the different transparency measures (Figure 1 and Figure 2). These figures further underline our observation that compared to ex ante transparency, ex post transparency is considerably less influential in determining high-level corruption risks in public procurement in Europe.

Figure 1. The predicted effect of ex ante transparency on the percentage of single bidding in public procurement
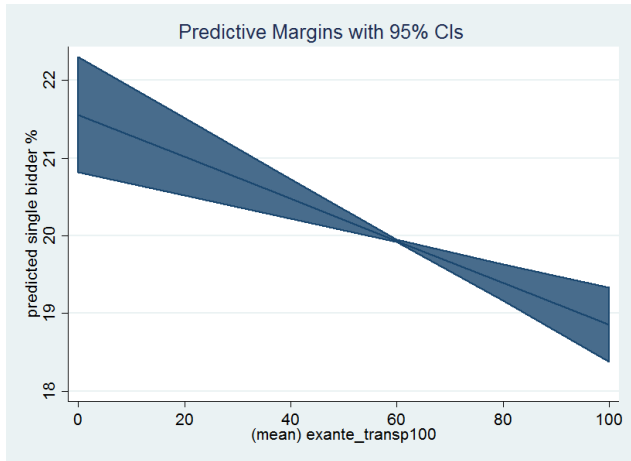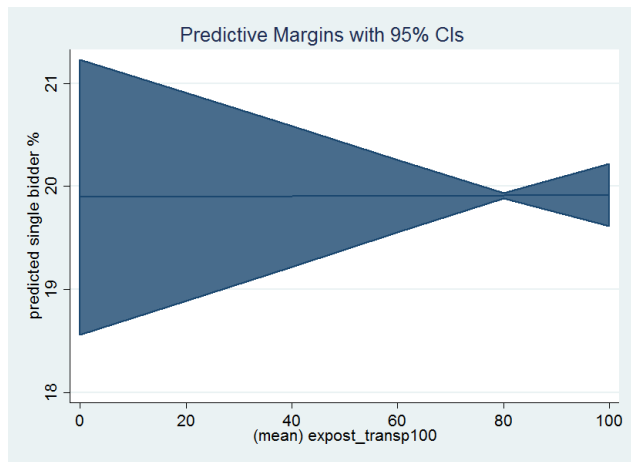

Figure 2. The predicted effect of ex post transparency on the percentage of single bidding in public procurement
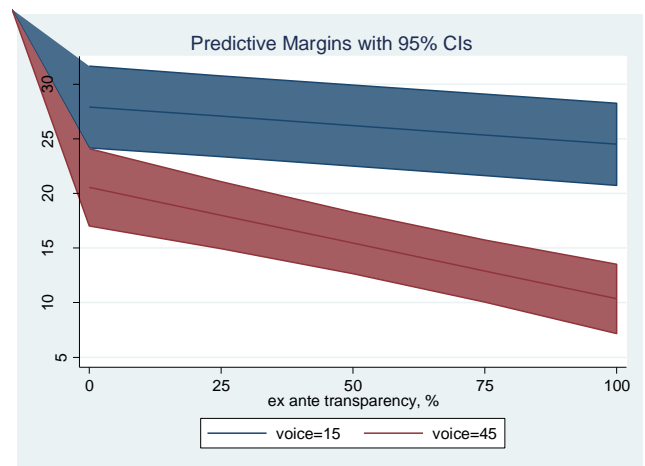

3.1 Voters' response

Now we turn to analysing the interactions between voter responses to corruption and transparency in determining corruption risks (H3). As survey data is only available for

2013, we had to revert back to a cross-sectional multilevel modelling specification using a wide range of control variables and region constant terms to control for unobserved region-effects. We test the impact of voice, i.e. the share of voters responding to corruption scandals by switching party, independently as well as interacting with overall transparency and ex ante transparency (ex post transparency turned out to be insignificant in interactions). In line with our expectations based on prior research (Bauhr-Charron, 2017), a higher share of respondents exercising voice is associated with lower single bidding. The effect size is substantial as well as significant: a 10% increase is the share of voters exercising voice in a region is associated with a 3.4% decrease in average single bidding prevalence among public buyers in that region.

Figure 3. The predicted effect of ex post transparency on the percentage of single bidding in public procurement

When investigating the interactions between voter responses to corruption and transparency, three crucial findings emerge pursuant H3. First, voters' voice crucially enhances the negative impact of ex ante transparency on corruption risks (Figure 2). In regions where the share of voters responding to a corruption scandal by voting for another party in high (45%), the impact of transparency is very strong: moving from ¼ to ¾ of items reported decreases predicted single bidding from 18% to 13%, a 5% point decrease. While in regions with few voters willing to exercise voice (15%), ex ante transparency has a close to negligible impact: moving from ¼ to ¾ of items reported decreases predicted single bidding from 27% to 25%, a slightly less than 2% point decrease. Second, when including the interaction term in the multilevel regression models, the independent impact of transparency on corruption risks is insignificant; that is most of the beneficial impacts of transparency on corruption control

goes through responsive voters and correlated phenomena such as active civil society and business associations. Third, the fact that ex ante transparency is highly significant in interaction with voters exercising voice, while ex post transparency is not, suggests that anticorruption efforts are most successful where businesses are well informed to demand accountability in tenders while citizens motivate parties to fight corruption through electoral responses. Such a broad-based anticorruption coalition has been identified as effective in a wide range of studies (Johnston & Kpundeh, 2002).

4. Policy lessons

We have shown that transparency in public procurement can act as an antidote to corruption. However, the type of transparency and the intended stakeholder acting on it play a crucial role. Transparency allowing insiders with knowledge and resources to mobilize appear to be a lot more effective anticorruption tool than transparency intended to inform the wider public.

In addition, anticorruption coalitions between insiders of public procurement, predominantly bidding firms, and responsive voters willing to ditch their preferred party when it gets implicated in corruption appear to work most effectively in fighting corruption with the help of transparency.

Based on our findings, policy makers who can enforce transparency rules for fostering anticorruption may use our specific pointers to concentrate their efforts on information content, actors, and environments where greatest impact is expected.

Acknowledgements

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