Impact of Political Connections and Corruption on Government Procurement in China

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Introduction

- Even an anti-corruption intervention that is well-designed, meticulously implemented, and appears successful may struggle to achieve comprehensive improvements in controlling corruption if corrupt individuals can employ evasive tactics (Dávid-Barrett and Fazekas, 2020).
- According to the *Law of the People's Republic of China on Bid Invitation and Bidding*, open bidding mandates that government officials publicly announce bids to any eligible legal entities and organizations. In addition, open bidding is the most competitive method and the least susceptible to corruption (Gong and Zhou, 2015).
- Corruption in public procurements within a scoring-auction framework, where a corrupt politician receives kickbacks from the winning bidder and selects the scoring rule. Such corruption consistently results in lower quality and lower prices (Dastidar and Mukherjee, 2014).
- The project aims to empirically investigate how political connections and corrupt favors between local governments and firms affect the allocation of government procurement contracts in China. Specifically, it examines how adopting the open bidding method changes the firms selected and lowers the procurement prices paid by local governments. In the first stage, our RD analysis reveals that meeting legal thresholds significantly increases the likelihood of employing the open bidding method. In the second stage, we further investigate whether the adoption of open bidding affects the product prices procured by the governments.
- One empirical challenge faced by the project is to establish the causal relationship between open bidding and procurement prices, since the local government's choice of this method might be highly endogenous. To address this, the project intends to exploit discontinuous variation in procurement methods introduced by China's public procurement regulations.

Methods

Data

- The information is sourced from the official government procurement website (www.ccgp.gov.cn) and includes details of 792,931 contracts procured by both local and central government entities. More than 65% of these contracts lack information on product names, quantities, and prices, leaving 255,134 complete observations.
- The dataset without missing information includes contracts for both single and multiple products, with over 90% of these contracts pertaining to a single product.
- Threshold data is manually gathered from the official websites of central and local governments. Numerous thresholds prior to 2015 are no longer available online, and over 15% of legal thresholds are missing.

Sample

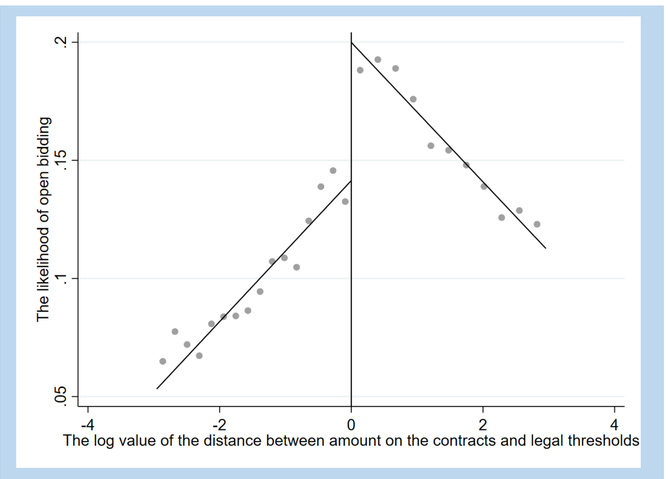
- Contracts of single product (n=234,601) were drawn from the full sample set.

Method

- We exploit regression discontinuity (RD) design to fulfill strong second stage requirement. RD is is a quasi-experimental design used to identify causal effects by assigning a cutoff point on an assignment variable, where observations on either side of the cutoff are compared to estimate the treatment effect.
- The running variable (Xi) is the log of the difference between the contract amounts and the legal thresholds, with 0 as the cutoff value, meaning the contract amount precisely reaches the legal threshold to conduct open bidding. The dependent variable (Yi) denotes the product prices.
- $Y_i = f(X_i) + \beta D_i + e_i = f(X_i) + \beta(X_i \geq X_0) + e_i$, where $\mathrm{D_i} = \begin{cases} 1, if\ X_i \geq X_0 \\ 0, if\ X_i < X_0 \end{cases}$.

Results

Figure 1. RD plot between log value of Distance and Open Bidding with Evenly-Spaced Bins and 2 times the MSE-optimal Bandwidth



First Stage:

- The regression discontinuity plot displays a noticeable gap in the probability of adopting the open bidding method at the running variable's cutoff point. This evidence indicates that surpassing the legal threshold significantly boosts the likelihood of utilizing open bidding by around 6%. This trend is particularly evident when focusing on contracts with amounts that are close to the legal thresholds, both slightly below and above.

Second Stage:

- The RD plot reveals a significant gap in product prices at the cutoff point of the threshold to open bidding. This suggests that exceeding the legal threshold results in a marked decrease in product prices. This pattern is especially pronounced in contracts with amounts just below and just above the legal thresholds.
- By using IMSE-optimal bins, we minimize the error across the entire distribution, leading to a more accurate and balanced representation of the data.
- Using the MSE-optimal bandwidth ensures that the smoothing is done in a way that minimizes the average error, balancing the trade-off between bias (over-smoothing) and variance (under-smoothing).

Figure 2. regression discontinuity plot between log value of Distance and Product Prices with IMSE-Optimal Evenly-Spaced Bins and the MSE-optimal Bandwidth

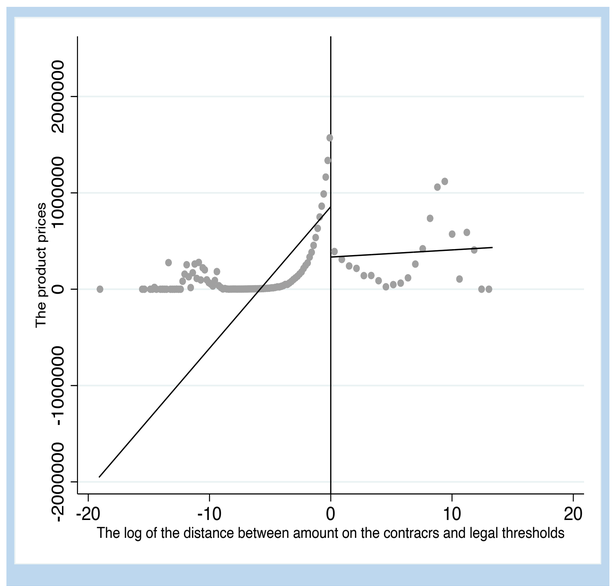


Figure 3. second stage: regression discontinuity plot of contracts related to printing services

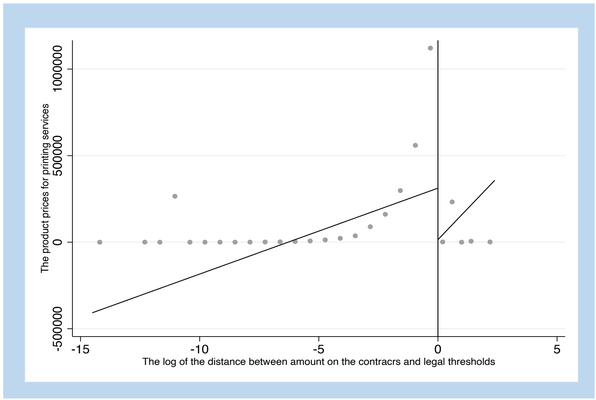
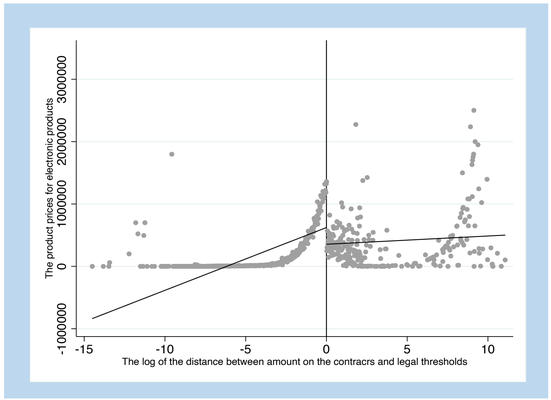


Figure 4. second stage: regression discontinuity plot of contracts related to printing services



Future Research

- More analysis is needed to investigate the second-stage results for extremely large product prices and to determine their effects on the regression discontinuity (RD) design outcomes.
- Although the regression discontinuity (RD) design demonstrates a significant relationship between the adoption of open bidding and potential corruption, as indicated by product prices, it is necessary to determine if this is the primary mechanism through which open bidding influences procurement outcomes and if other factors are unrelated to corruption.

Dávid-Barrett, E., & Fazekas, M. (2020). Anti-corruption in aid-funded procurement: Is corruption reduced or merely displaced? *World Development, 132*, 105000. Doi: 10.1016/j.worlddev.2020.105000
Gong, Ting, and Na Zhou. "Corruption and marketization: Formal and informal rules in Chinese public procurement." Regulation & Governance 9, no. 1 (2015): 63-76.
Dastidar, K. G., & Mukherjee, D. (2014). Corruption in delegated public procurement auctions. *European Journal of Political Economy, 35*, 122-127.