Competition and Contract Performance

Evidence from U.S. Defense Procurement

by R. Carril, A. Gonzalez-Lira, and M. S.Walker

Decio Coviello

HEC Montréal

19/07/2020

HEC MONTRÉAL

Summary of the study

- **Objective:** Document whether and how publicizing a public procurement auction causally affects entry and the costs of procurement.

- **Data:** Procurement Data from U.S. Department of Defense merged with data from the online platform FedBizOpps.gov

- **Identification:** This paper identifies the effect of increased publicity, from a discontinuity in publicity requirements (FAR, 5.101).

- **Findings:** a quasi-experimental variation in publicity:
  - induces more entry in auction and reduces award prices
  - selects different winners: it increases the likelihood that the winner hails from abroad and reduces incumbency
  - have adverse effect on the ex-post renegotiations of the works, as measured by delays and cost-overruns

- **Policy implications** of enhanced competition:
  - save $27.4 million/year (reduced prices) but add additional cost-overruns by $138.8 million/year
  - → $111.4 million of extra annual spending for taxpayers

Policy relevance of the study

- This paper aims at answering to **an important policy question** and at contribution to a growing academic debate

- Policy makers believe that public procurement **auctions need to be publicized more**. Regulators, both at the national and at the supranational level, have therefore moved to mandate publicity.
  - These regulations typically take the form of enhanced publicity requirements for auctions exceeding a certain value threshold.
  - The EU mandates such advertising requirements, as does the US Federal Government.

- Lack of publicity is seen as a sign of limited competition, insufficient transparency, and possibly of **collusion and corruption.**

- Despite this widespread regulatory intervention there **is limited evidence** showing that publicity increases bidder participation, nor that increased participation lowers procurement costs.
  - structural academic literature seemingly casts doubt on the first channel: surprisingly, **lowering entry costs (i.e., enlarging potential competition) for bidders is predicted to decrease entry.** The data utilized in the literature (e.g., Li and Zheng, 2009; Marmer et al., 2013a; Roberts and Sweeting, 2011), it should be stressed, do not feature exogenous variation in potential competition and entry costs, and so their predictions are out-of-sample counterfactuals coming from a structural model.
  - For Italy, **Coviello and Mariniello (2014)** answer to the same research question with same methods but has opposite implications→publicity vs non-publicity improves procurement
    - but Italy is full of collusion and corruption

HEC MONTRÉAL

Comments on policy implications

- Recall that the paper concludes that exogenous variations in publicity cause extra 111.4 million of extra annual spending for taxpayers
  - save $27.4 million/year (reduced prices) but add additional cost-overruns by $138.8 million/year

- This calculation extrapolates estimates obtained around the threshold (LATE) to the entire sample of auctions

- Note that: in RRD effects are identified for those near the cutoff

- The effect of treatment on inframarginal units is also of interest (to compute overall costs), but identification of such effects requires stronger assumptions than those required for identification at the cutoff

- See Angrist and Rokkanen, JASA (2015) with also application to fuzzy-RDD

HEC MONTRÉAL

Comments on the research design

- Authors are extremely transparent on the main limitation of the data and the design
  1. data has no info on estimated value of the contracts but only info on the winning bids
  2. data shows clean evidence of manipulation around the threshold (25% of the mass just below the threshold)

- A nice technical contribution of the paper will be to solve these major shortcomings of the data. For now the paper,
  - uses bunching estimators to recover the density of the estimated values of the contracts to be used for the RDD analysis
  - proposes to adapt the use of bunching estimator in this innovative context
    - Gerard, Rokkanen, and Rothe (2020)

- Note: this latter methods are not built for the case of measurement error in the running variable (see Pei and Shen, 2016, and Bartalotti et al. 2020, JBES;)

- Premature part of the paper but look forward for formalizations (see footnote 12)

Definition of Treatment

- The first stage effect of threshold on publicity is small. Why?

- FedBizOpps only has the notices posted on their website. Is this why you do have a lot of non-compliance? Or simply the Department does not publicize?

- Note that: the Federal Acquisition Regulation (5.101) mandates all procurement agencies to publicize the procurement contracts with a value exceeding $25,000 on the Commerce Business Daily, while those with a value below the threshold need only be publicized in a public place, or on any appropriate electronic mean.

- What happens if a contract is not publicized?

First Stage
0.240
(0.010)
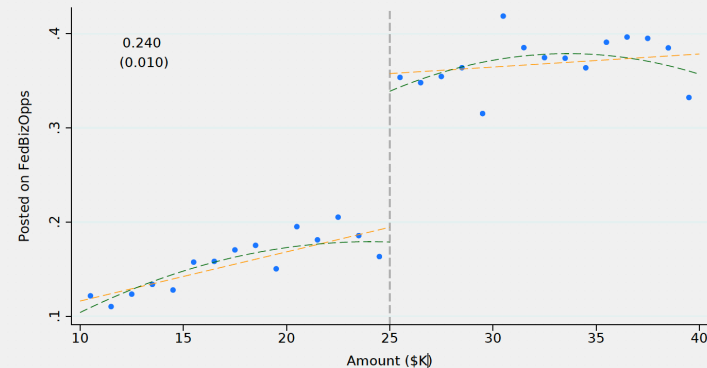
Comments on the implementation of fuzzy-RDD

- To estimates effects of publicity on outcomes paper implements a fuzzy-RDD using estimated density of reserve prices with no bunching
- Paper estimates equation 6 using first-stage equation 7

$$Y_k = \alpha + \beta \cdot D_k + g(\tilde{p}_k) + X'_k\delta + \epsilon_k \quad , \tag{6}$$

$$D_k = \lambda + \gamma \cdot \mathbf{1}[\tilde{p}_k > \bar{p}] + g(\tilde{p}_k) + X'_k\eta + \nu_k \quad , \tag{7}$$

- Paper could be improved in specifying:
  1. how g() is approximated→ LLR with kernel?
  2. how window around the threshold is chosen→ Calonico and Cataneo?
  3. performing placebo tests at artificial thresholds
  4. reporting balance tests of covariates (graphs in the slides' appendix look good)

HEC MONTRĒAL

Other comments

- Model assumes sealed bid first-price auction but in the data only 61.4% are competitive auctions.
  - Are results the same if you focus on competitive auctions only?
  - There are no quality components of the bids for goods and services?

- For goods and services we often care of ex-post services (e.g., maintenance of photocopy machines). How these ex-post services are taken in consideration?

- Paper should look at Marmer et al., (2013, Journal of Econometrics) that formally analyze selection in auctions in case of lower entry costs

- Paper should cite: Giuffrida and Rovigatti (2018) and Juan Camilo Serpa (2020) that use RDD in similar data

HEC MONTRÉAL