Post-Tender Corruption and Risk Allocation: Implications for Public-Private Partnerships

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Background

- **Anti-corruption program** in public procurement to avoid that corrupted officials alter procurement process to benefit a contractor in exchange for a bribe

- Fighting **corruption at tendering stage**: rules for: (i) transparency; (ii) adequate advertising of tender calls; (iii) sufficient time to prepare bids; (iv) restrict the discretion on auction format or award criterion; (v) introduce information technology to reduce bids manipulation

  (Lengwiler and Wolfstetter, 2006).

- ⇒ **Redesign tendering process**: (i) Underweight on quality; (ii) increase tendering costs; (iii) less use of local information

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- **Corruption at contract execution stage**: (i) Use of sub-standards materials hidden by complacent public officials; (ii) False materials invoices; (iii) Undue price revisions or contract lengthening when specific circumstances arise; (iv) undue supplementary works; (v) penalties for underperformance waived

  (Søreide, 2002)

- ⇒ **Redisign contractual arrangement**: (i) limit on supplementary works; (ii) limit on price revisions.

This paper

- (i) Role of **payment scheme and risk allocation** to reduce corruption at contract execution stage.
- (ii) Implications on **benefit and cost** of procurement based on high risk transfer, **PPPs**.

- **Focus**: **`Specific Circumstances'** clauses:
  - Supervening events
  - Compensation Events
  - Relief Events'
  - Contingent contracts reduce transparency (e.g. revenue guarantees in Hemming, 2006)

The model

- Risk neutral public authority
- Risk averse contractor builds and manages an infrastructure
  .
- Verifiable Revenue from the service

$$R=\theta+e+\zeta$$

- **θ:** shock at building stage; element of verifiability ·
  θ unknown ex-ante; privately observed by contractor ex post
- ζ: shock at operational stage; not verifiable.

Monitoring

- Public official generates a binary signal : $\sigma \in \{\theta, \emptyset\}$
  - $\sigma = \theta$ w.p. ε
  - σ hard information
- Official infinite risk-aversion (limited liability)
- Contract btw Autority and Contractor:

$$\alpha(\theta,\sigma)+\beta(\theta,\sigma)R$$

- Contract btw Autority and Official: $\mathbf{s(\sigma)}$
- Bribe $\boldsymbol{\tau}$ btw Official and Contractor
- official benefits: $\mathbf{k\tau}$
- **k :** type of of Oficial; private information

Strong institutions

- Perfect monitoring $\varepsilon \equiv 1; \kappa = 0 \Rightarrow \theta$ verifiable
- Contractor chooses operational effort $e(\theta)$ to max

$$\alpha(\theta) + \beta(\theta)(\theta + e) - e^2/2 - r\sigma^2\beta^2/2$$

$$\Rightarrow e(\theta) \equiv \beta(\theta)$$

- Only net revenues $R' = R - \theta = e + \zeta$ matter for incentives purposes
- $\Rightarrow$ No value from transferring building risk θ to the contractor
- Optimal to **fully insure** contractor against θ shocks $U(\theta^H) = U(\theta^L)$:
- Contractor keeps **constant share** of revenues: $\beta(\theta)$ constant
- Contrator receives **full monetary compensation** (specific circumstances clauses) : $\Delta\alpha = \beta\Delta\theta$

Weak institutions

- $\varepsilon<1;\kappa>0$
- Contract now contingent on reported signal
- If $\sigma_1=\theta$ (informative monitoring): as before (full insurance and monetary compensations)
- If $\sigma_1=\emptyset$ (uninformative monitoring): asymmetric information btw Authority and Contractor
- Contractor reports θ : incentive to claim always negative shock to receive a compensation $U(\theta^H)-U(\theta^L)\geq\Delta\theta\beta^L$
- $\Rightarrow$ **full insurance not possible** $U(\theta^H)>0>U(\theta^L)$
- $\Rightarrow$ contractor now bears **endogenous risk,** with associated risk premium $\phi(\Delta U_2)$

The cost of corruption

- Stake from corruption: the additional risk premium $\phi(\Delta U_2)$
- With public officials having all barganining power, he gets $k\phi(\Delta U)$.
- Anti-corruption program:

$$\mathbf{s_1 - s_2 \geq k\phi(\Delta U)}$$

Anti-corruption program

To reduce corruption need to

- (i) Make public officials **accountable** and increase payment s_1 to official if informative monitoring;

$$s_1 = k^* \phi(\Delta U)$$

- (ii) **Increase risk transfer** to contractor: contractor receives full compensation only if public official is able to prove that negative shock hit the firm. Otherwise, the contractor is only partially compensated.
- (iii) **Reduce revenue share** to contractor to reduce stake from corruption $\phi(\Delta U)$ since $\Delta U = \Delta\theta\beta^L$

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- Corruption is an equilibrium-phenomenon

$$s_1 = k^* \phi (\Delta\theta\beta^L)$$

- All public officials with $k > k^*$ will be corrupted

Policy implications

- Guasch (2004), and Guash & Straub (2009) emphasize cost of contract renegotiation due to corruption
- We emphasize cost of contingent clauses due to corruption
- In countries with weak institutions, **use of contingent contracts leaves more scope for corruption**, which increases cost of risk transfer and reduces the scope for PPP.
- When **project risks are higher** ($\Delta\theta$ greater), the welfare loss from corruption under PPP is greater.