

Advances in the Economics of Corruption

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Corruption is a difficult subject

- ▶ It existed for thousand years and still with us
- ▶ Every second paper starts with a discussion what corruption is
- ▶ There is probably no field "Corruption"
- ▶ Nobody works only on corruption
- ▶ The obvious problem of data
- ▶ The main concern is corruption in the government, not in firms
- ▶ Assumption that the very top of the government really want to fight corruption
- ▶ To get ideas and inspiration:
 - ▶ *Corruption and Government: Causes, Consequences, and Reform* (1999) by Susan Rose-Ackerman
 - ▶ "Corruption" (2009) by Abhijit Banerjee, Rema Hanna and Sendhil Mullainathan (in Handbook of Organizational Economics, R. Gibbons and J. Roberts (eds.), forthcoming)

Plan of the talk

- ▶ Some basic concepts and ideas
- ▶ Empirical research
- ▶ Advances
 - ▶ Field studies/experiments
 - ▶ Drugov (2010) (theory)
- ▶ Open questions and directions for research

Allowing some corruption may be constrained optimal solution

- ▶ Banerjee (QJE 1997)
 - ▶ The (benevolent) government intervenes when there is a market failure
 - ▶ That is, the government does not like the allocation obtained with a price mechanism
 - ▶ The intervention is implemented by self-interested bureaucrats
 - ▶ They do want to use the price mechanism in order to maximize their bribe income
 - ▶ The government creates rules to prohibit it but cannot enforce it completely because of informational problems
- ⇒ Market failure combined with an agency relationship lead to corruption

And you can derive some interesting predictions

- ▶ Acemoglu and Verdier (AER 2000): if bureaucrats may take bribes, it might be optimal to hire more of them
 - ▶ Bureaucrats check if the firms use a cleaner but more expensive technology. If not, they impose a fine.
 - ▶ To induce the right choice, this fine should be high enough. Fewer bureaucrats there are, the higher should be the fine
 - ▶ However, a high fine creates a room for a high bribe. The bureaucrats should then get a high rent
 - ▶ It may be cheaper to increase the number of bureaucrats but to pay less to each of them

Complementarities

- ▶ Often, corruption reinforces itself:
 - ▶ Costs of corruption decrease
 - ▶ It is harder to detect/punish corruption when it is more widespread
 - ▶ Social/moral costs decrease as corruption becomes the norm
 - ▶ Benefits might increase
 - ▶ As more competitors gain advantages (decrease costs, win tenders, etc.) through bribes, not doing the same becomes very costly
 - ▶ More dishonest people self-select into the activity that becomes more corrupt

⇒ Multiple equilibria: low and high corruption

⇒ History and dynamics matter (culture?)

Two kinds of corruption

▶ Extortion

- ▶ The bureaucrat takes a bribe for something that he is supposed to do
 - ▶ For example, for giving a licence to the firm which is qualified for it

⇒ In the short term, it is like a tax, a transfer to the bureaucrat

⇒ In the long term, it leads to underinvestment

- ▶ The two parties are opposed ⇒ easy to destroy

▶ Collusion (capture)

- ▶ The bureaucrat takes a bribe for something that he is not supposed to do
 - ▶ For example, for giving a licence to the firm which is not qualified for it

⇒ There is a negative externality (on consumers, competitors, society)

- ▶ The two parties share a common interest ⇒ difficult to destroy

There are many other things...

- ▶ Why corruption is bad?
 - ▶ Maybe, not? Corruption "greases" the wheels (Leff 1964)
 - ▶ Aidt (2009): no evidence of this
- ▶ Culture
 - ▶ Fisman and Miguel (JPE 2007): diplomats from high-corruption countries accumulated more unpaid parking tickets
 - ▶ Barr and Serra (2010): students from high-corruption countries behave more corruptly in a lab experiment

Empirical work: available data

- ▶ Case studies and anecdotal evidence
 - ▶ Rose-Ackerman (1999), Wade (1980s), many others
- ▶ Country Perception Indices (Transparency International, World Bank, Economist Intelligence Unit)
 - ▶ Cross-country regressions
 - ▶ Mauro (AER 1995)

Empirical work: available data

- ▶ Cross-checking studies: comparing different sources for the same information
 - ▶ Fisman and Wei (JPE 2004, AEJ:AE 2009): Exports are recorded in both the origin and destination countries
 - ▶ The "gaps" are positively related to the tax rates
 - ▶ Reinikka and Svensson (QJE 2004): central government data on school spending and the survey of schools
 - ▶ Olken (JPE 2007): independent estimation of road building costs is compared to the claimed costs
- ▶ Estimating the value of political connections with stock market data (event studies)
 - ▶ Fisman (AER 2001): effect of rumours about Suharto's death on the Indonesian firms
 - ▶ Faccio (AER 2006): effect of unexpected appointments/elections on the value of connected firms around the world

Advances

- ▶ Understanding the microstructure / industrial organization of corruption
 - ▶ Widen the focus: from bribes to the whole market
 - ▶ Uncovering the mechanisms of how corruption operates and distortions in which it results
 - ▶ Looking not at a separate bureaucrat but at the whole bureaucracy

Empirical research: Field studies/experiments

- ▶ Svensson (QJE 2003): detailed information on firms in Uganda
 - ▶ There is "bribe discrimination" based on the firms' ability to pay and their bargaining power
- ▶ Bertrand, Djankov, Hanna and Mullainathan (QJE 2007): tracking people applying for a driving licence in India
 - ▶ Control group (many people pay bribes, some do not pass the test)
 - ▶ Another group received a bonus if the licence is obtained in the minimum legal time (1 month) (succeeded by paying higher bribes)
 - ▶ Third group is given free driving lessons (almost did not matter)

Empirical research: Field studies/experiments

- ▶ Barron and Olken (JPE 2009): tracking truck drivers in Indonesia (304 trips, over 6,000 bribes). Market structure matters and bribes follow standard pricing logic:
 - ▶ Less checkpoints in one part of the route increases bribes in the other part
 - ▶ Bribes depend on the (perceived) ability to pay
 - ▶ Bribes for the overweight depend on the overweight
 - ▶ Complex pricing schemes (two-part tariffs)
- ▶ Sequeira and Djankov (2010): tracking 1,300 shipments through two "substitutable" ports in South Africa and Mozambique
 - ▶ In one port there is more corruption
 - ▶ Some firms prefer to go to a more distant but a less corrupt port
- ▶ A problem with such studies: very expensive and organizationally difficult

Main question

- ▶ Indian case is *monopoly*: applicants cannot choose where to (re)apply
- ▶ Russian case is *competition*: applicants can choose where to (re)apply

What are the consequences of this institutional difference for applicants, policemen and society?

This paper

- ▶ The two types of corruption coexist, that is, there are both qualified and unqualified applicants
- ▶ Moreover, the type of corruption is endogenous, that is, applicants are initially unqualified but can invest and become qualified

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2. **ex ante incentives:** the incentives of applicants to become qualified (**competition is better**)

Firms

There are firms and bureaucrats

Firms need a licence to produce

- ▶ If a firm produces it obtains net revenues 1
- ▶ Initially firms are unqualified
- ▶ They might invest c to become qualified forever
- ▶ If an unqualified firm produces, it generates a negative externality $1 + Lc$, $L > 0$

Bureaucrats

Bureaucrats are honest (share h) or dishonest

- ▶ Honest ones give licence only to qualified firms
- ▶ Dishonest ones give the licence to any firm in exchange for a bribe (their bargaining power is $\frac{1}{2}$)
- ▶ Firms do not know the type of the bureaucrat before they apply
- ▶ Bureaucrats know the type of the firm at no cost
- ▶ Bureaucrats have unlimited capacity of serving firms

Timing

- ▶ Many periods (infinite horizon)
- ▶ Reapplication is costly because future is discounted at discount rate $\delta < 1$
- ▶ In each period a firm
 - ▶ Decides whether to invest (if it has not invested before)
 - ▶ Applies to a bureaucrat
 - ▶ Bargains about the bribe if the bureaucrat is dishonest
 - ▶ If obtains the licence, produces and the game ends
 - ▶ If not, the next period starts

The monopoly case

Meeting a dishonest bureaucrat any firm pays the bribe

$$b_m^q = b_m^u = b_m = \frac{1}{2}$$

as it cannot walk away from him

- ▶ Profits if the firm invests now

$$\Pi_m^q = h + (1 - h)\frac{1}{2} - c$$

- ▶ Profits if the firm does not invest now

$$\Pi_m^u = \delta h(1 - c) + (1 - h)\frac{1}{2}$$

⇒ The firm invests only if its costs are smaller than

$$c_m^* = \frac{(1 - \delta)h}{1 - \delta h}$$

The competition case

- ▶ Profits if the firm invests now

$$\Pi_c^q = h + (1 - h)(1 - b_c^q) - c$$

- ▶ Profits if the firm does not invest now (and never)

$$\Pi_c^u = \delta h \Pi_c^u + (1 - h)(1 - b_c^u)$$

Solving for bribes:

$$b_c^q = \frac{1 - \delta}{2 - \delta + \delta h} < b_c^u = \frac{1 - \delta}{2 - \delta - \delta h} < \frac{1}{2}$$

⇒ The firm invests only if its costs are smaller than

$$c_c^* = \frac{4h(1 - \delta)}{(2 - \delta)^2 - \delta^2 h^2}$$

Welfare

Welfare depends on who (qualified or unqualified) gets the licence and when

Bribes are considered as transfers that do not affect welfare per se

- ▶ If the firm is qualified,

$$W_m^q = W_c^q = 1 - c$$

- ▶ If the firm is unqualified
 - ▶ In the monopoly regime

$$W_m^u = \delta h(1 - c) - (1 - h)Lc$$

- ▶ In the competition regime

$$W_c^u = -\frac{1 - h}{1 - \delta h}Lc$$

Comparison of the two regimes

Proposition

Ex post allocation. *If the first-period investment decision is the same under the two regimes, the **monopoly** regime is (weakly) better, that is, $W_m^u > W_c^u$ and $W_m^q = W_c^q$.*

Ex ante incentives. *The firm has more first-period investment incentives under the **competition** regime, that is, $c_c^* > c_m^*$.*

Why is monopoly better at ex post allocation?

- ▶ When firms qualify, production is immediate, size of bribes does not matter
- ▶ When firms do not qualify, in monopoly regime they obtain the licence less often (and sometimes they invest)

Why is competition better at ex ante incentives?

- ▶ In the monopoly regime, the only reason to invest is:
 1. if the bureaucrat is honest, the firm will have to invest and reapply which is costly
- ▶ In the competition regime, there are two reasons to invest:
 1. if the bureaucrat is honest, the firm will have to reapply (and possibly invest) which is costly
 2. If the bureaucrat is dishonest, a qualified firm pays a lower bribe than a qualified firm because its outside option (reapply to another bureaucrat) is better

Comparison of the two regimes

Thus, the trade-off between the two regimes is the trade-off between ex ante incentives and ex post allocation.

▶ Provision of driving licences

Learning how to drive is not very costly for any applicant. Ex ante incentives are very important

⇒ competition regime is probably better

▶ Provision of passports

Investing to become a citizen is not really possible in most cases. Ex post allocation is crucial

⇒ monopoly regime is probably better

Punishments

- ▶ Punishment is an expected fine for a corrupt deal
- ▶ It depends whether the firm is qualified or not
- ▶ Only the sum of punishments for the firm and the bureaucrat matters
- ▶ There is some maximum punishment smaller than the value of the service

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How do punishments affect ex ante incentives and ex post allocation (when bureaucrats stop asking bribes)?

What are the optimal punishments?

Punishments

- ▶ Incentives to invest depend on the difference between punishments when the firm is unqualified (collusion) and qualified (extortion)
- ⇒ If corruption is not prevented, punishment for collusion should be as high as possible and for extortion it should be as low as possible (as in Polinsky and Shavell (2001))

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- ▶ Incentives to invest are more sensitive to punishments in the competition regime (effect through the outside option that is absent in the monopoly regime)
- ⇒ Punishments are more effective in the competition regime

Punishments

- ▶ The surplus that the firm and bureaucrat share is lower in the competition regime since the firm's outside option is positive
- ▶ A higher punishment has two effects on the surplus:
 1. A direct negative effect
 2. An indirect positive through a lower outside option

The second effect is weaker when the firm is qualified

- Extortion from qualified firms can be completely prevented by a punishment which is lower than the value of the licence
- ⇒ If this punishment is feasible, then punishment for extortion should be set high (for collusion it should always be high)
- ⇒ Thus, punishments for extortion exhibit very high variation in the competition regime (*do we observe this?*)

Dynamic (GE) analysis

- ▶ Agents choose to become entrepreneurs or bureaucrats
- ▶ Agents can be honest or dishonest
- ▶ The type does not matter for entrepreneurship but does for bureaucracy
- ▶ Honest agents enter bureaucracy at some exogenous rate (“enthusiasts”)
- ▶ Decision of dishonest ones depends on the relative income of the two occupations
- ▶ No salaries, the bureaucrats’ income comes solely from bribes

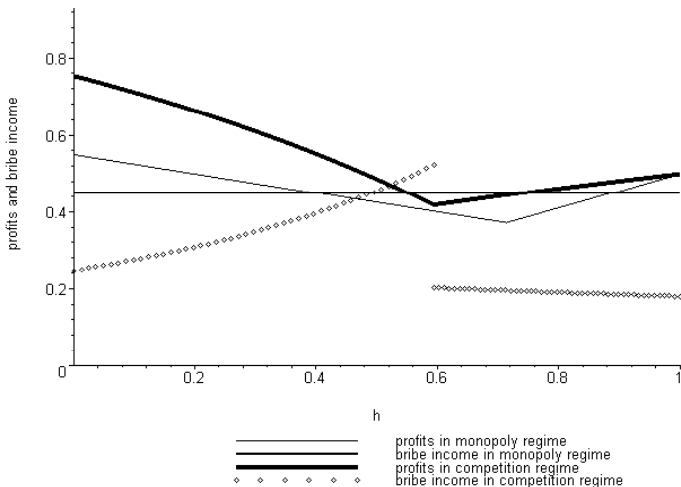
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Equilibrium: Denote profits $\Pi(h)$ and bribe income $B(h)$

- ▶ $\Pi(h) = B(h)$
 - ▶ $h = 0$ and $\Pi(0) \leq B(0)$
 - ▶ $h = 1$ and $\Pi(1) \geq B(1)$
- ▶ Qualitative results depend on the bargaining power
 - ▶ Stable equilibria: $\Pi_h(h^{eq}) < B_h(h^{eq})$

Dynamic (GE) analysis



Open questions and directions for research

- ▶ Look at Banerjee et al. (2009), Section 6
- ▶ Is it possible to win over corruption?
 - ▶ There are few modern examples but they are mostly quite particular (Singapour, Hong Kong, Georgia?)
 - ▶ However, all developed countries were very corrupt only relatively recently
 - ▶ *Corruption and Reform: Lessons from America's Economic History* (2008) E. Glaeser and C. Goldin (eds.)
 - ▶ Economic literature does not seem to use this experience
- ▶ We know that information is crucial
 - ▶ Corruption is illegal
 - ▶ It seems it should imply that it is secret
 - ▶ In many instances this is not the case
 - ▶ How uncertain are the outcomes?

Open questions and directions for research

- ▶ How do corrupt deals get enforced?
 - ▶ Again, the illegal nature of corruption suggests problems with enforcement
- ▶ Learning by bureaucracy (not only related to corruption)
 - ▶ Many measures/reforms have (desired) short-term effects
 - ▶ However, in the long-term bureaucrats learn and adjust to new rules
- ▶ Hierarchical corruption: bureaucrats are in a pyramid, not in a line
 - ▶ Bureaucrats pass part of the bribes up the hierarchy
 - ▶ Entrants to bureaucracy often have to pay for their posts