

Lecture 13

Topics in Development Economics: Corruption

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Government corruption:

Sale by government officials of government property for personal gain.

Examples: Bribes for

- providing permits and licenses;
- giving passage through customs;
- prohibiting the entry of competitors.

Motivation

Corruption is pervasive and significant around the world: both in the developing and developed countries. Still, economic studies of corruption are rather limited.

Also, the debate on the effects of corruption is particularly fervent.

- ① Some authors have suggested that corruption might *raise* economic growth (Leff(1964), Huntington (1968)):
 - 1.1 Corrupt practices such as "speed money" would enable individuals to avoid bureaucratic delay.
 - 1.2 Government employees who are allowed to levy bribes would work harder, especially in the case where bribes act as a piece rate.
- ② Others argue that corruption would tend to lower economic growth (Shleifer and Vishny (1993), Murphy, Shleifer and Vishny (1991)).

- 1 government-produced good;
 - *Example:* passport, or a right to use a government road, or an import license.
- This good is homogeneous;
- There is a demand curve for this good, $D(p)$, from the private agents;
- This good is sold for the government by an official *who has the opportunity to restrict the quantity of the good that is sold.*
 - *Example:* he can deny a private agent the passport, access to a road, or an import license.
 - *Example:* a long delay or an imposition of many requirements.

- The official can restrict supply without any risk of detection or punishment from above.
 - ① *When/why can this be true?*
- The government official is a monopolist selling the good.
- His objective is to maximize the value of the bribes he collects from selling this government good.

- The official can restrict supply without any risk of detection or punishment from above.
 - ① *When/why can this be true?*
 - Corrupt officials go unpunished because their bosses often share in the proceeds.
 - Because public pressure to stop corruption in most countries is weak.
- The government official is a monopolist selling the good.
- His objective is to maximize the value of the bribes he collects from selling this government good.

Model

- Let p be the official government price of this good.
- The cost of producing this good is completely immaterial to the official since the government is paying this cost.
- The marginal cost to the official of providing this good:
 - ① In the case *without theft*, the official actually turns over the official price of the good to the government.
 - The marginal cost is p .
 - *Example*: When an official sells a license for a government price plus a bribe, he keeps the bribe but the amount p stays with the government; hence p is his marginal cost.
 - ② In the case *with theft*, the official does not turn over anything to the government at all, and simply hides the sale. In this case, the price that the buyer pays is only equal to the bribe, and might be even lower than the official price.
 - The marginal cost is zero.
 - *Example*: Customs officials often let goods through the border for less than the official duty, but then give nothing at all to the government.

- ② *Which of the two cases is more attractive to buyers?*

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- The second case (corruption with theft) is more attractive to buyers, as in the first case corruption always raises the total price of the good, whereas in the second case it might reduce it.

- If the official cannot price discriminate between buyers, then, as a monopolist, he will set the marginal revenue equal to the marginal cost.
 - ① In the case *without theft*, the total price with the bribe always exceeds the government price. It pays the official to create a shortage at the official price, and then to collect bribes as a way to clear the market for the government-supplied price.
 - ② In the case *with theft*, the total price might be below the government price.

Model

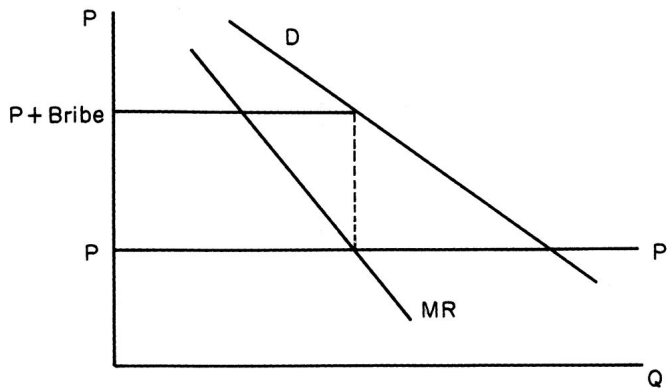


FIGURE Ia
Corruption without Theft

Model

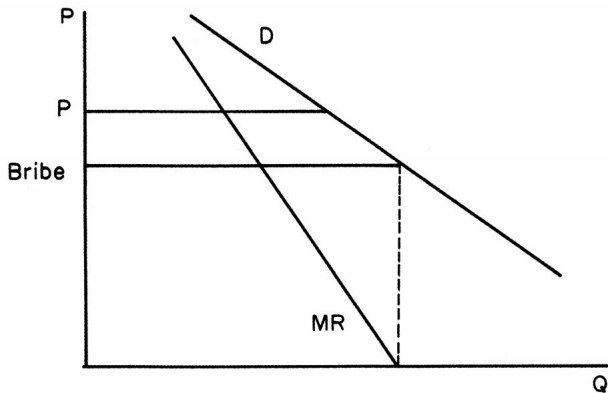


FIGURE 1b
Corruption with Theft

- The analysis suggests a similarity between bribes and commodity taxes.
 - 1 In the case *without theft*, the bribe is exactly equal to the revenue-maximizing commodity tax when marginal cost is equal to the state price p .

So far, we assumed that there is no risk of detention or penalty for the official.

What happens if the official is penalized for corruption?

- 1 If the probability of detection and the penalty are *independent* of the bribe and of the number of people who pay it, the official will charge the same bribe provided that the penalties are not so high that corruption is no longer profitable.
- 2 If the expected penalty *increases with the level of the bribe*, he might reduce the bribe and raise output.
- 3 If the expected penalty *rises in the number of people* he charges a bribe (for example, because of the higher probability of a complaint), then he will reduce the supply and raise the bribe.

This analysis suggests that corruption spreads because of competition both between the officials and between the consumers.

① Competition between the officials:

- If jobs are distributed among officials through an auction mechanism, whereby those who pay the most for a job get it:
 - The prospective officials who do not collect bribes simply cannot afford jobs.
 - Those who will collect more (perhaps through more effective price discrimination), will offer the higher officials more for the jobs, and so will be able to get them. Competition between officials will assure that maximal bribes are collected.

This analysis suggests that corruption spreads because of competition both between the officials and between the consumers.

2 Competition between the buyers in the case *with theft*:

- If buyer A can buy the government service more cheaply than buyer B can, then he can outcompete buyer B in the product market.
- So if buyer A bribes an official to reduce his costs, his competitors must do so also.
 - *Example*: If some trucks carry goods across a border after paying a small bribe instead of the official customs duty, the importers who pay the duty will not survive.

Corruption *with theft* spreads because:

- Observance of law does not survive in a competitive environment.
 - The buyer in this case has no incentive to inform on the official
⇒ The likelihood that corruption is detected is much smaller.
 - This creates a further incentive for corruption with theft to rise.
 - Because corruption *with theft* aligns the interests of the buyers and sellers, it will be more persistent than corruption *without theft*, which pits buyers against sellers.
- ③ *What are the policy implications of this result?*

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③ *What are the policy implications of this result?*

- The first step to reduce corruption should be to create an accounting system that prevents theft from the government.
- In the collection of taxes and customs duties, such accounting systems might well reduce corruption because without theft bribes raise the buyer's cost and hence give him the incentive to expose the corrupt official.

Industrial Organization of Corruption

The model discussed makes two strong assumptions:

- 1 A buyer needs only one government good to conduct his business.
- 2 The official is a monopolist in the supply of this good.

Industrial Organization of Corruption

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- 1 A buyer needs only one government good to conduct his business.
 - But in many cases, a private agent needs several *complementary* government goods to conduct business.
 - *Example:* An importer might need several government licenses and permits, to be obtained from several agencies, to bring in, unload, transport, and sell an imported good.
 - With multiple goods, the market structure in their provision becomes important. The different agencies that supply the complementary goods might
 - collude,
 - sell the different goods independently,
 - compete in the provision of some goods.

Industrial Organization of Corruption

The model discussed makes two strong assumptions:

- 2 The official is a monopolist in the supply of this good.
 - *Example:* This would work for the case of corruption in monarchies, in the old-time Communist regimes, and in regions dominated by a single mafia.
 - In such places, it is always clear who needs to be bribed and by how much.
 - The bribe is then divided between all the relevant government bureaucrats, who agree not to demand further bribes from the buyer of the package of government goods, such as permits.
 - *Example:* In Russia bribes were channeled through local Communist party offices. Any deviation from the agreed-upon pattern of corruption would be penalized by the party bureaucracy, so few deviations occurred.
 - Once a bribe is paid, the buyer gets full property rights over the set of government goods that he bought.

Industrial Organization of Corruption

The model discussed makes two strong assumptions:

- 2 The official is a monopolist in the supply of this good.

There are two extreme alternatives to this monopoly corruption scheme.

2.1 The sellers of the complementary government goods, such as permits and licenses, act *independently*.

- Different ministries, agencies, and levels of local government all set their own bribes independently in an attempt to maximize their own revenue, rather than the combined revenue of all the bribe collectors.
- *Examples:* some African countries, India, post-Communist Russia.
- *Example:* In Russia in 1991 getting a business started often required bribing the local legislature, the central ministry, the local executive branch, the fire authorities, the water authorities, etc.

The model discussed makes two strong assumptions:

- ② The official is a monopolist in the supply of this good.

There are two extreme alternatives to this monopoly corruption scheme.

- 2.2 There is *competition* among officials for providing the government goods.

Industrial Organization of Corruption

Case of a joint monopoly:

- Consider a joint monopolist agency that sets the bribe prices p_1 and p_2 of two government goods.
- Let x_1 and x_2 be the quantities of these goods sold.
- Let the official prices, equal to the monopolist's marginal costs, be denoted by MC_1 and MC_2 .
- The per unit bribes then are $p_1 - MC_1$ and $p_2 - MC_2$.
- The joint monopolist agency sets p_1 at which

$$MR_1 + MR_2 \frac{dx_2}{dx_1} = MC_1$$

Industrial Organization of Corruption

Case of a joint monopoly:

- When the two goods are complements, then:
 - $dx_2/dx_1 > 0$
 - At the optimum, $MR_1 < MC_1$
 - The monopolist agency keeps the bribe on good 1 down to expand the demand for the complementary good 2 and thus to raise its profits from bribes on good 2.
 - For the same reason, this agency keeps down the price of good 2.

Industrial Organization of Corruption

Case of independent monopolies:

- Consider that permits 1 and 2 are allocated by independent agencies.
- Each agency then takes the other's output as given, so:
 - $dx_2/dx_1 = 0$
 - At the independent agency's optimum, $MR_1 = MC_1$.
- Hence the per unit bribe is higher, and the output lower, than at the joint monopolist optimum.
- By acting independently, the two agencies actually hurt each other, as well as the private buyers of the permits.

Industrial Organization of Corruption

Case of independent monopolies:

- This problem is made much worse in many countries by free entry into the collection of bribes.
- New government organizations and officials often have the opportunity to create laws and regulations that enable them to become providers of additional required permits and licenses and charge them accordingly.
- In these cases, the property rights to the project are not really transferred to the buyer when he pays the bribe.
- When entry is completely free, the total bribe rises to infinity and the sales of the package of government goods, as well as bribe revenues, fall to zero.

Industrial Organization of Corruption

Case of competition:

- Consider the case where *each one* of the several complementary government goods can be supplied by at least two government agencies.
- *Example*: a United States passport.
- A citizen can obtain a U.S. passport without paying the bribe.
- The likely reason for this is that if an official asks him for a bribe, he will go to another window or another city.
- Because collusion between several agents is difficult, bribe competition between the providers will drive the level of bribes down to zero.

Industrial Organization of Corruption

- 4 *In which of the three cases the level of bribes is the lowest and the highest?*
- 5 *In which of the three cases the total amount of revenues collected is the highest?*
- 6 *Which of the three cases is the best and worst in terms of efficiency?*

Industrial Organization of Corruption

- 4 *In which of the three cases the level of bribes is the lowest and the highest?*
 - The level of bribes is the lowest in the third case, intermediate in the first, and the highest in the second.
- 5 *In which of the three cases the total amount of revenues collected is the highest?*
 - The total amount of revenues collected is the highest in the first case, since the independent monopolist suppliers drive the quantity sold so far down that the total revenues from corruption fall.
- 6 *Which of the three cases is the best and worst in terms of efficiency?*
 - Competition is the best; joint monopoly is the second best; and independent monopoly is the worst for efficiency.

Industrial Organization of Corruption

What determines the industrial organization of the different corruption markets?

Case of a joint monopoly:

- Enforcement of joint profit maximization in bribe collection is closely related to the problem of enforcing collusion in oligopoly.
- Collusion is more likely to be enforced when price-cutting can be easily detected, and punishment for price-cutting can be severe.
- Collusive bribe maximization can be enforced more easily when bribe *increases* can be more easily detected and more severely punished.

Industrial Organization of Corruption

What determines the industrial organization of the different corruption markets?

Case of a joint monopoly:

Bribe increases can be easily detected in several circumstances.

- 1 When the government has an effective policing machine to monitor the actions of the bureaucrats, it is hard to charge excessive bribes without being found out.
 - *Example:* the KGB in the Soviet Union.
- 2 When the ruling elite is small, deviations from normal bribes will be easy to see.
 - *Example:* Philippines, Communist Russia.
- 3 When the society is homogeneous and closely knit, deviations from normal bribes are likely to become known to friends and family, and such knowledge is likely to spread.
 - *Example:* East Asia.

Industrial Organization of Corruption

What determines the industrial organization of the different corruption markets?

Case of independent monopolies:

On the other hand, if the rents are small, and the sovereign is in no position to take them away, joint bribe maximization cannot be sustained.

- The central government is so weak that it cannot fire or penalize officials in the provinces, or even bureaucrats sitting in the capital, for running their own corruption rackets.
- In this situation the "independent monopolists" model, with its devastating economic consequences, describes reality best.

Industrial Organization of Corruption

What determines the industrial organization of the different corruption markets?

Case of independent monopolies:

Political modernization

Transition from an autocratic to a more democratic government.

Political modernization is usually accompanied by increases in corruption.

- There are underdeveloped institutions under the newly formed governments.
- New governments lose monopoly over bribe collection, and as a result, multiple agencies take bribes where only one did before, leading to a much less efficient allocation.
 - *Example:* Russia under Communists had a monolithic bribe collection system. With Communists gone, central government officials, local officials, ministry officials, and many others are taking bribes, leading to much higher bribes in equilibrium though perhaps lower corruption revenues.

Industrial Organization of Corruption

What determines the industrial organization of the different corruption markets?

Case of competition:

Countries with more political competition have stronger public pressure against corruption and so are more likely to use government organizations that contain rather than maximize corruption proceeds:

- through laws;
- democratic elections;
- the independent press.

Industrial Organization of Corruption

- ① *From the industrial organization perspective, what is the best arrangement to reduce corruption without theft?*

Industrial Organization of Corruption

- 7 *From the industrial organization perspective, what is the best arrangement to reduce corruption without theft?*
 - The industrial organization perspective suggests that the best arrangement to reduce corruption *without theft* is to produce competition between bureaucrats in the provision of government goods, which will drive bribes down to zero.
- 8 *Would the same arrangement work to reduce corruption with theft?*

Industrial Organization of Corruption

- 7 *From the industrial organization perspective, what is the best arrangement to reduce corruption without theft?*
 - The industrial organization perspective suggests that the best arrangement to reduce corruption *without theft* is to produce competition between bureaucrats in the provision of government goods, which will drive bribes down to zero.
- 8 *Would the same arrangement work to reduce corruption with theft?*
 - In the case of corruption *with theft*, competitive pressure might increase theft from the government at the same time as it reduces bribes.

⇒ The appropriate policy is to create competition in the provision of government goods while intensively monitoring theft.

Corruption and Secrecy

In the case of a joint monopoly, corruption is similar to revenue-maximizing taxation.

- Like the sovereign who optimally taxes different goods and activities, the monopolist will set bribes to maximize revenue.
- In this world it is difficult to distinguish between bribes and taxes.
 - Taxes are the markup on the price that goes into the treasury;
 - Bribes are the markup that goes into the pocket of the monopolist.
 - When the treasury and the pocket are one and the same, taxes and bribes are exactly the same.
 - *Example:* the case of kings.

In the case of independent monopolies, bribes are also similar to taxes, except the tax rates on different activities are set by independent agencies.

- In setting taxes in this way, the agencies maximize their own tax revenues rather than the aggregate tax revenue.
- Because they ignore the cross elasticities of demand, the aggregate tax revenues are lower in this case.

The case of competition corresponds to the federalist ideal of competing jurisdictions.

- In this case as well, bribes are similar to taxes.

- 9 *Despite these similarities, bribes differ from taxes in one crucial way. What is it?*

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- 10 *What are the implications of this secrecy?*

Corruption and Secrecy

- 9 *Despite these similarities, bribes differ from taxes in one crucial way. What is it?*
- Unlike taxation, corruption is usually illegal and must be kept secret.
- 10 *What are the implications of this secrecy?*
- Efforts to avoid detection and punishment cause corruption to be more distortionary than taxation.
 - On some goods, taking bribes without being detected is much easier than on others.
 - Government officials will then use their powers to induce substitution into the goods on which bribes can be more easily collected without detection.
 - *Example:* Officials might ban some imports to induce substitution into others.
 - *Example:* Or they might prohibit entry of some firms to raise bribe revenue from existing monopolies.

Corruption and Secrecy

Example: a bottle-making factory in Mozambique.

- In 1991 this factory had modern Western equipment for making bottles, but used a traditional process for putting labels on these bottles.
- Three old machines were used:
 - One cut the labels from paper;
 - One glued the white label on the bottle;
 - One printed a red picture on the label.
- The bottles were moved manually between these machines.
- In 30% of the cases, the picture was not centered on the label.
 - When this happened, the bottles were handed over to twelve women who sat on the floor near the machines and scraped off the labels with knives, so that the bottles could be put through this process again.

Corruption and Secrecy

Example: a bottle-making factory in Mozambique.

- The process of labeling bottles could be mechanized with a simple machine that cost \$10,000 and could be readily bought with aid money from any of a number of western or other suppliers.
- However, the manager did not want to buy such a machine, but instead wanted to have a \$100,000 machine:
 - It not only mechanized the existing process;
 - It also printed labels in 16 colors and different shapes, and put them on different types of bottles.
 - Only one producer in the world made that machine, and the Mozambiquan government applied to the producer's home country for an aid package to buy it.
 - Since that aid was not immediately forthcoming, the factory kept using the traditional technology.

Example: a bottle-making factory in Mozambique.

- ① *Why would the manager want an equipment much fancier than the factory really needed?*

Corruption and Secrecy

Example: a bottle-making factory in Mozambique.

- 11 *Why would the manager want an equipment much fancier than the factory really needed?*
- Buying a fancier machine offered the manager (and the ministry officials) much better opportunities for corruption.
 - If the factory bought a generic machine, the manager would have to use international donors' guidelines and consider several offers.
 - There would be very little in this deal for him personally.
 - On the other hand, if he got a unique machine, he would not have to solicit alternative bids.
 - The supplier in turn would be happy to overinvoice for the machine, and kick back some of the profits to the manager (and his ministerial counterpart).
 - The corruption opportunities on buying a unique and expensive machine are much better than such opportunities on buying cheaper generic products.

Example: a bottle-making factory in Mozambique.

- The social cost of corruption in this example may be large.
 - If the social value of the \$100,000 machine is only \$20,000;
 - The bribe that the manager can collect from overinvoicing is \$3,000
 - ⇒ The social cost of corruption is \$80,000.
 - ⇒ Social costs of misdirection of resources toward activities that offer better corruption opportunities can vastly exceed bribe revenues.

Corruption and Secrecy

There is often a preference for unnecessarily advanced rather than "appropriate" technology by Third World governments.

- Overinvoicing provides the obvious explanation for this preference for advanced technology.
- The rational managers and bureaucrats in poor countries want to import goods on which:
 - bribes are the easiest to take;
 - not the goods that are most profitable for the state firms.
- To do that, they discourage or even prohibit the importation of appropriate technology, and encourage the importation of unique goods on which overpayment and overinvoicing are more difficult to detect.

⇒ As a result, very poor countries end up with equipment way beyond their needs.

Corruption and Secrecy

To maximize the value of their personal revenues, bureaucrats prohibit imports of goods on which bribes cannot be collected without detection, and encourage imports of goods on which they can collect bribes.

- As a consequence, the menu of both consumer and producer goods available in the country is determined by corruption opportunities rather than tastes or technological needs.
- This argument might suggest why so many poor countries would rather spend their limited resources on
 - infrastructure projects and defense, where corruption opportunities are abundant,
 - than on education and health, where they are much more limited.
- In light of the enormous returns on these forgone health and education projects, the social costs of corruption might be enormous.

Corruption and Secrecy

The imperative of secrecy entails another potentially important cost of corruption:

- Its hostility to change and innovation.
- Keeping corruption secret requires keeping down the number of people involved in giving and receiving bribes.
- The elite must then include a small oligarchy of politicians and businessmen, and refuse entry to newcomers.
- But innovation and change are often precipitated by outsiders.
- To the extent that the elite prevents them from entering, to maintain their profits or simply to keep down its numbers to preserve secrecy, growth will suffer.

Summary

Two reasons why corruption may be costly to economic development:

- 1 The weakness of central government, which allows various governmental agencies and bureaucracies to impose independent bribes on private agents seeking complementary permits from these agencies.
 - When the entry of these agencies into regulation is free, they will drive the cumulative bribe burden on private agents to infinity.
- 2 The distortions entailed by the necessary secrecy of corruption.
 - The demands of secrecy can shift a country's investments away from the highest value projects, such as health and education, into potentially useless projects, such as defense and infrastructure, if the latter offer better opportunities for secret corruption.