Outline

- Do we care about corruption?
  - Magnitude and efficiency costs
- The corrupt official’s decision problem
  - Balancing risks, rents, and incentives
- Embedding corruption into larger structures
  - The IO of corruption: embedding the decision problem into a market structure
  - Corruption and politics
  - Corruption’s general equilibrium effects on the economy
A particular problem in empirical research on corruption is measurement: you can’t just ask people how corrupt they are.

So people take some combination of one of four basic approaches:

- Perceptions of corruption
  - From surveys (usually cross-country data)
- Comparing two measures of the same thing
  - Road building in Indonesia
  - Oil-for-food in Iraq
  - Education subsidies in Uganda
- Direct measurement
  - Surveys of bribe-paying in Uganda
  - Observation of truck driver bribes in Indonesia
  - Audits of teacher attendance around the world
- Use theory to distinguish between corruption and inefficiency
  - Taxes in Hong Kong vs. China
Poor countries are more corrupt
Perceptions based measure from Mauro (1995)

What does this tell us? Is this useful?
Setting: Education in Uganda

Empirical idea:
- Each school receives a block grant from the central government
- Sent surveyors to the schools to track how much block grant each school received
- Compared the amount the schools received to the amount the central government sent to the schools

Finding: schools reported receiving only 13 percent of what the central government sent out

Follow-up work: after the results were published, they did the same exercise again and found 80 percent was being received

Interpretation?
Setting: UN Oil-for-Food Program

Empirical idea:

- Saddam Hussein’s regime was allowed to sell oil on the private market to pay for food
- Examine the difference between Iraqi oil prices and comparable oil prices to measure ‘underpricing’ of oil – which they infer were likely used for kickbacks
- Show that underpricing starts when Oil-for-Food program begins, and ends after UN eliminates Iraqi price discretion
- Show that gap is higher when volatility in oil is higher (so harder for UN to monitor)

Estimate total of $3.5 billion in rents through underpricing, or about 6 percent of value of total oil sold. Standard markups in the industry imply 1/3 of this went to the Iraqis.
Results

Figure I

Difference between the Market Price of Close Substitutes and the Official Selling Price of Iraqi Oils

The top panel shows the difference between the market price of Arabian Light and the official selling price of Basrah. Arabian Light is the closest substitute of Basrah. The bottom panel shows the difference between the market price of Urals and the official selling price of Kirkuk. Urals is the closest substitute of Kirkuk.

The first vertical line marks the beginning of the Oil for Food Program. The second vertical line indicates the beginning of retroactive pricing. The horizontal line is the average difference for the years before the Oil for Food Program. Iraqi oil was not traded in 1991-1993 due to the first Gulf War, and in 1995-1997 due to delays in the Oil for Food Program.

Courtesy of Chang-Tai Hsieh and Enrico Moretti. Used with permission.
Magnitudes: Direct evidence
Chaudhury, Hammer, Kremer, Muralidharan, and Rogers: "Missing in Action: Teacher and Health Worker Absence in Developing Countries"

- Setting: primary schools and health clinics in Bangladesh, Ecuador, India, Indonesia, Peru, and Uganda
- Empirical idea: surveyors randomly arrived and noted what percent of workers were present in the facility at the time of the spot check
- Results: on average, 19 percent of teachers and 35 percent of health workers weren’t present
- Higher in poorer countries and poorer states in India
- Is this corruption?
Correlation with Income

Does corruption respond the way we expect?


- Question: what is the ’elasticity’ of tax evasion with respect to tax rates?
  - This is a key parameter in determining the optimal tax rate
- Empirical challenge: very hard to measure what the true tax assessment should be.
- Fisman and Wei’s idea:
  - Comparing two measures: Look at both sides of the China - Hong Kong border, where China is the ’high evasion’ side and Hong Kong is the ’low evasion side’
  - Denote the difference between what Hong Kong (low corruption) and China (high corruption) reports as evasion, i.e,
    \[ \text{gap}_\text{value} = \log (\text{export}_\text{value}) - \log (\text{import}_\text{value}) \]
- Use theory: theory says the gap should be higher when tax rates are higher.
Findings

- Key regressions:

\[ \text{gap\_value}_k = \alpha + \beta_1 \text{tax}_k + \varepsilon_k \]

\[ \text{gap\_value}_k = \alpha + \beta_1 \text{tax}_k + \beta_2 \text{tax\_o}_k + \varepsilon_k \]

- Findings:
  - \( \beta_1 = 3 \): One percentage point increase in taxes on your product increases evasion gap by 3%.
  - \( \beta_1 = 6, \beta_2 = -3 \): Less evasion when nearby products also have higher tax rates implies reclassification is an important mechanism.

- Reasonable? Concerns?
Summary of Magnitudes

- Four main ways to measure corruption
  - Perceptions
  - Comparing two measures of the same thing
  - Direct measurement
  - Applying theory to the data

- Estimated magnitudes vary substantially – from 2% (Iraq Oil For Food) to 80% (Ugandan Education)

- Selection bias problems – we may be systematically over-estimating corruption by only measuring it in places where, a priori, we think it is high

- To the extent we believe these estimates there is substantial heterogeneity we need to understand
A framework

- Idea: Mechanism design approach to corruption.
- Setting: two actors: supervisor (the bureaucrat) and participants in the economy (the agents).
- Setup:
  - Set of slots of size 1 that need to be allocated to a population of size $N$.
  - Two types of agents: Type $H$ and type $L$, numbering $N_H$ and $N_L$ respectively. Types are private information.
  - For type $H$, the:
    - Social benefit of giving a slot to $H$ is $H$.
    - Private benefit is $h$.
    - Ability to pay is $y_H \leq h$.
  - Define all variables similarly for $L$ types.
  - Assume $H > L$, but ordering of $(h, l)$ and $(y_H, y_L)$ can be arbitrary.
Four cases

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<tr>
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- Examples of Case I ($y_H > y_L$, $h > l$)

  - Choosing efficient contractors for road construction: Type $H$ are more efficient contractors. For the same contract, they make more money: $h > l$. Since they are the ones who will get paid, the price they pay on the contract is just a discount on how much they are getting paid. Plausibly therefore $y_H = h$ and $y_L = l$.
  - Allocating licenses to import: like road construction, but in this case there may be credit constraints
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- **Examples of Case II** ($y_H > y_L, h \leq l$)
  - Merit goods like subsidized condoms against HIV infection: $H$ are high risk-types. They like taking risks: $h < l$. But perhaps richer: $y_H > y_L$

- **Examples of Case III** ($y_H \leq y_L, h < l$)
  - Hospital beds: $H = h > L = l > 0$, $y_H = y_L = y$, i.e. no systematic relation between ability to pay and willingness to pay.
  - Public distribution system: $H = h > L = l > 0$, $y_H < y_L$. 
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- Examples of Case IV ($y_H \leq y_L, h \leq l$)
  - Law enforcement: $H > 0 > L, y_H = y_L = y, h = l$ : the slot is not going to jail.
  - Driving Licenses: $H > 0 > L, y_H = y_L = y, h < l$.
  - Speeding tickets: $H > 0 > L, y_H = y_L = y = h = l$ : the slot is not getting a ticket.
  - Let the slot be a "does not need to pay taxes" certificate. Suppose $H$ types are those who should not pay taxes and type $L$’s are those who should pay an amount $T_L$.
    - In other words, $h = l = T_L$.
    - Finally assume that $y_H < y_L = T_L$.
Implications

- Suppose corruption means that bureaucrat can allocate slots to the highest bidder
  - What are the efficiency allocations? How does it depend on what case we’re in?

- Some implications
  - Case I: Government and bureaucrat incentives are aligned: give it to the highest willingness to pay. Bureaucrat may introduce screening (red tape) to further increase revenue. Efficiency losses come from the red tape.
  - Case IV: Government and bureaucrat incentives are opposed: suggests corruption pressure will be great.
Efficiency costs
Bertrand, Djankov, Hanna, and Mullainathan 2007: "Obtaining a Driver’s License in India: An Experimental Approach to Studying Corruption"

- Setting: Obtaining driver’s license in India
- Question: Does corruption merely ‘grease the wheels’ or does it actually create inefficiency?
- Experiment: Experimentally create three groups of people:
  - "Bonus group" offered a large financial reward to obtain license in 32 days
  - "Lesson group" offered free driving lessons
  - Control

- For each group, measure driving ability with driving tests, find out about bribe paying process, whether obtained license.
- What would "efficient corruption" predict? What would "inefficient corruption" predict?
Summary Statistics

Table II Summary Statistics on the Bureaucratic Process for the Comparison Group
Table III Obtaining a License
Table IV Payments and Process
Table VI Audity Study
Summary of results

- **Bonus group was:**
  - 25\% points more likely to obtain a license
  - 42\% points more likely to obtain a license quickly
  - 13\% points more likely to obtain a license without taking an exam
  - 18\% points more likely to obtain license without being able to drive
  - Paid about 50\% more

- **Lesson group was:**
  - 15\% points more likely to obtain a license
  - 0\% points more likely to obtain a license quickly
  - 0\% points more likely to obtain a license without taking an exam
  - 22\% points less likely to obtain license without being able to drive
  - Paid no more than control

- **So what do we conclude? Is corruption efficient or inefficient?**
Agents

- One important result is that almost all of the change in the bonus group comes from using agents.
- To study what agent can and cannot do, author conducted an "audit study":
  - Hired actors to approach agents to request assistance obtaining a drivers’ license.
  - Varied their situation (can drive, can’t drive, etc), and measured whether agent states he can produce a license and, if so, the price.
Another example: trucking

- Setting: long-distance trucking in Aceh, Indonesia
- Investigate corruption at weigh stations:
  - Engineers in the 1950s figured out that road damage rises to the 4th power of a truck’s weight per axle
  - Thus weight limits on trucks are required to equate private marginal cost of additional weight with social marginal cost
  - In Indonesia, the legal rule is that all trucks more than 5% overweight supposed to be ticketed, unload excess, and appear in court

- What happens with corruption?
  - Among our 300 trips, only 3% ticketed, though 84% over weight limit (and 42% of trucks more than 50% over weight limit!)
  - The rest paid bribes
  - What do we need to know to think about efficiency?
Summary of findings

- Payments at weigh stations increasing function of truck weight
  - Note that the intercept is greater than 0 – so some extortion
  - On average, Rp. 3,400 (US $0.3) for each ton overweight
  - Much more concave than official fine schedule

- Interesting question: how should the government design the rules, knowing they will be used as the threat point in a corrupt bargaining game?
Summary

Four main ways to measure corruption

- Perceptions
- Comparing two measures of the same thing
- Direct measurement
- Inference from theory

Efficiency implications

- Depends on whether the government’s interests are aligned with or against private interests
- Efficiency costs likely to be higher when government interests are against private willingness to pay
- Examples from trucking and drivers’ licenses suggest that this may be the case
- But understanding efficiency costs of corruption is an area for more research