Corruption and Rent-Seeking in Economic Growth

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1. CORRUPTION AND RENT-SEEKING

- Dominant types of redistributive behavior
  - Rent-seeking households, corrupt public sector
  - Thwarting productivity, growth, welfare
  - Where do they come from? Weak incentives to produce? Weak institutions? Poor social norms/culture?
  - How big are they?
  - How much do they hurt productivity and growth?

- Misallocating labor from production to redistribution and enforcement of property rights
  - Misallocation stunts growth

- Popular meanings: bribery, embezzlement, nepotism, extortion and racketeering, illegal licensing, tax evasion, information misreporting
1. CORRUPTION AND RENT-SEEKING

- **Scientific synonyms:** rent-seeking, predation, appropriation, extraction, involuntary redistribution, property crime and official corruption ("illegal use of public office for private gain")

- **In these notes:** individuals make “rational” occupational choices to produce or seek rents; to enforce laws or corrupt them. No incarceration or other punishment (except for income gained or lost)
  
  - “Rationality” = maximizing lifecycle income adjusted for interpersonal externalities between young workers and their elders
  
  - Positive and negative social interactions with (societal ”approval” or ”disapproval” from) retired people expressed as income taxes or subsidies.
  
  - Taxes and subsidies proportioned to the mass of retired producers and rent-seekers

- **Political agenda set and institutions chosen by voters.**

  - Focus on binary choice between no enforcement and full enforcement
1. CORRUPTION AND RENT-SEEKING

- Endogenous property rights parameter $\theta \in [0, b]$
  - selected by voters
  - controls strength of economic incentives to produce goods and services
  - equals ratio of enforcement personnel to rent seekers
    \[
    \begin{aligned}
    \theta = 0 & \implies \text{no enforcement} \\
    \theta = b & \implies \text{no rent-seeking}
    \end{aligned}
    \]

- Exogenous culture parameter $\sigma \in [0, 1]$
  - controls importance of inherited norms or past history
    \[
    \begin{aligned}
    \sigma = 0 & \implies \text{“individualism”, i.e., norms irrelevant for individual decisions} \\
    \sigma = 1 & \implies \text{“conformism”, i.e., individual decisions respond strongly to norms}
    \end{aligned}
    \]
  - amount of disapproval, measured as tax imposed on income of young rent-seekers per unit mass of retired producers; also amount of approval, expressed as income subsidy accruing to young rent-seekers per unit mass of retired rent-seekers
1. CORRUPTION AND RENT-SEEKING

- Social norms parameter $\rho_0 \in [0, 1]$
  - $\rho_0$: fraction of retirees engaged in rent-seeking when young
    \[
    \begin{align*}
    \rho_0 = 0 & \implies \text{no corruption is social bliss point} \\
    \rho_0 = 1 & \implies \text{full corruption is social bliss point}
    \end{align*}
    \]

- Measurement issue
  - assign a triple $(\theta, \sigma, \rho_0)$ to each country
2. FACTS AND ISSUES

• Corruption indices
  - Global Corruption Barometer (GCB)
  - Corruption Perception Index (CPI)
  - ICRG Corruption Index

• All positively autocorrelated and quite persistent

• Cultural variables ("trust") are positively correlated with GDP [Tabellini (2010)]


  - Institutions are a substitute for culture [Kyriacou (2016)]
  - Impact of institutions on GDP weaker in conformist cultures [see Table 1, appendix]

• Negative correlations of heterogeneity (linguistic diversity) with growth [Easterly and Levine (1997), Alesina et al (2003)] and with institutional quality [Spolaore and Wacziarg (2016)]
2. FACTS AND ISSUES

Figure 1: Cultural Map of the World
2. FACTS AND ISSUES

Figure 2: GDP vs Culture #1
2. FACTS AND ISSUES

Figure 3: GDP vs Culture #2
2. FACTS AND ISSUES

Figure 4: Correlations
### 2. FACTS AND ISSUES

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Observations: 1096
R-squared: 0.521
Number of countries: 93
Country FE: Yes
Country RE: No
Year dummy: Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

collectivism vs Individualism: Hofstede

Corruption Perception Index, Transparency International
2. FACTS AND ISSUES

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2. FACTS AND ISSUES

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2. FACTS AND ISSUES

- Corruption as socially inefficient labor misallocation
  
  - resources (capital & labor) diverted from production
  - diverted resources used to promote/deter income redistribution
    - thieves and rent-seekers
    - enforcers of laws and property rights
  - strong deterrence destroys corruption
    - total income up
    - gainers can afford to compensate losers.
    - everyone better off if adequately compensated
  - reforms blocked by uncompensated groups with comparative advantage in rent-seeking or by corrupt culture
3. LITERATURE SKETCH

• **Surveys:** Bardhan (1997), Aidt (2003), Tabellini (2008), Alesina and Giuliano (2015)

• **Empirical side:** Interesting facts in search of common framework
  
  • Culture, institutions and GDP [Hofstede (1988), North (1981)]
  • Mauro (1985): corruption lowers investment
  • Slemrod (2007): attempted U.S. Federal tax evasion = 16.3% of taxes owed; 33% non-compliance for self-employed
  • Mummert and Schneider (2002): OECD shadow economies from 8.7% of official GDP (U.S.) to about 28% (Greece and Italy)
  • Fisman and Miguel (2007): NYC parking violations by UN diplomats as measures of international “cultures”
3. LITERATURE SKETCH

• Theoretical models:
  
  • strategic predator / prey interactions (private aggression & enforcement) ⇔ “offensive weapons” vs “fortifications”
    
    • Grossman and Kim, 1996 (dynamic)
    • closed economies, no gov’t, no externalities
  
  • occupational choice and misallocation
    
    • Murphy, Vishny, Shileifer, 1993 (atemporal)
  
  • bribery and misreporting of taxable income (government aggression and enforcement)
    
    • Blackburn, Bose, Haque, 2006 (dynamic IRS)
  
  • parental transmission of cultural traits (patience, risk-taking, conformism)
    
    • Bisin and Verdier (2001)
4. THIS PAPER: AN OVERVIEW

(a) Agenda

- Isolate impact of non-economic factors on growth
  - culture, politics, history and institutions
  - economic performance and institutions jointly determined outcomes
  - major forces: culture, politics and history (exogenous)
  - history as social norms

- **Step 1**: fix history, culture and institutions (enforcement of property rights)
  - explain incidence of corruption and rent-seeking
  - trace long-run impact on productivity and growth

- **Step 2**: endogenize institutions as a binary choice between strong and weak enforcement
  - median voter not too productive
  - explain persistence of status quo (good and bad governance)
  - incidence of reform and populism (improvements and declines in governance)
4. THIS PAPER

(a) Agenda (cont’d)

- international database in "deep parameters" \((\theta, \sigma, \rho_0)\)
- measurement and policy issues
  - proxies for unmeasured income from corrupt or rent-seeking activity
  - successful reform: why is it so rare?
4. THIS PAPER

(b) Setting: standard OLG model of world growth

- many similar countries
- common economic fundamentals (population, technology, tastes and endowment)
- different social structure (culture, history, politics)
- perfect capital mobility, zero labor mobility
  - common world factor prices (wage & interest rate)
- private rent-seeking, gov’t enforcement of property rights
- social interactions $\leftrightarrow$ consumption externalities
- systemic externalities from "social norms"
  individual externalities from "chances" (random idiosyncratic)
- all externalities equivalent to income taxes or subsidies
4. THIS PAPER

(c) Sequence of events

1. World factor prices set for capital and labor
2. Voters choose institutions (property rights enforcement policy)
3. Young workers choose occupations
   - type-1 select production or enforcement; type-2 select production or rent-seeking
   - production takes place
   - producers receive pre-tax wage income
4. Government collects income tax rate $\phi \in [0, 1]$ from producers, pays all enforcers (cops)
5. Rent-seekers matched with potential victims (all non-rent seeking young workers)
   - matched victims forfeit all wage income to rent-seekers
   - idiosyncratic risks to rent-seekers and victims removed by actuarially fair pre-match insurance
   - private decisions reflect expected income adjusted for externalities
4. THIS PAPER

(c) Sequence of events (cont’d)

6. Enforcers matched with rent-seekers
   • Matched rent-seekers forfeit all income to enforcers
   • Honest cops return loot to Treasury
   • Rogue cops retain loot for own use

7. Rogue cops exposed with exogenous probability $\pi \in [0, 1]$, exposed rogues retain all loot but forfeit government salary

8. Idiosyncratic risks to rent-seekers and cops removed by pre-match fair insurance

9. Everyone is concerned with expected income
4. THIS PAPER

(d) Main results for exogenous institutions; if we fix property rights forever, then:

- Equilibrium is always unique but history matters through "norms"
- Culture and institutions are substitutes in growth
4. THIS PAPER

(e) Main results for exogenous institutions: If we fix property rights forever, then

- Occupational equilibria in individualist societies converge to a state of:
  - minimal corruption if institutions are strong enough
  - maximal corruption if institutions are weak enough
  - intermediate corruption if institutions are neither strong nor weak
  - culture not very important

- Occupational equilibria in conformist societies converge to a state of:
  - no corruption if institutions are super-strong or if there is an inherited tradition of honest behavior (good norms)
  - maximal corruption in all other situations
  - institutions not very important
(f) Main results for endogenous institutions

- Individualist societies choose strong enforcement over weak one if human capital is high; the reverse when productive skills are weak.

- Traditionalist societies with good (bad) norms choose strong (weak) institutions. These societies split into convergence clubs (high vs. low income) depending on norms or initial conditions.
4. THIS PAPER

(f) Plan of the paper

1. Sections 5 – 7: A theoretical framework
2. Sections 8 and 9: Occupational choices and equilibrium under exogenous institutions
3. Sections 10 – 11: Choosing institutions in individualist and conformist societies
4. Sections 12 – 15: Conclusions, extensions & policy lessons
5. Section 16: Empirical appendix

(g) short version

1. Model Outline
2. Occupational choice problem
3. Exogenous institutions [Figs 4, 5, 6]
4. Endogenous institutions [Fig. 8]
5. Extensions and conclusions
5. A GROWTH-THEORY FRAMEWORK

(a) Building blocks

• OLG growth model (Diamond, 1965) with open economies
  • constant population with two-period lifecycle
  • common world capital/labor ratio independent of any nation’s institutional choice
  • consumption externalities between young and old
  • no pubic debt or technology shocks
  • common neoclassical production technology with CRS
  • predator-prey and enforcer-predator matching technologies with CRS
  • risk neutrality or complete financial markets against idiosyncratic risks
  • capital income exempt from taxes, rent-seeking and corruption (simplifying assumption)
  • institutional choice = property-rights enforcement intensity (collectively chosen scalar)
(b) Details

- World economy with nations, indexed \( j = 1, \ldots, J \) \( (J \gg 1) \)
  identical economic structure

- Nations differ only in culture and history (occasionally, also in politics)

- Each nation has population mass 1

- Two types of households, indexed \( i = 1, 2 \) with masses \( 1 - \mu \) and \( \mu \) respectively and \( n \equiv \mu / (1 - \mu) > 1 \)
  - \( i = 1 \): producers or honest enforcers or corrupt enforcers (with 1 efficiency unit of labor)
  - \( i = 2 \): producers (with \( \gamma < 1 \) efficiency unit of labor) or rent-seekers (with 1 efficiency unit of labor)
5. A GROWTH-THEORY FRAMEWORK

(b) Details (cont’d)

- Common utility function for \( i = 1, 2, j = 1, \ldots, J \), and \( \beta \in [0, 1] \):
  \[
  u_{i,t} = (1 - \delta_{i,t})[c_t(t, i)]^{1-\beta}[c_{t+1}(t, i)]^\beta = \text{private payoff}
  \]
  where \((c_t(t, i), c_{t+1}(t, i)) = \text{agent-i lifecycle consumption profile}\)

- \( \delta_{it} = \text{social interactions term between young and old} \)
  - captures implied "tax" from old who disagree with type-i’s occupational choice
  - also captures implied "subsidy" from old who agree, plus random effects

- Then, indirect lifetime utility is given by:
  \[
  v_{i,t} = (1 - \delta_{i,t})(y_{i,t})R^\beta
  \]
  where \( y_{i,t} \) is (after-tax) income for type-i agent in period \( t \) and \( R \) is 1 plus world rate of interest

- Common time endowment profile for \( i = 1, 2 \): \( \omega_{i,t} = (1, 0) \)

- Common production technology for all \( i \) and \( j \):
  \[
  Y = K^\alpha N^{1-\alpha}
  \]
(a) Utopia benchmark: no corruptible humans or externalities

\( (\gamma = 1, \delta_{i,t} = 0) \)

- No wastage on enforcement
- Each nation has one unit of productive labor and saves fraction \( \beta \) of total wage bill
- Equilibrium: world saving = world capital

\[
K_{t+1} = \beta w_t J, \quad J = \text{world mass of workers} \\
k_{t+1} = \beta (1 - \alpha) k_t^\alpha, \quad k_t \equiv K_t / J
\]
6. WORLD W/O CORRUPTION

(a) Utopia benchmark (cont’d)

- Per-worker GDP: \( y_t = k_t^\alpha \)
- GDP dynamics for each country \( j = 1, \ldots, J \):
  - \( y_{t+1}^j = (\bar{y})^{1-\alpha} (y_t^j)^\alpha \)
  - where \( \bar{y} = [\beta (1 - \alpha)]^{\alpha/(1-\alpha)} \) is the common international value of steady state income
  - common initial GDP (perfect capital mobility), \( y_0^j = y_0 \ \forall j \)
6. WORLD W/O CORRUPTION

Figure 5: Growth without corruption
6. WORLD W/O CORRUPTION

(b) Conclusions: without corruption/rent-seeking

- GDP per capita differences disappear at $t = 0$

(c) Corruption as a deadweight loss

- Diverting productive workers into rent-seeking
- Diverting productive workers into deterrence
(a) Households and labor supply

- Identical nations $\rightarrow$ ignore nation index $j$
- Households $i = 1, 2$ with mass $(1 - \mu, \mu)$

\[ i = 1: \begin{cases} 1 - \mu & D: \text{enforcers} \\ 1 - \mu - D & \text{producers} \end{cases} \]

\[ i = 2: \mu \begin{cases} \mu \rho: \text{rent-seekers} \\ \mu (1 - \rho): \text{producers} \end{cases}, \quad \rho \in [0, 1] \]

- Rent-seekers: $X = \mu \rho$ [efficiency labor units]
- Victims: $V = 1 - \mu + \gamma \mu (1 - \rho)$ [efficiency labor units]
  - rent-seeking affects entire young generation
- Retirees and capital income immune to rent-seeking
7. BUILDING A MODEL

(b) Matching rent-seekers with victims

- Number of meetings between $X$ rent-seekers and $V$ honest workers obeys CRS matching technology $P(V, X)$

- $V = \text{efficiency units of victim labor supply} = 1 - \mu + \gamma \mu (1 - \rho)$

- Each match transfers fraction of all after-tax wage income from worker to rent-seeker

- $P(V, X) \leq \min(V, X)$, $P$: increasing concave

- Define $p(X) \equiv P(1, X)$ then

  $$p(z) = \frac{P(V, X)}{V}, \quad z \equiv \frac{X}{V} = \frac{n \rho}{1 + \gamma n (1 - \rho)} \in [0, n]$$

- $p(z) = \Pr \{\text{victim meets rent seeker}\}$

- $\frac{p(z)}{z} = \frac{P(V, X)}{X} = \Pr \{\text{r.s. finds victim}\}$

- Main example

  $$p(z) = \frac{z}{z + A}, \quad A \geq 1$$
7. BUILDING A MODEL

Figure 6: Matching probabilities
7. BUILDING A MODEL
(b) Matching rent-seekers with victims (cont’d)

- normalize pre-tax international wage to \( w=1 \). Then let
- \( \tilde{y}_i^P \) = type-i producer post-match income where
  \[
  \tilde{y}_1^P = \begin{cases} 
  1 - \phi & \text{w.p.} \quad 1 - p(z) \\
  0 & \text{w.p.} \quad p(z)
  \end{cases}
  \]
  \[
  \tilde{y}_2^P = \gamma \tilde{y}_1^P
  \]
  \( \phi = \) income tax rate

- adjusted expected incomes
  \[
  y_1^P = (1 - \phi)[1 - p(z)](1 - \sigma \rho_0)
  \]
  \[
  y_2^P = \gamma y_1^P
  \]

where

- \( \rho_0 = \) rent-seeking social norm
- \( \sigma \rho_0 = \) ”tax” imposed by society on
  honest producers choosing no rent seeking
- \( \sigma = \) traditionalism index
(b) Matching rent-seekers with victims (cont’d)

- rent-seeker’s income

\[ \hat{y}_{RS} = \begin{cases} 
1 - \phi & \text{w.p.} \quad p(z)/z \\
0 & \text{w.p.} \quad 1 - p(z)/z 
\end{cases} \]

- post-match incomes after insurance

\[
\begin{align*}
\hat{y}_1^P &= (1 - \phi) [1 - p(z)] \\
\hat{y}_2^P &= \gamma \hat{y}_1^P \\
\hat{y}_{RS} &= (1 - \phi) \frac{p(z)}{z}
\end{align*}
\]
7. BUILDING A MODEL

(c) Matching cops with rent-seekers

- Enforcement policy: mass of cops proportional to rent-seekers
  - all cops drawn from group $i = 1$
  - cops receive same wage as type-1 producers
  - $D = \theta X$ where $\theta \in [0, 1]$ is collectively chosen institutional parameter

- Number of meetings between $D$ cops and $X$ rent-seekers obeys CRS matching technology $Q(X, D)$

- Each match transfers entire rent-seeker’s income to enforcer

- $Q$ increasing, concave with:

  $$Q(X, D) \leq \min(X, D)$$

- Define $q(D) = Q(1, D)$. Then,

  $$q(\theta) = \Pr \{\text{rent-seeker meets cop}\}$$
  $$q(\theta)/\theta = \Pr \{\text{cop meets rent-seeker}\}$$
7. BUILDING A MODEL

Assumption 1

Let \( h(z) = \frac{1-p(z)}{p(z)/z} \) and assume: \( p(z) = \frac{z}{z+A} \) for \( A \geq 1 \). Then

(i) \( h(z) = A \). The predator-prey income ratio remains unchanged as the ratio of predators to prey changes.

(ii) \( q(0) = 0 \) and \( q(\theta) \leq \theta \ \forall \theta \in [0, 1/n] \). No rent-seekers are caught if \( \theta = 0 \).
8. PAYOFFS AND OCCUPATIONAL CHOICE

(a) Rent-seekers

- Types:
  i. Random type $\epsilon$ revealed at beginning of life
  ii. $\epsilon$ follows pareto distribution with parameters $\zeta$, i.e. $G(\epsilon) = 1 - (\bar{\epsilon}/\epsilon)^\zeta$, $\bar{\epsilon} > 0$, $\zeta \geq 2$
    
      with $\frac{\bar{\epsilon}}{\gamma A} \leq \min\{1, \left[\frac{1-\sigma}{\zeta\sigma(2-\sigma)}\right]^{\frac{1}{\zeta}}\}$
  iii. $\epsilon$ describes random interactions with society

- Rent-seeker incomes:

  For type $\epsilon$, we have adjusted income

  $y^{RS}(\epsilon) = (1 - \phi) \frac{p(z)}{z} [1 - q(\theta)](1 - \sigma + \sigma\rho_0)\epsilon$

  $= \text{producer income} \times \text{Pr(rent seekers meets producer)}$
  $\times \text{Pr(rent seekers evades enforces)}$
  $\times (1\text{-tax or subsidy from norms})$
  $\times (1\text{-tax or subsidy from random social interactions})$
8. PAYOFFS AND OCCUPATIONAL CHOICE

- Producers:
  \[ y_2^p = \gamma \hat{y}_1^p \]

(b) Enforcers

- Honest cop adjusted income:
  \[ y^{HE} = (1 - \theta)(1 - p(z))(1 - \sigma x_0) \]
  where \( x_0 = \) public sector corruption norm

- Rogue cop adjusted income if type is \( \epsilon > 0 \)
  \[ y^{RE}(\epsilon) = (1 - \phi)[(1 - \pi)(1 - p(z))(1 - \sigma x_0) \]
  \[ + \left( \frac{p(z)}{z} \frac{q(\theta)}{\theta} (1 - \sigma + \sigma x_0) \right) \epsilon \]
  i.e. rogue exposed with fixed probability \( \pi \),
  forfeits wages but consume misappropriated income from rent-seekers.


8. PAYOFFS AND OCCUPATIONAL CHOICE

(b) Occupational Choice

- Given institutions and factor prices, all households choose honest behavior if $\epsilon$-shock is "small enough", i.e. if

$$y^{HE} \geq y^{RE}(\epsilon) \quad \text{for cops} \quad (1a)$$

$$\gamma y^P_1 \geq y^{RS}(\epsilon) \quad \text{for type-2 people} \quad (1b)$$

- If we define the decreasing function

$$m(y) = \frac{1 - \sigma y}{1 - \sigma + \sigma y} \quad \text{for } y \in [0, 1] \quad (2)$$

all "honesty" requirements become

$$\epsilon \leq \frac{\pi \theta}{q(\theta)} A m(x_0) \quad \text{for enforcers} \quad (3a)$$

$$\epsilon \leq \frac{\gamma A}{1 - q(\theta)} m(\rho_0) \quad \text{for civilians} \quad (3b)$$
8. PAYOFFS AND OCCUPATIONAL CHOICE

• Conclusions
  
  – honest behavior is easier to choose if social norms are "good" (low values of \((x_0, \rho_0)\))

  – honest behavior is easier to choose if institutions are strong (high value of \(\theta\))

  – role of individualism is ambivalent
9. OCCUPATIONAL EQUILIBRIUM FOR GIVEN INSTITUTIONS

(a) Aims

- Fix institutions forever at some exogenous value $\theta \in [0, b]$.
- Also fix the "cultural" parameter $\sigma \in [0, 1]$ and the inherited values of "social norm" $(\rho_0, x_0) \in [0, 1]$, that is the fractions of dishonest people among retirees.
- Describe dynamic equilibria, that is, how $\rho$ evolves over time and to what value it converges in the long-run.

(b) Occupations

Let $x \in [0, 1] = \text{fraction of bad cops in total "police force"}$

$p \in [0, 1] = \text{fraction of rent seekers in total type-2 population}$
9. OCCUPATIONAL EQUILIBRIUM FOR GIVEN INSTITUTIONS

Then fractions of honest households are given by the Pareto distribution applied to inequalities (3a) and (3b)

Assuming $x_0 = \rho_0$ (identical public & private norms), we have

\[ 1 - \rho = G \left[ \frac{\gamma A}{1 - q(\theta)} m(\rho_0) \right] \]
\[ 1 - \rho = G \left[ \frac{\pi \theta A}{q(\theta)} m(\rho_0) \right] \]

Equivalently we can write

\[ \rho = J(\rho_0; \theta, \sigma) \] (4a)
\[ \frac{\rho}{x} = \left[ \frac{\pi \theta}{q(\theta)} (1 - q(\theta))(\frac{\bar{c}}{\gamma}) \right] \zeta \] (4b)

where

\[ J(\rho_0; \theta, \sigma) = \left[ \frac{B(\theta)}{m(\rho_0)} \right] \zeta \] (5a)

\[ B(\theta) = [1 - q(\theta)]\left(\frac{\bar{c}}{\gamma A}\right) \leq 1 \] (5a)

\[ m(\rho_0) = \frac{1 - \sigma \rho_0}{1 - \sigma + \sigma \rho_0} \] (2)
Notes

i. The rent-seeking-to-corruption ratio $\frac{\rho}{\chi}$ depends on technology (probability of identifying dishonest persons), not on culture $(\sigma, \rho_0)$

ii. For individualist societies $(\sigma = 0, \epsilon = 1)$, anti-social behavior depends entirely on the quality of institutions.

iii. It is relatively easy to show that $J$ is a well-behaved (increasing, concave) function of $\rho_0$ for each $(\theta, \sigma)$

iv. Dynamics of rent-seeking: for any institutions $\theta$ and social norm $\rho_0$, long-run equilibrium is $\rho^*(\theta)$, i.e long-run rent-seeking and corruption are decreasing functions of institutional quality [Fig 3]
9. OCCUPATIONAL EQUILIBRIUM FOR GIVEN INSTITUTIONS

Figure 7: Rent-seeking vs. Norms
Examples show GDP may be decreasing in $\theta$ for small $\theta$. That happens when an improvement in policing requires more labor from production than it releases from rent-seeking. [cf. Fig. 4]

This is consistent with the observation that corruption & GDP are sometimes positively correlated.
9. OCCUPATIONAL EQUILIBRIUM FOR GIVEN INSTITUTIONS

Figure 8: Institutions vs. \((x, \rho, Y)\)
(a) Individualism or conformism

- Long-run state strongly dependent on institutions when $\sigma$ is low
- Long-run state strongly dependent on social norms and history $\rho_0$ when $\sigma$ is high: $\rho_0$ affects institutional choice
- Endogeneity of $\theta$ through politics
10. CHOOSING INSTITUTIONS

(b) Median voter politics

• Old households indifferent about politics because savings yield $R$ immune to domestic institutions, rent-seeking or corruption
  [simplifying corruption]

• Type-1 young, mostly producers, benefiting from good institutions

• Group 2: ambivalent about institutions due to comparative advantage in rent-seeking ($\gamma < 1$)

• If $\sigma$ is very large, then economic outcomes depend strongly on social norms: good norms lead to voting for strong institutions; poor norms result in weak institutions.

(c) Voting and restricted agendas

• Limit policy agenda to binary choice $\theta \in \{0, b\}$ between no enforcement ($\theta = 0$) and full enforcement ($\theta = b$). In either case, gov’t taxes are zero ($\phi = 1$). No cops are hired.
10. CHOOSING INSTITUTIONS

• Agent values when $\theta = b$

Suppose $V_i(b, \epsilon)$ is the lifetime payoff (adjusted income) of a type $i=1,2$ household when $\theta = b$ and the individual externality in $\epsilon \in [\bar{\epsilon}, \infty)$

Also call $V_i(0, \epsilon)$ the corresponding payoff when $\theta = 0$ (no enforcement)

For the best possible institutional quality, $\theta = b$, there is no corruption or rent-seeking. Everyone is a productive worker. Payoffs then for any $\epsilon \geq \bar{\epsilon}$ are

$$V_1(b, \epsilon) = 1 - \sigma \rho_0 \quad (6a)$$
$$V_2(b, \epsilon) = \gamma(1 - \sigma \rho_0) \quad (6b)$$

• Agent values when $\theta = 0$

Here all type-1 agents remain productive. Their payoffs are worse than under $\theta = b$

$$V_1(0, \epsilon) = [1 - p(z)](1 - \sigma \rho_0) < V_1(b, \epsilon)$$
10. CHOOSING INSTITUTIONS

(d) Type-2 voters

- These choose $\theta = b$ over $\theta = 0$ if their $\epsilon$ is "small enough". Note,

$$V_2(0, \epsilon) = \gamma(1 - p)(1 - \sigma \rho_0) = \frac{\gamma A}{A + z}(1 - \sigma \rho_0) \quad \text{if producer}$$

$$= \frac{p(z)}{z}(1 - \sigma + \sigma \rho_0) \epsilon = \frac{1 - \sigma + \sigma \rho_0}{A + z} \epsilon \quad \text{if rent-seeker}$$

Occupational choice under $\theta = 0$ is

produce if $\epsilon \leq \hat{\epsilon} = \gamma A m(\rho_0)$

seek rents if $\epsilon > \hat{\epsilon}$

Lifecycle payoff under $\theta = 0$ is

$$V_2(0, \epsilon) = \frac{1 - \sigma + \sigma \rho_0}{A + z} \max(\epsilon, \hat{\epsilon}) \quad (7)$$

where,

$$z = \frac{n \rho}{1 + \gamma n(1 - \rho)} \quad (8a)$$

$$\rho = \left[ \frac{\epsilon}{\gamma A m(\rho_0)} \right]^\zeta \quad (8b)$$
(e) Voting for weak institutions

• given \((\rho_0, \sigma)\), easy to show that mass of voters favoring weak institutions (all of them type-2 with large \(\epsilon\)-shocks) is

\[
M(\rho_0, \sigma) = \mu \left[ \frac{\epsilon}{\gamma m(\rho_0)(A + z)} \right] \zeta
\]  

(9a)

where \(\mu\) is the mass of type-2 people and

\((z, \rho)\) are defined in (8a),(8b) or

\[
z = \frac{nJ(\rho_0; 0, \sigma)}{1 + - (\rho_0; 0, \sigma)}
\]  

(9b)
10. CHOOSING INSTITUTIONS

- The main result is

\[
M(\rho_0, \sigma) \to 0 \quad \text{as} \quad (\rho_0, \sigma) \to (0, 1)
\]
\[
M(\rho_0, \sigma) \to \mu \quad \text{as} \quad (\rho_0, \sigma) \to (1, 1)
\]

- If \( \mu > \frac{1}{2} \) and \( \sigma \) large enough, then
  - almost everyone prefers full enforcement if \( \rho_0 \to 0 \) (strong norm)
  - majority chooses no enforcement if \( \rho_0 \to 1 \) (weak norms)
11. 11. CORRUPTION DYNAMICS: SOME CONJECTURES

(a) Traditionalist societies (large $\sigma$)

- reasonable conjecture based on section 10 for politics of binary institutional choice is the sigmoid graph in Fig. 5

  i. Two stable states $\rho^*(b)$ and $\rho^*(0)$, separated by unstable state $\hat{\rho}$

  ii. Self-reinforcing norms: Low (high) $\rho_0$ leads to good (bad) institutions.

  iii. Convergence clubs for high & low norm traditional societies.

(b) Individualist societies (small $\sigma$)

- Ignore all social interactions and norms. Set $\sigma = 0$ and $\lambda = \frac{\gamma\lambda}{\gamma A}$

Mass of agents favoring $\theta = 0$ over $\theta = b$ is

$$\hat{M} = \mu \left[ \frac{\lambda A}{A + \frac{n\lambda\zeta}{1 + \gamma n - \gamma n\lambda\zeta}} \right]$$ (10)
11. CORRUPTION DYNAMICS: SOME CONJECTURES

Figure 9: Rent-seeking under endogenous institutions
11. CORRUPTION DYNAMICS: SOME CONJECTURES

- $\hat{M} \to 0$ as $A \to \infty$
  
  [rent-seekers cannot find many victims]

- $\hat{M} \to \mu$ as $\gamma \to 0$
  
  [poor quality of human-capital]
12. SUMMING UP: CONJECTURES AND HYPOTHESES

(a) The questions

What does this framework say about the cross-section and time series behavior of rent-seeking, consumption and GDP when institutions are exogenous? When they are endogenous?

(b) Hypotheses when institutions are exogenous

i. extent of rent-seeking and corruption is

- a decreasing function of institutional quality and of human capital ($\gamma$)
- an increasing function of its own norm ($\rho_0$ or $\chi_0$), i.e., of "past rent-seeking" or corruption
- an increasing function of $\sigma$ if "norms" are poor ($\rho_0 > \frac{1}{2}$); a decreasing one if "norms" are good ($\rho_0 < \frac{1}{2}$)

ii. contemporaneous correlation of ($\rho, x$) depends strongly on $\theta$; no strong restrictions a priori.
iii. Steady states \((\rho, x)\) are decreasing functions of institutional quality and independent of norms, if \(\theta\) is fixed. But \(\theta\) may itself depend on norms in high-\( \sigma \) societies.

iv. Per-capita GDP is a decreasing function of contemporaneous rent-seeking or corruption and hence, of ”past” rent-seeking or corruption \((\rho_0, x_0)\)

v. Per capita GDP may be a complicated function of institutional quality, initially decreasing in \(\theta\) before it goes up. This possibility exists especially for thin-tailed pareto distributions (or high values of \(\zeta\)); as shown in Note 2(i).

vi. GDP can be positively correlated with rent-seeking or corruption for low values of institutional quality [giving credence to the view that corruption can be ”beneficial” for economic activity]
12. SUMMING UP: CONJECTURES AND HYPOTHESES

(b) Hypotheses when institutions are endogenous

i. individualist societies make a binary choice $\theta \in \{0, b\}$ between no enforcement and full enforcement which depends on the human capital endowment $\gamma$. High $\gamma$ leads to full enforcement, low $\gamma$ to no enforcement.

ii. traditionalist societies with $\sigma$ near 1 choose based on ”norms”. Bad norms ($\rho_0$ near 1) lead to no enforcement; good norms lead to full enforcement;

iii. traditionalist societies split into convergence clubs (high vs low income) depending on norms or initial conditions.

iv. in general, we can think of institutional choice as a coin toss:

$$\text{choose } \begin{cases} 
\theta = b & \text{w.p. } (1 - \rho_0)^{\sigma} \cdot \gamma^{1-\sigma} \\
\theta = 0 & \text{w.p. } 1 - (1 - \rho_0)^{\sigma} \cdot \gamma^{1-\sigma}
\end{cases}$$
v. given the $\theta$-choice mechanism described in iv, we have the following expected values, conditional on the norm $\rho_0$, assuming $\rho(\theta) = \frac{\theta}{b}$:

$$E(\theta|\rho_0) = b\gamma^{1-\sigma}(1 - \rho_0)$$

$$E(\rho|\rho_0) = (1 - \phi)[\lambda(m(\rho_0))]^{\zeta} \text{ where } \lambda := \frac{\bar{\epsilon}}{\gamma A}$$

Thus average inst. quality is
- decreasing in $\rho_0$
- increasing in $\gamma$

average rent-seeking is
- increasing in $\rho_0$
- decreasing in $\gamma$
- increasing in $\sigma$ iff $\rho_0 > \frac{1}{2}$
Continuing we have

\[ x = \left[ \frac{\bar{\epsilon}}{\pi bAm(\rho_0)} \right]^\zeta \]

Official corruption is
- increasing in \( \rho_0 \)
- increasing in \( \pi \)
- increasing in \( \sigma \) iff \( \rho_0 > \frac{1}{2} \)
- decreasing in \( \sigma \) iff \( \rho_0 < \frac{1}{2} \)

GDP

\[ Ey = \left[ N^* - (1 - \phi)\mu\gamma\left( \frac{\lambda}{m(\rho_0)} \right)^\zeta \right]f(k) \]

\[ = \left[ N^* - \gamma\mu \left( \frac{\bar{\epsilon}}{\gamma A} \right)^\zeta \frac{1 - \gamma^{1-\sigma}(1 - \rho_0)^\sigma}{m(\rho_0)^\zeta} \right] \]

decreasing in the norm \( \rho_0 \)
increasing in the human capital parameters \( \gamma \)
decreasing in \( \sigma \) for small \( \sigma \)
(and perhaps for larger values as well if \( \rho_0 \) is large)
13. CONCLUSIONS

1. Growth requires re-allocation of labor from re-distribution (corruption, rent-seeking, enforcement) to direct production

2. Actual re-distribution depends on:
   • economic incentives, especially in individualist societies
   • culture and behavioral norms in traditional ones

3. Economic incentives may be eclipsed by culture

4. Conformism and norms weaken role of institutions
   raise weight of history
   diminish chances for reform

5. Skills inequality raises chances of populist politics that weaken institutions and lead to poverty traps
14. EXTENSIONS

(a) Corruption in closed economies

- Institutions affect wage and interest rates
- Occupational choice responds to expectations of future changes in prices and policies

(b) Theory issues in open economies

- Direct penalties (incarceration) for anti-social behavior
- Agenda setting: parties, interest groups, etc.

[Acemoglu et al (2005)]
14. EXTENSIONS

(c) Measuring corruption and rent-seeking

- Looking for observable aggregates correlated with $\rho$
- Qualitative measures (World Bank, Transparency International)
- Quantitative measures:
  - employment in public enforcement
  - bribery incidence
  - shadow economy size
14. EXTENSIONS

(d) International corruption

- Impact on world factor prices
- Does it move global equilibrium?
- Cultural and economic spillovers
  - does culture and/or norms cross international boundaries?
- World income dynamics
  - describe evolution of national and world gdp for a set of countries that are identical in everything except norms and strength of social interactions
15. LESSONS FOR ECONOMIC POLICY

1. Politics matters. So do culture, social norms and history

2. Power of the status quo in traditional societies
   - lasting consequences of bad institutional choices
   - slowness of reform
   - weakness of economic incentives

3. Importance of human capital
   - best results when corruptible agents are reasonably productive at honest work and $\sigma$ is low (individualist culture)
15. LESSONS FOR ECONOMIC POLICY

4. Fighting ingrained corruption
   - norms matter
   - long-run propaganda campaign (school, church, media)
   - protect and reward whistleblowers

5. How Singapore uprooted government corruption in the 1960’s
   - propaganda
   - draconian punishment of perpetrators (missing from our model)
   - highly paid civil servants (also missing)
16. EMPIRICAL APPENDIX

• Do panel regressions with the following specification:

\[ y_{it} = \alpha + \beta \text{cul}_i \times \text{ins}_{it} + \gamma \text{cul}_i + \delta \text{ins}_{it} + \zeta \text{cpi}_{it-1} + D_t + \varepsilon_{it} \]

• “\( y \)”: GDP per capita; “\( \text{cul} \)”: conformism (or collectivism)  
  \[ \text{cul} \equiv \frac{100 - \text{Individualism}}{100} \];  
  “\( \text{ins} \)”: protection of property rights; “\( \text{cpi} \)”: corruption;  
  \( D \): year dummy

• 1090 observations for 92 countries (1998–2016)

• \( \tilde{\beta} < 0 \) at 1% significance level in both the FE and RE models \( \implies \)  
  culture (conformism) and institutions (better protection of property rights) are substitutes, i.e., the marginal (positive) effect of better protection of property rights decreases as society gets stronger conformism

• \( \tilde{\gamma} < 0; \tilde{\delta} > 0; \tilde{\zeta} < 0 \) at either 1% or 5% significance level in both  
  the FE and RE models \( \implies \) consistent with the existing empirical evidence

• The time effect needs to be controlled; otherwise, the marginal effect of an increase in the institutional quality turns out negative for GDP per capita, which is contradicting the evidence
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Observations: 1,090
R-squared: .061 .745 .600 .484 .457 .418
Number of countries: 92
Country FE: YES YES NO NO NO NO
Country RE: NO NO YES YES YES YES
Year dummy: NO YES NO YES NO YES
THANKS FOR LISTENING!!!