Corruption and Rent-Seeking in Economic Growth

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1. CORRUPTION AND RENT-SEEKING

- Dominant types of antisocial behavior
  - What are they?
  - Where do they come from? Individual self-interest? Weak institutions? Poor social norms?
  - How big are they?
  - How much do they hurt productivity and growth?
  - Can we write down laws of motion that describe how institutions, social norms and GDP evolve jointly over time?
- Corrumpere = to bribe, mar, destroy
- 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 talks: individuals make "rational" occupational choices to produce or seek rents; to enforce laws or corrupt them. No incarceration or other punishment
  - "Rationality" = maximizing lifecycle income adjusted for interpersonal externalities (social interactions expressed as "norms")
  - Economy-wide average of current occupational choices $\Rightarrow$ future norms
  - Institutions chosen collectively: binary choice between status quo and randomly drawn reform proposal. Reforms need supermajority approval.

1. CORRUPTION AND RENT-SEEKING

- Endogenous norm parameter $\rho_0 \in [0, 1]$:

$$\begin{cases} \rho_0 = 0 & \Rightarrow \quad \text{complete intolerance of corruption} \\ \rho_0 = 1 & \Rightarrow \quad \text{complete intolerance of honesty} \end{cases}$$

- Exogenous culture parameter $\sigma \in [0, \infty)$: equals implied penalty tax per unit deviation from norm such that

$$\begin{cases} \sigma = 0 & \Rightarrow \quad \text{complete ``individualism''} \\ \sigma = \infty & \Rightarrow \quad \text{complete ``collectivism''} \end{cases}$$

[cf. Hofstede & Bond (1988), Gorodnichenko and Roland (2015), Jeong (2016)]

- Endogenous property-rights parameter $\theta \in [0, b]$: equals ratio of enforcement personnel to rent-seekers

$$\begin{cases} \theta = 0 & \Rightarrow \quad \text{no enforcement} \\ \theta = b & \Rightarrow \quad \text{no antisocial behavior} \end{cases}$$

2. FACTS AND ISSUES

- Strong correlation of p.c. GDP with measured corruption

	% firms asked for bribes	% sales theft loss	2013 GNI p.c. (PPP $)
OECD-21	1.7	1.4	45,620 (Germany)
S. Asia	25.6	7.6	5,350 (India)

2. FACTS AND ISSUES

Q. Does corruption limit GDP?

- Yes: Adam Smith (1776) "tolerable administration of justice", Myrdal (1968), North and Thomas (1973), Murphy, Shleifer and Vishny (1993), Acemoglu and Robinson (2005), Aidt (2009)
- Maybe/No: Lui (1995), Wedeman (2002)
  - corruption is antidote to bureaucratic delay
  - fast growth and corruption can coexist (E. Asia)
  - "greasing" the wheels of growth
  - bureaucracy itself exogenous: not a corruption symptom or equilibrium outcome
- In these lectures: simultaneous choice of rent-seeking intensity and corruption incidence by rational households

2. FACTS AND ISSUES

- Corruption is socially inefficient
  - "sanding" the wheels of growth
  - 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 vetoed by uncompensated groups with comparative advantage in rent-seeking or by corrupt civil servants
  - reforms discouraged by corruption-tolerant cultures
    [cf. "war of attrition" delays in Alesina/Drazen (1991)]

2. FACTS AND ISSUES

- Why tolerate corruption
  - because others do (culturally self-enforcing equilibrium)
  - high cost of enforcing property rights
  - externalities: spillovers, social interactions, conformism [M-V-Shleifer (1993), Acemoglu (1995), Brock and Durlauf (2001), Blackburn et al. (2006)]
- Institutional inertia
  - why do good and bad institutions persist?
  - why do reforms often fail?

3. LITERATURE SKETCH

- Surveys: Bardhan (1997), Aidt (2003)
  - rent-seeking = illegal transfers from productive to unproductive agents
  - corruption = illegal use of public office for private gain
- Empirical side: Interesting facts in search of common framework
  - 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)

3. LITERATURE SKETCH

- Theoretical models:
  - closed economy, no public institutions, no externalities
  - strategic predator / prey interactions (private aggression & enforcement) $\Leftrightarrow$ "offensive weapons" vs "fortfications"
    - Hirshleifer, 1988, Grossman, 1991 & Skaperdas, 1992 (atemporal)
    - Grossman and Kim, 1996 (dynamic)
  - 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)
  - reform politics: veto power and status quo, Tsebelis (2002)

4. THIS PAPER

(a) Agenda

- Isolate impact of institutions and culture on growth
- Step 1: fix institutions/enforcement of property rights
  - explain incidence of corruption and rent-seeking
  - trace long-run impact on productivity and growth
  - steady states vs dynamics: is there a role for history?
- Step 2: endogenize institutions as a binary choice between status quo and random reform proposal.
  - reform requires supermajority
  - explain persistence of good and bad governance
  - role of social interactions and history

4. THIS PAPER

(a) Agenda (cont'd)

- Measurement and policy issues
  - proxies for unmeasured income from corrupt activity
  - recipes for successful reform: why is it so rare?

4. THIS PAPER

(b) Outline

- Private aggression, government enforcement, social interactions
- Standard OLG open-economy model of world growth
- Many identical countries (except in politics and history)
- Common social fundamentals (population, technology, tastes and endowments, political processes, culture parameters)
- Different initial conditions (social norms, institutions)
- International factor mobility:

$$\left.\begin{array}{r}\text{perfect for capital}\\ \text{zero for labor}\end{array}\right\} \Longrightarrow \begin{array}{c}\text{common factor prices}\\ \text{(wages, interest rates)}\end{array}$$

4. THIS PAPER

(c) Three layers of equilibrium

- Layer 1:
  - individuals in each country choose occupations (produce vs. corrupt) given the factor prices, institutions, and social norms they face
- Layer 2:
  - each country can change inherited institutions by universal consent or supermajority, taking prices and social norms as given
  - social norms and institutions are reset
- Layer 3:
  - factor prices, incomes and capital accumulation determined in the global economy

4. THIS PAPER

(d) Main results

- Equilibrium is always unique but history matters
- One or more stable steady states
- Basin of attraction for each stable state depends on $(\theta, \sigma) = (\text{institutions}, \text{culture})$
- Individualist (low-σ) societies converge to a state of:
  - no corruption if institutions are strong enough
  - maximal corruption if institutions are weak enough
  - intermediate corruption if institutions are neither strong nor weak
  - basins of attraction for extreme states are very sensitive to institutions; they grow if individualism weakens
  - reform from weak to strong institutions is politically feasible if rent-seekers have enough human capital
  - strong and weak institutions persist. Intermediate ones are more changeable.

4. THIS PAPER

(d) Main results (cont'd)

- Traditionalist (high$-\sigma$) societies converge to either a no-corruption state or to a full-corruption one, depending on history
  - basins of attraction are not very sensitive to institutions
  - good history guarantees a no-corruption steady state for any choice of institutions
  - bad history leads to a no-corruption state only if society suppresses rent-seeking with extreme vigor
- Ultra-traditionalist ($\sigma \to \infty$) societies simply replicate the past. History is destiny here; institutions are irrelevant.

4. THIS PAPER

(d) Main results (cont'd)

- The paradox of reform
    - traditionalist societies with poor histories are unlikely to reform

4. THIS PAPER

(e) Plan

1. A theoretical framework: sections 5 – 7
2. Occupational choices and equilibrium: 8 and 9
3. Introduction to politics: 10 – 12
4. Rent-seeking: 13 and 14
5. Politics in individualist and traditionalist societies: 15 and 16
6. Conclusions, extensions and policy lessons: sections 17–19

5. A GROWTH-THEORY FRAMEWORK

(a) Building blocks

- OLG growth model (Diamond, 1965) with consumption externalities
  - constant population with two-period lifecycle
  - no pubic debt or technology shocks
  - common neoclassical production technology with CRS
  - predator-prey matching technology with CRS
  - risk neutrality or complete financial markets against idiosyncratic risks

5. A GROWTH-THEORY FRAMEWORK

(b) Additional features

- World economy with perfect capital mobility and zero labor mobility
- CRS matching technology pairs rent-seekers with their victims
- Rent-seeker's revenue limited by enforcement of property rights
- Enforcement "intensity" (collectively chosen scalar) proxies for institutions
- Corrupt enforcers share in rent-seekers' revenue; risk of exposure and income forfeiture
- Capital income exempt from corruption (simplifying assumption)
- Inherited social norms = last period's average choice

5. A GROWTH-THEORY FRAMEWORK

(c) Details

- World economy with identical nations, indexed $j = 1, \cdots, J$ ($J >> 1$)
- Nations differ only in politics and history
- Each nation has population mass 1
- Two types of households, indexed $i = 1, 2$ with masses $1 - \mu$ and μ respectively and $n \equiv \mu / (1 - \mu)$
  - $i = 1$: producers or honest enforcers or corrupt enforcers
  - $i = 2$: producers or rent-seekers
- Three sectors indexed $s = 0, 1, 2$
  - $s = 0$: enforcement
  - $s = 1$: production
  - $s = 2$: rent-seeking

5. A GROWTH-THEORY FRAMEWORK

(c) Details (cont'd)

- Common utility function for $i = 1, 2$ and $j = 1, \cdots, J$

$$u_{i,t} = (1 - \delta_{i,t})[c_t(t, i)]^{1-\beta}[c_{t+1}(t, i)]^{\beta} = \text{private payoff}$$

$\delta_{i,t} =$ implied loss ("tax" rate) for occupational choices deviating from social norms

Then, the indirect 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.

- Common time endowment for $i = 1, 2$: $\omega_{i,t} = (1, 0)$
- Common production technology for $i = 1, 2$; $s = 0, 1, 2$; $j = 1, \cdots, J$ as follows:

$$Y = K^{\alpha} N^{1-\alpha}$$

5. A GROWTH-THEORY FRAMEWORK

(c) Details (cont'd)

- Heterogeneous household features
  - $i = 1, 2$ have different sectoral comparative advantage
  - e_i^s efficiency units per unit time for agent $i = 1, 2$ in sector $s = 0, 1, 2$
  - $\left(e_1^0, e_1^1, e_1^2\right) = (1, 1, 0)$ ($i = 1$ cannot be a rent-seeker)
  - $\left(e_2^0, e_2^1, e_2^2\right) = (0, \gamma, 1)$ ($i = 2$ cannot be an enforcer) (comparative advantage in rent-seeking)

6. WORLD W/O CORRUPTION

(a) Utopia benchmark: no corruptible humans or externalities
$(e_1^0 = e_1^2 = e_2^0 = e_2^2 = 0, \gamma = 1, \delta_{i,t} = 0)$

- No wastage on enforcement
- Each nation has one unit of productive labor and saves fraction β 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 $j = 1, \cdots, J$:
  - $y_{t+1}^j = (\bar{y})^{1-\alpha} (y_t^j)^{\alpha}$
  - 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

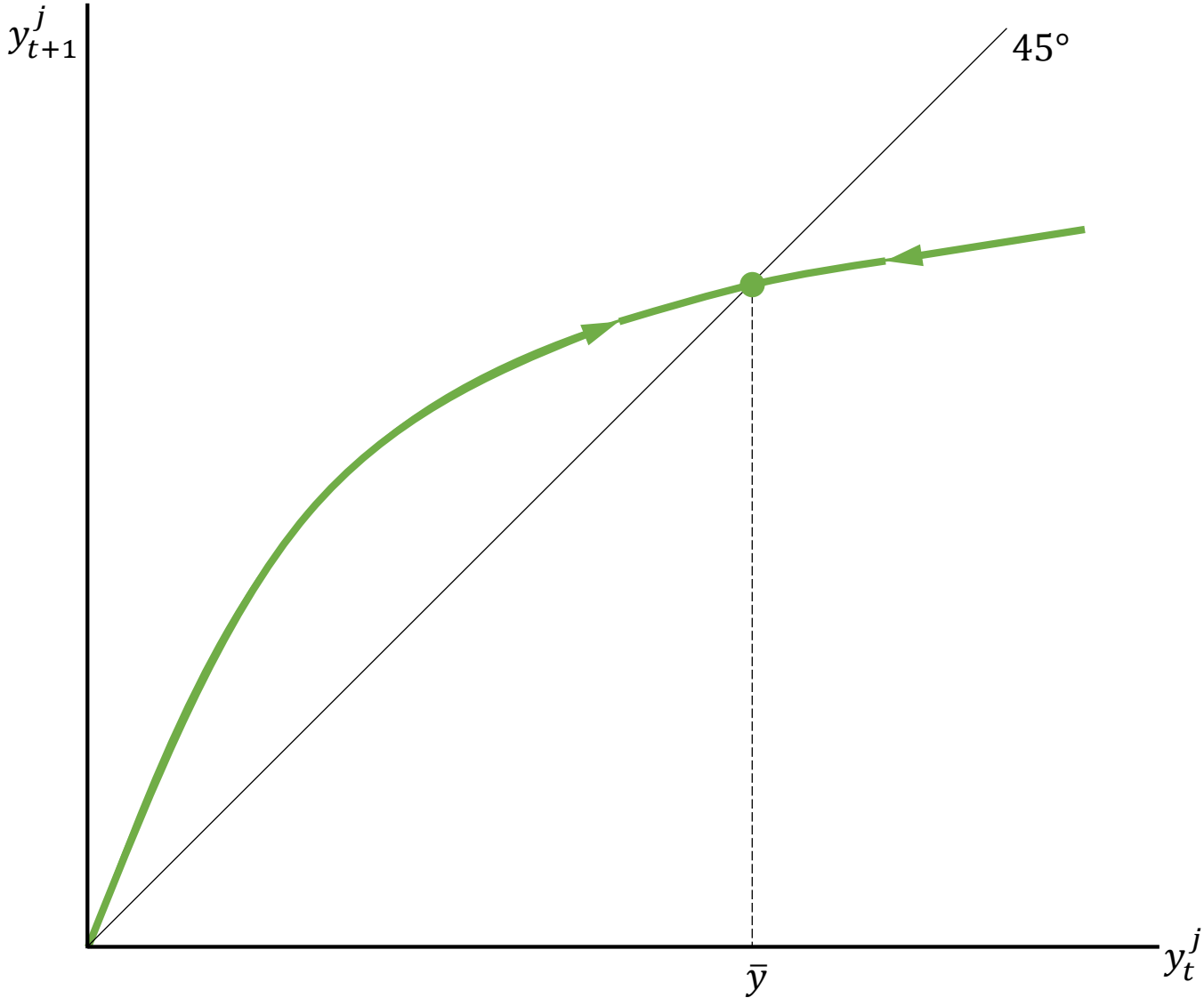


Figure 1: Growth without corruption

6. WORLD W/O CORRUPTION

(b) Conclusions: without corruption/rent-seeking

- GDP per capita differences disappear at $t = 0$
- National income differences (due to initial wealth) shrink and vanish if initial incomes are low
- Convergence to common per-capita income

(c) Corruption as a deadweight loss

- Diverting productive workers into rent-seeking
- Diverting productive workers into deterrence
- Deadweight loss from exposed public sector corruption

7. BUILDING A MODEL

(a) Households, sectors and labor supply

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

$$i = 1: \quad 1-\mu \left\langle \begin{array}{c} D\text{: enforcers} \\ 1-\mu-D\text{: producers} \end{array} \right. \left\langle \begin{array}{c} Dx\text{: corrupt} \\ D(1-x)\text{: honest} \end{array} \right., \quad x \in [0,1]$$

$$i = 2: \quad \mu \left\langle \begin{array}{c} \mu\rho\text{: rent-seekers} \\ \mu(1-\rho)\text{: producers} \end{array} \right., \quad \rho \in [0,1]$$

- Rent-seekers: $X = \mu\rho$
- Victims: $V = 1 - \mu + \gamma\mu(1-\rho)$ [efficiency labor units]

7. BUILDING A MODEL

(a) Households, sectors and labor supply (cont'd)

- Victims loss = fraction $\lambda\left(\frac{D}{X}\right) \in [0,1]$ of after-tax income:

$$\lambda = \begin{cases} \text{index of property rights} \\ \text{decreasing, convex function} \end{cases}$$

  - $\lambda(0) = 1$ and $\lambda(b) = 0$ for some $b < (1-\mu)/\mu$

7. BUILDING A MODEL

(b) Collective choices

- Property-rights parameter $\theta \equiv \frac{D}{X} \in [0, b]$

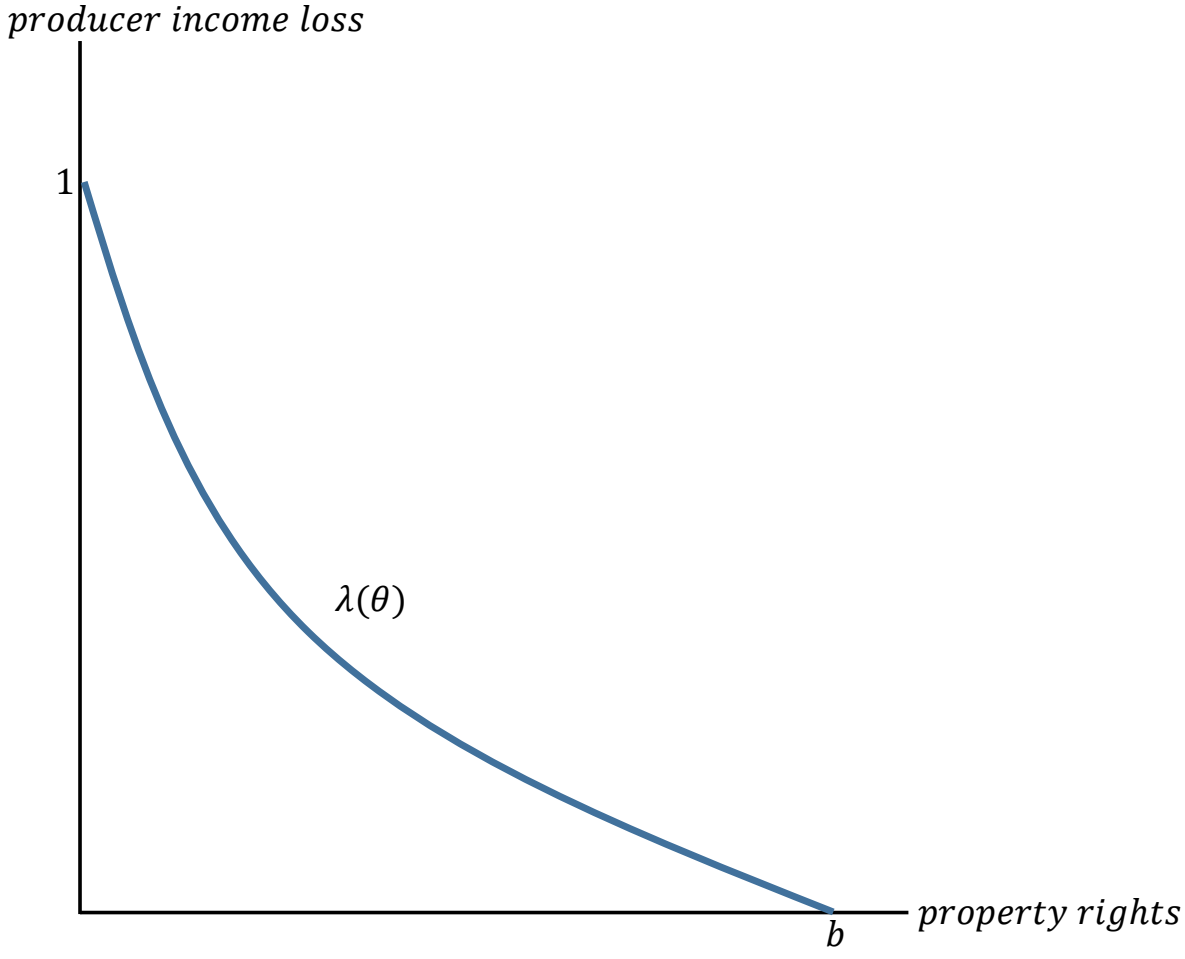
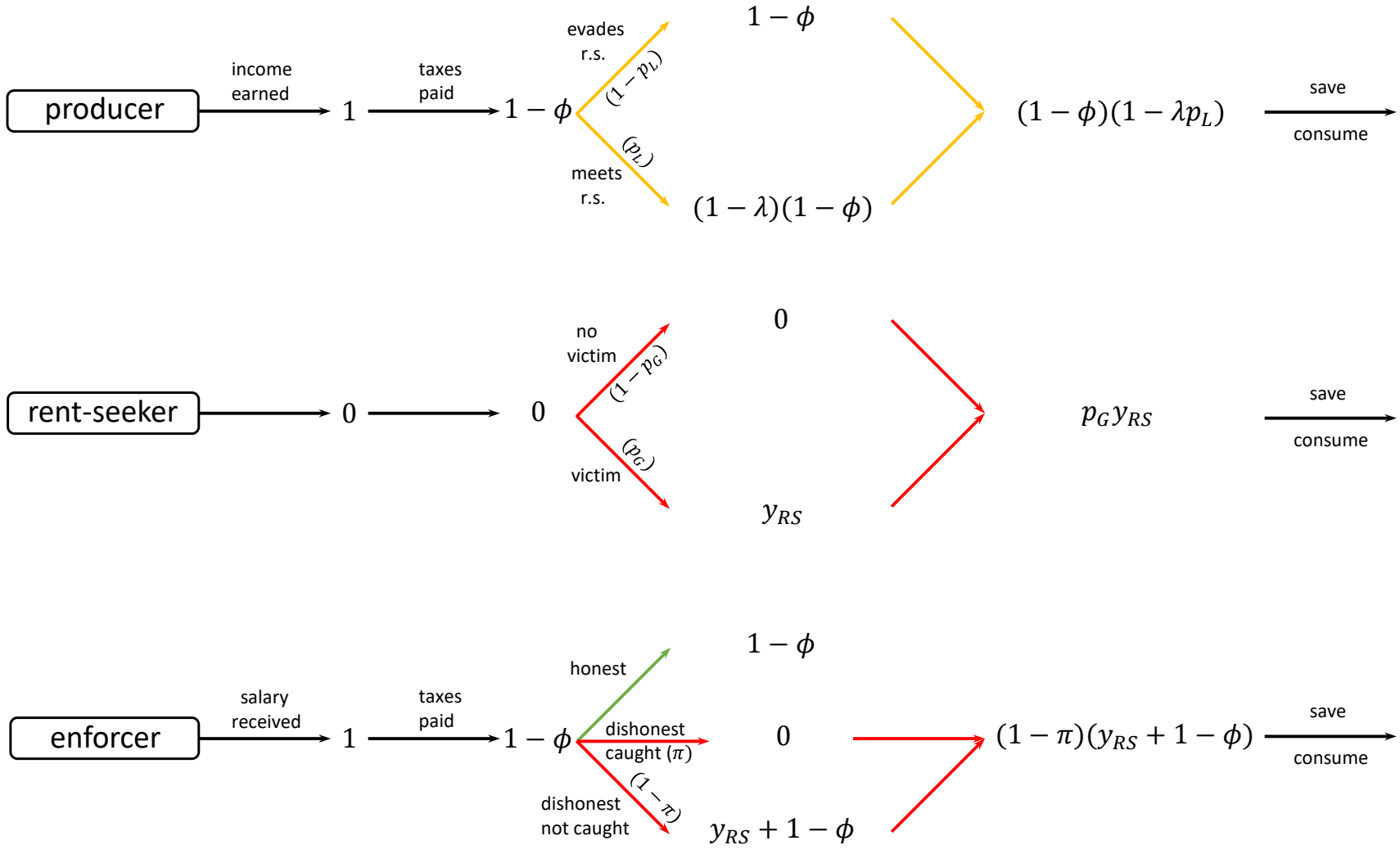


Figure 2: Deterring rent-seekers

7. BUILDING A MODEL

(c) The timing of incomes and events



7. BUILDING A MODEL

(d) Technologies for rent-seeking

- Number of meetings between X rent-seekers and V honest workers obeys CRS matching technology $P(V, X)$
- $V =$ efficiency units of victim labor supply

  $= 1 - \mu + \gamma\mu(1 - \rho)$
- Each meeting transfers fraction $\lambda(\theta)$ of after-tax wage income from workers to rent-seekers
- $P(V, X) \leq \min(V, X)$, P: increasing concave
- Define $p(X) \equiv P(1, X)$ then

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

7. BUILDING A MODEL

(d) Technologies for rent-seeking (cont'd)

- All producers and enforcers vulnerable to corruption tax p_L
- Capital owners exempt from corruption
  (simplifies occupational choice decision)
- Victim's probability of income loss: $p_L = P/V = p(z)$
- Rent-seeker's probability of income gain: $p_G = P/X = p(z)/z$

7. BUILDING A MODEL

(e) Technologies for deterrence and corruption

- Number of meetings between xD dishonest enforcers and $(1-x)D$ honest ones also obeys CRS matching technology:

$$\Pi\left(xD,(1-x)D\right)=D\Pi\left(x,1-x\right)$$

- Probability of exposure for rogue enforcer:

$$\frac{\Pi}{xD}=\Pi\left(1,\frac{1-x}{x}\right)=\pi\left(x\right)$$

which is decreasing in $x\in[0,1]$ with $\pi\left(0\right)=1$ and $\pi\left(1\right)=0$

7. BUILDING A MODEL

(f) Institutions and taxes

- Public policy connects enforcement with the amount of rent-seeking activity

$$D = \theta X = \theta \mu \rho$$

  where $\theta \in [0, b]$ is a public policy parameter proposed by agenda setter and not vetoed by households

- Enforcement conducted by type-1 persons receiving the same market wage $w > 0$ as type-1 producers

7. BUILDING A MODEL

(g) An example

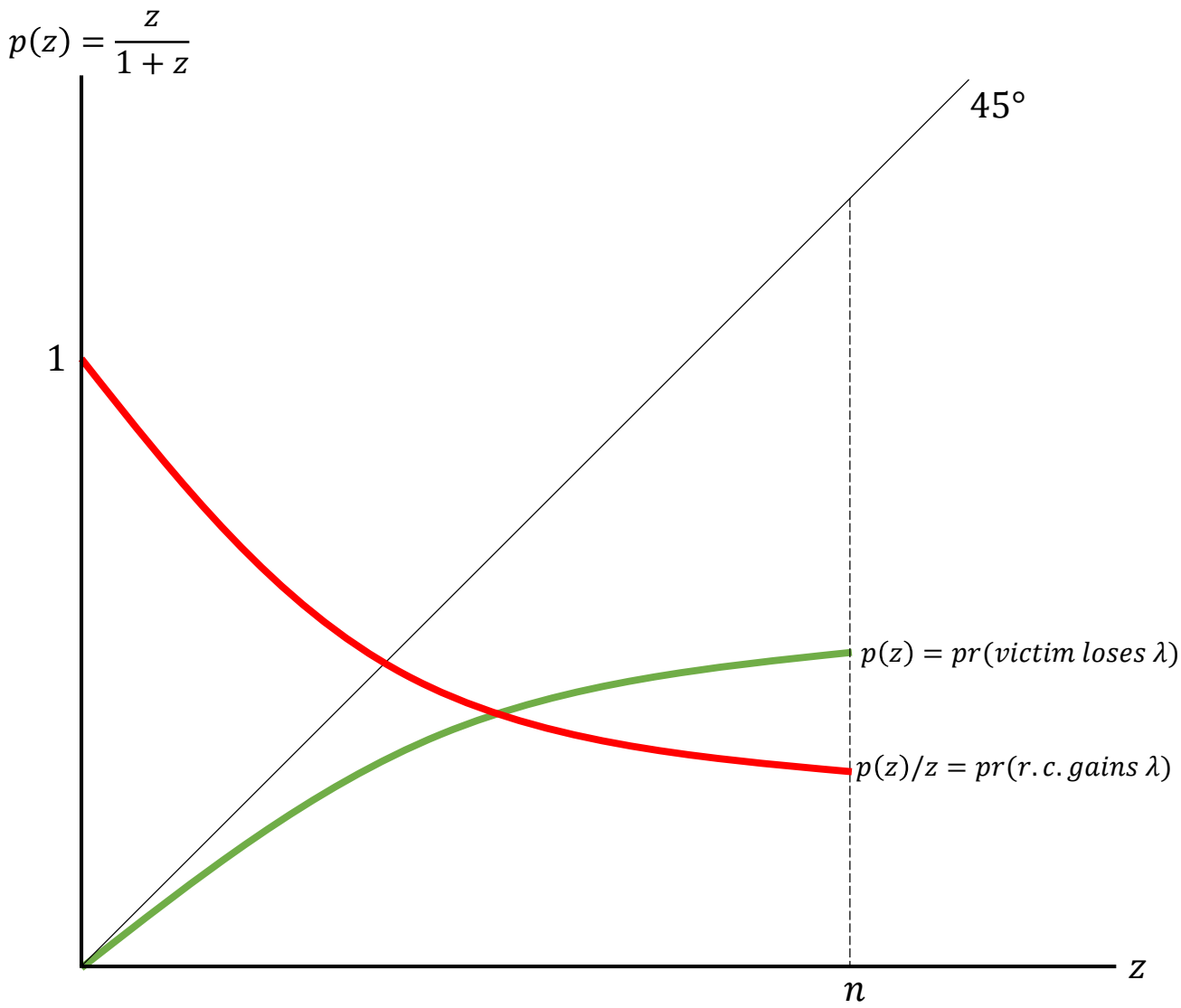


Figure 3: Loss and gain probabilities

8. PAYOFFS AND OCCUPATIONAL CHOICE

(a) Social interactions at each t

- Indirect utility function for agent $i = 1, 2$: $v_i = (1 - \delta_i)(y_i)R^{\beta}$

$$y_i = \text{after-tax income}$$

$$R = \text{world yield on saving}$$

$$D_i = \sigma|\rho_i - \rho_0|$$

where

$\sigma \in [0, 1]$: externality (culture) parameter

$$\rho_i = \begin{cases} 0 & \text{if honest agent} \\ 1 & \text{if anti-social agent} \end{cases}$$

$\rho_0 =$ average of preceding period's rent-seeker choices

- Drop the exogenous yield term. Then payoffs are:

$$v_i = \begin{cases} (1 - \sigma\rho_0)y_i & \text{if } i \text{ is honest} \\ (1 - \sigma + \sigma\rho_0)y_i & \text{if } i \text{ is anti-social} \end{cases}$$

8. PAYOFFS AND OCCUPATIONAL CHOICE

(b) Rent-seeker's income

- Assume that dishonest enforcers and rent-seekers receive equal shares in the income from producers (corrupt enforcers "protect" rent-seeker loot):

8. PAYOFFS AND OCCUPATIONAL CHOICE

(b) Rent-seeker's income (cont'd)

$L \equiv$ aggregate income from rent-seeking

$= (\#$ victims$) \times$ (income per victim) $\times$ (prob. of loss) $\times$ (loss fraction)

$= V(1-\phi)\, p_L \lambda(\theta)$

- Also,

$$\#\text{ of predator claims} = X + xD = X(1+\theta x)$$

- Then, predator's personal income is given by:

$$y_{RS} = \frac{L}{X+xD} = (1-\phi)\, p_G \frac{\lambda(\theta)}{1+\theta x}$$

8. PAYOFFS AND OCCUPATIONAL CHOICE

(c) Individual incomes

- With perfect financial markets for idiosyncratic income risks:

$$\text{actual income} = \text{expected income}$$

- Then, with wage rate $w = 1$, we have:

$$\text{type-1 income} \equiv y_1 = \begin{cases} y_1^P \equiv (1-\phi)[1-\lambda(\theta)p(z)] & \text{if producer} \\ y_1^P & \text{if honest enforcer} \\ [1-\pi(x)](y_1^P + y_{RS}) & \text{if corrupt enforcer} \end{cases}$$

$$\text{type-2 income} \equiv y_2 = \begin{cases} \gamma y_1^P & \text{if producer} \\ y_{RS} & \text{if rent-seeker} \end{cases}$$

8. PAYOFFS AND OCCUPATIONAL CHOICE

(d) Individual payoffs

- **type-1 producer**:
$$v_1^P = (1 - \sigma\rho_0)\, y_1^P$$

  where $\rho_0 =$ last period's average ρ.

- **type-1 enforcer**:
$$\begin{aligned} v_1^E &= \max\{(1-\sigma\rho_0)y_1^P, (1-\sigma+\sigma\rho_0)[1-\pi(x)](y_1^P + y_{RS})\} \\ &= (1-\sigma\rho_0)[1-\pi(x)](y_1^P + y_{RS}) \max\{J(p,x,\theta), m(\rho_0)\} \end{aligned} \quad (1)$$

  where
$$m(\rho_0) \equiv \frac{1-\sigma+\sigma\rho_0}{1-\sigma\rho_0} \quad (2a)$$

  $*$ m describes society's bias toward public corruption
  $*$ m is increasing in ρ_0
  $*$ $m = 0\ \forall\rho_0$ if $\sigma = 0$, $m = \infty$ if $(\sigma, \rho_0) = (1, 1)$

8. PAYOFFS AND OCCUPATIONAL CHOICE

(d) Individual payoffs (cont'd)

- Also,

$$J(\rho, x, \theta) \equiv \frac{y_1^P}{[1-\pi(x)](y_1^P + y_{RS})} \tag{2b}$$

$$= \frac{1}{[1-\pi(x)]\left[1 + \left(\frac{\lambda(\theta)}{1+\theta}\right)\left(\frac{p(z)/z}{1-\lambda(\theta)p(z)}\right)\right]}$$

  - J is the public servant's ratio of honest-to-dishonest income
  - J is decreasing in x because widespread corruption reduces civil servant incentives to behave honestly
  - J is increasing in (ρ, θ), and the predator-to-prey ratio is:

$$z \equiv n\rho / [1 + \gamma n(1-\rho)]$$

8. PAYOFFS AND OCCUPATIONAL CHOICE

(d) Individual payoffs (cont'd)

* J is increasing in θ because property rights improve honest income
* J is increasing in the predator-to-prey ratio z (or ρ) because higher z means less honest income and much less rent-seeking income y_{RS} (less loot, more predators). Technical assumption required is $[1 - p(z)]z/p(z)$ should be increasing in z.
* $J(0, 0, \theta) = \infty$.

8. PAYOFFS AND OCCUPATIONAL CHOICE

(d) Individual payoffs (cont'd)

- Occupational choice:

enforce honestly	if $J > m(\rho_0)$
dishonest enforcement	if $J < m(\rho_0)$

8. PAYOFFS AND OCCUPATIONAL CHOICE

(d) Individual payoffs (cont'd)

- **type-2 agent:**

$$v_2 = (1 - \sigma\rho_0) y_{RS} \max\{H(\rho, x, \theta), m(\rho_0)\} \tag{3}$$

where

$$H(\rho, x, \theta) \equiv \frac{\gamma y_1^P}{y_{RS}} = \gamma(1 + \theta x) \frac{1 - \lambda(\theta) p(z)}{\lambda(\theta) p(z)/z} \tag{4a}$$

$*$ H is again the honest-to-dishonest income ratio.
$*$ H is increasing in all three arguments.

Note also:

$$H(0, 0, \theta) = \frac{\gamma}{\lambda(\theta) p'(0)}$$

$$H(1, 1, \theta) = \gamma(1 + \theta) \frac{1 - \lambda(\theta) p(n)}{\lambda(\theta) p(n)/n}$$

- Occupational choice:

produce	if $H > m(\rho_0)$
seek rents	if $H < m(\rho_0)$

9. EQUILIBRIUM

(a) Definitions

Definition 1

Stationary Equilibrium: The pair $(\rho, x) \in [0,1] \times [0,1]$, or equivalently $(z, x) \in [0, n] \times [0,1]$, is an occupational steady state relative to an institutional parameter $\theta \in [0, b]$ and an externality parameter $\sigma \in [0,1]$ if it is consistent with individual choices of occupation, that is, if:

(i) $J > m(0)$ and $H > m(0)$	for $(\rho, x) = (0,0)$
(ii) $J < m(1)$ and $H < m(1)$	for $(\rho, x) = (1,1)$
(iii) $J = H = m(\rho)$	for $(\rho, x) \in (0,1) \times (0,1)$
(iv) $J < m(\rho) = H$	for $(\rho, x) = (\rho, 1)$ with $\rho \in (0,1)$
(v) $J > m(\rho) = H$	for $(\rho, x) = (\rho, 0)$ with $\rho \in (0,1)$
(vi) $J = m(1) > H$	for $(\rho, x) = (1, x)$ with $x \in (0,1)$

9. EQUILIBRIUM

(a) Definitions (cont'd)

Definition 2

Dynamic Equilibrium: The sequence $(\rho_t, x_t)_{t=0}^{\infty}$ is a dynamic *interior* occupational equilibrium relative to the institutional parameter $\theta \in [0, b]$, the externality parameter $\sigma \in [0, 1]$ and the initial value $\rho_0 \in [0, 1]$ if the following system of equations:

$$J(\rho_t, x_t, \theta) = m(\rho_{t-1}) = H(\rho_t, x_t, \theta)$$

has solutions $(\rho_t, x_t) \in (0, 1) \times (0, 1)$ for all $t \geq 1$.

9. EQUILIBRIUM

(a) Definitions (cont'd)

Definition 3

Political Equilibrium: The sequence $(\rho_t, x_t, \theta_t)_{t=0}^{\infty}$ is an interior political equilibrium relative to the externality parameter $\sigma \in [0,1]$, the initial values $(\rho_0, \theta_0) \in (0,1) \times (0,b)$, and an arbitrary sequence of reform proposals (θ_t^P), if (ρ_t, x_t, θ_t) satisfy:

$$J(\rho_t, x_t, \theta_t) = m(\rho_{t-1}) = H(\rho_t, x_t, \theta_t)$$

for all $t \geq 1$ and

$$\theta_t = \begin{cases} \theta_t^P & \text{if all agents living at } t \text{ weakly prefer } \theta_t^P \text{ to } \theta_{t-1} \\ \theta_{t-1} & \text{otherwise} \end{cases}$$

9. EQUILIBRIUM

(b) Main results

1. Dynamic equilibria are unique
   [J, H, m are all monotone in (ρ, x, θ)]
2. Many steady states exist for weak-to-medium institutions. Only one exists for strong institutions (high θ)
3. Initial conditions matter a great deal, especially when externalities are strong. History perpetuates itself for very large σ.

9. EQUILIBRIUM

(c) Details

Lemma 1

Let the functions $\{\hat{\theta}(\sigma), \tilde{\theta}(\sigma), \theta_c^1(\sigma), \theta_c^2(\sigma)\}$ *solve the equations:*

$$
\begin{aligned}
1-\sigma &= H(0,0,\hat{\theta}) \\
1/(1-\sigma) &= H(1,1,\tilde{\theta}) \\
1/(1-\sigma) &= H(1,0,\theta_c^1) \\
1-\sigma &= H(0,1,\theta_c^2)
\end{aligned}
$$

Then, ***(i)*** $(\hat{\theta}, \theta_c^2)$ *are decreasing and* $\hat{\theta} > \theta_c^2$ *for all* $\sigma \in [0,1]$.

(ii) $(\tilde{\theta}, \theta_c^1)$ *are increasing and* $\tilde{\theta} < \theta_c^1$ *for all* $\sigma \in [0,1]$.

(iii) $\tilde{\theta}(1) = \theta_c^1(1) = b$.

9. EQUILIBRIUM

(c) Details (cont'd)

Theorem 1

(i) $(\rho, x) = (0, 0)$ *is a steady state if, and only if,* $\theta > \hat{\theta}(\sigma)$.

(ii) $(\rho, x) = (1, 1)$ *is a steady state if, and only if,* $\theta < \tilde{\theta}(\sigma)$.

(iii) $(\rho, x) = (\bar{\rho}, 1)$ *is a steady state with* $\bar{\rho} \in (0, 1)$ *if* $\tilde{\theta}(\sigma) < \theta < \theta_c^2(\sigma)$.

(iv) $(\rho, x) = (\bar{\rho}, 0)$ *is a steady state with* $\bar{\rho} \in (0, 1)$ *if* $\theta_c^1(\sigma) < \theta < \hat{\theta}(\sigma)$.

(v) $(\rho, x) = (0, \bar{x})$ *cannot be a steady state for any* $\bar{x} > 0$ *(*$\because y_{RS} = 0$*).*

(vi) $(\rho, x) = (\bar{\rho}, \bar{x}) \in (0, 1) \times (0, 1)$ *is an interior steady state if* $\theta_c^1(\sigma) < \theta < \theta_c^2(\sigma)$.

9. EQUILIBRIUM

Figures 4A, 4B, 4C illustrate:

- 4A describes equilibrium for a fixed $x = \bar{x}$ and small σ, i.e., when $m(\rho_0)$ is relatively flat. Here the equation $H(\rho, \bar{x}, \theta) = m(\rho_0)$ has a unique stable state: $\rho = 0$ if $\theta > \hat{\theta}$, $\rho = 1$ if $\theta < \hat{\theta}$, $\rho \in (0, 1)$ otherwise.
- 4B does the same for large σ when $m(\rho_0)$ is steep. Here we have two stable states: $\rho = 0$ and $\rho = 1$. An unstable state $\bar{\rho}(\theta)$ separates two basins of attraction.

9. EQUILIBRIUM

Figures 4A, 4B, 4C illustrate: (cont'd)

- 4C gives a nearly complete description of all steady states, stable and unstable. Note $x = 0$ is a steady state almost everywhere since $\pi(0) = 1$, i.e., unit probability of exposure for corrupt enforcers when none exist.
    - not all states are locally asymptotically stable. Each can be reached from its immediate neighborhood or not at all.
    - no corruption is a unique equilibrium for very high θ when $\sigma < 1$
    - high σ and low θ are associated with multiple extreme states at which (ρ, x) are either 0 or 1
    - Low σ allows for interior states

9. EQUILIBRIUM

- Not shown in Figures 4A, 4B, 4C: as $\sigma \to \infty$, every initial condition becomes a steady state, i.e.,

$$(\rho_t, x_t) = (\rho_0, \rho_0) \quad \forall t$$

9. EQUILIBRIUM

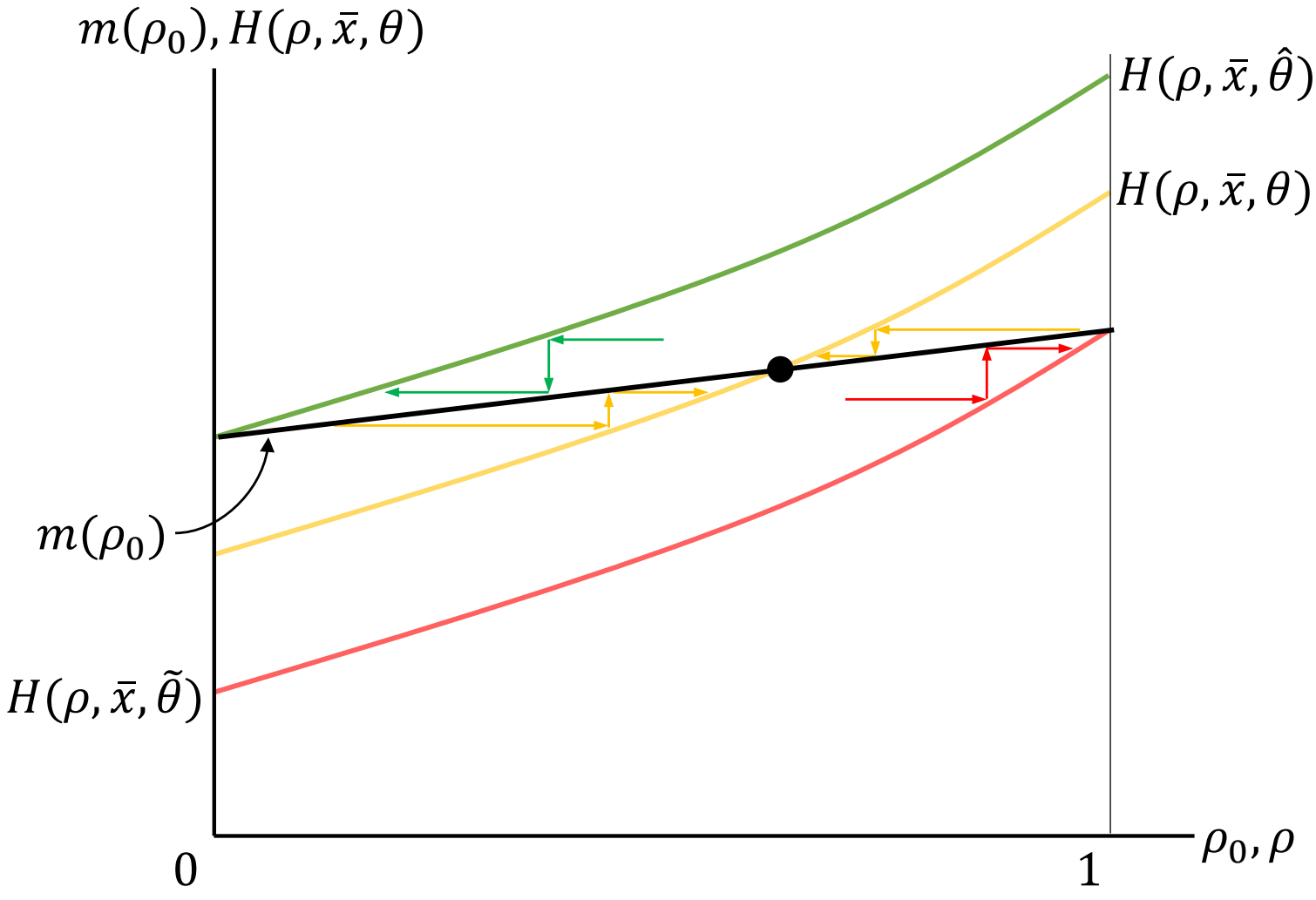


Figure 4A: Rent-seeking dynamics for small externalities

9. EQUILIBRIUM

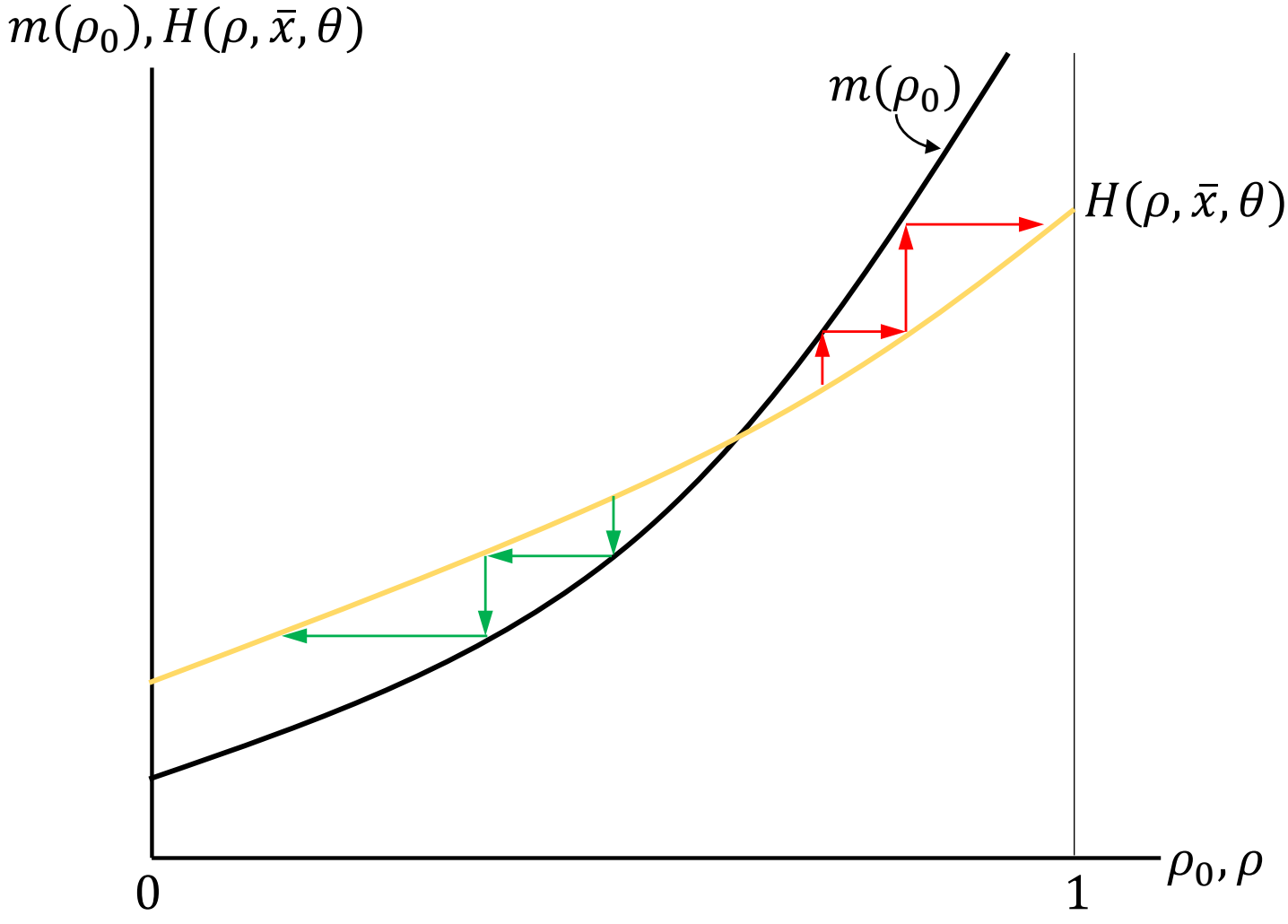


Figure 4B: Rent-seeking dynamics for big externalities

9. EQUILIBRIUM

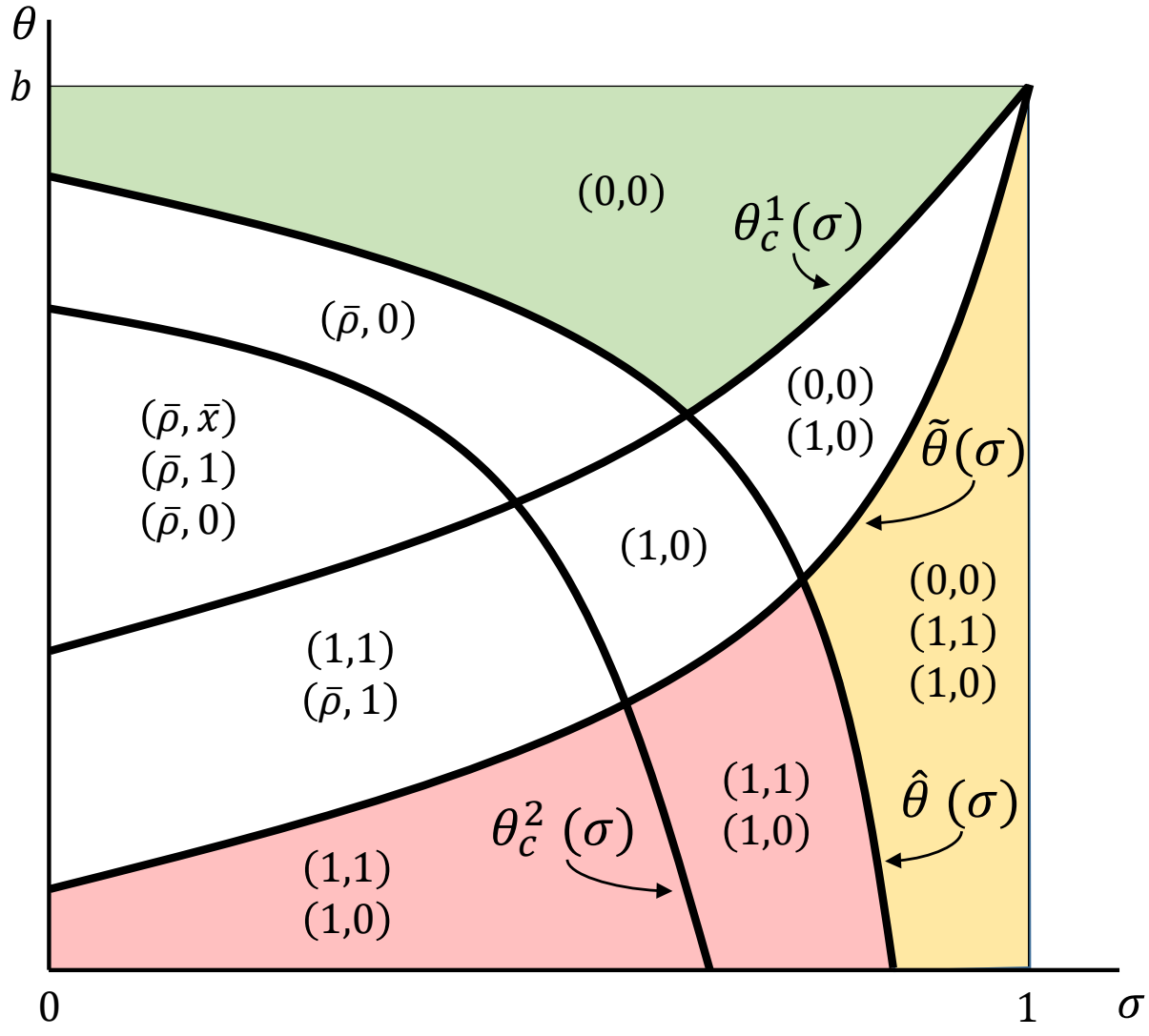


Figure 4C: A map of corruption and rent-seeking

10. THE SIMPLEST POLITICS OF BINARY CHOICE

(a) Setting & results

- Suppose society is faced with a binary choice $\theta \in \{0, b\}$ where

$$\theta = 0 \text{ is status quo [no enforcement]}$$
$$\theta = b \text{ is reform proposal [no rent-seeking]}$$

- Tax rate $\phi = 0$ for both situations [no enforcement desired or needed]

$$z = n \text{ at } \theta = 0, \quad z = 0 \text{ at } \theta = b$$

- Matching function: $p(z) = z/(1+z)$
- Parameters: $\gamma + \sigma < 1$

10. THE SIMPLEST POLITICS OF BINARY CHOICE

(a) Setting & results (cont'd)

- Agent $i = 1$ honest in each case with payoffs $v_1(\theta)$ such that

$$v_1(0) = (1 - \sigma\rho_0)\,[1 - p(n)]$$
$$v_1(b) = 1 - \sigma\rho_0$$

- Agent $i = 2$ honest at $\theta = b$ [$\because H(0, 0, b) = \infty > m(\rho_0)$]
  rent-seeker at $\theta = 0$ [$\because H(1, 0, 0) = \gamma < 1 - \sigma < m(\rho_0)$]
  Payoffs are

$$v_2(0) = (1 - \sigma + \sigma\rho_0)\,\frac{p(n)}{n}$$
$$v_2(b) = (1 - \sigma\rho_0)\gamma \geq v_2(0) \quad \text{if } \gamma(1 + n) > m(\rho_0)$$

10. THE SIMPLEST POLITICS OF BINARY CHOICE

(a) Setting & results (cont'd)

- This inequality will hold for
  - all $\rho_0 \in [0,1]$ if $\gamma(1+n) > m(1) = 1/(1-\sigma)$
  - no $\rho_0 \in [0,1]$ if $\gamma(1+n) < m(0) = 1-\sigma$
  - $\rho_0 < \rho_c = \frac{\gamma(1+n)-(1-\sigma)}{\sigma[1+\gamma(1+n)]}$ if $m(0) < \gamma(1+n) < m(1)$
  - see Figure 5

10. THE SIMPLEST POLITICS OF BINARY CHOICE

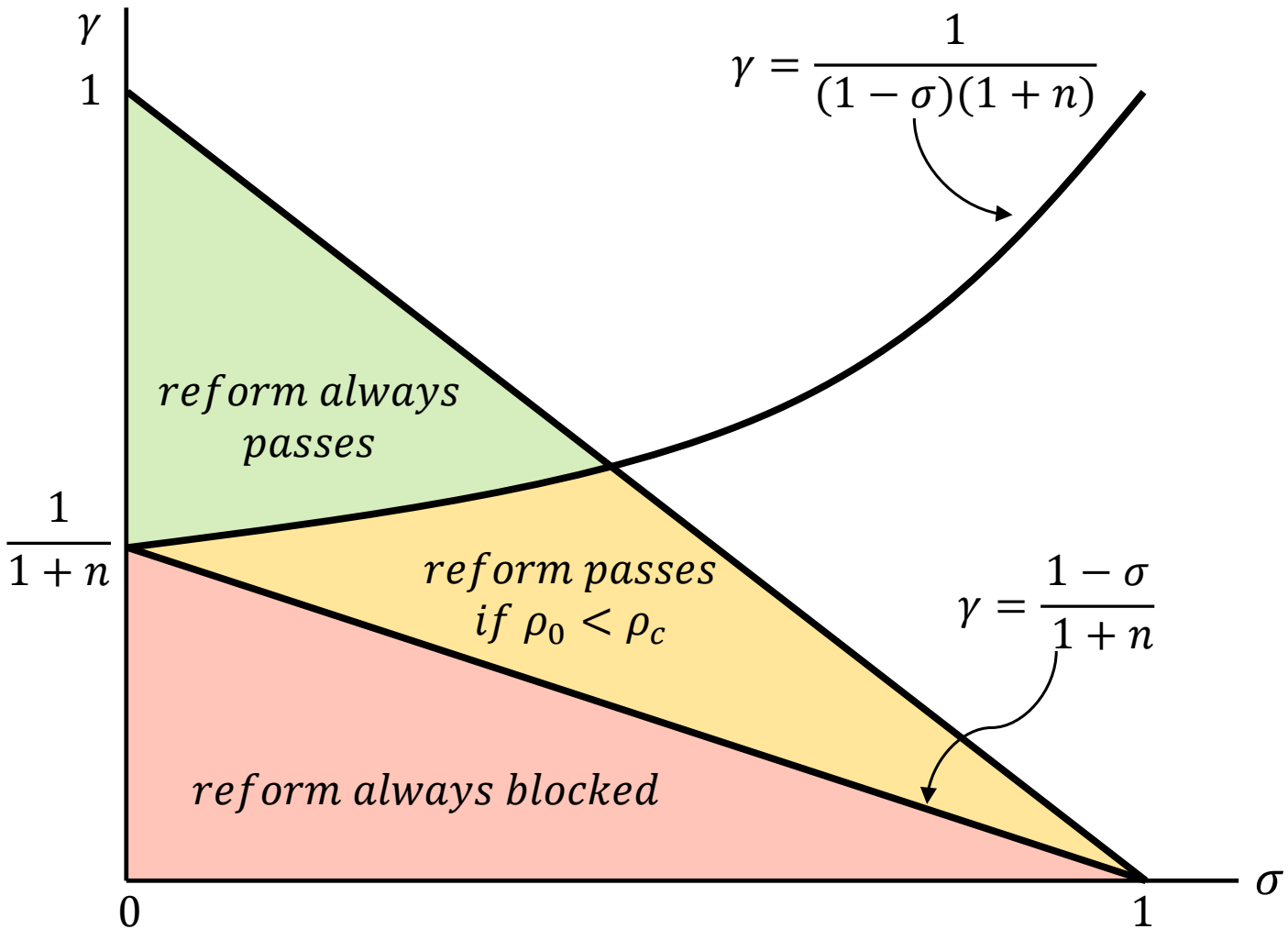


Figure 5: Impact of social norms on reform proposals

10. THE SIMPLEST POLITICS OF BINARY CHOICE

(a) Setting & results (cont'd)

Intuition: Bad outcomes (i) if productivities of two groups are far apart (Skaperdas, 1992) or (ii) history is corrupt, and norms matter.

10. THE SIMPLEST POLITICS OF BINARY CHOICE

(b) Institutions and GDP: a first pass

- Given common technology and factor prices, GDP is proportional to employment at all times. Then,

$$
\begin{aligned}
L(n) &= \frac{\text{GDP with full enforcement}}{\text{GDP with no enforcement}} \\
&= \frac{\text{full enforcement employment}}{\text{no enforcement employment}} \\
&= \frac{1-\mu+\gamma\mu}{1-\mu} = 1+\gamma n \qquad \left(n \equiv \frac{\mu}{1-\mu}\right)
\end{aligned}
$$

- Hence,

$$L(n) \longrightarrow \infty \qquad \text{as } \mu \longrightarrow 1$$

$\therefore$ Large losses from poor institutions when mass of potential rent-seekers is large.

10. THE SIMPLEST POLITICS OF BINARY CHOICE

(c) Conclusion

- **(The Paradox of Reform)** Changing from $\theta = 0$ to $\theta = b$ is hardest when corruption is high and income per capita is low.

11. INTRODUCTION TO POLITICS

Q: How does the institutional parameter $\theta \in [0, b]$ change over time?

(a) Status quo and veto power [c.f. Tsebelis (2002)]:

- At each t, society has inherited institutions $\theta_{t-1} \in [0, b]$
- Only young people care
    - Retirees do not because they are immune to corruption, and the rate of return on saving is determined in the world credit market
- Political equilibrium picks an agenda setter (perhaps a member of group $i = 1$ or $i = 2$) who chooses a "reform" proposal $\theta_t^P \in [0, b]$.

11. INTRODUCTION TO POLITICS

(a) Status quo and veto power (cont'd):

- If θ_t^P wins unanimous support, it passes . If not, it is rejected and the status quo continues.
- Three main possibilities:

$$\theta_t^P = \theta_{t-1} \qquad \text{(status quo)}$$
$$\theta_t^P > \theta_{t-1} \qquad \text{(true reform)}$$
$$\theta_t^P < \theta_{t-1} \qquad \text{(regressive reform)}$$

11. INTRODUCTION TO POLITICS

(b) Implications for GDP

- Suppose

$$\mathcal{L}(\theta) = \frac{\text{GDP when } \theta_t = \theta}{\text{maximal GDP}} = \frac{1 - \mu - D + \gamma\mu(1-\rho)}{1 - \mu + \gamma\mu}$$
$$= 1 - \frac{n}{1+\gamma n}(\gamma + \theta)\rho(\theta)$$

  where $\rho(\theta) =$ equilibrium fraction of rent-seekers when $\theta_t = \theta$

- For any $\theta < \tilde{\theta}(\sigma)$, losses will exceed $\frac{\gamma n}{1+\gamma n}$

11. INTRODUCTION TO POLITICS

(c) Key issue: agenda control [c.f. Acemoglu et al. (2005)]:

- Periodic, random, strategic
- Role of political competition (Auerbach, 2014)
- Shortcut: suppose proposal θ_t^P is a random draw from some exogenous distribution on the interval $[0, b]$

12. INCOME TAXES

- Income tax rate ϕ backed out from government budget constraint: $G = TR$
  - G = net gov't expense on all civil servants "in good standing," i.e., honest ones + unexposed dishonest ones
  - TR = gov't tax revenue from proportional wage tax rate $\phi \in [0, 1]$ on all producers
- At unit wage rate $w = 1$, we have:

$$G = (1 - \phi)[D - x\pi(x)D] = (1 - \phi)[1 - x\pi(x)]\theta\mu\rho$$
$$= \text{all enforcers minus exposed dishonest ones}$$

- Meanwhile,

$$TR = \phi[1 - \mu - D + \gamma(1 - \rho)\mu]$$
$$= \text{tax revenue from production income earned by agents of type 1 and 2}$$

12. INCOME TAXES

- Solving the gov't budget constraint yields the tax rate:

$$\phi(z, x, \theta) = \frac{[1 - x\pi(x)]\theta n\rho}{1 + \gamma n - [\gamma + \theta x\pi(x)]n\rho}$$

where

$$n \equiv \mu/(1 - \mu)$$

$*$ $\phi = 0$ if $\theta = 0$ or $\rho = 0$.

13. DYNAMICS OF RENT-SEEKING

(a) Setting

- Keep $\theta_t = \theta \in [0, b]$ fixed
- Analyze economy with no official corruption: $x = 0$, $\pi(x) = 1$, i.e., all enforcement is honest
- Additional parametric assumptions: $p(z) = \frac{z}{1+z}$

(b) Tax rate

$$\phi(\rho, 0, \theta) = \frac{\theta n \rho}{1 + \gamma n(1 - \rho)}$$

13. DYNAMICS OF RENT-SEEKING

(c) Dynamic equilibria

- Define:

$$h(\rho,\theta) \equiv H(\rho,0,\theta) = \frac{\gamma}{\lambda(\theta)}\left[1+(1-\lambda(\theta))z\right]$$

where $z \equiv \mu\rho/(1-\mu\rho)$

- Then, for any fixed $\theta \in [0,b]$ and initial $\rho \in [0,1]$, equilibrium sequences (ρ_t) satisfy:

$$\rho = \begin{cases} 1 & \text{if } h(1,\theta) < m(\rho_0) \\ 0 & \text{if } h(0,\theta) > m(\rho_0) \end{cases}$$

If not, then some $\rho \in (0,1)$ solves $h(\rho,\theta) = m(\rho_0)$ provided that $h(1,\theta) > m(\rho_0) > h(0,\theta)$.

13. DYNAMICS OF RENT-SEEKING

(c) Dynamic equilibria (cont'd)

- In these equations:

  ρ = current value of the rent-seeker to producer ratio for $i = 2$

  ρ_0 = previous period's value of the same variable

- Figures 6 and 7 illustrate equilibrium sequences for different values of the institutional parameter $\theta \in [0, b]$. The gist of them is the following theorem:

13. DYNAMICS OF RENT-SEEKING

(c) Dynamic equilibria (cont'd)

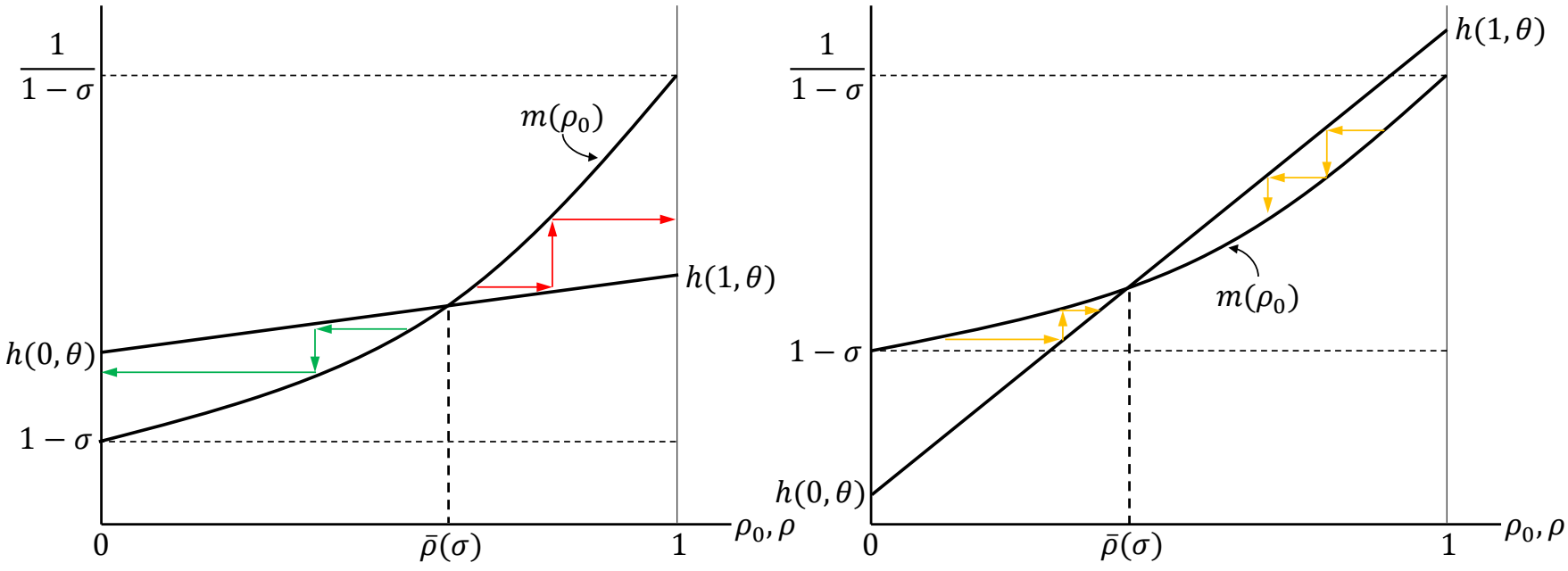
Theorem 2

(i) *An asymptotically stable, no rent-seeking steady state* $\rho = 0$ *exists if, and only if,* $h(0, \theta) > 1 - \sigma$*, or equivalently iff* $\theta > \hat{\theta}(\sigma)$*.*

(ii) *An asymptotically stable full rent-seeking steady state* $\rho = 1$ *exists if, and only if,* $h(1, \theta) < 1/(1 - \sigma)$*, or equivalently iff* $\theta < \tilde{\theta}(\sigma)$*.*

(iii) *An asymptotically stable interior steady state* $\bar{\rho}(\theta)$ *exists if (but not iff) no asymptotically stable corner steady state exists, or equivalently if* $\hat{\theta}(\sigma) < \theta < \hat{\theta}(\sigma)$*.*

13. DYNAMICS OF RENT-SEEKING



(a) Stable corner states

(b) Stable interior state

Figure 6: Stable states

13. DYNAMICS OF RENT-SEEKING

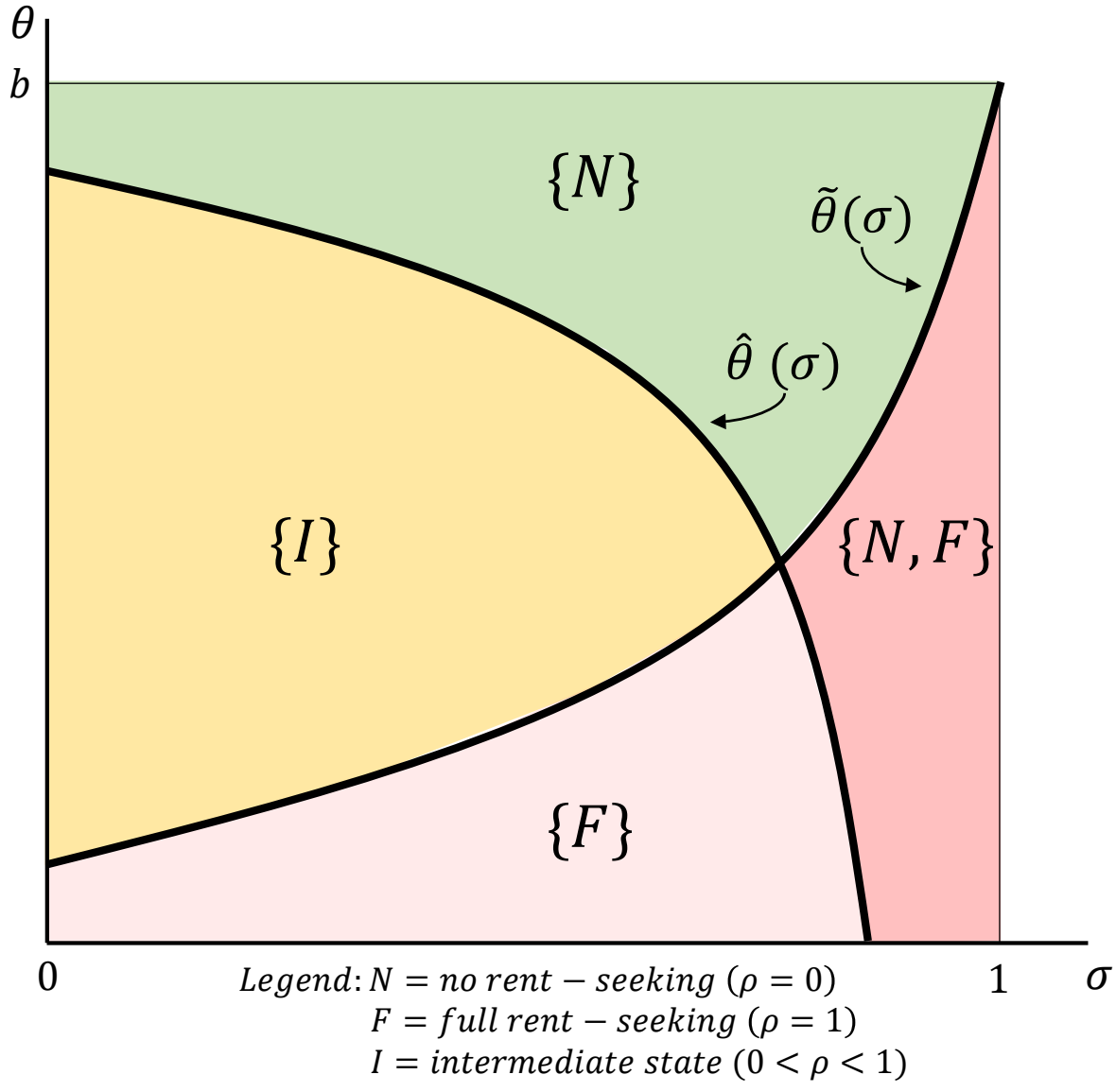


Figure 7: Institutions, culture and rent-seeking

13. DYNAMICS OF RENT-SEEKING

(d) Conclusions

- Equilibrium sequence is unique for each fixed (θ, σ)
- Multiple asymptotically stable steady states will exist for large values of the externality parameter
- History matters for large σ: externalities will reinforce both low and high amounts of rent-seeking

14. CHOOSING INSTITUTIONS IN A RENT-SEEKING ECONOMY

(a) Setting

- Keep the structure of Section 13, i.e., $x \equiv 0$ (no official corruption) and $p(z) \equiv z/(1+z)$
- Compute lifecycle incomes and payoffs conditional on individually optimal occupational choice
- Payoff for agent i at given factor prices will depend on the institutional parameter $\theta \in [0, b]$ as follows:

$$v_i = v_i(\theta)$$

14. CHOOSING INSTITUTIONS IN A RENT-SEEKING ECONOMY

(b) Political choices

- Given an inherited value θ_0 (status quo) and a random proposal θ^P (reform), reforms will pass if, and only if:

$$v_i(\theta^P) \geq v_i(\theta_0) \quad \forall i = 1, 2$$

  with at least one strict inequality. Institutions influence both tax rates and gross incomes.

- Focus on two main cases:

$$\sigma = 0 \qquad \text{(pure individualism)}$$
$$\sigma = 1 \qquad \text{(pure traditionalism)}$$

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(a) Basics

- Fix $\sigma = 0$ and let $y_i(\sigma) =$ after-tax income for $i = 1, 2$.
- Equilibrium is static: norms do not matter, i.e., $m(\rho_0) = 1 \ \forall \rho_0$.
- Interior equilibria satisfy:

$$1 = h(\rho, \theta) = \frac{\gamma}{\lambda(\theta)}[1 + (1 - \lambda(\theta))z]$$

- Let $\theta = \hat{\theta}(0)$ solve $\gamma = \lambda(\theta)$ [or $h(0, \theta) = 1$]

  $\theta = \tilde{\theta}(0)$ solve $\frac{\gamma(1+n)}{1+\gamma n} = \lambda(\theta)$ [or $h(1, \theta) = 1$]

  Then,

$$\frac{\mu\rho}{1 - \mu\rho} \equiv z = \begin{cases} n & \text{if } \theta < \tilde{\theta}(0) \\ \frac{\lambda(\theta)/\gamma - 1}{1 - \lambda(\theta)} & \text{if } \tilde{\theta}(0) < \theta < \hat{\theta}(0) \\ 0 & \text{if } \theta > \hat{\theta}(0) \end{cases}$$

  $*$ z and ρ are decreasing in θ

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(b) Taxes

- The tax rate is:

$$\phi(\rho, 0, \theta) = \theta n \rho = \begin{cases} \theta n & \text{if } \theta < \tilde{\theta}(0) \\ \theta n \bar{\rho}(\theta) & \text{if } \tilde{\theta}(0) < \theta < \hat{\theta}(0) \\ 0 & \text{if } \theta > \hat{\theta}(0) \end{cases}$$

  where $\rho = \bar{\rho}(\theta)$ solves $h(\rho, \theta) = 1$

- Type-1 income and payoff:

$$y_1(\theta) = \begin{cases} (1 - \theta n)[1 - \lambda(\theta)\mu] & \text{if } \theta < \tilde{\theta}(0) \\ [1 - \theta n \bar{\rho}(\theta)][1 - \lambda(\theta)\mu\bar{\rho}(\theta)] & \text{if } \tilde{\theta}(0) < \theta < \hat{\theta}(0) \\ 1 & \text{if } \theta > \hat{\theta}(0) \end{cases}$$

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(c) Occupational equilibrium for $i = 1, 2$ conditional on θ

- No rent-seeking ($z = 0$) if $\theta \in [\hat{\theta}, b]$ and $h > 1$, i.e., high θ
- Interior ($z \in (0, 1)$) if $\theta \in (\tilde{\theta}, \hat{\theta})$ and $h = 1$, i.e., moderate θ
- Full rent-seeking ($z = 1$) if $\theta \in [0, \tilde{\theta}]$ and $h < 1$, i.e., low θ

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(d) Incomes

- Type-2 income and payoff:

$$y_2(\theta) = \begin{cases} (1-\theta n)\,\lambda(\theta)\,p(n)/n & \text{if } \theta < \tilde{\theta}(0) \\ \gamma y_1(\theta) & \text{if } \theta > \hat{\theta}(0) \end{cases}$$

From these, we get:

$$y_1(\theta) = \begin{cases} (1-\theta n)\,[1-\lambda(\theta)\,\mu] & \text{if } \theta < \tilde{\theta}(0) \\ \frac{1-\lambda(\theta)}{1-\gamma}\left[1-\frac{\theta[\lambda(\theta)-\gamma]}{(1-\mu)(1-\gamma)\lambda(\theta))}\right] & \text{if } \tilde{\theta}(0) < \theta < \hat{\theta}(0) \\ 1 & \text{if } \theta > \hat{\theta}(0) \end{cases}$$

- Note:

(i) $y_1(\theta)$ decreasing, concave for $\theta < \tilde{\theta}(0)$ if $(1-\mu)\,|\lambda'(0)| < 1$

(ii) $y_2(\theta)$ decreasing, convex for $\theta < \tilde{\theta}(0)$

(iii) $y_1(\theta) \geq y_2(\theta)$, and $y_1(0) = y_2(0)$

(iv) $y_1(\theta)$ is increasing if $\lambda\left(\frac{1-\gamma}{1+n}\right) > \frac{\gamma(1+n)}{1+\gamma n}$

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(e) Weak institutions case: $\theta \in [0, \tilde{\theta}]$

- y_1 and y_2 decreasing in θ because:
  - stronger enforcement does not affect occupational choice
  - honest producers pay higher income tax [y_1^P decreases]
  - rent-seekers capture fewer bribes [y_{RS} decreases]

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(f) Strong institutions case: $\theta \in [\hat{\theta}, b]$

- If $\theta \in [\hat{\theta}, b]$, we have $z = 0$, $\phi = 0$. Then, constant incomes:

$$y_1(\theta) = 1$$
$$y_2(\theta) = \gamma$$

- Incomes independent of θ when no rent-seeking & no enforcement

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(g) Intermediate institutions case: $\theta \in (\tilde{\theta}, \hat{\theta})$

- If $\theta \in (\tilde{\theta}, \hat{\theta})$, we have $\bar{\rho} \in (0, 1)$, i.e., $h(\bar{\rho}, \theta) = 1$.

  This leads to an interior equilibrium in (ρ, z):

$$\frac{n\bar{\rho}(\theta)}{1 + \gamma n[1 - \bar{\rho}(\theta)]} \equiv \bar{z}(\theta) = \frac{\lambda(\theta)/\gamma - 1}{1 - \lambda(\theta)}$$

- Rent-seekers switch to production as θ goes up; total tax expenditure and tax rates drop; after-tax incomes up

15. POLITICS IN AN INDIVIDUALIST SOCIETY

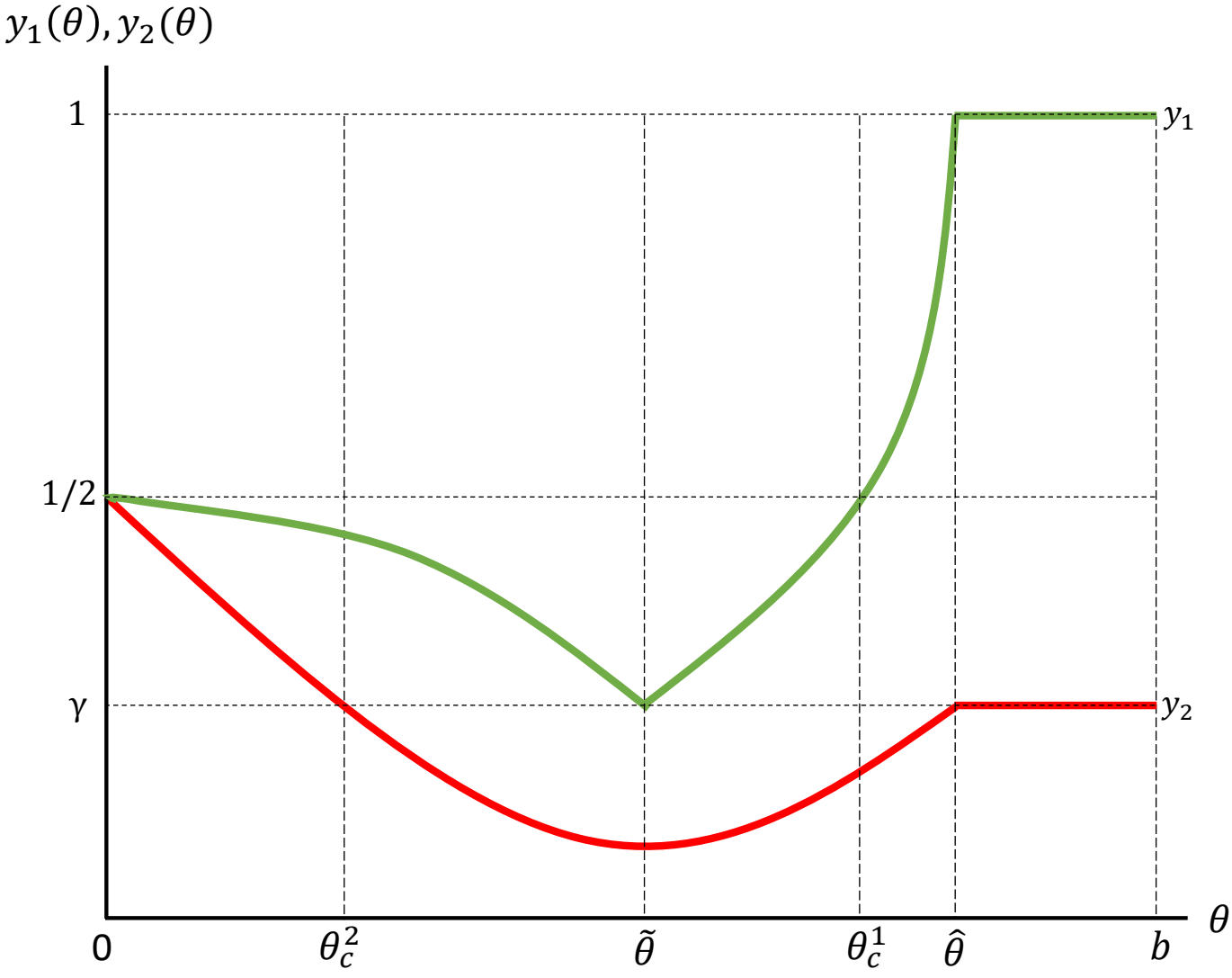


Figure 8: Institutions vs. group incomes

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(i) Policy choices: persistence of institutions

- Start with Figure 8 with status quo $\theta_{t-1} \in [0, \hat{\theta}]$ at time t
- If θ_{t-1} is low, i.e., $\theta_{t-1} \in [0, \theta_c^2]$, then group $i = 2$ will veto all proposals θ_t^P that improve institutions as $y_2\left(\theta_t^P\right) < y_2\left(\theta_{t-1}\right)$
- If θ_{t-1} is high, i.e., $\theta_{t-1} \in [\hat{\theta}, b]$, then group $i = 1$ will veto all proposals θ_t^P that weaken institutions as $y_1\left(\theta_t^P\right) < y_1\left(\theta_{t-1}\right)$

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(j) Policy choices: acceptable reforms

- Suppose $\theta_{t-1} \in [\theta_c^2, \theta_c^1]$, i.e., institutional status quo is neither strong nor weak. Then, reform is always *possible*

Example 1

(i) A status quo θ_{t-1} just above θ_c^2 will lose to a proposal θ_t^P just under $\hat{\theta}$

(ii) A status quo θ_{t-1} just under θ_1^2 will lose to a proposal θ_t^P just above $\theta = 0$

- If reform proposals are entirely random, institutions of intermediate strength will eventually converge to extremes.
- Positive change could be quite slow, with possibility of backsliding

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(k) Policy choice asymptotics

- Conjecture from Figure 8: for each initial policy θ_0, there exists a probability mass $q : [0, \hat{\theta}] \longrightarrow [0, 1]$ such that
  - (i) q is decreasing in θ_0
  - (ii) $q(\theta) = \begin{cases} 1 & \text{if } \theta_0 \in [0, \theta_c^2] \\ 0 & \text{if } \theta_0 \in [\theta_c^1, \hat{\theta}] \end{cases}$
  - (iii) $\lim_{t \to 0} \theta_t = \begin{cases} 0 & \text{w.p. } q(\theta_0) \\ \hat{\theta} & \text{w.p. } 1 - q(\theta_0) \end{cases}$

15. POLITICS IN AN INDIVIDUALIST SOCIETY

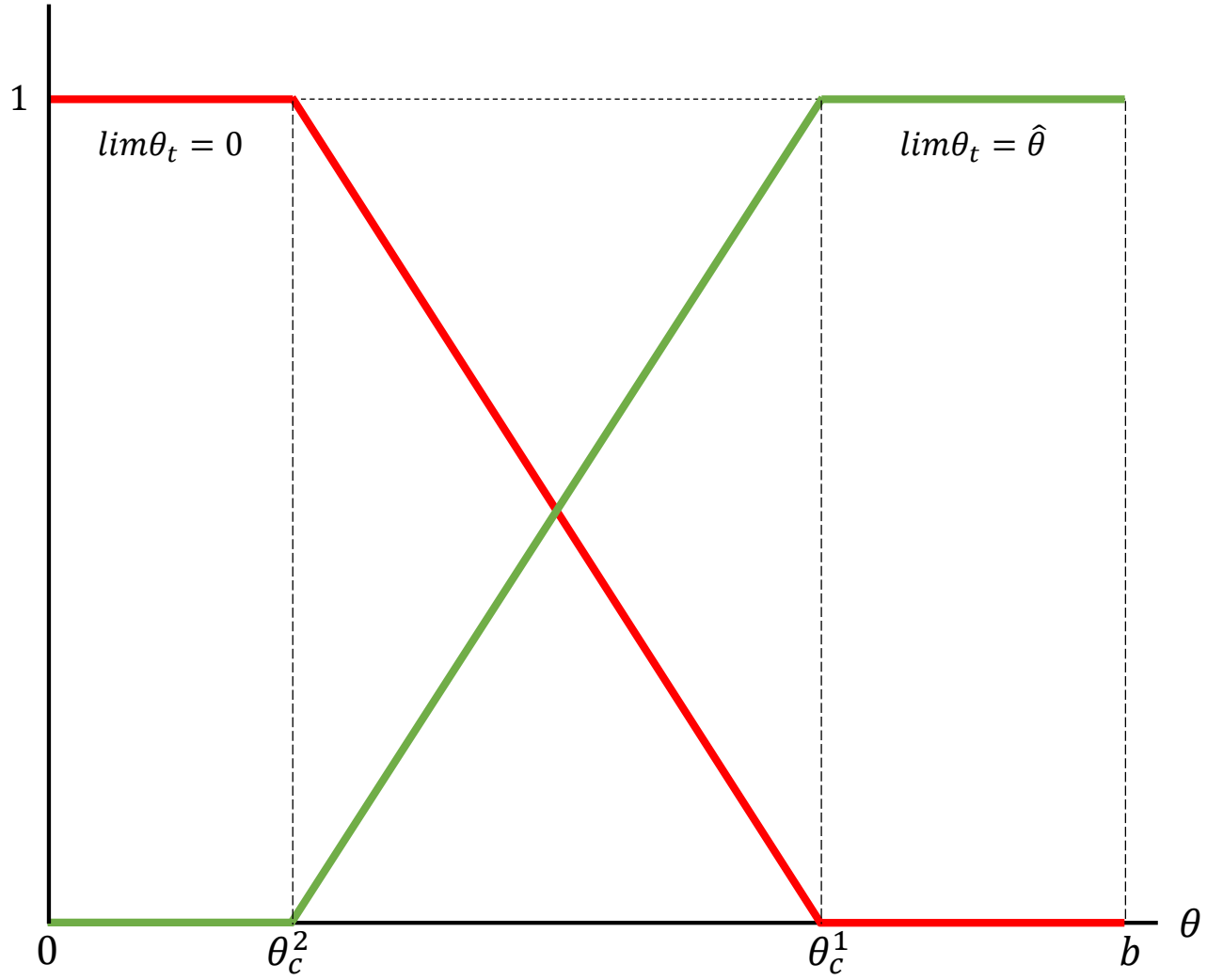


Figure 9: Asymptotic institutional choices

15. POLITICS IN AN INDIVIDUALIST SOCIETY

(ℓ) Conclusions regarding individualist societies

- Good institutions live on. So do bad ones
- Ambivalence in the middle
- Persistence at both ends of world income distribution
- Long-lasting poverty traps
- The importance of agenda setting
- Are high and low wealth stable political equilibria? (importance of norms)

16. POLITICS IN A TRADITIONALIST SOCIETY

(a) Basics

- Fix $\sigma = 1$ and let $x = 0$: extreme social interaction but no official corruption
- Then, $m(\rho_0) = \rho_0/(1 - \rho_0)$: norms matter a lot
- Interior equilibria $\rho \in (0, 1)$ solve:

$$h(\rho, \theta) = \rho_0/(1 - \rho_0)$$

16. POLITICS IN A TRADITIONALIST SOCIETY

(b) Main results

- stable steady states $\rho = 0$ and $\rho = 1$ separated by unstable interior steady state $\bar{\rho}(\theta)$ [Figure 10A]
- $\bar{\rho}(\theta)$ increasing in θ [Figure 10B]
- $\bar{\rho}(0) = \gamma/(1+\gamma)$; $\bar{\rho}(b) = 1$
- Equilibrium converges to $= \begin{cases} \rho = 0 & \text{if } \rho_0 < \bar{\rho}(\theta) \\ \rho = 1 & \text{if } \rho_0 > \bar{\rho}(\theta) \end{cases}$

16. POLITICS IN A TRADITIONALIST SOCIETY

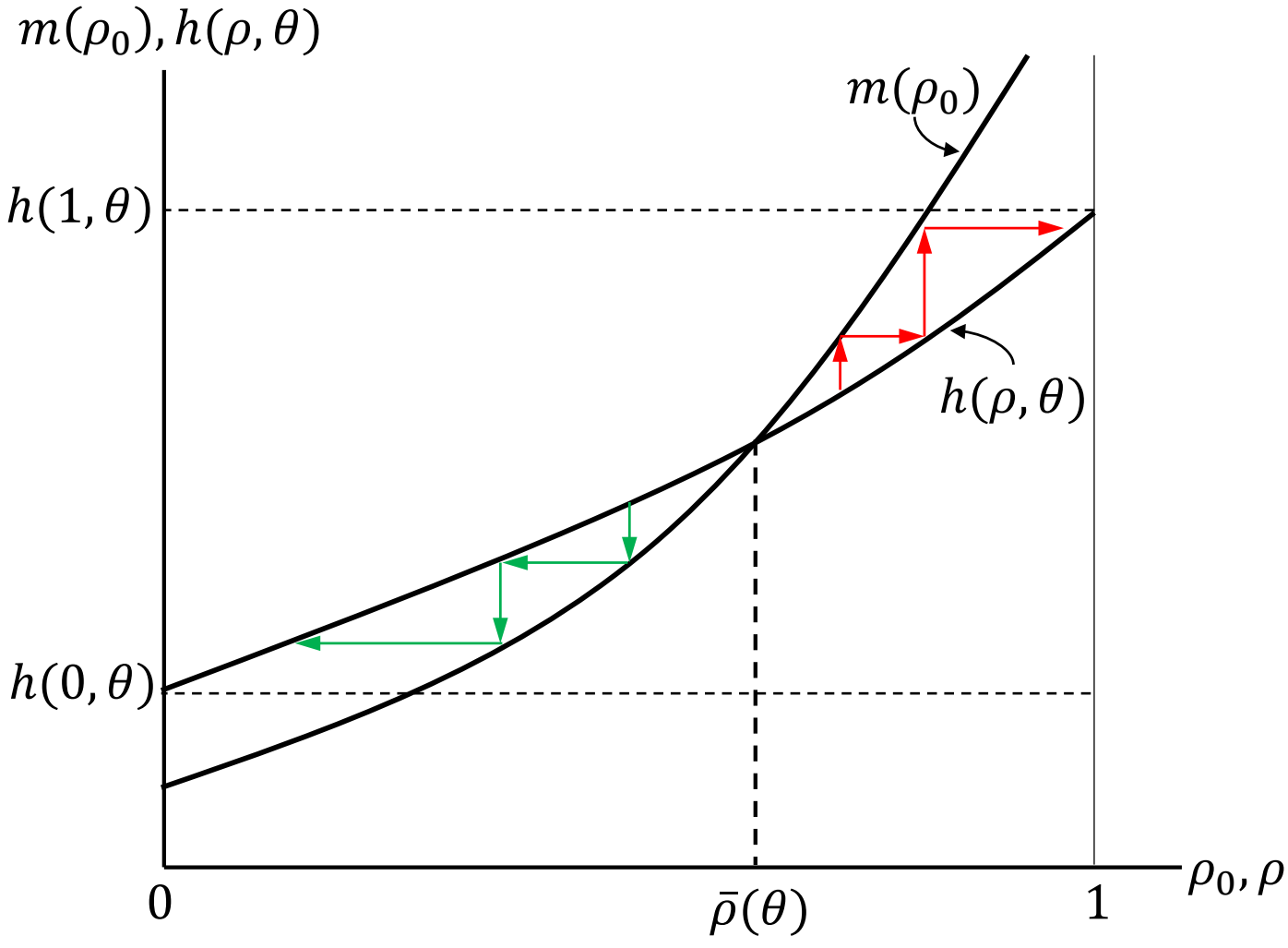


Figure 10A: Traditionalist equilibrium

16. POLITICS IN A TRADITIONALIST SOCIETY

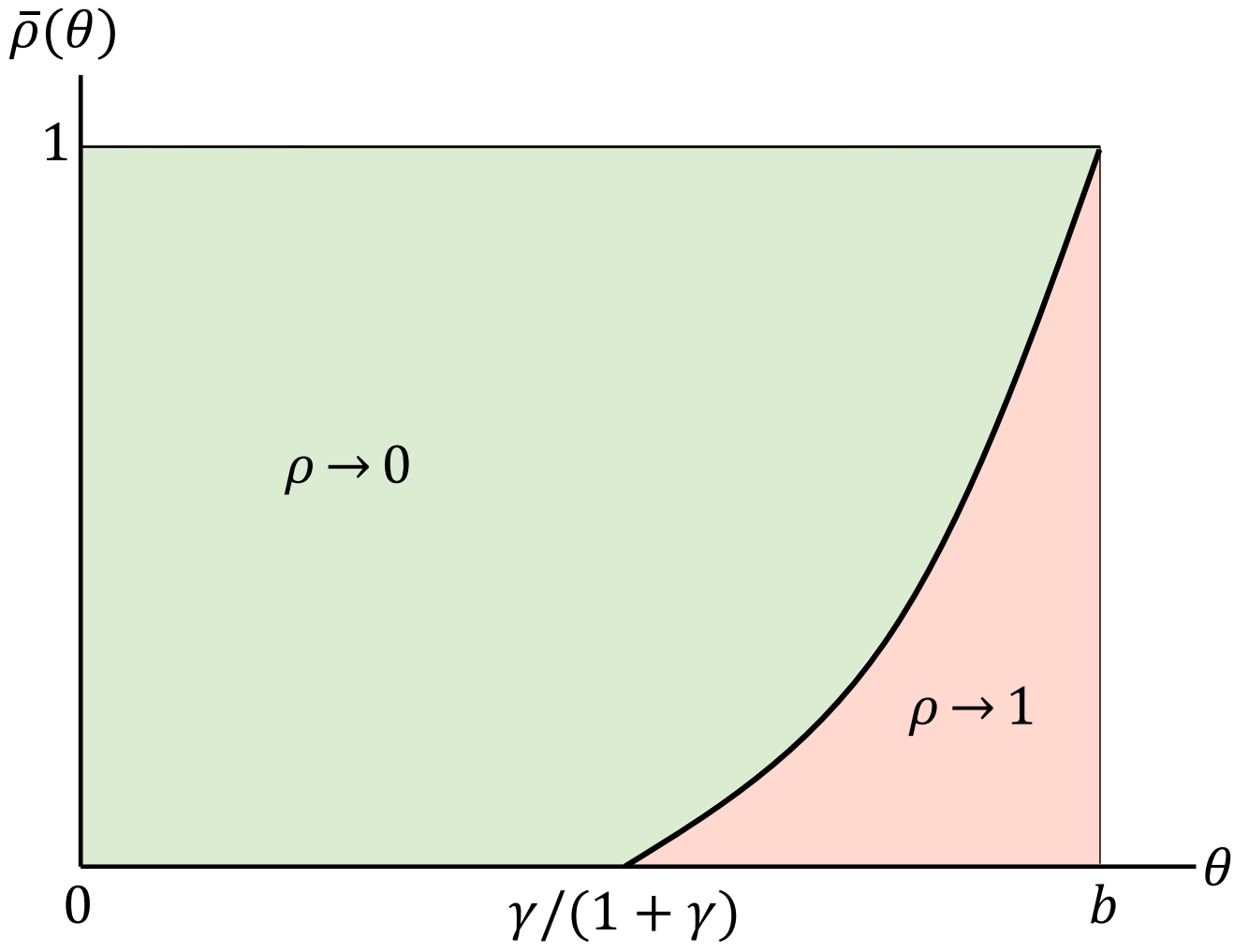


Figure 10B: Convergence to steady states

16. POLITICS IN A TRADITIONALIST SOCIETY

(c) Institutions versus norms

- Relative unimportance of institutions
  - If $\rho_0 < \gamma/(1+\gamma)$, i.e., good history,
    then $\rho \to 0$ (independent of θ)
  - If $\rho_0 > \gamma/(1+\gamma)$, i.e., bad history,
    then good institutions can overcome bad history
    $*$ Will people vote for significant reform?

16. POLITICS IN A TRADITIONALIST SOCIETY

(d) Impact on GDP

- Recall output expression in rent-seeking economy with $x = 0$:

$$\begin{aligned} Y(\rho) &= f(k)[1 - \mu + \gamma\mu(1 - \rho)] \\ &= (\text{output per worker}) \times (\text{employment in production}) \end{aligned}$$

- Hence,

$$\frac{Y(1)}{Y(0)} = \frac{1}{1 + \gamma n} \qquad \left(n \equiv \frac{\mu}{1 - \mu} \right)$$

- If initial GDP is high enough, i..e, if

$$Y_0 > f\,(k) \left[1 - \mu + \frac{\gamma}{1 + \gamma} \mu \right]$$

then

$$Y \longrightarrow Y(1)$$

- Reform required when Y_0 is relatively small

16. POLITICS IN A TRADITIONALIST SOCIETY

(e) **The paradox of reform**

- Tradition as a reform hurdle
  - Economic benefits outweighed by social interactions

- Assume $p(z) = z/(1+z)$ and $\gamma(1+n) < 1$
- If collective choice is *binary*, $\theta \in \{0, b\}$, as in Section 10:
  - Reform defined as proposal to switch from status quo $\theta = 0$ to $\theta = b$
  - $i = 1$ will always choose full enforcement ($\theta = b$) over no enforcement ($\theta = 0$)
  - $i = 2$ agrees if, and only if, $\gamma(1+n) > \frac{\rho_0}{1-\rho_0}$ or iff

$$\rho_0 < \frac{\gamma(1+n)}{1+\gamma(1+n)}$$

16. POLITICS IN A TRADITIONALIST SOCIETY

(e) The paradox of reform (cont'd)

- Outcomes in Figure 11:
  - reform passes if ρ_0 "not to high," i.e.,

$$\frac{\gamma}{1+\gamma} < \rho_0 < \frac{\gamma(1+n)}{1+\gamma(1+n)}$$

  - reform stymied by history if ρ_0 "too high," i.e.,

$$\rho_0 > \frac{\gamma(1+n)}{1+\gamma(1+n)}$$

16. POLITICS IN A TRADITIONALIST SOCIETY

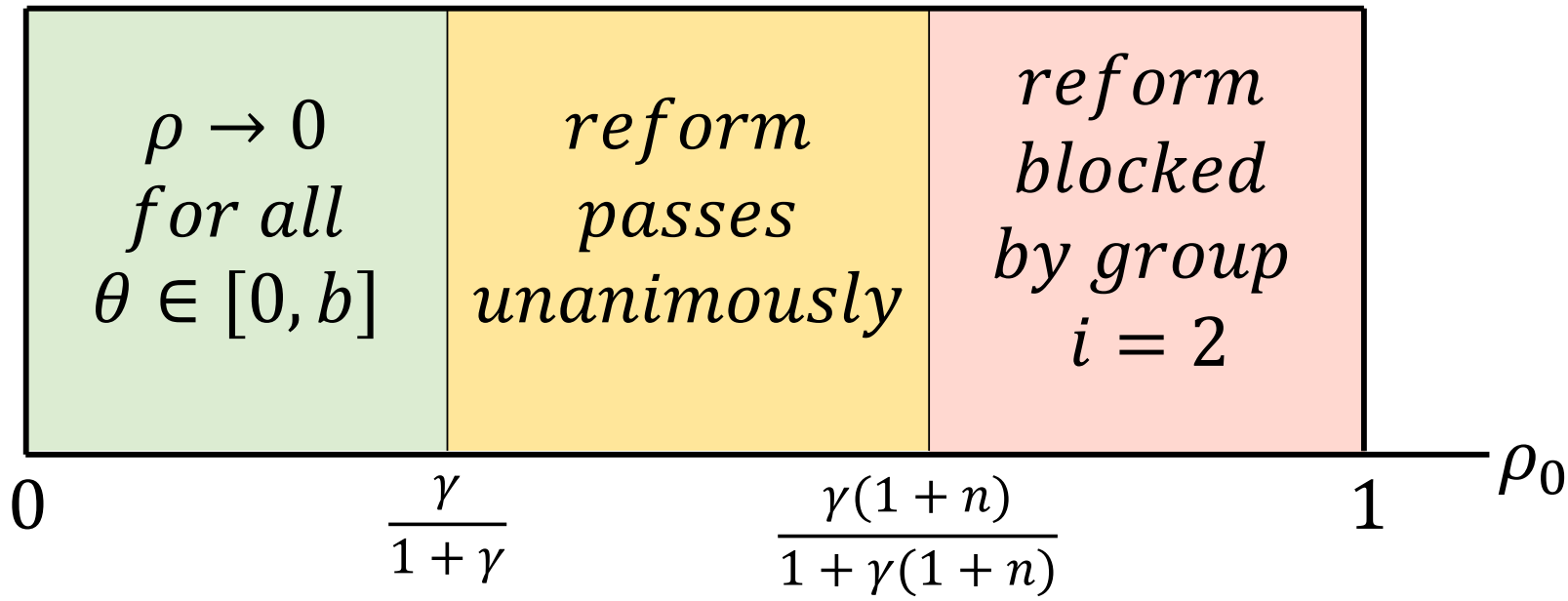


Figure 11: The reform paradox

17. 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
   - social interactions/behavioral norms/spillovers
   - history

3. Economic incentives eclipsed by norms in traditionalist societies

4. Tradition also weakens role of institutions
   raises weight of history
   diminishes chances for reform

18. EXTENSIONS

(a) Corruption in a closed economy

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

(b) Theory issues in open economies

- Infinitely lived households
- More heterogeneity
- Median voter outcomes
- Agenda setting: parties, interest groups, etc.
- Tax evasion

18. EXTENSIONS

(c) Measuring corruption

- Looking for observable aggregates correlated with (ρ, x)
- Qualitative measures (World Bank, Transparency International)
- Quantitative proxies: lawyers vs. engineers (MSVishny, 1990)
  lawyers vs. physicians
- Quantitative measures:
  - employment in public enforcement
  - bribery incidence
  - shadow economy size

18. EXTENSIONS

(d) Laws of motion in an open economy

- What are the dynamics of (ρ_t, x_t, θ_t) when θ is endogenous?

(e) Incidence of corruption

- Impact on world factor prices
- Does it move global equilibrium?

19. LESSONS FOR ECONOMIC POLICY

1. Politics matters. So do social norms or "culture."
2. Power of the status quo (θ_{t-1})
   - lasting consequences of bad institutional choices
   - slowness of reform
3. Quantifying institutions and social interactions
   - how do nations stack up in terms of (θ, σ)?
   - corruption perceptions vs. individualism
4. Importance of human capital
   - best results when corruptible agents are reasonably productive at honest work and σ is low (individualist culture)

19. LESSONS FOR ECONOMIC POLICY

5. Fighting ingrained corruption
    - values matter
    - long-run propaganda campaign (school, church, media)
    - protect and reward whistleblowers
6. How Singapore uprooted government corruption in the 1960's
    - propaganda
    - draconian punishment of perpetrators (missing from our model)
    - highly paid civil servants (also missing)

THANKS FOR LISTENING!!!