

# Law, Regulation and Rent Seeking

## Political Economics: Week 8

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# Externalities

- An externality is present whenever an agent's action impacts the welfare of another directly, without the mediation of the price system.
- The traditional approach is Pigovian: activities that generate externalities should be regulated.
  - ① Taxes on activities that generate negative externalities; subsidies for activities that generate positive externalities.
  - ② Liability for damages caused by negative externalities.
  - ③ Permits, quotas, requirements and prohibitions restricting who can (or must) engage in externality-inducing activities.
- Regulation sets or changes the price of externality-inducing activities.
  - ① Directly and openly via taxes and subsidies.
  - ② Ex post with the state-contingent court determination of damages under a liability rule.
  - ③ Indirectly with fines for failing to comply with quantity regulations.

# The Problem of Social Cost

- Coase (1960) is a tremendously influential article, one of the foundations of law and economics.
- Emphasis on the reciprocal nature of the problem.
  - ▶ E.g., a business  $A$  generates noise that disturbs a nearby resident  $B$ .
- ① The social benefit and cost depend on the activities of all parties.
  - ▶  $A$  can soundproof its plant, or  $B$  can soundproof his home.
  - ▶  $A$  can relocate to an industrial park, or  $B$  to a residential district.
- ② The problem can be framed in terms of the allocation of relevant rights, albeit precisely defined with potentially great complexity.
  - ▶  $A$ 's exercise of a right to make noise affects  $B$  by reducing his utility.
  - ▶  $B$ 's exercise of a right to enjoy quiet affects  $A$  by reducing its profits.

# Tradable Rights

- The problem of externalities has a market solution if private parties can bargain efficiently over the allocation of the right to engage in, or forbid, the externality-inducing activity.
- Legal institutions are required to enable such bargaining:
  - 1 Definition of the initial endowment of the right.
  - 2 Enforcement of any contract reallocating the right.
- The Coase theorem is the insight the initial endowment does not matter in a world with “no transaction costs”.
- In a free, frictionless, perfect market, resources flow to whoever values them the most, regardless of the initial allocation.

# The Coasian Insight

- $A$  earns a profit  $\pi_A$  from the noise-making activity.
  - $B$  derives utility  $u_B$  from enjoying quiet.
- 1 If  $B$  has a right to quiet, then  $A$  will buy permission to make noise if  $\pi_A > u_B$ .
  - 2 If  $A$  has a right to make noise, then  $B$  will pay him to keep quiet if  $u_B > \pi_A$ .
- ⇒ In either case, noise prevails if  $\pi_A > u_B$  and quiet if  $u_B > \pi_A$ .
- The first case is classically Pigovian:  $A$  has to compensate  $B$  for the externality caused.
  - In the second case, the uncompensated externality is a mirage: when making noise,  $A$  faces the opportunity cost of not selling quiet to  $B$ .

# No Transaction Costs

- ① All affected parties participate in bargaining.
  - ▶ No difficulty identifying and reaching every party.
- ② Complete and perfect public information.
  - ▶ No asymmetric information about private costs and benefits.
  - ▶ Well defined outside options (common priors).
  - ▶ Common knowledge of rationality.
- ③ Bargaining leads to a Pareto efficient outcome.
  - ▶ No free-rider problem due to public goods.
  - ▶ No hold-out problem due to sequential coalition formation.
  - ▶ No hold-up problem due to incomplete contracts.
  - ▶ Typically, the problem has a core and the solution is in the core.
- ④ Costless bargaining and costless enforcement.
  - ▶ Everything can be costlessly and verifiably measured.
  - ▶ Courts are perfectly capable and incorruptible.

# The Coase Theorem, Version I

## Theorem (Pareto efficiency)

*If there are “no transaction costs”, then bargaining leads to a Pareto efficient outcome regardless of the initial endowments.*

- This is a tautology, because the hypothesis of “no transaction costs” includes by definition the thesis that bargaining is Pareto efficient.
- The theorem does point out that many forms of bargaining can lead to the internalization of an apparent externality.
  - ⇒ No dichotomy between perfectly competitive price-taking or regulatory intervention.
- If the market fails to reach a Pareto optimum it must be because of transaction costs.
  - ⇒ The optimal intervention could identify and remove the transaction costs, enabling the market, rather than replacing it and having a planner set prices.

# The Coase Theorem, Version II

## Theorem (Surplus maximization)

*If there are “no transaction costs” and the bargaining game has transferable utility, then the outcome maximizes total surplus and initial endowments only influence its division among the parties.*

- The bargaining game has transferable utility when parties can exchange cash payments and have no income effects.
- This is also known as the *invariance version*, presuming that surplus maximization identifies a unique outcome, up to cash transfers.
- Surely the most common version of the Coase theorem.
  - ▶ Most models assume away income effects, so efficiency can be defined irrespective of distributional considerations.
  - ▶ When is the assumption of constant marginal utility of money justified?



# Transaction Costs

- The pure costs of convening all parties are prohibitive for many mundane activities that affect large numbers of people that may not be clearly identified *ex ante*.
    - ▶ E.g., driving and traffic accidents, air pollution.
    - ▶ A tort is defined as the breach of a duty imposed by law *erga omnes* (in particular a general duty of care), by opposition to the breach of a contractual obligation, which is binding *inter partes*.
  - Large numbers of parties also tend to imply free-riding and the potential for hold-outs.
- ⇒ Regulation as the solution to the problem of large numbers: the government is the citizens' representative at the bargaining table.
- Second-best world: market failure v. government failure.
    - ▶ Frictions prevent perfect markets but also benevolent planning.
    - ▶ Myerson–Satterthwaite: asymmetric information rules out both efficient bilateral bargaining and an efficient mechanism.

# Coase v. Pigou

- Without efficient bargaining, the problem of optimal institutional design becomes very difficult.
- In theory, the same optimal institutions can be designed in two ways.
  - ① Pigovian approach: all externalities should be internalized.
  - ② Coasian approach: rights and duties should be parcelled out as they would be if efficient bargain were possible.
- Naive Pigovianism risks obscuring the reciprocal nature of the problem, which implies that simple rules that assign an entire non-tradeable bundle of rights to one party are rarely optimal.
  - ▶ If the “offender” must compensate the “victim” for the actual harm suffered, then the latter has no incentives to limit the harm.
  - ▶ Pigovian compensation is limited to the amount of harm that the victim would suffer after taking optimal precautions.
- The optimal mechanism can be too complex to be realistically implementable.

# Pigovian Compensation v. Pigovian Taxation

- Pigovian taxes can become distortionary if the income is not used to compensate the victims of an externality, but bargaining is possible.
- ① **No regulation:**  $A$  can operate the noisy factory at will.
  - ▶ *Inefficient* without bargaining.  $A$  always operates the factory.
  - ▶ Efficient with bargaining. Distributionally,  $A$  is favoured.
- ② **Compensation:**  $A$  must pay  $B$  a compensation  $u_B$  for operating the noisy factory.
  - ▶ Efficient without bargaining.  $A$  operates the factory if  $\pi_A > u_B$ .
  - ▶ Efficient with bargaining. Distributionally,  $B$  is favoured.
- ③ **Taxation:**  $A$  must pay a tax  $u_B$  for making noise, but  $B$  gets no compensation.
  - ▶ Efficient without bargaining. Distributionally, the treasury is favoured.
  - ▶ *Inefficient* with bargaining.  $A$  faces a double cost: the direct cost  $u_B$  of the tax, and the opportunity cost  $u_B$  of selling quiet to  $B$ . Thus he operates the factory only if  $\pi_A \geq 2u_B$ .

# Imperfect Courts

- The Coase theorem states that efficient bargaining leads to efficient outcomes, if contracts are perfectly enforced.
  - Even with transaction costs, the Coasian tradition in law and economics typically favours liability rules administered by courts.
  - Courts must be able and willing to verify private actions, understand complex rules (contractual or statutory), and apply them impartially. Are they?
  - Comparative institutional failure: imperfect courts or imperfect regulators?
- 1 Glaeser, Johnson, and Shleifer (2001): regulators have more aggressive incentives.
  - 2 Glaeser and Shleifer (2003): regulation is less prone to private subversion.

# Incentives for Enforcement

- An adjudicator must investigate and punish breaches of a legal obligation, which occur in a fraction  $p$  of suspect cases.
- Three-fold private incentives:
  - ① A cost  $c > 0$  of discovering the true facts of the case.
    - ▶ Personal effort and opportunity cost of time.
  - ② A payoff  $b > 0$  from adjudicating correctly.
    - ▶ Long-run reputation and self-esteem.
  - ③ A payoff  $a \geq 0$  from punishing a suspect.
    - ▶ Short-run career incentives and political expediency.
- The adjudicator has the following payoffs:

	Probability	Not Punish	Punish
Innocent	$1 - p$	$b$	$a$
Guilty	$p$	$0$	$a + b$

# Adjudicating Strategies

**Leniency:** Acquit everyone without investigating.

⇒ Expected payoff:  $(1 - p) b$

**Abuse:** Convict everyone without investigating.

⇒ Expected payoff:  $a + pb$

**Search:** Investigate and adjudicate correctly.

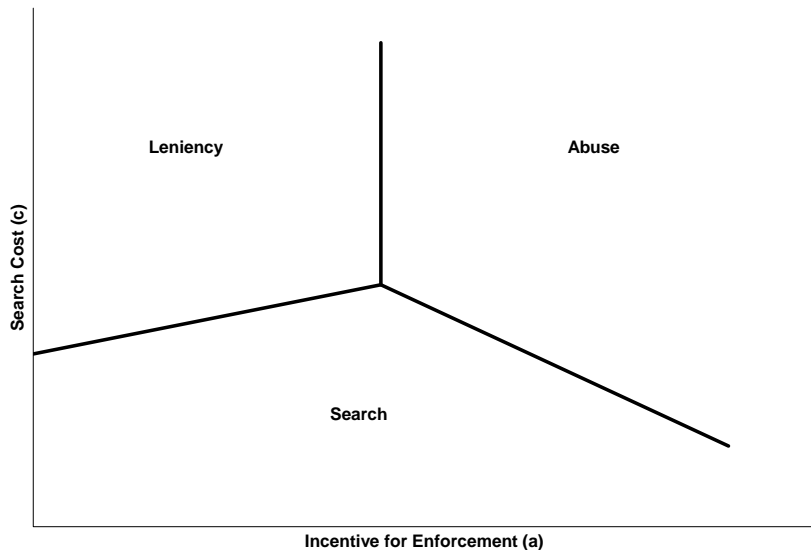
⇒ Expected payoff:  $b + pa - c$

- Since  $b > 0$ , it never pays to acquire information but misuse it.
- The equilibrium involves efficient search if and only if

$$c \leq (a + b) p \text{ and } c \leq (b - a) (1 - p)$$

- Leniency is only possible for  $p < 1/2$ .

# Equilibrium Strategies



# Comparative Statics

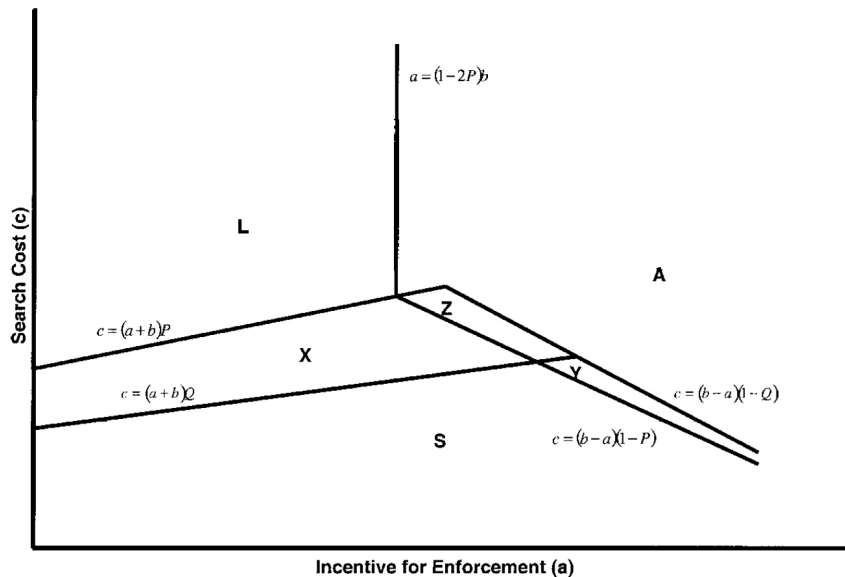
- ①  $c$  is an inverse measure of judicial efficiency.
  - ▶ Lower  $c$  makes it cheaper for adjudicators to acquire information
  - ▶ Thus lower  $c$  makes adjudicators more likely to make the right decision.
  - ▶ If the legal system is not efficient enough, it is impossible to have nuanced regulation: either everybody or nobody must be punished.
- ②  $b$  is a measure of judicial professionalism.
  - ▶ Higher  $b$  makes adjudicators more likely to search.
  - ▶ For prohibitive values of  $c$ , higher  $b$  extends leniency at the expense of abuse.
- ③  $p$  is the rational presumption of guilt.
  - ▶ For  $p < 1/2$ , higher  $p$  extends search at the expense of leniency.
  - ▶ Higher  $p$  always extends abuse at the expense of both leniency and search.



# Endogenous Violations

- Atomistic adjudicators, so each adjudicator's choice does not affect the equilibrium.
- Atomistic potential violators with heterogeneous benefits from a violation.
- If no adjudicator searches, the fraction of actual violators is  $P$ .
  - ▶ Identical under leniency or abuse, since marginal incentive are nil in both cases.
- If all adjudicators search, the fraction is  $Q < P$ .
- Mixed-strategy equilibria  $(X, Y, Z)$ : adjudicators are indifferent between searching or not and leniency, and  $p \in (Q, P)$ .
- Multiple rational expectations equilibria  $(Y, Z)$ , always including pure abuse.
- The qualitative results are unchanged.

# Rational Expectations Equilibria



# Optimal Adjudicators

- The ideal independent judge has  $a = 0$ .
- High values of  $a$  are appropriate for regulators and prosecutors whose careers are a function of bringing violators to justice, or appearing to do so.
- Intermediate values of  $a$  may correspond to civil-law judges, who are career civil servants but do not depend from the government.
- A government lacking high-quality judges (high  $b$ , low  $c$ ) must raise  $a$  to induce search.
- If abuse is very costly (e.g., criminal justice), rely on less than independent judges.
- In civil situations, it is best to rely on a regulator with more aggressive, albeit never excessive, incentives.

# Securities Market Regulation

- Landis (1938), architect of U.S. regulation and one of the first SEC commissioners.
  - ▶ Skeptical that courts were motivated enough to punish dishonesty in security issuance and trading.
  - ▶ He thought an independent and highly motivated SEC could do this better.
  - ▶ He argued that regulators are better because they face lower costs of investigation.
- A more motivated regulator has a higher  $a$ .
- Greater disclosure by securities issuers and intermediaries corresponds to a lower  $c$ .

# Poland v. the Czech Republic

A comparison of two very similar transition economies:

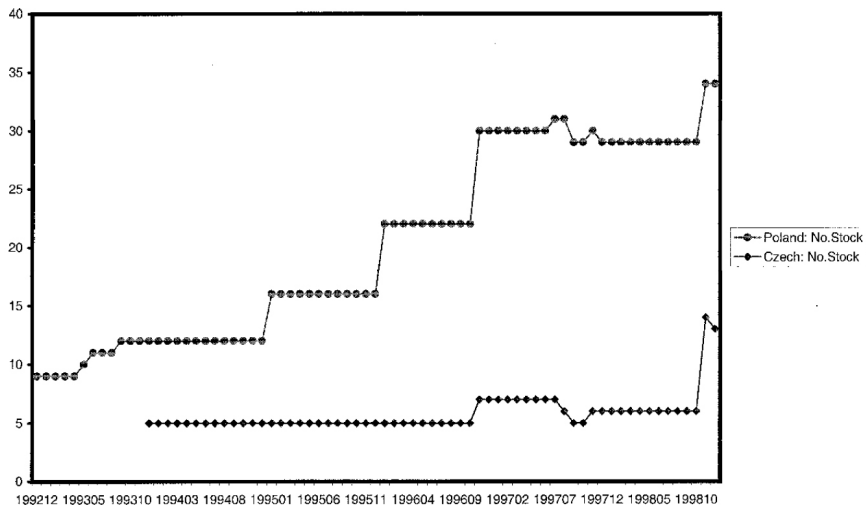
- Similar histories from 1945 to 1990: former communist countries.
- Similar economies: industrialized countries bordering with Germany.
- Similar policies: liberalization and privatization in the early 1990s.
- Similar overall legal development:
  - ▶ Excellent for ex-communist countries.
  - ▶ The quality of courts lagged behind rich market economies.
- Polish company law protects minority shareholders somewhat more.

# Comparative Securities Law

Hands-off approach in the Czech Republic, stringent regulation in Poland.

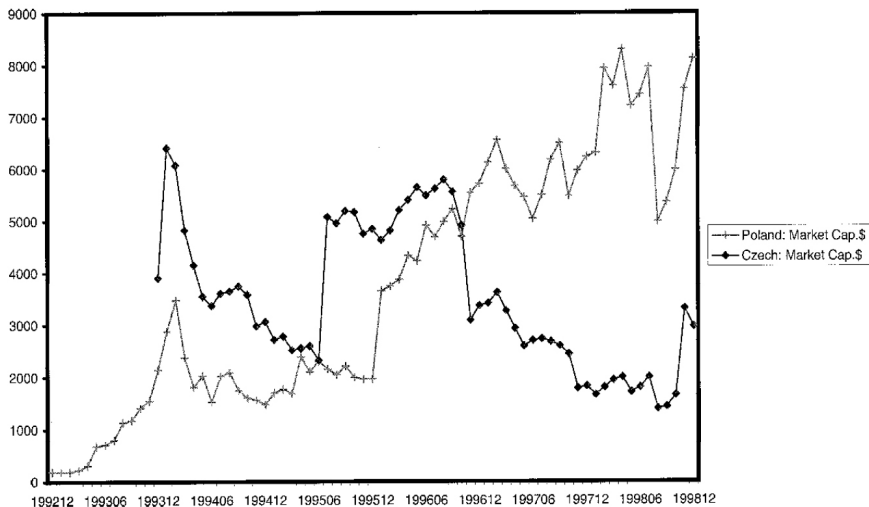
- ① Securities markets supervised by an independent Securities Commission in Poland; by an office within the Ministry of Finance in the Czech Republic.
  - ▶ The Czech minister of finance and then prime minister advocated a laissez-faire approach.
- ② Poland had stricter licensing and regulation of intermediaries: brokers, investment advisors, mutual funds, custodian banks.
- ③ The Polish regulator had greater ability to discipline market participants without recourse to the judicial system.
  - ▶ Appeals possible, but the burden of going to court is shifted.
  - ▶ Neither country had a corrupt judiciary.
- ④ Poland mandated more disclosure by securities issuers.
  - ▶ Disclosure of financial results and of ownership structure.

# Stock Listings



Number of stocks in the IFC Investable Index

# Stockmarket Capitalization



Market capitalization of stocks in the IFC Investable Index



# The Rise of the Regulatory State

- Before 1900 significant commercial disputes in the U.S. were generally resolved through private litigation.
    - ▶ Corporate liability, anti-competitive practices, product safety.
  - Between 1887 and 1917 regulatory agencies at both the state and the federal level took over.
    - ▶ Competition, anti-trust, railroad pricing, food and drug safety.
    - ▶ Also a general expansion of government: the Federal Reserve and the federal income tax.
  - Why did these changes occur at the turn of the century?
- 1 Individuals will seek to subvert any law enforcement strategy for their own benefit.
  - 2 The efficiency of alternative institutional arrangements depends on their vulnerability to private subversion.
  - 3 The increase in the scale of enterprise at the end of the XIX century made courts more susceptible to corporate subversion and prompted a switch to regulation.

# Efficient Accident Avoidance

- A firm can take a level of precaution  $Q_1$  or  $Q_2$  to avoid an accident.
- $Q_1$  is costless, while  $Q_2 > Q_1$  has a cost  $C \times S$ 
  - ▶  $C$  is the cost of precaution per unit of output.
  - ▶  $S$  is the scale of the firm.
- Two types of firm,  $\alpha$  and  $\beta$ . The probability of an accident as a function of precaution is:
  - ▶  $P(Q_1; \alpha) = P(Q_2; \alpha) \equiv P_\alpha$  for firms of type  $\alpha$ .
  - ▶  $P(Q_1; \beta) \equiv P_1 > P(Q_2; \beta) \equiv P_2$  for firms of type  $\beta$ .
- The social cost of accidents is  $D \times S$ .
  - ▶  $D$  is the harm inflicted per unit of output.
  - ▶ It is irrelevant whether  $D$  is concentrated or widely shared.
- In the first best,  $\alpha$  firms set  $Q_1$  and  $\beta$  firms  $Q_2$ :  $(P_1 - P_2) D > C$ .
  - ▶ Implicitly, it is efficient for all firms to operate.

# Liability Rules

- ① *Strict Liability*: The firm must pay damages  $F$  whenever an accident occurs.

- ▶ With no subversion, the first best is achieved if

$$F \geq \frac{CS}{P_1 - P_2}.$$

- ② *Negligence*: The firm must pay damages  $F$  when an accident occurs and the level of precaution is  $Q_1$ .

- ▶ With no subversion, the first best is achieved if

$$P_1 \geq P_\alpha \text{ and } \frac{CS}{P_1} \leq F \leq \frac{CS}{P_\alpha}.$$

- Strict liability requires a larger punishment.

# Regulation

- A regulatory agency can verify the level of precaution with exogenous probability  $p > P_1$ .
  - ▶ Regulations can be designed so that insufficient precautions  $Q_1$  are relatively easy and inexpensive to detect.
- The firm must pay a fine  $F$  whenever it is caught using precautions  $Q_1$  and not  $Q_2$ .
  - ▶ All firms are induced to set  $Q_2$  if

$$F \geq \frac{CS}{p}.$$

- Regulation cannot achieve the first best, because it cannot distinguish firm types.
- Regulation induces precaution with lower fines than liability for negligence, and *a fortiori* strict liability.

# Subversion

- When a firm is sued after an accident, or caught violating regulation, it can pay  $X$  to escape the punishment  $F$ .
  - ▶ Legal means: lobbying, hiring good lawyers.
  - ▶ Illegal means: bribery, intimidation.
- The cost of subversion  $X$  is the maximum punishment that can be imposed, and measures the quality of the institutional environment.
- First-best institutions can function only in a supportive environment that protects them from subversion.
- When subversion is rampant, laissez faire is the best policy.
  - ▶ Government intervention cannot solve market failures.
  - ▶ The subversion of government intervention adds another waste.

# Appropriate Institutions

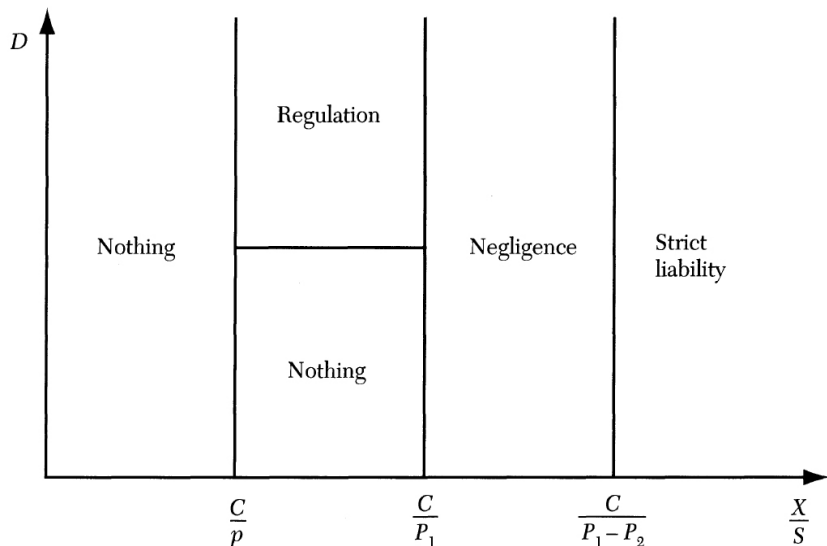
- ① If  $X/S < C/p$ , any enforcement scheme is subverted: laissez faire is optimal
- ② If  $P_1 \geq P_\alpha$  and  $C/p \leq X/S < C/P_1$ , or  $P_1 < P_\alpha$  and  $C/p \leq X/S < C/(P_1 - P_2)$ , then the optimal enforcement scheme is regulation if and only if

$$D > \frac{C}{(1 - \pi_\alpha)(P_1 - P_2)}.$$

Otherwise, laissez faire is optimal.

- ③ If  $P_1 \geq P_\alpha$  and  $X/S \geq C/P_1$ , negligence achieves the first best.
  - ④ If  $X/S \geq C/(P_1 - P_2)$ , strict liability achieves the first best.
- As firm size increases, subversion becomes more severe.
    - ▶ Inequality can undermine the functioning of law enforcement.

# Optimal Enforcement Schemes



# Combining Regulation and Litigation

- A regulator can impose a fine  $R$  for failure to comply with regulation, and in addition courts can impose liability for damages  $F$  when an accident occurs
- The combination of the two mechanisms can deter subversion, because its cost must then be incurred twice.
- ① If  $P_1 \geq P_\alpha$  and  $X/S \geq C/(p + P_1)$ , a combination of regulation and negligence achieves the first best.
- ② If  $X/S \geq C/(p + P_1 - P_2)$ , a combination of regulation and strict liability achieves the first best.
- The regulatory fine is low enough that  $\alpha$  firms are in efficient non-compliance.
- Regulation reduces the judicial punishment whose threat induces  $\beta$  firms to take precautions.



# Regulatory Screening of Entrepreneurs

- The regulation of entry of start-up firms differs enormously across countries.
- Government requirements for starting to operate a business:
  - Canada: 2 procedures, 2 business days, 280 USD.
  - USA: 4 procedures, 4 business days, 149 USD.
  - Spain: 11 procedures, 82 business days, 2,422 USD.
  - Italy: 16 procedures, 62 business days, 3,946 USD.
  - Mozambique: 19 procedures, 149 business days, 256 USD.
- Regulation mostly takes the form of screening procedures.
- Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002) measure the official requirements in 85 countries.
  - ▶ Not taking into account corruption and unexpected bureaucratic delays
- Use the data to evaluate different economic theories of regulation.

# Theories of Regulation

- ① *Public interest theory*: the helping hand (Pigou 1938).  
Regulation increases social welfare by correcting market failures.
- ② *Public choice theory*: the grabbing hand (Tullock 1967).  
Regulation reduces social welfare by creating rents.
- *Capture view*: Stigler (1971)  
Regulation creates barriers to entry to increase the profits of industry incumbents.
- *Tollbooth view*: De Soto (1990)  
Regulation is used by politicians and bureaucrats to control patronage and collect bribes.

# Public Interest Theory

- Unregulated markets are prone to market failures
    - ▶ Monopoly power, externalities.
  - The government pursues social efficiency by countering those failures through regulation.
  - The regulation of entry screens entrants to ensure that consumers buy from “desirable” sellers.
    - ▶ Reduces market failures: low-quality products from fly-by-night firms.
    - ▶ Reduces externalities: pollution.
  - Stricter regulation is associated with socially superior outcomes.
- 1 Who gets the rents? *Consumers*.
  - 2 Which governments regulate? *Representative, limited governments*.

# Public Choice Theory: The Capture View

Stigler (1971):

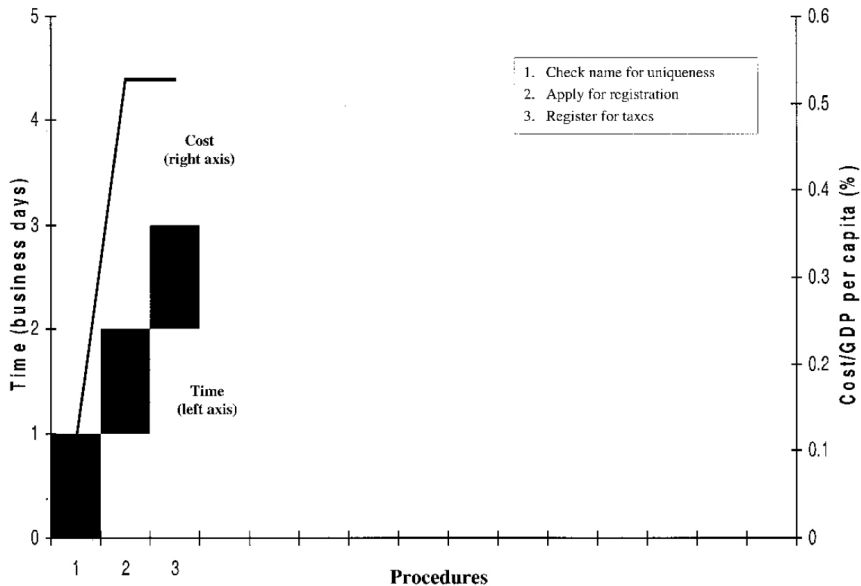
*Regulation is acquired by the industry and is designed and operated primarily for its benefits.*

- Industry incumbents face lower information and organization costs than dispersed consumers and potential entrants.
  - They use the incumbency advantage to acquire regulations that create rents for themselves.
  - The regulation of entry keeps out competitors and raises incumbents' profits at the expense of consumers.
- 1 Who gets the rents? *Incumbent producers.*
  - 2 Which governments regulate? *Governments without public oversight.*

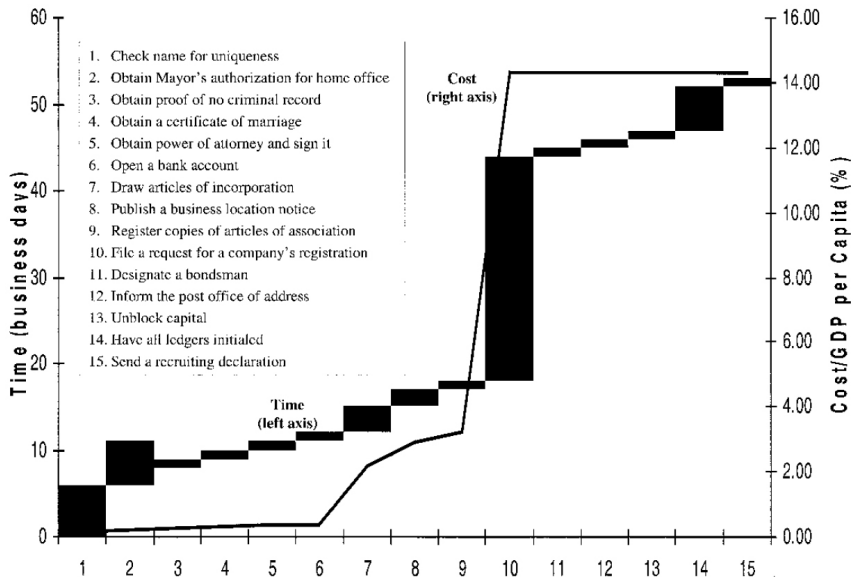
# Public Choice Theory: The Tollbooth View

- Regulation is pursued for the benefit of politicians and bureaucrats.
  - ▶ Favoured constituencies provide campaign contributions and votes.
  - ▶ Officials can deny permits and collect bribes for providing them.
- In principle, the collection of bribes could be efficient.
  - ▶ The government becomes an equity holder in the regulated firm.
- In practice, the creation and extraction of rents is typically inefficient.
  - ▶ Regulators are disorganized.
  - ▶ Distortionary policies are pursued to increase the rents from corruption.
- The tollbooth analogy:
  - ▶ Every town wants to put a tollbooth on the highway.
  - ▶ Toll collectors may also block alternative routes.
- ① Who gets the rents? *Politicians and bureaucrats.*
- ② Which governments regulate? *Unaccountable governments.*

# Start-up Procedures in New Zealand



# Start-up Procedures in France



# Regulation and Producer Quality

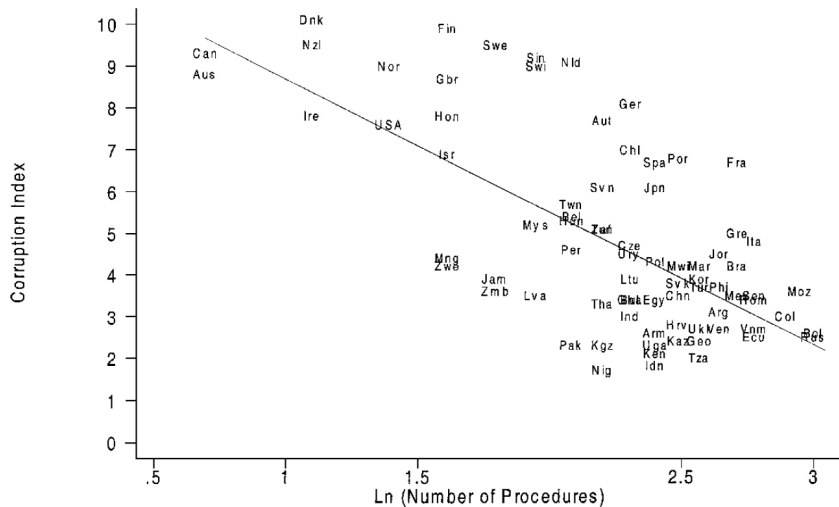
Dependent variable	Number of procedures	Ln GDP/POP <sub>1999</sub>	Constant	$R^2$ N
Quality standards (ISO Certifications)	-0.2781 <sup>a</sup>		0.7649 <sup>a</sup>	0.3311
	(0.0496)		(0.1268)	85
	-0.1595 <sup>a</sup>	0.0771 <sup>a</sup>	-0.1140	0.5384
	(0.0443)	(0.0131)	(0.1484)	85
Water pollution	0.0127 <sup>b</sup>		0.1557 <sup>a</sup>	0.0247
	(0.0084)		(0.0174)	76
	-0.0037	-0.0131 <sup>a</sup>	0.2984 <sup>a</sup>	0.2310
	(0.0076)	(0.0027)	(0.0314)	76
Deaths from accidental poisoning	0.6588 <sup>a</sup>		1.6357 <sup>a</sup>	0.1179
	(0.2057)		(0.4381)	57
	0.0637	-0.4525 <sup>a</sup>	6.8347 <sup>a</sup>	0.4109
	(0.1958)	(0.0933)	(1.0929)	57
Deaths from intestinal infection	2.3049 <sup>a</sup>		-2.2697 <sup>a</sup>	0.3451
	(0.3081)		(0.6778)	61
	1.0501 <sup>a</sup>	-0.8717 <sup>a</sup>	7.8494 <sup>a</sup>	0.6259
	(0.2971)	(0.1012)	(1.3048)	61



# Regulation and Market Outcomes

Dependent variable	Number of procedures	Ln GDP/POP <sub>1999</sub>	Constant	$R^2$ N
Size of the unofficial economy <sup>d</sup>	14.7553 <sup>a</sup>		-3.7982	0.2482
	(2.5698)		(5.2139)	73
	6.4849 <sup>b</sup>	-6.1908 <sup>a</sup>	67.1030 <sup>a</sup>	0.5187
	(2.5385)	(1.0834)	(13.7059)	73
Employment in the unofficial economy	19.4438 <sup>a</sup>		-4.1103	0.3132
	(2.5756)		(5.9160)	46
	13.8512 <sup>a</sup>	-4.4585 <sup>a</sup>	41.5133 <sup>b</sup>	0.4477
	-3.6056	(1.3918)	(17.6836)	46
Product market competition	-0.4012 <sup>a</sup>		5.7571 <sup>a</sup>	0.1405
	(0.1213)		(0.2511)	54
	-0.1418	0.2108 <sup>a</sup>	3.3579 <sup>a</sup>	0.3087
	(0.1202)	(0.0680)	(0.7749)	54

# Regulation and Corruption



# Regulation and Socioeconomic Outcomes

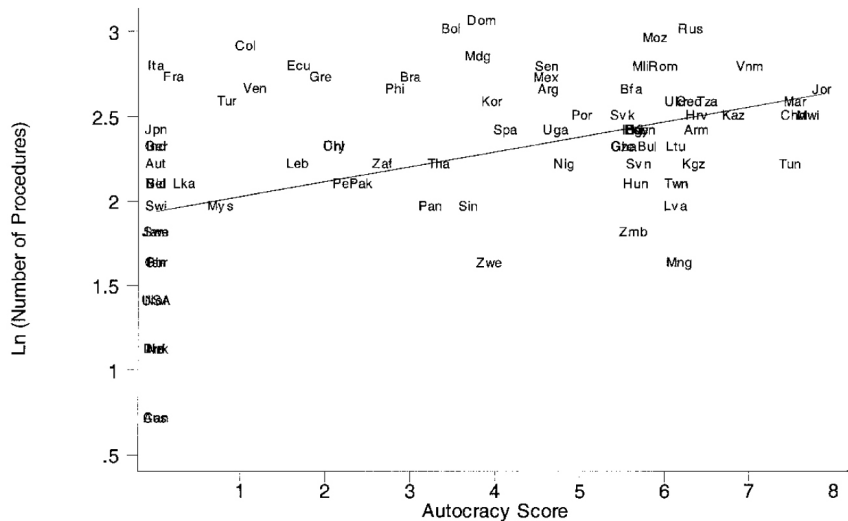
- Richer countries regulate entry relatively less.
  - ▶ Market failures may be more pervasive in the poorest countries.
  - ▶ Income level may proxy for political accountability.
- Stricter regulation is associated with worse social outcomes:
  - ▶ Lower product quality, more intestinal infection, higher employment in the unofficial economy, more corruption.
- Not necessarily inconsistent with the public interest theory.
- ① Egregious market failures coupled with the failure of alternative enforcement mechanisms, such as courts or the press.
  - ▶ Yet robust to controlling for freedom of the press and efficiency of the judiciary.
- ② Unintended consequences of benevolent regulation.
  - ▶ Benign politicians in emerging markets imitate rich-country regulation and are frustrated by corruption and enforcement failures.
  - ▶ It may be impossible to screen bad entrants without facilitating corruption.

# Political Attributes and Regulation

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Executive de facto independence	-0.1249 <sup>a</sup> (0.0322)						
Constraints on executive power		-0.1048 <sup>a</sup> (0.0352)					
Effectiveness of legislature			-0.3301 <sup>a</sup> (0.0778)				
Competition nominating				-0.2763 <sup>b</sup> (0.0999)			
Autocracy					0.0545 <sup>b</sup> (0.0178)		
Political rights						-0.3470 (0.2185)	
French legal origin							0.7245 <sup>a</sup> (0.0916)
Socialist legal origin							0.4904 <sup>a</sup> (0.1071)
German legal origin							0.7276 <sup>a</sup> (0.1363)
Scandinavian legal origin							-0.0085 (0.1733)
Ln GDP/POP <sub>1999</sub>	-0.0491 (0.0331)	-0.0634 <sup>c</sup> (0.0352)	-0.0087 (0.0401)	-0.0902 <sup>b</sup> (0.0358)	-0.0867 <sup>a</sup> (0.0321)	-0.0939 <sup>b</sup> (0.0386)	-0.1434 <sup>a</sup> (0.0270)
Constant	3.1782 <sup>a</sup> (0.2334)	3.2040 <sup>a</sup> (0.2408)	2.8709 <sup>a</sup> (0.2586)	3.3540 <sup>a</sup> (0.2641)	2.7457 <sup>a</sup> (0.2888)	3.1850 <sup>a</sup> (0.2599)	2.9492 <sup>a</sup> (0.1955)
R <sup>2</sup>	0.3178	0.2872	0.3424	0.2475	0.2640	0.2350	0.6256
N	84	84	73	73	84	84	85

Log of the number of procedures as the dependent variable.

## Autocracy and Regulation



# Cross-Country Regulatory Patterns

- The regulation of entry is very costly and time-consuming.
  - ▶ On average 10 procedures, 47 business days, 47% of GDP per person.
- More regulation is not associated with better quality of public or private goods.
- More regulation is associated with more corruption and a larger unofficial economy.
- Heavier regulation is adopted by governments that are less constrained by checks and balances, less democratic and more interventionist.
  - ▶ Controlling for the level of economic development.
- Exactly the correlations predicted by the public choice theory.
  - ▶ More obvious support for the tollbooth than the capture view.
  - ▶ No identification strategy to test and reject the public interest theory.

# The Simple Economics of Corruption

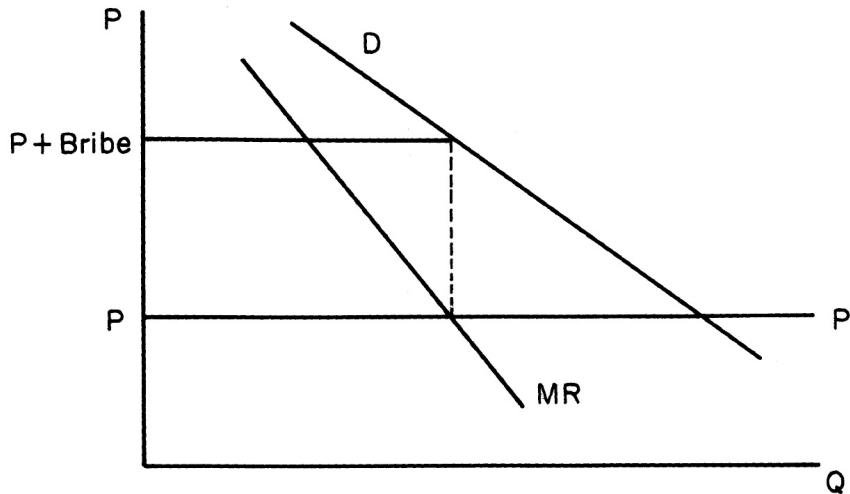
- Shleifer and Vishny (1993) define corruption as the sale by government officials of government property for personal gain.
- The state-owned goods are mostly requirements for pursuing economic activities.
  - ▶ Permits and licences, passports and visas, passage through customs, ...
- Corruption is particularly pervasive in (some) developing countries, but it is significant around the world.
  - ▶ Defence contracts, local zoning boards, ...
- Corruption is a huge problem, and clearly perceived as such—although the empirical evidence on corruption and growth is no more than tentative.
- Why is corruption more distortionary than taxation?
- How does the social cost vary with the structure of the corruption network?

# Basic Model

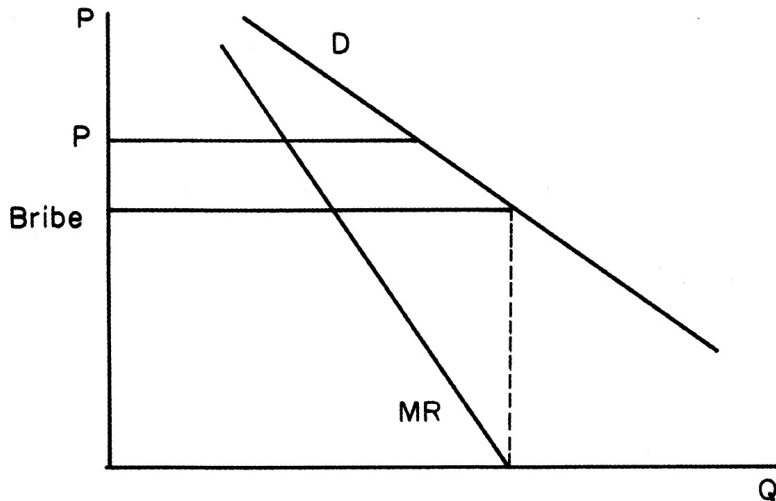
- A homogeneous government-produced good with demand  $D(p)$ .
  - The official government price is  $p$ .
  - A government official acts as a monopolist, restricting supply of the good and extracting bribes.
- 1 Corruption *without theft*: the marginal cost equals  $p$ .
    - ⇒ The effective price is always above  $p$ .
  - 2 Corruption *with theft*: the marginal cost is nil.
    - ▶ The effective price can be lower than  $p$ : e.g., customs duties.
- ⇒ Buyers always prefer corruption with theft.



# Corruption without Theft



# Corruption with Theft



# Competition and the Spread of Corruption

- Competition between the officials: if government jobs are (implicitly) auctioned to the highest bidders, then only the maximal bribe-takers will be able to get them.
    - ▶ Riordon, William L. 1905. *Plunkitt of Tammany Hall*. New York, NY: McClure, Phillips.
  - With theft, competition between the buyers: if  $b < p$ , no entrepreneur can afford not to pay bribes when his competitors are doing so.
  - With theft, the buyers' incentives are aligned with the corrupt official's. Without theft, they are aligned with the government's.
- ⇒ The first step to reduce corruption is to prevent theft of government revenues.
- Penalizing the official for corruption does not remove the problem.
    - ▶ If the penalty is increasing in the level of the bribe, he may decrease it and expand supply.
    - ▶ If the penalty is increasing in the number of bribes received, he may reduce supply and raise the bribe.

## Complementary Government Goods

- Private agents need several *complementary* government goods.
- Effective prices  $p_1$  and  $p_2$ , quantities  $x_1$  and  $x_2$
- Bribes  $b_i = p_i - MC_i$ , where  $MC_i$  is either the official price or 0.
- A single official is the monopolist supplier of all government goods.
  - ▶ Absolute monarchy, a single mafia, old-time Communism.
  - ▶ Always clear whom to bribe and how much.
- Joint revenue maximization

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

$$MR_2 + MR_1 \frac{dx_1}{dx_2} = MC_2.$$

- Since the goods are complements

$$MR_1 < MC_1 \text{ and } MR_2 < MC_2.$$

# Industrial Organization of Corruption

- The monopolist keeps the bribe on one good low to increase demand for the other good.
  - ▶ Redistribution of bribes within the government or party.
- Enforcement problem: can increases in bribes be detected?
  - ▶ Small oligarchies, police states, homogeneous communities.
- The leadership may not be able control rent extractions: independent (non-colluding) monopolists.
  - ▶ African countries, Indian licence Raj, post-Soviet Russia.
  - ▶ Everyone wants to maximize his own bribe revenue.
- Non-collusive solution:

$$MR_1 = MC_1 \text{ and } MR_2 = MC_2.$$

- Higher bribes and lower supply.
  - ▶ Political modernization is accompanied by increases in corruption.

# Modes of Competition

- Free entry into the collection of bribes maximizes the problem.
  - ▶ New organizations and officials can demand more bribes.
  - ▶ The same bribe-takers may come back for more.
  - ▶ If entry is completely free, bribe revenues must go to zero because total supply goes to zero due to prohibitive bribes.
- The tollbooth problem: complementary good can be created at will.
  - ▶ In the middle ages there were 60 independent tolls on the Rhine.
  - ▶ In developing countries it is still quite common for every village to levy a toll on the road between two towns.
- Opposite results for substitute goods.
  - ▶ If several officials can provide the good, Bertrand competition eliminates bribes.
  - ▶ Potential competition is all that is needed.
  - ▶ A good explanation of why the U.S. has low government corruption, and most of it probably in defence procurement.
  - ▶ With theft, this would also reduce government revenues to zero.

# Corruption and Secrecy

- In the case of a centralized bribe-collecting monopoly, corruption is similar to revenue-maximizing taxation.
  - ▶ The parallel can also be drawn between competing corrupt officials and competing tax agencies or levels of government.
- Revenue-maximizing taxes are already distortionary. Bribes can be much worse.
- Classic rent-seeking (Tullock 1967): the bribe revenues are dissipated in a race to occupy the bribe-taking positions.
- Further distortions are involved in extracting bribes because they are illegal and must be kept secret.
  - 1 Distort private activity towards areas where it is easier to hide bribes.
  - 2 Resources are spent to avoid detection and punishment.
- Example from developing countries: needlessly advanced technological imports to hide overinvoicing and kickbacks.
  - ▶ Defence and infrastructure projects over education and health.

# Rent Seeking and Growth

- Murphy, Shleifer, and Vishny (1993) explore the reasons why rent-seeking is not merely redistributive, but also detrimental to growth.
- Each person can engage in one of three activities:
  - 1 Market production, with output  $\alpha$ .
  - 2 Subsistence production, with output  $\gamma < \alpha$ .
  - 3 Rent-seeking, which expropriates  $\beta$  from market producers, but nothing from subsistence producers.
- An equilibrium is an allocation of the population to production and rent-seeking.
  - ▶  $n$  is the ratio of rent-seekers to producers.
  - ▶  $y$  is income per capita.



# Increasing Returns to Rent-Seeking

- ① When the number of rent seekers is sufficiently low, they are only constrained by their own capacity to expropriate:
  - ▶ the returns to rent-seeking are  $\beta$ ;
  - ▶ the returns to market production are  $\alpha - n\beta > \gamma$ .
- ② Competition between rent seekers rent-seeking becomes binding at

$$n' = \frac{\alpha - \gamma}{\beta}.$$

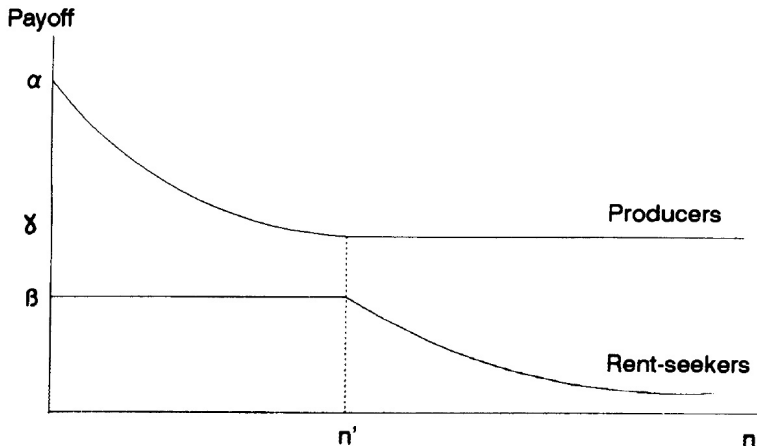
Then rent extraction is limited by producers' ability to shift into subsistence production:

- ▶ returns to production are  $\gamma$ ;
- ▶ returns to rent-seeking are  $(\alpha - \gamma) / n < \beta$ .

⇒ The *relative* returns to rent-seeking are increasing in the prevalence of rent seekers in the interval  $n \in (0, n')$ .

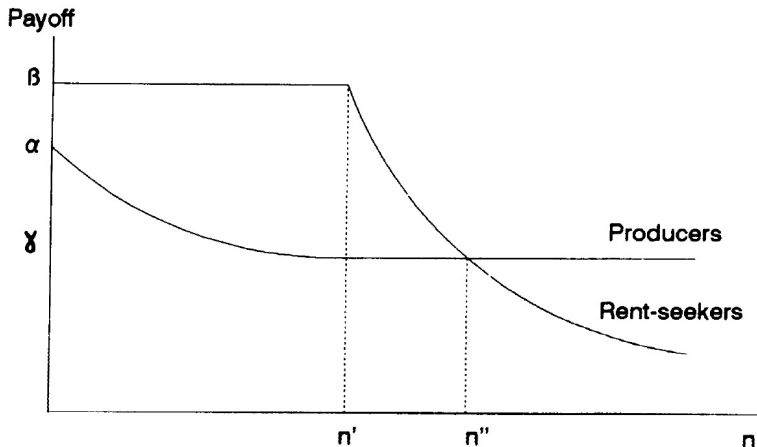
# Full Protection of Property Rights

- If  $\beta < \gamma$ , property rights are perfectly protected.
  - 1 Nobody engages in rent-seeking.
  - 2 Income per capita equals the maximum  $\alpha$ .



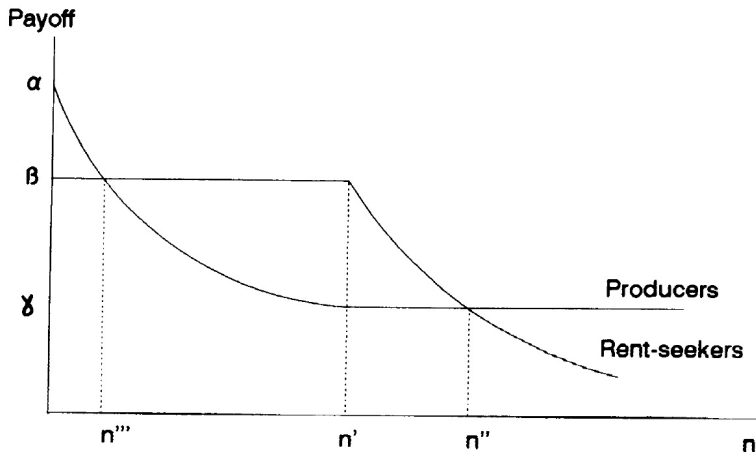
# No Protection of Property Rights

- If  $\beta > \alpha$ , property rights are not protected by institutions.
  - 1 The prevalence of rent-seeking is  $n'' = \alpha/\gamma - 1$ .
  - 2 Income per capita equals the subsistence level  $\gamma$ .



## Multiple Equilibria

- If  $\gamma < \beta < \alpha$ , both outcomes are possible in equilibrium.
  - ▶ There is a third equilibrium with income per capita  $\beta$ , but it is unstable.



# Comparative Statics

- The productivity of rent-seeking  $\beta$  captures the quality of legal protection of property rights.
  - ▶ It does not affect the value of output in either stable equilibrium.
  - ▶ It does affect equilibrium selection.
- Higher  $\alpha$  increases the value of property rights.
  - ▶ In the good equilibrium (with strong protection) it increases income per capita.
  - ▶ In the bad equilibrium (with weak protection) it increases rent-seeking instead.
- The productivity of subsistence production  $\gamma$  measures the ability to self-protect.
  - ▶ It directly increases income in the bad equilibrium (weak legal protection).
- Reform mostly acts through shifts in equilibrium selection
  - ▶ Discontinuous response to changes in  $\beta$ .
  - ▶ Protection of subsistence production also plays a role.