Law and Economics
Session 5
Rules Versus Taxes

Elliott Ash

Columbia University
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Summary

- Why use legal rules rather than taxes to regulate externalities?
- In public economics, we study taxes.
- In law and economics, we study rules.
- See O'Flaherty (2008, ch. 8 sec. 2)

Public Economics: Optimal Pigouvian Taxes

- Standard model in public economics: Optimal Pigouvian tax
- Tax (or subsidize) an activity so that private marginal cost equals social marginal cost (or private marginal benefit equals social marginal benefit)
- (graph representation)

Neoclassical Preference for Taxes

- Neoclassical economists generally prefer taxes to rules:
  - If government sets tax to reflect true SMC, then activity only occurs when benefits exceed costs
  - Rules are blunt instruments

Rules Versus Taxes: Role of Information

- But if govt has enough information to set right taxes, then it can set rules that work just as well as taxes:
  - Permit activity when benefits exceed costs, and prohibit other instances.
- When information is very good, rules work just as well as taxes.
- Real question: With imperfect information, when do rules work better than taxes?

Rules versus taxes: Enforcement and Information

- For Pigouvian taxes to work, the government must be able to enforce them and must have reliable information on the net social marginal costs of the externality-creating activity.
- Sometimes communicating the information to a judge is easier than communicating information to a tax collector
- External harm may be so great that optimal number of times is clearly zero, e.g. arson.

Rules vs. Taxes: MXC versus MPB and Quantity

- Rules preferred to taxes when:
  - marginal external cost (MXC) sensitive to quantity
  - marginal private benefit (MPB) not sensitive to quantity
- Taxes preferred to rules in opposite case:
  - MXC not sensitive to quantity
  - MPB sensitive to quantity.

Road Intersections Example

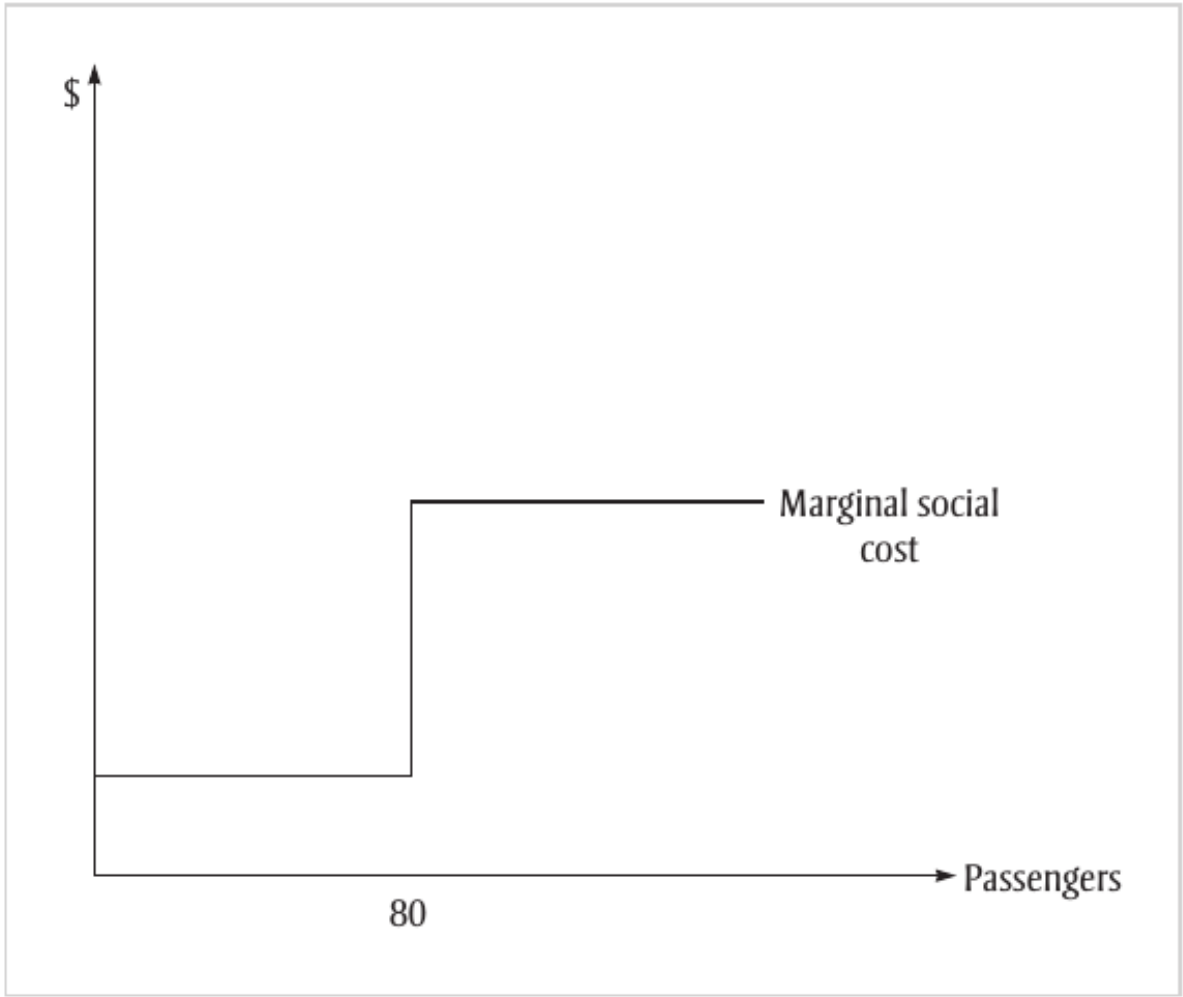
- How many cars should go through an intersection at one time?
  - MXC of one car: about zero
  - MXC of second car: very high: a collision
  - MPB about the same for each car.
- **Traffic intersections should be governed by rules.**

Cruse Ship Example

- Small cruise ship has 20 crew members, and lifeboats for 100 people total.
- An additional passenger beyond 80 endangers an additional crew member (high MXC)
- The first 80 passengers pose no risk (low MXC).

Marginal social cost for the cruise ship

Figure 8.1 Marginal social cost for the cruise ship.



Cruse Ship Example

- Small cruise ship has 20 crew members, and lifeboats for 100 people total.
- An additional passenger beyond 80 endangers an additional crew member (high MXC)
- The first 80 passengers pose no risk (low MXC).
- You know for sure the quantity threshold for high MXC (80), but you don't know for sure how many passengers you'll have at a given price.

- Might get more than 80 passengers, which could be tragic.

- **Set a rule: no more than 80 passengers.**

Library Copies Example

- Copy machine in a public library.
- MXC to the library of a copy is the same no matter how many copies are made.
    - No particular number where MXC suddenly jumps up.

Marginal social cost for the library

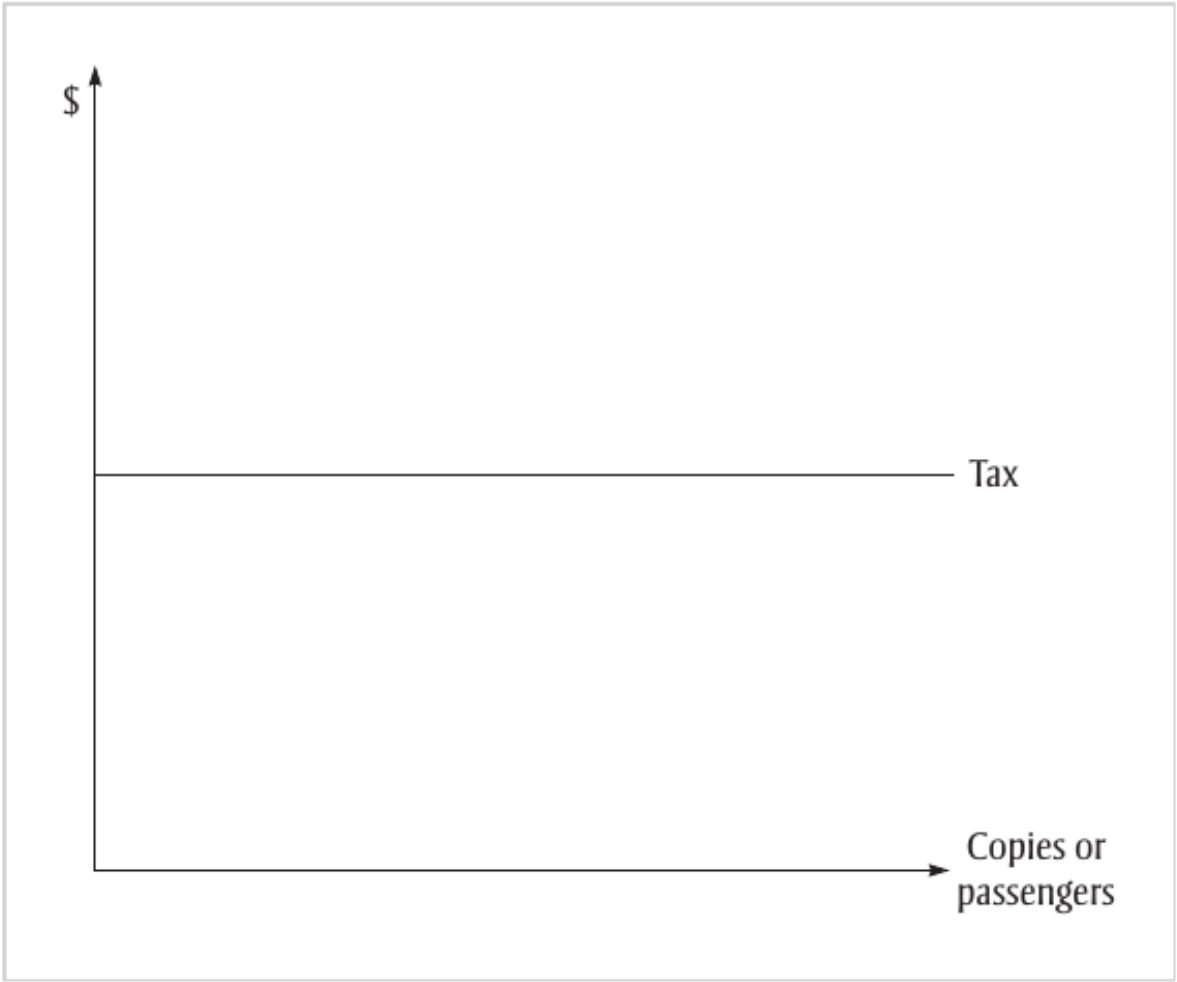
Figure 8.2 Marginal social cost for the library.

Library Copies Example

- Copy machine in a public library.
- MXC to the library of a copy is the same no matter how many copies are made.
  - No particular number where MXC suddenly jumps up.
- Setting a rule such as "Only 80 copies a day" would be a bad idea:
  - Someone might want 200 copies and is willing to pay for it – the 80-copies rule would preclude a Pareto improvement.
- **Set the price equal to MSC.** No matter how many copies patrons wanted to make at that price, the outcome would be Pareto optimal.

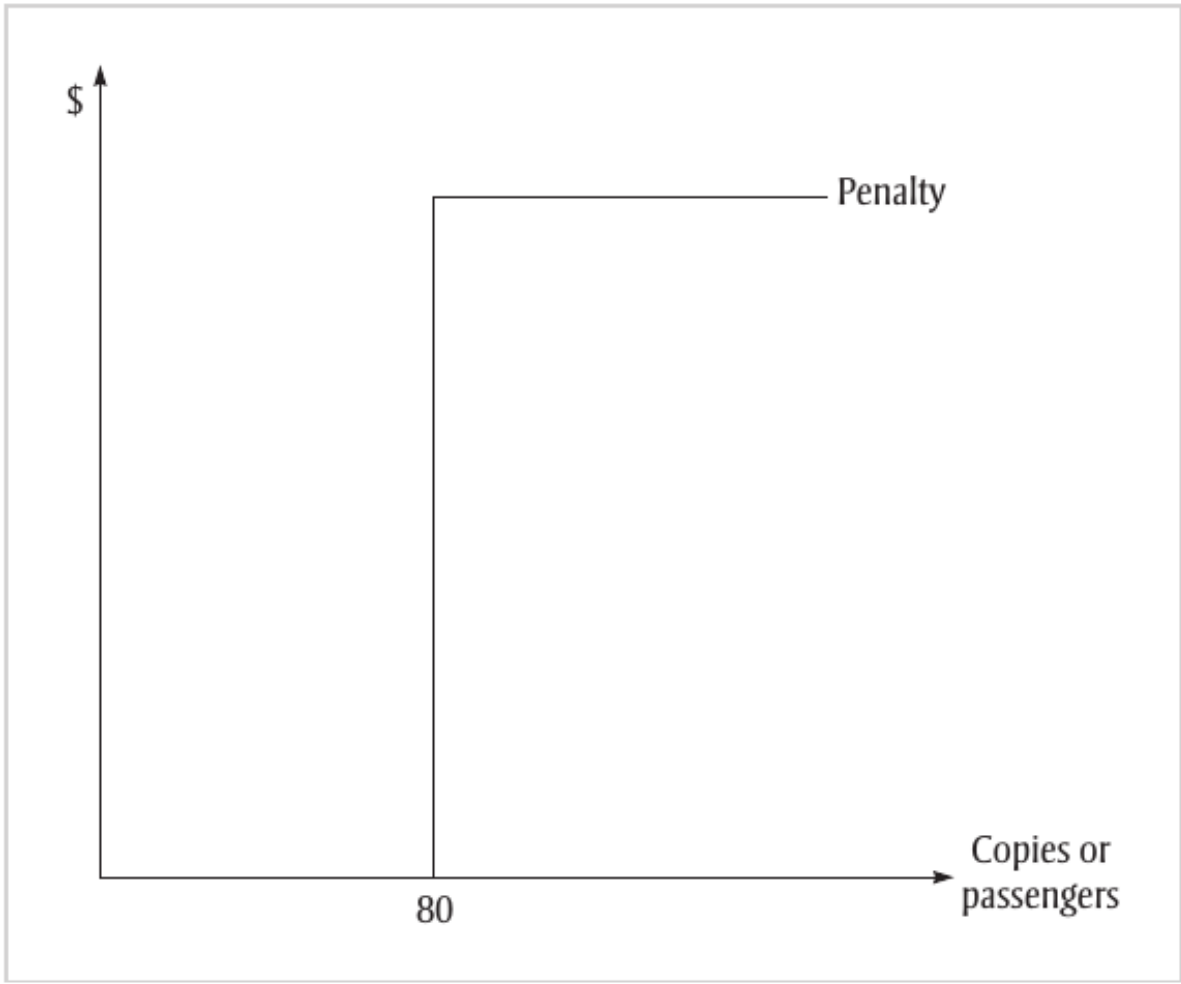
Graphical Depiction of a Tax

Figure 8.3 A tax.



Graphical Depiction of a Rule

Figure 8.4 A rule.

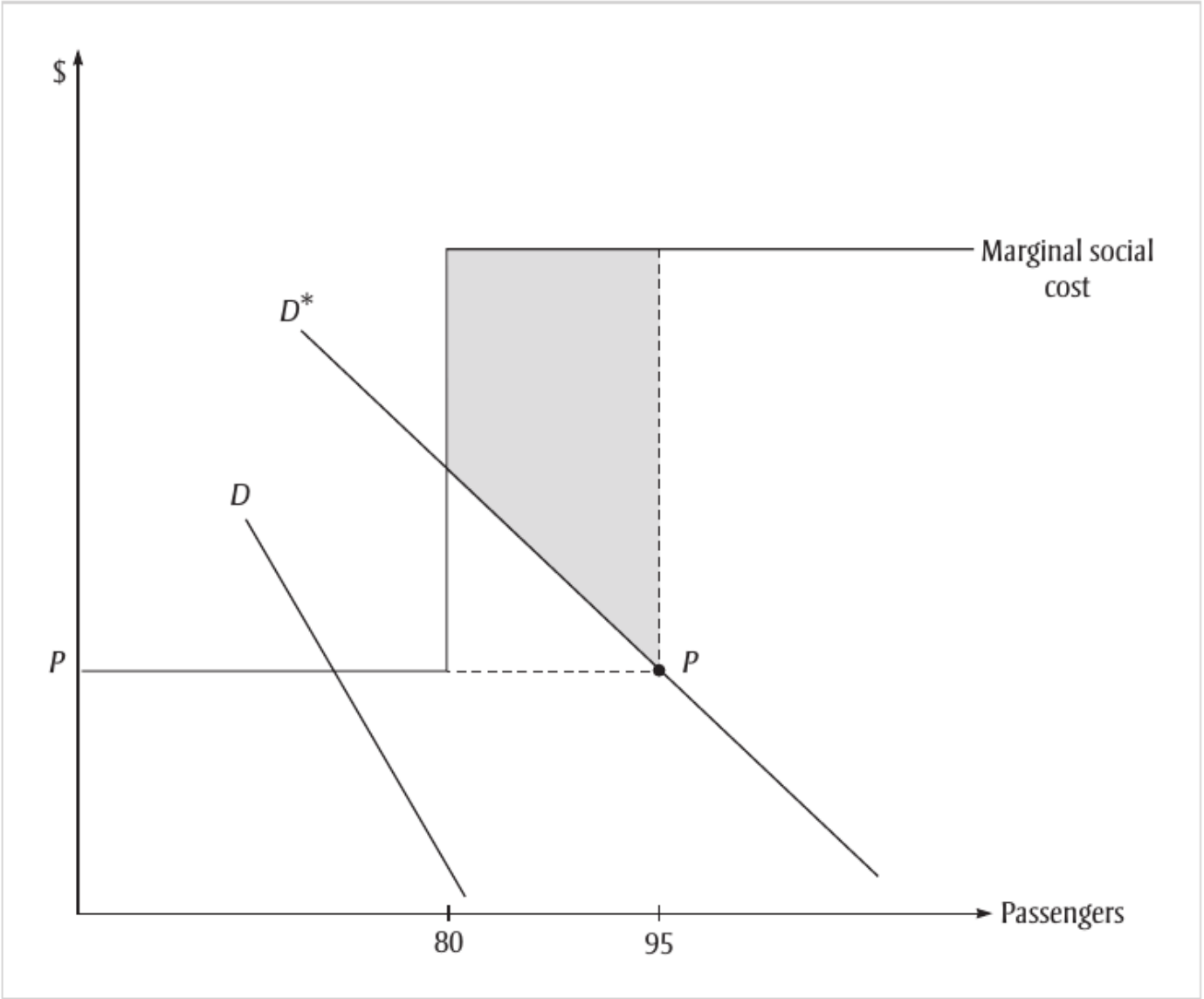


Graphical Rules of Thumb

- When marginal social cost looks like a tax, use a tax.
- When marginal social cost looks like a rule, use a rule.
- The form of the response should match the form of the harm.

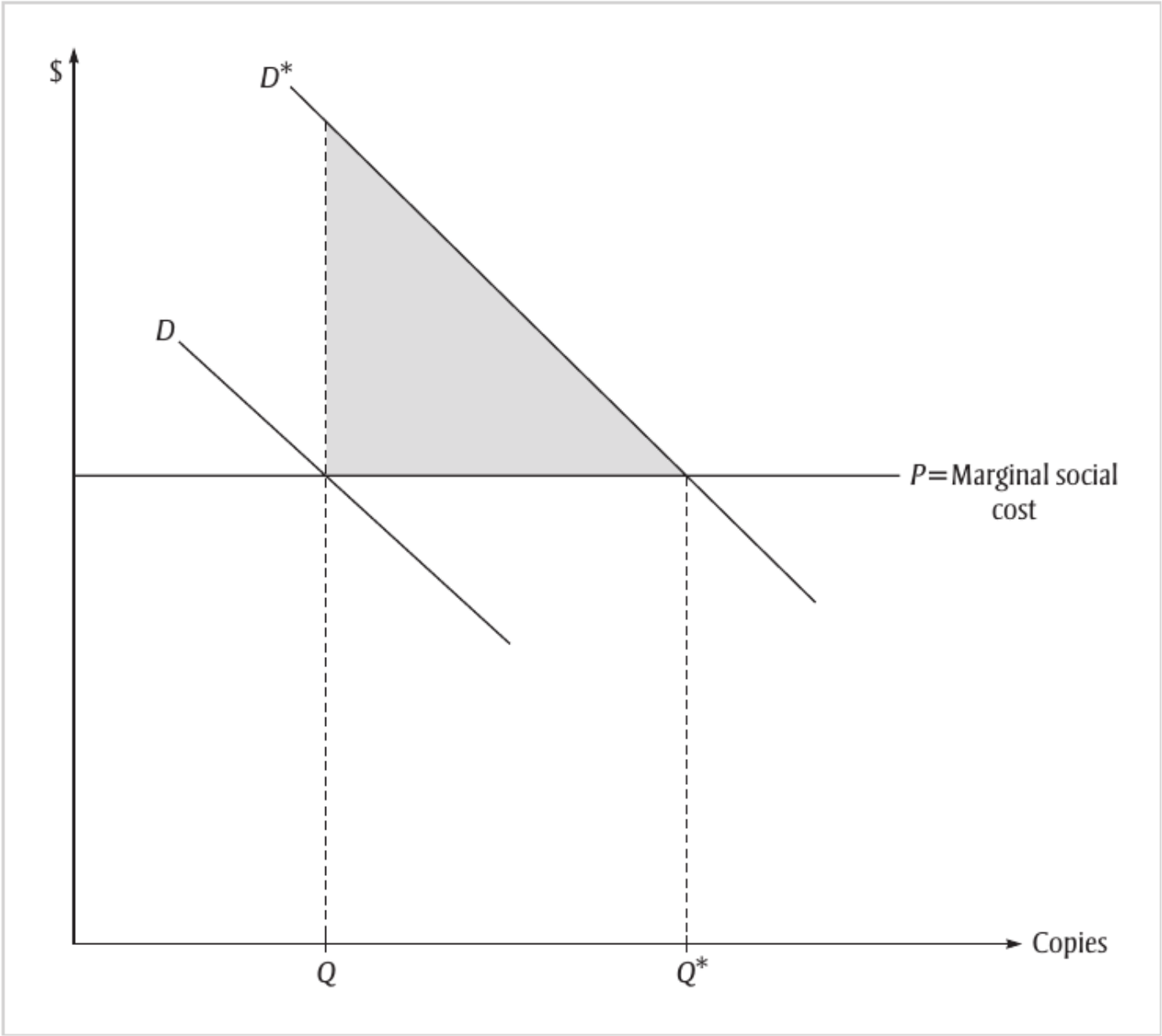
Deadweight loss from the wrong price

Figure 8.5 Dead-weight loss from the wrong price.



Deadweight loss from the wrong rule

Figure 8.6 Dead-weight loss from the wrong rule.



Community Reporting

- Community reporting is often cheap – much easier for neighbors to know whether someone is breaking a rule than whether she has paid her taxes.
- Example: Reducing Sunday liquor sales: Ban or tax?
  - Easy for neighbors to tell whether a liquor store is open on Sundays
  - Not so easy to tell whether they paid their taxes on Sunday purchases.

Community Reporting

- When community monitoring is cheap and easy, and/or when tax collectors are likely to be lazy or corrupt, rules will work better than taxes to enforce desired behavior.

- Other examples of when to use rules:
  - hunting and fishing limits
  - rules on where buildings can be built
  - height limitations
  - restaurant and bar closing hours
  - noise ordinances
  - laws on endangering the welfare of children

Property Example

- Rancher A, Farmer B, Farmer chooses fence $x \in \{0, 1\}$, payment w.
- Payoffs:

$$u_A = \omega_A + w - ax$$

$$u_B = \omega_B - w + bx$$

- Previously, we solved this by contracting for $x = 1, w \in [a, b]$ when $b > a$ (fence beneficial).
- Pigouvian solution: Impose a tax $\tau \geq b$ if $x = 0$

Contract Example

- Seller A, Buyer B, contract specifies quality $\tilde{x}$, payment w
- Payoffs:

$$u_A = w - ax$$

$$u_B = b(x) - w$$

- We saw that expectations damages $z = b(\tilde{x}) - b(x)$ for breach gave the seller efficient incentives for quality.
- Pigouvian solution: Marginal tax $\tau = b'(x)$ on quality deficiency $\tilde{x} - x$.

Tort Example

- Injurer A, Victim B, injurer chooses precaution $x \geq 0$ but probability $1 - p(x)$ of harm to B
- Payoffs:

$$u_A = \omega_A - ax$$

$$u_B = \begin{cases} \omega_B & \text{(no accident)} \\ \omega_B - b & \text{(accident occurs)} \end{cases}$$

$$\mathbb{E}(u_B) = \omega_B - (1 - p(x))b$$

- The tort rule of full compensation for damages to victim results in

$$\mathbb{E}(u_A) = \omega_A - ax - (1 - p(x))$$

  which gives efficient precaution incentives.

- Pigouvian solution: Marginal tax $\tau = p'(x)b$ on insufficient precaution $x^* - x$.

Crime Example

- Criminal A, Victim B, criminal chooses crime $x \geq 0$, govt chooses enforcement y, prob. $1 - p(x, y)$ criminal is caught.
- Payoffs:

$$u_A = \begin{cases} ax & \text{(undetected)} \\ ax - b(x) & \text{(detected)} \end{cases}$$

$$\mathbb{E}(u_A) = ax - (1 - p(x, y))b(x)$$

- Chosen crime level $x^*(y)$ solves

$$a = p_x(\cdot)b(\cdot) + p(\cdot)b_x(\cdot)$$

- Social welfare function:

$$W = \omega - y - x^*(y)$$

- Pigouvian solution: If perfect detection allows taxation of crimes, just tax them at the marginal external cost: $\tau = 1$

Risks of Regulatory Discretion

- Regulations are often a good idea, but who will enforce them?
- Rules need to adapt to new circumstances, so regulators must have some discretion.
- But regulatory power coupled with discretion is potentially dangerous:
  - Corrupt government officials can extort rents from the public
  - People won't invest in new businesses if the profits will be appropriated
- Instead of making us better off, regulatory powers could make us all worse off.

Constitutional Limits on Regulatory Discretion

- In the United States, limits on regulatory discretion are part of Constitutional Law, enforced by judicial review:
  - **Procedural due process**: governments must follow prescribed tests before exercising regulatory powers against someone.
  - **Substantive due process**: Rules must promote the health, safety, morals, and general welfare of the community.
  - **Equal protection:** rules must be written and applied impersonally.
  - **First Amendment:** special protections for religion, speech, and assembly.
  - **Takings clause**: Government must pay a fair price for property taken by eminent domain.