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Market Inefficiencies: Common Pool Resources

Big Questions

1. What are externalities, and how do they affect markets?
2. What are private goods and public goods?
3. What are the challenges of providing non-excludable goods?

Externalities

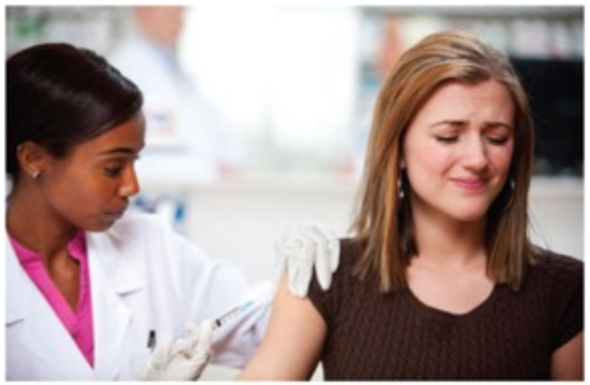
- Internal costs
  - The costs of an activity paid by an individual engaging in the activity
- External costs
  - The cost of an activity paid for by someone else not directly involved in the activity
- Social costs
  - Sum of internal and external costs

Third-Party Problem

- Externalities
  - Occur when private cost (or benefit) diverges from social cost (or benefit)
- Third-Party Problems
  - People not directly involved in activity experience positive or negative externalities.

Third-Party Problem

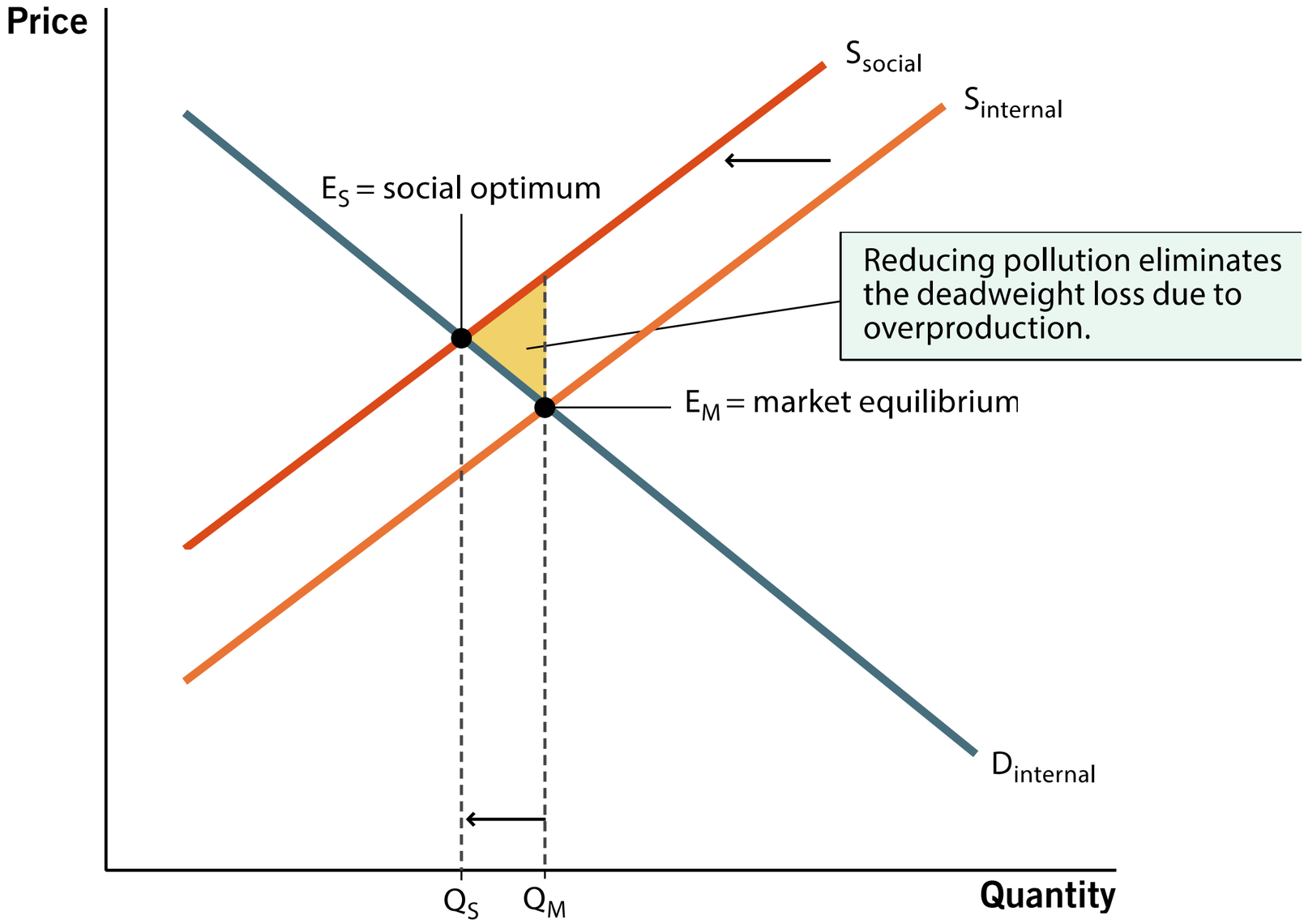
- Negative externalities
  - Costs experienced by third parties
  - “Too much” of the good is consumed and produced.
  - Pollution, secondhand smoke
- Positive externalities
  - Benefits experienced by third parties
  - “Not enough” of the good is consumed and produced.
  - Education, vaccines



Correcting for Externalities

- Internalizing the externality
  - The individual involved in the activity takes account for social costs (or benefits).
- For negative externalities:
  - Force individual to pay for external costs
  - Tax production
  - Regulate production
  - Overall output is reduced, illustrated by a leftward shift in supply.

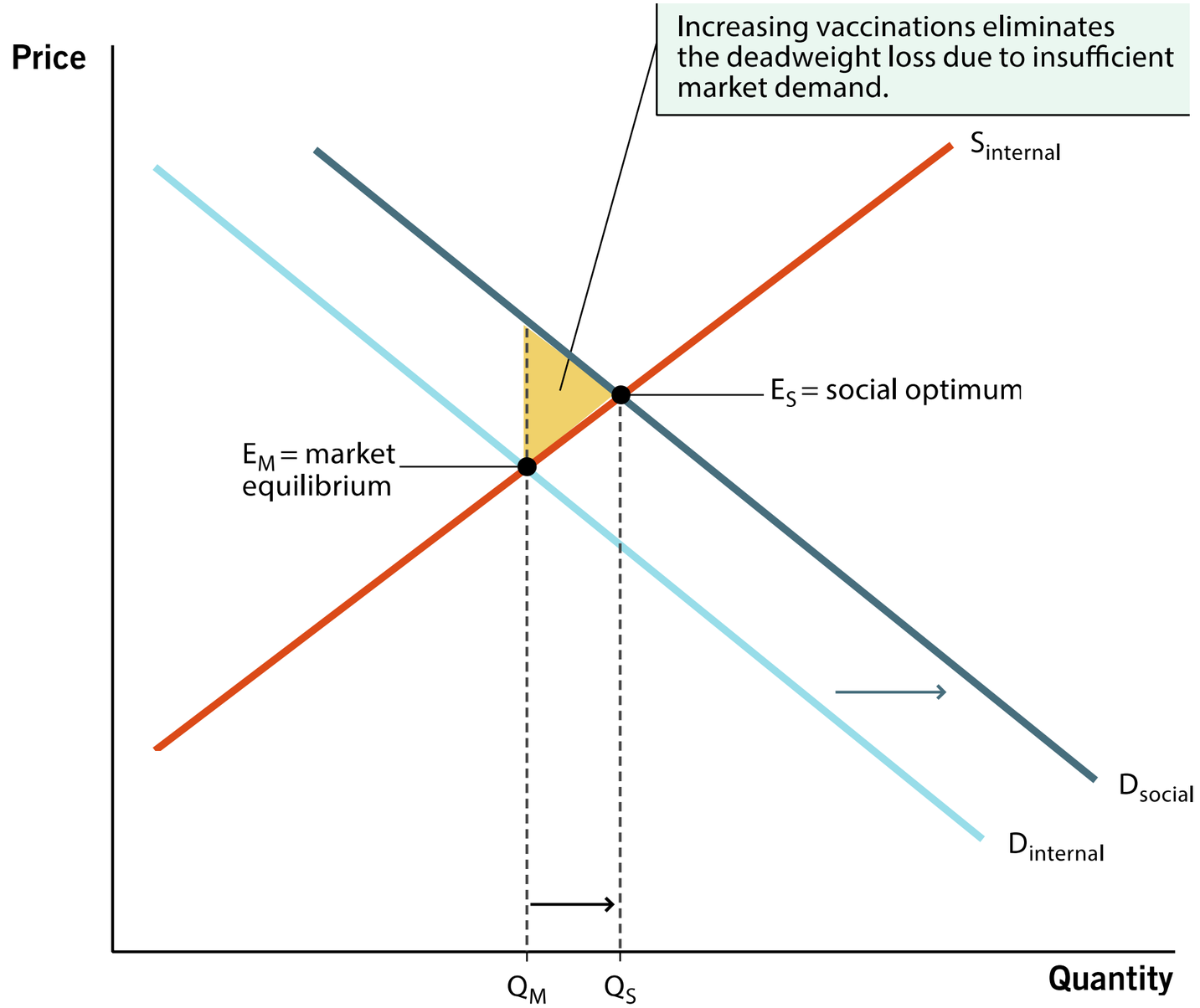
Correcting for Negative Externalities



Correcting for Externalities

- For positive externalities:
  - Help individuals realize external benefits
  - Finance and/or subsidize production and consumption of the good
  - Laws requiring consumption
    - Vaccines
    - Education
  - Overall consumption is increased, illustrated by a rightward shift in demand

Correcting for Positive Externalities



Summary of Externalities

	Negative	Positive
Definition		
Examples		
Corrective measures		

Pecuniary Externalities

- Pecuniary externality
  - Externality that operates through prices rather than resources
  - Example:
    - Many people move to town and buy houses, which drives housing prices upward.
    - A third party who wants to buy a house later is hurt by the higher price.
    - However, this loss is exactly offset by the additional gain received by house sellers.
  - When considering all markets, there is no gain or loss of efficiency. Some economists believe this should not be called an externality.

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Market Inefficiencies: Externalities and Public Goods: Property Rights

Property Rights

- Externalities often arise because of a lack of clearly defined property rights.
  - Ask: Who owns the air? Can I pollute?
- Private property
  - Provides exclusive right of ownership that allows for the use and exchange of property
  - Creates incentive to maintain, protect, and conserve property, as well as listen to the wishes of others

Private Property Incentives

1. Incentive to maintain
   - Keep the vehicle safe and reliable
2. Incentive to protect
   - Lock your doors
3. Incentive to conserve
   - Extend vehicle life, drive less
4. Incentive to trade with others
   - You can voluntarily trade for something better in the market.

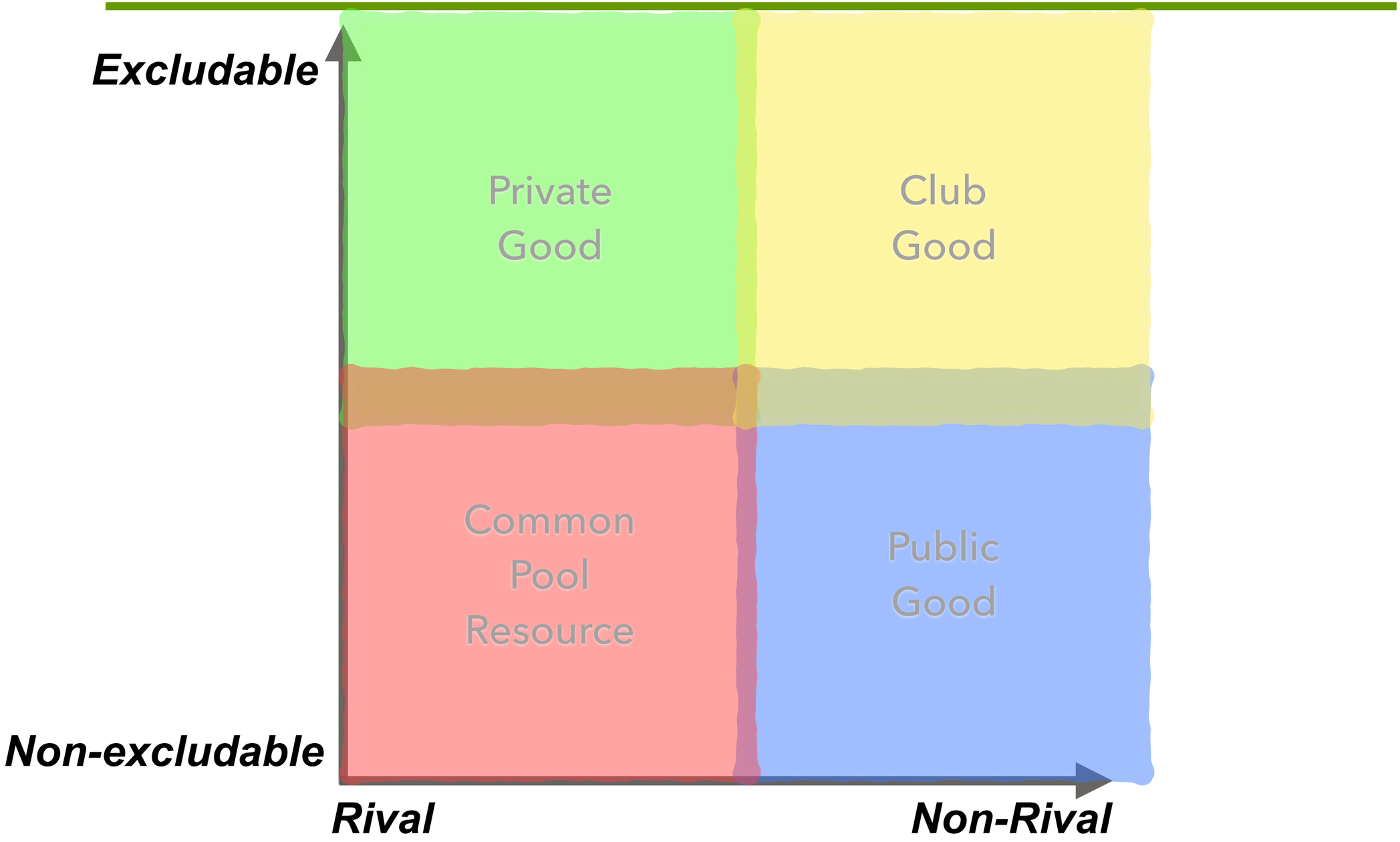
Coase Theorem

- Two adjacent farmers, no fences
  - One raising cattle
  - One growing wheat
- Scenario 1: The cattle rancher is liable for damages the cows cause.
- Options for cattle rancher
  - Put up a fence
  - Pay damages to wheat farmer
  - Rancher will consider costs of both to make choice.

Coase Theorem

- Scenario 2: The wheat farmer does not have a legal right to cattle-free fields.
- Options for farmer
  - Put up a fence
  - Accept occasional cattle damage
- Result?
  - If property rights are fully specified, either the cattle rancher or wheat farmer will build a fence.
- Coase theorem
  - If there are no barriers to negotiations, interested parties will bargain to correct any externality.

Four Types of Goods



Economics in *King of Queens*

- Coase theorem
- In this clip, a barking dog creates a negative externality. See how the parties involved work out a private solution.

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Market Inefficiencies: Externalities and Public Goods: Property Rights

Private Goods

- Characteristics of certain consumption goods
- Excludable
  - The good must be purchased before use.
- Rival
  - The good cannot be enjoyed by more than one person at the same time.
- Private goods
  - Are both excludable and rival in consumption
  - Most goods we purchase and consume are private goods.

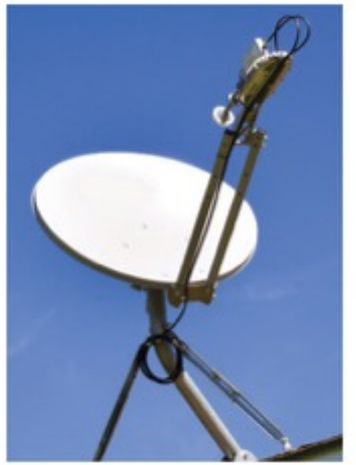
Public Goods

- Public goods
  - Can be consumed by many
  - Difficult to exclude non-payers from consumption
  - Examples:
    - Public defense, public parks, public fireworks display

- Free-rider problem
  - Someone has the ability to receive the benefit of a good without paying for it.
  - Examples:
    - Eating (and not paying) at a free-will donation meal
    - Letting a classmate do all the work in a group project!

Club Goods, Common Resources

- Club goods
  - Non-rival and excludable
  - Examples:
    - Satellite TV, gym membership
- Common resource goods
  - Rival but non-excludable
  - Examples:
    - Fishing, hunting (specific animals fished and hunted), public campsites



Cost-Benefit Analysis

- Cost-benefit analysis
  - Process to determine whether the benefits of providing a public good outweigh the costs
- Costs
  - Known amount, easy to compute
- Benefits
  - Difficult to quantify, different for all people
- Private goods
  - Benefits and willingness to pay are expressed through prices, easier to examine

Tragedy of the Commons

- Tragedy of the commons
  - Occurs when a rival (but non-excludable) good becomes depleted or ruined
- Original example:
  - Garret Hardin, *Science Mag* 1968
  - Cattle grazing
  - Commons = shared area that all cattle farmers get to use to let cattle graze

Tragedy of the Commons





- The commons can be sustained indefinitely with a capacity of around 100 cows.
- Suppose 100 farmers are each allowed to have 1 cow freely graze in the commons.
- One farmer thinks: What if I bring 2 cows?
- 100 cows? 101 cows? No difference!
- But suppose that ALL the farmers are thinking the same thing?
- Can the commons support 200 cows?















Tragedy

- The commons get destroyed, even though this was in nobody's best interest.

Economics in *South Park*

- Tragedy of the commons: peeing in the pool
- If one person pees in the pool, the effect may be insignificant. But what if *everyone* does it?

Common Property Incentives

- Incentive to neglect
  - Good cannot be protected.
    No political borders or ownership.
- Incentive to overuse
  - Each individual wants to fish as much as possible for higher profits.
    If one conserves, others will fish even more.

- Incentive to ignore others
  - No one has the ability to define how many resources can be used. I may still break the rules set even if others follow them.

Solution to the Tragedy of the Commons

- General proactive management is needed.
  - Taxes, regulations, or other ways to internalize a negative externality
- King crab populations have done much better than cod because:
  1. Limited length of fishing season
  2. Regulations on how much crab the boats can harvest
  3. Only adult males are harvested.

Cap and Trade

- Cap and trade
  - A system of pollution “permits” that are traded on an open market
  - Purpose: reduce pollution
- Good in theory, but negative consequences?
  - Agreements are difficult to negotiate; no international consensus
  - Countries with restrictions have higher costs than others
  - Often called “cap and tax”

Conclusion

- Inefficiencies occur because of poor incentives
- Externalities
  - Arise from the result of diverging social and private costs (or benefits)
  - Can be corrected by forcing economic agents to internalize them
- Public goods present a special challenge for a free-market economy.

Summary

- Internal costs are costs that are directly borne by the decision-maker.
  - Social costs = internal costs + external costs
- An externality exists whenever an internal cost, or benefit, diverges from a social cost, or benefit.
- Third Parties experience negative or positive externalities from a market activity.

Summary

- When a negative externality exists:
  - Government can restore the social optimum by discouraging economic activity that harms third parties.
- When a positive externality exists:
  - Government can restore the social optimum by increasing economic activity that benefits third parties.
- An externality is internalized when decision-makers take into account the external effects of their actions.

Summary

- Private property
  - Ensures that owners have an incentive to maintain, protect, and conserve their property, and also to trade it to others.
- Under a system of common property:
  - The incentive structure causes destruction, neglect, and overuse.
  - Tragedy of the commons may occur.
- The Coase theorem
  - If there are no barriers to negotiations, and property rights are fully specified, interested parties will bargain privately to correct externalities.

Summary

- A public good has two characteristics:
  - It is non-excludable and non-rival in consumption.
  - It creates the free-rider problem and results in the underproduction of the good in the market.
- The line between each of the four types of goods (private, club, common resource, and public) is often hard to distinguish.
- Economists use cost-benefit analysis to determine whether the benefits of providing one type of good outweighs the costs.

Practice What You Know

Which of the following activities would most likely create a negative externality?

a. eating a slice of pizza
b. smoking a cigarette
c. taking a nap
d. getting a college degree

Practice What You Know

Which of the following activities is most likely to create a positive externality?

a. eating a slice of pizza
b. smoking a cigarette
c. taking a nap
d. getting a college degree

Practice What You Know

Membership at your local fitness facility is what type of good?

a. private good
b. club good
c. common resource good
d. public good

Practice What You Know

Suppose good X creates a negative externality. Which of the following would NOT be an appropriate way to correct the negative externality?

a. subsidize the production of good X
b. tax the production of good X
c. limit how much of good X can be produced
d. require the producers of good X to pay for external costs that arise

Practice What You Know

Which of the following is an example of a public good?

a. a free outdoor Christmas light display
b. a college football game
c. a parking spot with a parking meter
d. a college education