

# Thursday, Nov 11, Lecture 18

## Public Goods



## Nonexcludable Goods and Services

- Some goods and services cannot be efficiently provided by private firms.
  - Law Enforcement
  - Clean Streets
  - Disease control
  
- Why can't private firms provide these goods and services?
  - Answer: Private firms can't make consumers pay for them.

# Nonexcludability

■ A good or service is **nonexcludable** if it is very difficult or costly to prevent people from enjoying its benefits even when they don't pay.

■ **Example (excludable):** Movie theaters (Cinemas)

- The owner of the cinema controls whether or not customers can enter.
- If people don't buy tickets, the owner doesn't let them into the cinema.
- The movie-theater service is **excludable**.

■ **Example (nonexcludable):** Clean city streets

- A private street cleaning company offers to sell tickets for street cleaning to everyone who lives on the street.
- But if the street is cleaned, there is no easy way the company can prevent people from enjoying the clean street, even if they haven't bought a ticket.
- (It would be too expensive to hang a curtain in front of a house to prevent its residents from seeing the street.)
- So why would a resident buy a ticket?
- "I'll let the other people on the street buy tickets," the resident says to herself.
- The street-cleaning service is **nonexcludable**.

# Fire-Department Services

## ■ Are fire-department services excludable?

**Oct. 5, 2010.** *Firemen in Obion, TN, watched as a house burned to the ground. They refused to put out the fire, because the owners hadn't paid the \$75 fee to the fire company at the start of the year.*

*[Required: reading and video:  
Classes > Outside Readings]*

- **Cost of exclusion:**
- **Conclusion:** If society is unwilling to allow houses to burn down unnecessarily, then fire-department services are \_\_\_\_\_???

## Nonexcludability and Private Markets

- If a good or service is nonexcludable, consumers can obtain it without payment.
- Nonexcludable goods or services cannot be provided by firms in unregulated private markets.
- Consumers who obtain benefits without payment are called **“free riders.”**
- Most consumers will not pay for something that they can obtain for free.

## Example of nonexcludability: The Samaritan's Dilemma

- Should we be charitable when charity creates bad incentives?
- A healthy young man decides not to buy medical insurance. He thinks:
  - “I haven't been sick in years.”
  - “The odds I will need medical insurance are tiny.”
- But then he gets appendicitis, and he needs emergency surgery that he cannot afford.
- Should hospitals refuse to treat him and let him die?

## Clicker Survey

Should hospitals treat the young man who decided not to buy medical insurance? If not treated, he will die.

**[Both answers will be marked as correct.]**

- Yes, hospitals should treat the young man.
- No, hospitals should **not** treat the young man.



## ■ The hospital faces the *Samaritan's Dilemma*.

- If the man is excluded (isn't treated), there will be a high private and social cost of excluding him (the cost of his death).
  - But if the man knows he will be treated anyway, why should he buy insurance or pay?
  - He already has free insurance!!
- Conclusion: in most societies, urgent medical care is nonexcludable.
- So it may be necessary for the government (taxpayer) to \_\_\_\_\_???

## Nonexcludability and Government

- Private firms will not produce nonexcludable goods or services,...
- ...because people won't pay for them.
- But governments can force people to pay with taxes!
- Alternatively, governments can sometimes create excludability, and permit private producers to function.
- **How?**

# Nonrivalry

■ Most consumption is *rivalrous* [Some books use “rival.”]

- **Example:** When one person eats pizza, there is less remaining for other people.

■ **Nonrivalry in consumption** occurs when consumption does not use up the good.

- **Example:** When one person enjoys a clean street, others can enjoy it just as much.
- Enjoying cleanliness doesn't use up the cleanliness.

## Nonrivalry versus Scarcity

■ **Scarcity** refers to the social cost of creating a good or service.

- Street-cleaning is a scarce service.
- The service has an opportunity cost. (People who are cleaning streets cannot be baking pizza.)

■ **Rivalry** refers to a positive social cost of consuming the good that has already been created.

■ If the consumption of a good is nonrivalrous,...

■ ...then the scarce good remains available for other people to use or consume it.

- Scarcity refers to creating a good.
- Nonrivalry refers to consuming a good.

# Example: A City Park

- A city park could be surrounded by fences or walls.
- People who do not pay could be excluded.
- If a park is not overcrowded, its use is nonrivalrous.
  - The marginal social cost of an additional user is near zero.
  - Excluding people is possible but inefficient.

- A private firm could construct a park and sell tickets for its use.
  - The price of the ticket would have to be sufficient to cover the cost of park construction and maintenance.
  - But people who want to use the park and have a WTP less than the ticket price would be excluded.
  - The marginal social cost of another user is near zero, so exclusion creates a loss of surplus. **Why?**
  - Because the quantity supplied is too low. There are **unexploited gains of trade, which create a deadweight loss!**
  - Exclusion is inefficient when WTP is positive and the MC of serving another person is zero or very small.

- Unregulated private markets cannot supply city parks to residents efficiently.
- The same is true for all nonrivalrous goods.
- So governments sometimes help provide nonrivalrous goods and services, whether or not exclusion is possible.
- Possible examples:
  - Weather forecasting
  - Basic scientific research
  - Television and radio
  - Law enforcement

*In what way  
are they  
nonrivalrous?*

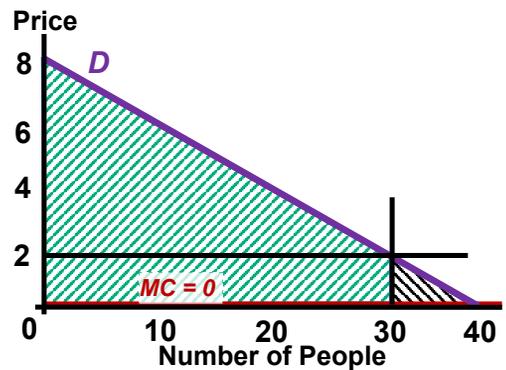
## Clicker Question

Suppose a private company owns a city park and charges for admission.

The number of people who would use the park is given by the demand curve on the right.

What admission price would maximize surplus?

- a. \$6
- b. \$4
- c. \$2
- d. \$0



# Public Goods

- Goods and services that are **nonexcludable** and **nonrivalrous** are called **public goods**.
- Public goods are supplied **most efficiently** by governments (or charitable organizations),...
- ...even though private firms may be able to produce them.
- Are these examples public goods?
  - low crime rates
  - an educated population

- basic scientific research
- software (copy protection, license requirements?)
- information
- social peace (equity, freedom)
- disease control
- clean environment

# Common Goods

- *Nonexcludable goods* that are *rivalrous* are called **common goods**.
  - The use of common goods tends to be excessive and inefficient,...
  - ...because individuals are not made to pay the opportunity cost of using the goods.
- The “Tragedy of the Commons” refers to an episode of English history, when common grazing lands were supposedly overused.

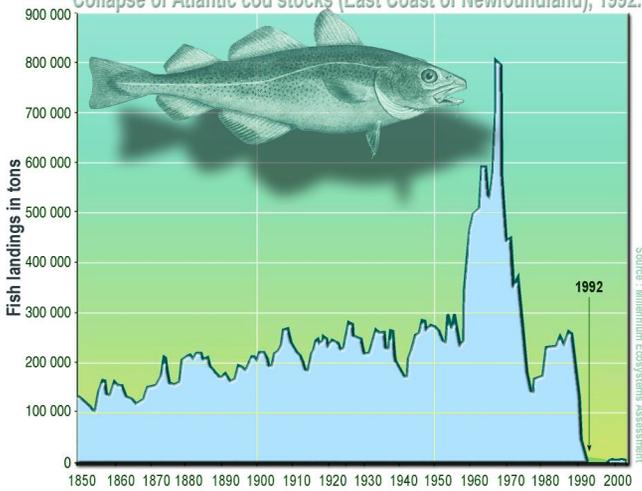
## Example: The Grand Banks Fishery\*

*\*an area of the ocean populated by many fish*

- The **Grand Banks** was an excellent Atlantic-Ocean fishery about 1,600 km NE of Boston.
- But Grand Banks fishery was ruined by overfishing: a modern example of the *Tragedy of the Commons*.
- Each fishing company tried to take as many fish as was profitable, without considering the effect on the overall resource:

***“Let’s get our share before someone else does.”***

Collapse of Atlantic cod stocks (East Coast of Newfoundland), 1992.



- Governments could have prevented the destruction of the fishery by charging a royalty (tax) for fish taken from the area.
- But the fishing industry strongly opposes such fees.
- Regulator: "Why are you yelling at me? I didn't take the fish from the God damn water, so don't go abusing me."

- Instead, governments try to impose restrictions on days that fishing can take place
- and limit the size and number of fish that can be caught.
- No fishing was permitted in the Grand Banks after 1992 until recently. Now some fishing is permitted.

## ■ Example: Boston Common

*[From Wikipedia]* The Common's purpose has changed over the years. It was once owned by William Blaxton, the first European settler of Boston, until it was bought from him by the Puritan founders of the Massachusetts Bay Colony.

During the 1630s, it was used by many families as a cow pasture. However, this only lasted for a few years, as affluent families bought additional cows, which led to overgrazing, a real-life example of the Tragedy of the Commons. After grazing was limited in 1646 to 70 cows at a time, the Boston Common continued to host cows until they were formally banned from it in 1830 by Mayor Harrison Gray Otis.

## Clicker Question

A royalty charge for fish taken could have saved the Grand Banks by

- a. increasing the incomes of fishermen.
- b. paying for better fishing boats.
- c. internalizing the negative externalities from fishing.
- d. lowering the price of cod fish to consumers.

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End of Lecture 18