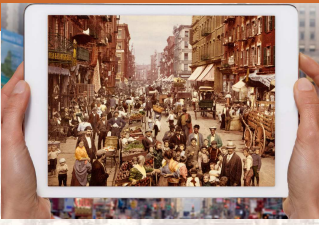


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PRINCIPLES OF
ECONOMICS
Eight Edition



CHAPTER
11 **Public Goods and
Common Resources**

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Look for the answers to these questions:

- What are public goods?
- What are common resources?
Give examples of each.
- Why do markets generally fail to provide the efficient amounts of these goods?
- How might the government improve market outcomes in the case of public goods or common resources?

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Introduction

- We consume many goods without paying:
 - Parks, national defense, clean air & water
 - When goods have no prices, the market forces that normally allocate resources are absent
 - The private market may fail to provide the socially efficient quantity of such goods
- ‘Governments can sometimes improve market outcomes’

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The Different Kinds of Goods

- Excludability
 - Property of a good whereby a person can be prevented from using it
 - **Excludable**: MOS rice burgers, Wi-Fi access
 - **Not excludable**: radio signals, national defense
- Rivalry in consumption
 - Property of a good whereby one person's use diminishes other people's use
 - **Rival**: MOS rice burgers
 - **Not rival**: An MP3 file of David Tao's latest single

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The Different Kinds of Goods

- Private goods
 - Excludable & Rival in consumption (food)
- Public goods
 - Not excludable & Not rival in consumption (national defense)
- Common resources
 - Rival in consumption & Not excludable (fish in the ocean)
- Club goods
 - Excludable & Not rival in consumption (cable TV)

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Active Learning 1

Categorizing Roads

- A road is which of the four kinds of goods?
- *Hint*: The answer depends on whether the road is congested or not, and whether it's a toll road or not. Consider the different cases.

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Active Learning 1

Answers

- Rival in consumption? Only if congested.
- Excludable? Only if a toll road.

Four possibilities:

- Uncongested non-toll road: public good
- Uncongested toll road: club good
- Congested non-toll road: common resource
- Congested toll road: private good

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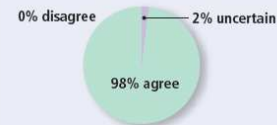
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ASK THE EXPERTS

Congestion Pricing

"In general, using more congestion charges in crowded transportation networks — such as higher tolls during peak travel times in cities, and peak fees for airplane takeoff and landing slots — and using the proceeds to lower other taxes would make citizens on average better off."

What do economists say?



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The Different Kinds of Goods

- **Public goods and common resources**
 - Externalities arise because something of value has no price attached to it
 - Private decisions about consumption and production can lead to an inefficient outcome
 - Public policy can potentially raise economic well-being

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Public Goods

- **Free rider**
 - Person who receives the benefit of a good but avoids paying for it
- **The free-rider problem**
 - Public goods are not excludable, so people have an incentive to be free riders
 - Prevents the private market from supplying the goods
 - Market failure

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Public Goods

- **Government can remedy the free-rider problem**
 - If total benefits of a public good exceeds its costs
 - Provide the public good
 - Pay for it with tax revenue
 - Make everyone better off
 - Problem: Measuring the benefit is usually difficult

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Public Goods

- **Cost-benefit analysis**
 - Compare the costs and benefits to society of providing a public good
 - Doesn't have any price signals to observe
 - Government findings: rough approximations at best
 - Cost-benefit analyses are imprecise, so the efficient provision of public goods is more difficult than that of private goods

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Public Goods

- Some important public goods
 - National defense
 - Very expensive public good
 - US\$748 billion in 2014 for USA
 - Basic research
 - General knowledge
 - Subsidized by government
 - The public sector fails to pay for the right amount and the right kinds


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Public Goods

- Some important public goods
 - Antipoverty programs financed by taxes
 - Welfare system (Temporary Assistance for Needy Families program, TANF)
 - Provides a small income for some poor families
 - Food stamps (Supplemental Nutrition Assistance Program, SNAP)
 - Subsidize the purchase of food for those with low incomes
 - Government housing programs
 - Make shelter more affordable


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Common Resources

- Common resources are **not excludable**
 - Cannot prevent free riders from using
 - Little incentive for firms to provide
 - Role for government:
 - Seeing that they are provided
- Common resources: **rival in consumption**
 - Each one's use reduces others' ability to use
 - Role for government:
 - Ensuring they are not overused


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Common Resources

- The tragedy of the commons
 - Parable that shows why common resources are used more than desirable
 - Medieval town where sheep graze on common land
 - As the population grows, the number of sheep grows
 - The amount of land is fixed, the grass begins to disappear from overgrazing

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Common Resources

- The tragedy of the commons
 - Social and private incentives differ
 - The private incentives (using the land for free) outweigh the social incentives (using it carefully)
 - Arises because of a negative externality
 - Allowing one's flock to graze on the common land reduces its quality for other families
 - People neglect this external cost, resulting in overuse of the land

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Active Learning 2

Policy options for common resources

- What could the townspeople (or their government) have done to prevent the tragedy?
- Try to think of two or three options.

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Active Learning 2

Answers

- Impose a corrective tax on the use of the land to “internalize the externality.”
- Regulate use of the land (the “command-and-control” approach).
- Auction off permits allowing use of the land.
- Divide the land, sell lots to individual families; each family will have incentive not to overgraze its own land.

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Policy Options to Prevent Overconsumption of Common Resources

- Regulate use of the resource
- Impose a corrective tax to internalize the externality
 - Hunting & fishing licenses, entrance fees for congested national parks

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Policy Options to Prevent Overconsumption of Common Resources

- Auction off permits allowing use of the resource
 - Example: spectrum auctions by the US Federal Communications Commission, –4G LTE Cell Phone License Auctions in Taiwan
- If the resource is land, convert to a private good
 - By dividing and selling parcels to individuals

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Common Resources

- Some important common resources
 - Clean air and water
 - Negative externality: pollution
 - Regulations or corrective taxes
 - Congested roads
 - Negative externality: congestion
 - Corrective tax: charge drivers a toll
 - Tax on gasoline

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Common Resources

- Some important common resources
 - Fish, whales, and other wildlife
 - Oceans: the least regulated common resource
 - Needs international cooperation
 - Difficult to enforce an agreement
 - Fishing and hunting licenses
 - Limits on fishing and hunting seasons
 - Limits on size of fish
 - Limits on quantity of animals killed

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Solutions to Lack-of-Market Failure

- ▶ In 2009, "Lin" Ostrom won the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel for:
 - ▶ Studying how real people manage common resources both in the field (case study) and lab (experiments)
- ▶ In 2012, Al Roth won the same prize for:
 - ▶ Designing markets for medical interns, school choice and even organ transplants (kidney exchange)

2017/10/22

Public Goods/Nonexcludable

Joseph Tao-yr Wang

CASE STUDY "You've Got Spam!"

- **Some firms use spam e-mails to advertise their products.**
 - Spam is not excludable: firms cannot be prevented from spamming
 - Spam is rival: as more companies use spam, it becomes less effective.
- **Thus, spam is a common resource.**
 - Like most common resources, spam is overused – which is why we get so much of it!

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Importance of Property Rights

- **Market fails to allocate resources efficiently**
 - Because property rights are not well established
 - Some item of value does not have an owner with the legal authority to control it

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Importance of Property Rights

- **The government can potentially solve the problem**
 - Help define property rights and thereby unleash market forces
 - Regulate private behavior
 - Use tax revenue to supply a good that the market fails to supply

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Summary

- Goods differ in whether they are excludable and whether they are rival in consumption.
 - A good is excludable if it is possible to prevent someone from using it.
 - A good is rival in consumption if one person's use of the good reduces others' ability to use the same unit of the good.
 - Markets work best for private goods, which are both excludable and rival in consumption.
 - Markets do not work as well for other types of goods.

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Summary

- Public goods are neither rival in consumption nor excludable.
 - Examples of public goods include fireworks displays, national defense, and the discovery of fundamental knowledge.
 - Because people are not charged for their use of the public good, they have an incentive to free ride, making private provision of the good untenable.
 - Therefore, governments provide public goods, basing their decision about the quantity of each good on cost-benefit analysis.

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Summary

- Common resources are rival in consumption but not excludable.
 - Examples include common grazing land, clean air, and congested roads.
 - Because people are not charged for their use of common resources, they tend to use them excessively.
 - Therefore, governments use various methods, such as regulations and corrective taxes, to limit the use of common resources.

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