Seventh Edition

Principles of Economics N. Gregory Mankiw



CHAPTER Public Goods and11 Common Resources

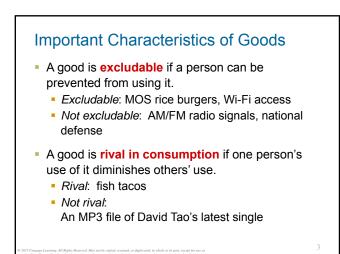
Modified by Joseph Tao-yi Wang

In this chapter, 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?

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.
- One of the Ten Principles from Chapter 1: Governments can sometimes improve market outcomes.



The Different Kinds of Goods

Private goods: excludable, rival in consumption Example: food

Public goods: not excludable, not rival Example: national defense

Common resources: rival but not excludable Example: fish in the ocean

Club goods: excludable but not rival Example: cable TV

$\begin{array}{c} {}_{\text{ACTIVE LEARNING}} \ 1 \\ \hline \text{Categorizing roads} \end{array}$

- A road is <u>which</u> 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.

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

The Different Kinds of Goods

- This chapter focuses on public goods and common resources.
- For both, externalities arise because something of value has no price attached to it.
- So, private decisions about consumption and production can lead to an inefficient outcome.
- Public policy can potentially raise economic well-being.

Public Goods

- Public goods are difficult for private markets to provide because of the *free-rider problem*.
- Free rider: a person who receives the benefit of a good but avoids paying for it
 - If good is not excludable, people have incentive to be free riders, because firms cannot prevent non-payers from consuming the good.
- Result: The good is not produced, even if buyers collectively value the good higher than the cost of providing it.

Public Goods

- If the benefit of a public good exceeds the cost of providing it, govt should provide the good and pay for it with a tax on people who benefit.
- Problem: Measuring the benefit is usually difficult.
- **Cost-benefit analysis**: a study that compares the costs and benefits of providing a public good
- Cost-benefit analyses are imprecise, so the efficient provision of public goods is more difficult than that of private goods.

Some Important Public Goods

- National defense
- Knowledge created through basic research
- Fighting poverty

Common Resources

- Like public goods, common resources are not excludable.
 - Cannot prevent free riders from using
 - Little incentive for firms to provide
 - Role for govt: seeing that they are provided
- Additional problem with common resources: rival in consumption.
 - Each person's use reduces others' ability to use
 - Role for govt: ensuring they are not overused

The Tragedy of the Commons

- A parable that illustrates why common resources get used more than is socially desirable.
- Setting: a medieval town where sheep graze on common land.
- As the population grows, the # of sheep grows.
- The amount of land is fixed, the grass begins to disappear from overgrazing.
- The private incentives (using the land for free) outweigh the social incentives (using it carefully).
- Result: People can no longer raise sheep.

The Tragedy of the Commons

- The tragedy is due to an 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.

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.

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-andcontrol" 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.

Policy Options to Prevent Overconsumption of Common Resources

- Regulate use of the resource.
- Impose a corrective tax to internalize the externality.
 - Example: hunting & fishing licenses, entrance fees for congested national parks
- Auction off permits allowing use of the resource.
 - Example: spectrum auctions by the U.S. Federal Communications Commission
- If the resource is land, convert to a private good by dividing and selling parcels to individuals.

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Some Important Common Resources

- Clean air and water
- Congested roads
 - Fish, whales, and other wildlife
- "Lin" won the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2009 for studying how real people manage common resources both in the field (case study) and lab (experiments)
- Al Roth won the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2012 for "designing markets" for medical interns, school choice and even organ transplants (kidney exchange)

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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.

after everyone's favorite delicacy.

"Spam" email is named

 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!

CONCLUSION

- Public goods tend to be under-provided, while common resources tend to be over-consumed.
- These problems arise because property rights are not well-established:
 - Nobody owns the air, so no one can charge polluters. Result: too much pollution.
 - Nobody can charge people who benefit from national defense. Result: too little defense.

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 The govt can potentially solve these problems with appropriate policies.

Summary

- A good is excludable if someone can be prevented from using it. A good is rival in consumption if one person's use reduces others' ability to use the same unit of the good.
- Markets work best for private goods, which are excludable and rival in consumption. Markets do not work well for other types of goods.

Summary

- Public goods, such as national defense and fundamental knowledge, are neither excludable nor rival in consumption.
- Because people do not have to pay to use them, they have an incentive to free ride, and firms have no incentive to provide them.
- Therefore, the government provides public goods, using cost-benefit analysis to determine how much to provide.

Summary

- Common resources are rival in consumption but not excludable. Examples include common grazing land, clean air, and congested roads.
- People can use common resources without paying, so they tend to overuse them.
 Therefore, governments try to limit the use of common resources.

Public Goods

- Excludable vs. Rivalness
- Public Goods
 - non-excludable and non-rival goods
- Common Resources
 - Non-excludable and rival goods
- Homework: Mankiw, Ch.11, Problem 4, 5, 8, 10.