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PRINCIPLES OF

ECONOMICS

Eight Edition

CHAPTER

11

Public Goods and Common Resources

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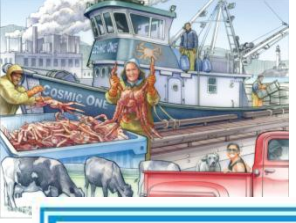
The Different Kinds of Goods, Part 1

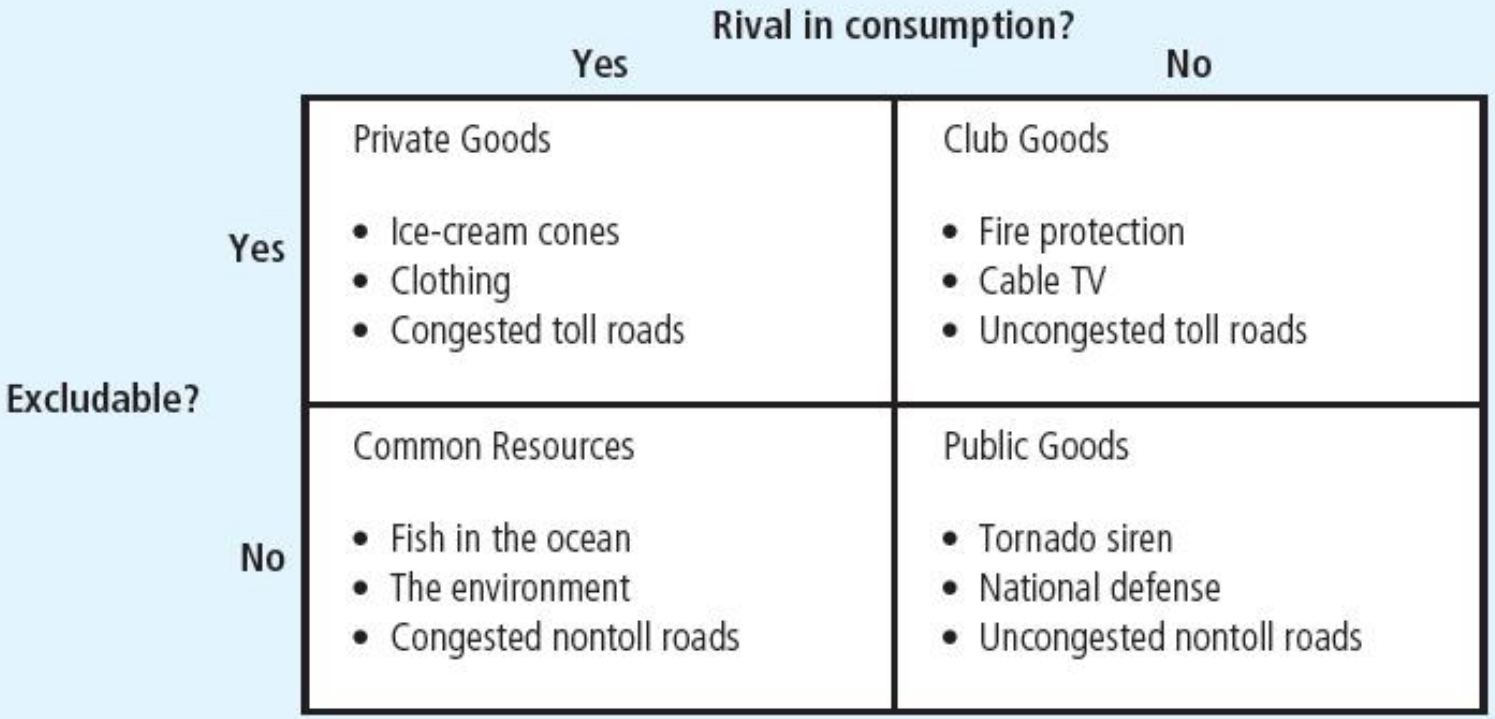
- Excludability
  - Property of a good whereby a person can be prevented from using it
- Rivalry in consumption
  - Property of a good whereby one person's use diminishes other people's use



The Different Kinds of Goods, Part 2

- Private goods
  - Excludable & Rival in consumption
- Public goods
  - Not excludable & Not rival in consumption
- Common resources
  - Rival in consumption & Not excludable
- Club goods
  - Excludable & Not rival in consumption
  - One type of natural monopoly

Figure 1 Four Types of Goods



Goods can be grouped into four categories according to two characteristics:
(1) A good is excludable if people can be prevented from using it.
(2) A good is rival in consumption if one person's use of the good diminishes other people's use of it.
This diagram gives examples of goods in each category.

The Different Kinds of Goods, Part 3

- Public goods and common resources
  - Not excludable
    - People cannot be prevented from using them
    - Available to everyone free of charge
  - No price attached to it
  - External effects
    - Positive externalities (public goods)
    - Negative externalities (common resources)

The Different Kinds of Goods, Part 4

- Public goods and common resources
  - Private decisions about consumption and production
    - Can lead to an inefficient allocation of resources
  - Government intervention
    - Can potentially raise economic well-being

Public Goods, Part 1

- Free rider
  - Person who receives the benefit of a good but avoids paying for it
- The free-rider problem
  - Public goods are not excludable
  - Prevents the private market from supplying the goods
  - Market failure

Public Goods, Part 2

- 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

"I like the concept if we can do it with no new taxes."

Public Goods, Part 3

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

Public Goods, Part 4

- 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

CASE STUDY

Are lighthouses public goods?, Part 1

- Lighthouses
  - Mark specific locations so that passing ships can avoid treacherous waters
    - Benefit: to the ship captain
    - Not excludable, not rival in consumption
    - Incentive: free ride without paying
  - Most are operated by the government

KEVIN BRINE/SHUTTERSTOCK

- *What kind of good is this?*

CASE STUDY

Are lighthouses public goods?, Part 2

- In some cases
  - Lighthouses are closer to private goods
    - Coast of England, 19th century
    - Lighthouses were privately owned and operated
    - The owner of the lighthouse charged the owner of the nearby port
      - If the port owner did not pay, lighthouse owner turned the light off: ships avoided that port

CASE STUDY

Are lighthouses public goods?, Part 3

- Decide whether something is a public good
  - Determine who the beneficiaries are
  - Determine whether the beneficiaries can be excluded from using the good
- A free-rider problem
  - When the number of beneficiaries is large
  - Exclusion of any one of them is impossible

Public Goods, Part 5

- The difficult job of cost–benefit analysis
  - Government
    - Decide what public goods to provide
    - In what quantities
  - 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

CASE STUDY

How much is a life worth?, Part 1

- Cost: $10,000 for a new traffic light
- Benefit: increased safety
  - Risk of a fatal traffic accident
    - Drops from 1.6 to 1.1%
- Obstacle
  - Measure costs and benefits in the same units
- Put a dollar value on a human life?
  - Priceless = infinite dollar value

CASE STUDY

How much is a life worth?, Part 2

- Implicit dollar value of a human life
  - Courts: award damages in wrongful-death suits
    - Total amount of money a person would have earned if he or she had lived
    - Ignores other opportunity costs of losing one's life
  - Risks that people are voluntarily willing to take and how much they must be paid for taking them
    - Value of human life = $10 million

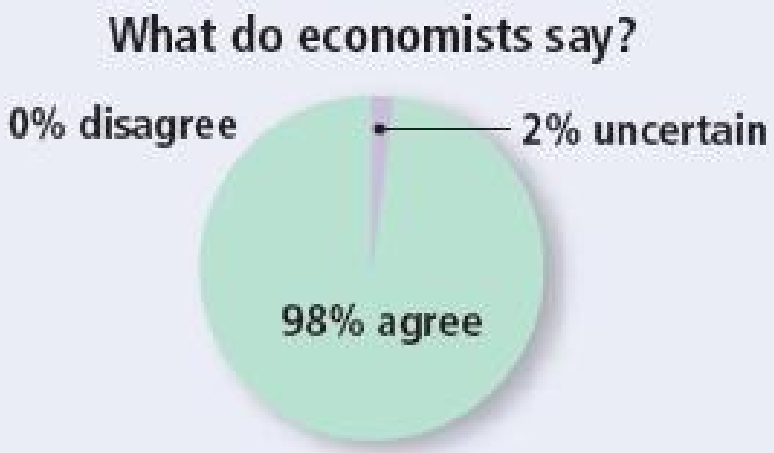
CASE STUDY

How much is a life worth?, Part 3

- Cost–benefit analysis
  - Traffic light
    - Reduces risk of fatality by 0.5 percentage points
  - Expected benefit = 0.005 × $10 million = $50,000
  - Cost ($10,000) < Benefit ($50,000)
  - Approve the traffic light

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."



Common Resources, Part 1

- Common resources
  - Not excludable
  - Rival in consumption
- The tragedy of the commons
  - Parable that shows why common resources are used more than desirable
    - From society's standpoint
  - Social and private incentives differ
  - Arises because of a negative externality

Common Resources, Part 2

- The tragedy of the commons
  - Negative externality
    - One person uses a common resource diminishes other people's enjoyment of it
    - Common resources tend to be used excessively
  - Government can solve the problem
    - Regulation or taxes to reduce consumption of the common resource
    - Turn the common resource into a private good

Common Resources, Part 3

- 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 tool
    - Tax on gasoline

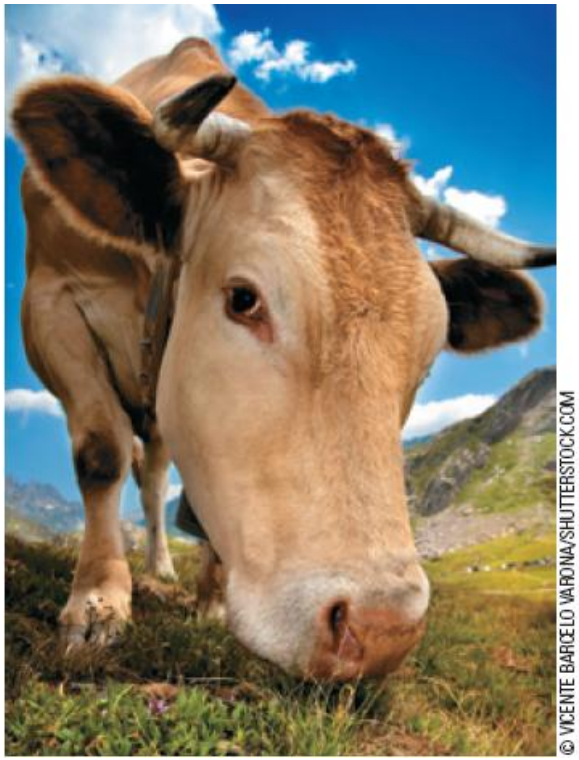
Common Resources, Part 4

- 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

CASE STUDY

Why the cow is not extinct, Part 1

- Animals with commercial value that are threatened with extinction
  - Buffalo
    - North America
    - Hunting in the 19th century
  - Elephants
    - African countries
    - Hunting today



- *"Will the market protect me?"*

CASE STUDY

Why the cow is not extinct, Part 2

- The cow
  - Commercial value
  - Species continues to thrive
- Cows are a private good
  - Ranches are privately owned
  - Rancher: great effort to maintain the cattle population on his ranch
    - Reaps the benefit

CASE STUDY

Why the cow is not extinct, Part 3

- Elephant - common resource
  - Poachers are numerous
    - Strong incentive to kill elephants
- Government of Kenya, Tanzania, and Uganda
  - Illegal to kill elephants and sell ivory
  - Hard to enforce laws
  - Decreasing population of elephants

CASE STUDY

Why the cow is not extinct, Part 4

- Government of Botswana, Malawi, Namibia, and Zimbabwe
  - Made elephants a private good
  - People can kill elephants on their own property
  - Landowners have an incentive to preserve the species
  - Elephant populations have started to rise

Importance of Property Rights, Part 1

- 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

Importance of Property Rights, Part 2

- 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