Public goods

EE211

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.***

Important Characteristics of Goods

- A good is **excludable** if a person can be prevented from using it.
  - *Excludable*: fish tacos, wireless Internet access
  - *Not excludable*: FM radio signals, national defense
- A good is **rival in consumption** if one person's use of it diminishes others' use.
  - *Rival*: fish tacos
  - *Not rival*:
    An MP3 file of Kanye West's latest single

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

	Rival in consumption	Non-rival in consumption
Excludable	***Private goods*** • Wheat • Bathroom fixtures	***Artificially scarce goods*** • Pay-per-view movies • Computer software
Non-excludable	***Common resources*** • Clean water • Biodiversity	***Public goods*** • Public sanitation • National defense

Public Goods

A **public good** is the exact opposite of a private good: it is a good that is both nonexcludable and nonrival in consumption. Here are some other examples of public goods:

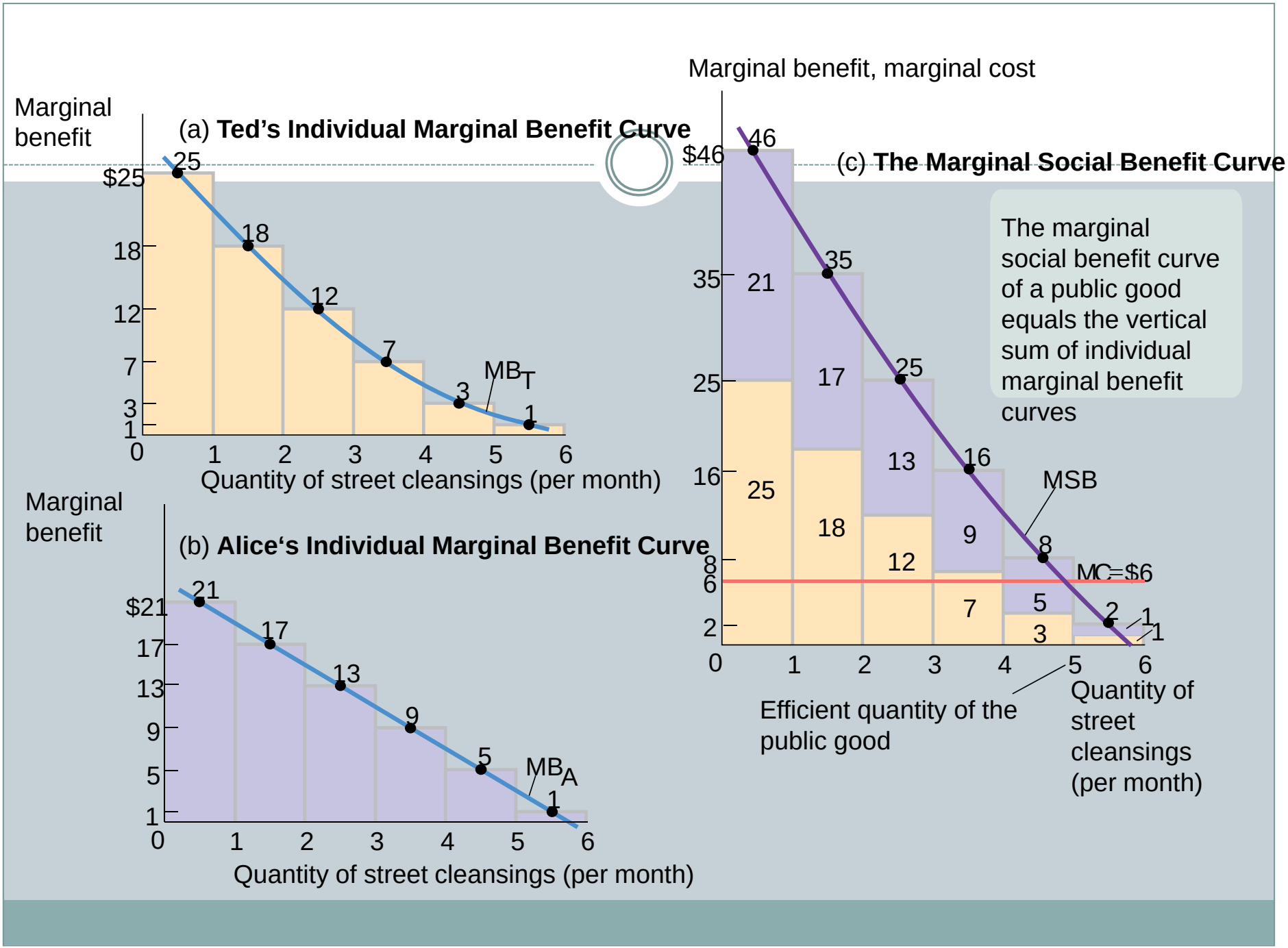
- ***Disease prevention****:* When doctors act to stamp out the beginnings of an epidemic before it can spread, they protect people around the world.
- ***National defense****:* A strong military protects all citizens.
- ***Scientific research****:* More knowledge benefits everyone.

- 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.

- If the benefit of a public good exceeds the cost of providing it, government 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.

Providing Public Goods

- Because most forms of public good provision by the private sector have serious defects, they must be provided by the government and paid for with taxes.
- How much of a public good should be provided?
- The marginal social benefit of an additional unit of a public good is equal to the *sum* of each consumer's individual marginal benefit from that unit. At the efficient quantity, ***marginal social benefit equals marginal cost***.


Marginal benefit
(a) Ted's Individual Marginal Benefit Curve
$25
18
12
7
3
1
0
1
2
3
4
5
6
25
18
12
7
3
1
MB_T
Quantity of street cleansings (per month)
Marginal benefit
(b) Alice's Individual Marginal Benefit Curve
$21
17
13
9
5
1
0
1
2
3
4
5
6
21
17
13
9
5
1
MB_A
Quantity of street cleansings (per month)
Marginal benefit, marginal cost
(c) The Marginal Social Benefit Curve
$46
35
25
16
8
6
2
0
1
2
3
4
5
6
46
35
25
16
8
2
1
1
21
17
13
9
5
3
25
18
12
7
MSB
MC = $6
Efficient quantity of the public good
Quantity of street cleansings (per month)
The marginal social benefit curve of a public good equals the vertical sum of individual marginal benefit curves

Providing Public Goods

- No individual has an incentive to pay for providing the efficient quantity of a public good because each individual's marginal benefit is less than the marginal social benefit.

- This is a primary justification for the existence of government.

Cost-Benefit Analysis

- Governments engage in **cost-benefit analysis** when they estimate the social costs and social benefits of providing a public good.

- Although governments should rely on *cost-benefit analysis* to determine how much of a public good to supply, doing so is problematic because individuals tend to overstate the good's value to them.

Sources:

- Krugman, P. and Robin Wells (2008)
- Mankiw, N.G. (2012)