

### Office hours for professor and teaching assistants through Dec 6

James Hamilton	M 3:15-4:15, Th 2-3	Econ 307
Michael Sharifi	W 1-1:50	Seq 235
Martha Gimbel	Tu 10-11	Econ 117
Ayal Chen-Zion	W 4-5	Econ 112
Matthew Louie	Th 10-11	Seq 139
Roy Allen	Th 3:30-4:30	Econ 126
Soojin Jo	F 9-10	Seq 207

- Final exam Wednesday, Dec 7, 3:00 - 6:00 p.m. in Peterson 108
- 30% on Chapters 7, 9,10,11,12
- 70% on Chapters 13,14,15
- Same format as midterms but twice as long
- Please do not turn in your exam before 4:00
- Practice final exam will be reviewed in discussion sections today and Friday

### Chapter 15: Public Goods and Tax Policy

#### A. Definitions of public and private goods

public sector: government

private sector: businesses, individuals

A *nonrival* good is one whose consumption by one person does not diminish its consumption by others

Example: clean air is a nonrival good



Example: a hamburger is a rival good



A *nonexcludable* good is one where it is difficult to prevent people from consuming it once it has been produced

Example: national defense is a nonexcludable good



Example: seeing a movie at the theater is an excludable good



- Many goods are both nonrival and nonexcludable
- If a good is both nonrival and nonexcludable, it is called a *public good*
- Examples: clean air and national defense are public goods

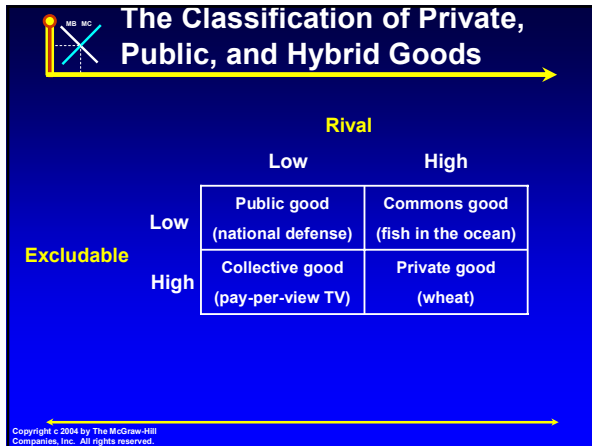
- Many other goods are both rival and excludable
- If a good is both rival and excludable, it is called a *private good*
- Examples: a hamburger or seeing a movie in the theater are private goods

- Some goods can be rival but nonexcludable
- Example: catching a fish in the ocean
- a good that is rival but nonexcludable is called a *commons good*



- Yet other goods may be nonrival but excludable
- Example: watching a movie on HBO is nonrival but excludable
- a good that is nonrival but excludable is called a *collective good*

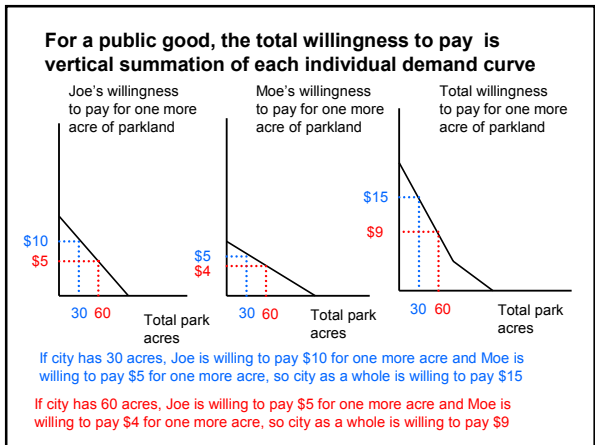
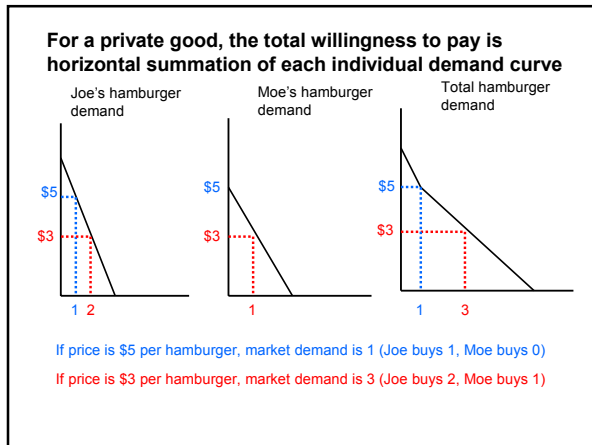




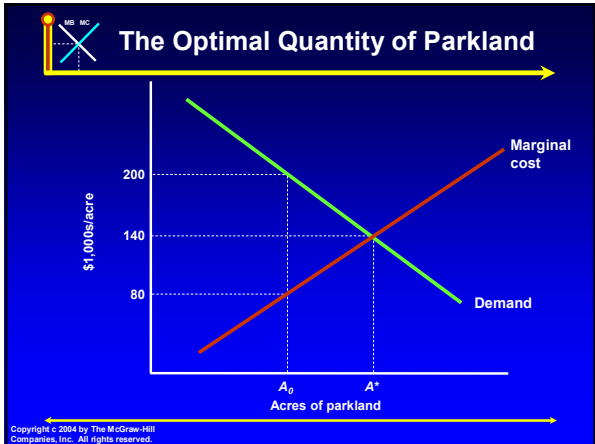
### Chapter 15: Public Goods and Tax Policy

A. Definitions of public and private goods  
 B. Valuing public goods

Principle for valuing public goods:  
 willingness to pay



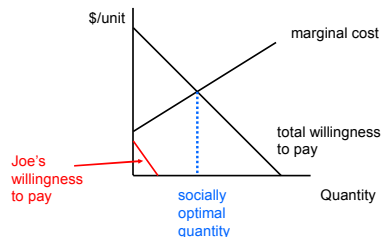
Socially optimal level of a public good:  
 set marginal willingness to pay for one more unit of the good equal to the marginal cost of producing one more unit



## Chapter 15: Public Goods and Tax Policy

- A. Definitions of public and private goods
- B. Valuing public goods
- C. Problems with private provision of public goods
  - 1. Underprovision of public goods by the private market

If individuals have to pay for the good on their own, little or none of the good would be produced



Conclusion:

We would typically conclude that public goods need to be provided by the government rather than by the private sector

On the other hand, if there is a big inefficiency from underprovision of a public good, there is a strong incentive for the private market to develop ways to make the good excludable

### Examples of making good excludable

- (1) Technological advance made downloading music from the web essentially a public good

In response, music companies developed technologies to make it excludable



### Examples of making good excludable

- (2) Some households might want more police protection or parkland than is provided by the city

In response, private developers have built gated communities with large public areas



In other cases, a firm may find a way to make a profit even if the good is nonexcludable by sale of by-products

## Examples of sale of by-products

(1) selling advertising on television



## Examples of sale of byproducts

(2) Sales of Sesame Street related merchandise exceed \$800M annually



## Chapter 15: Public Goods and Tax Policy

- A. Definitions of public and private goods
- B. Valuing public goods
- C. Problems with private provision of public goods
  1. Underprovision of public goods by the private market
  2. Underprovision of collective goods by the private market

- Social optimality: marginal cost = marginal benefit
- Nonrival good: marginal cost of delivering unit to one more customer is zero
- By charging customers to receive a good that could be delivered to them at zero marginal cost, too little of the collective good is produced

