

Chapter 16

Public Goods, Externalities, and Information Asymmetries

Chapter Objectives

- Public goods vs. private goods
- The optimal quantity of a public good
- Cost-benefit analysis
- Externalities
- Information failures and government intervention

Public Goods

- Private goods
 - Rivalry and excludability
- Public goods
 - Nonrivalry
 - Nonexcludability
 - Free-rider problem
 - No market demand

Optimal Quantity of a Public Good

- Supplied by the government
- Government estimates demand
- Compare marginal benefit to marginal cost (MB=Demand Curve, MC= Supply Curve)
- Demand for a public good
 - Sum individual willingness to pay
 - Sum vertically

Demand for Public Goods

Example: two individuals

| (1) Quantity Of Public Good | (2) Adams' Willingness To Pay (Price) | (3) Benson's Willingness To Pay (Price) | (4) Collective Willingness To Pay (Price) |
|--------------------------------------|--|--|--|
| 1 | \$4 | + | \$5 = \$9 |
| 2 | 3 | + | 4 = 7 |
| 3 | 2 | + | 3 = 5 |
| 4 | 1 | + | 2 = 3 |
| 5 | 0 | + | 1 = 1 |

Graphically...

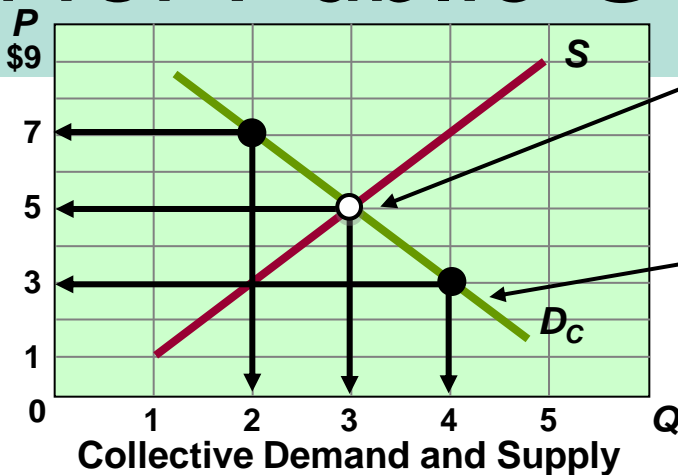
Demand for Public Goods

Collective Demand

\$7 for 2 Items

\$3 for 4 Items

Connect the Dots



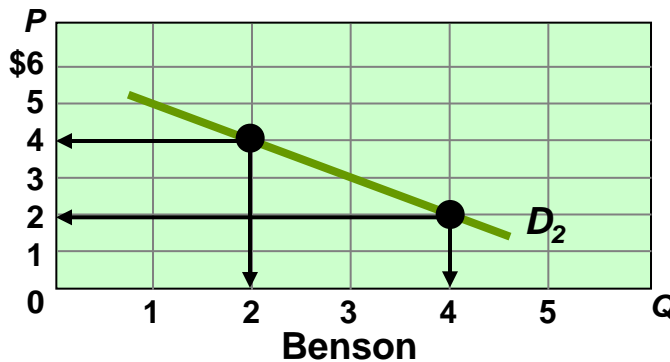
Optimal Quantity

Collective Willingness To Pay

Benson's Demand

\$4 for 2 Items

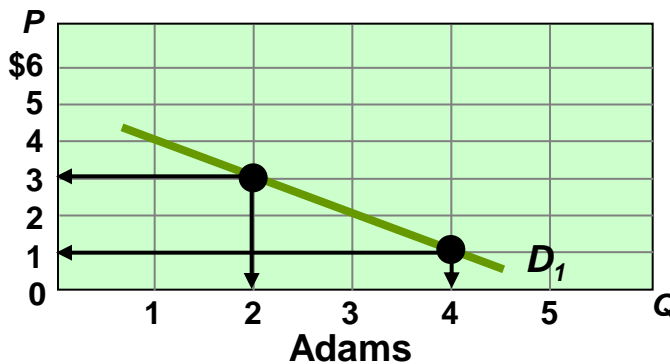
\$2 for 4 Items



Adams' Demand

\$3 for 2 Items

\$1 for 4 Items



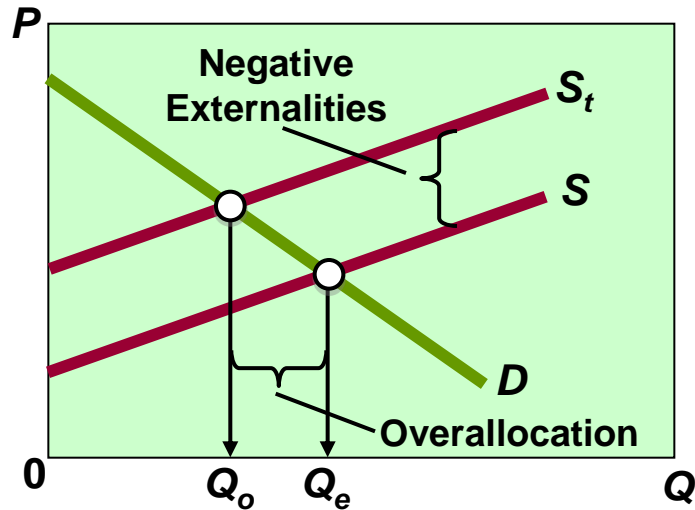
Cost-Benefit Analysis

- Provide a public good?
Education? Defense? Health Care
- How much should be provided?
Pre-school?
- Resources are limited
- Marginal-cost-marginal-benefit rule
- Allocate government resources to maximize net benefit

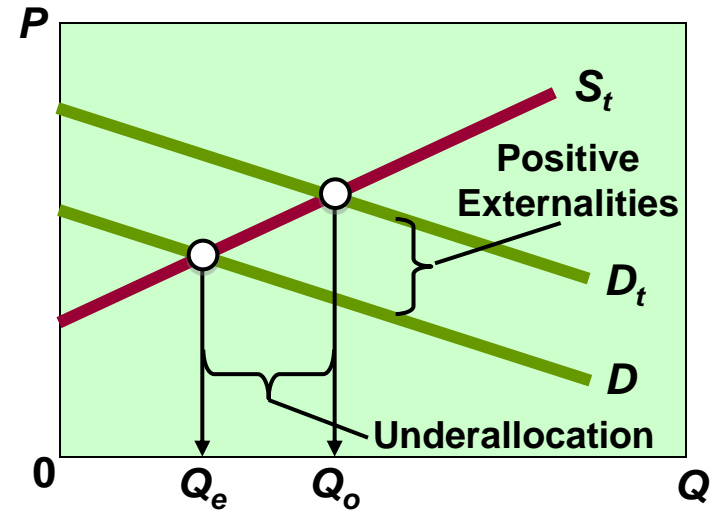
Externalities

- Market failure
 - Requires government action
- Negative externality
 - External cost
 - Overproduction
- Positive externality
 - External benefit
 - Underproduction

Externalities



**Negative
Externalities**



**Positive
Externalities**

Coase Theorem

- Externalities corrected by individual bargaining
 - Property ownership defined
 - Small number people
 - Bargaining costs negligible
- Limitations
- Liability rules and lawsuits

Government Intervention

- Correct negative externality
 - Direct controls
 - Specific taxes
- Correct positive externality
 - Subsidize buyers or producers
 - Government provision

Market Based Approach

- Tragedy of the commons
 - Resource lacks defined ownership
 - Air, lakes, etc.
 - No incentive to maintain
- Market for externality rights
 - Right to pollute
 - Can be bought and sold

Boy, do I have Problems!

- Average Bluefin tuna size and # have declined precipitously – how can we create sustainable fisheries? -What economic TERM leads to overfishing?
- If health insurance companies are required to accept everyone why might that lead to fewer people having insurance?
 - What economic “term” does this deal with?
 - How can government ensure that inclusion doesn't lead to fewer getting insurance?

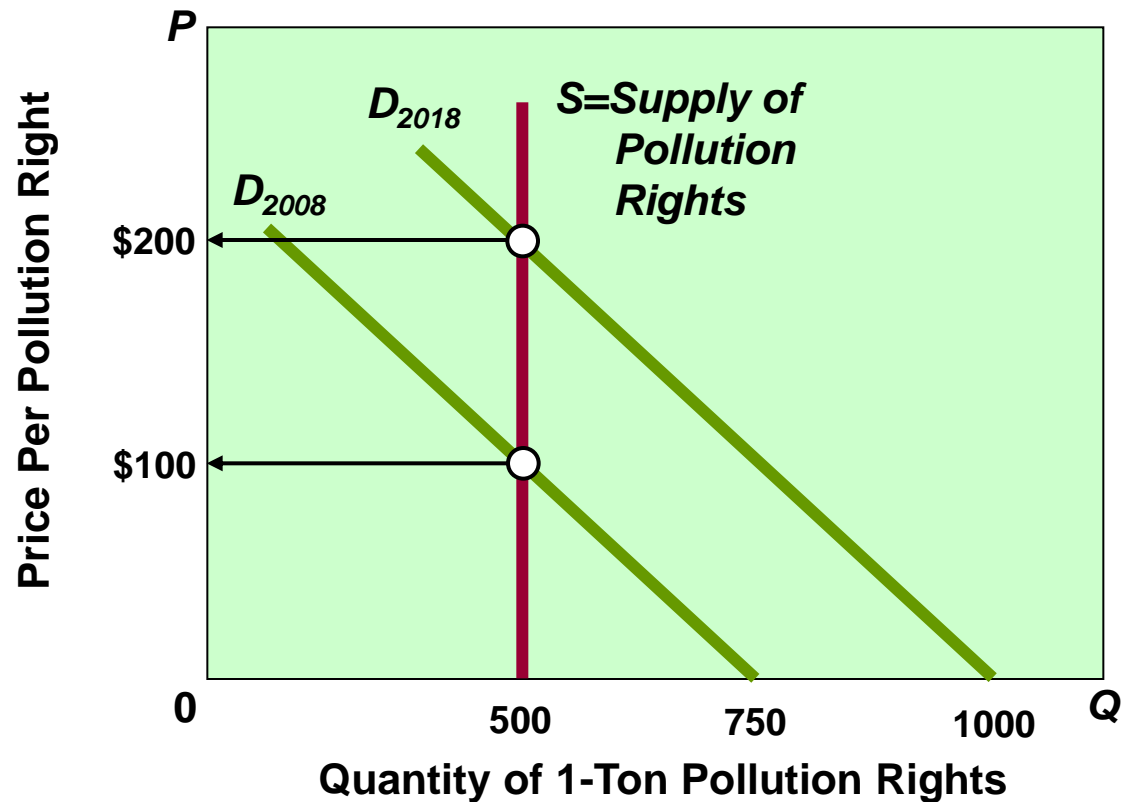
- Why would getting homeowner's insurance cause me to more recklessly take care of my property? What is the term in economics that deals with this issue? Have you ever taken more of a risk because you didn't have to fully accept the loss?

- Using economic analysis how should the Town determine whether to have a one public swimming pool? Two?
- Why am I far more likely to buy a “certified” used BMW 325 IS car for \$15,000 than the identical make/model/year/mileage from Bob Smith for \$12,000?

- Make an Economic Argument that Tort reform (limits on lawsuits) will lead to negative externalities.
- Make an Economic Argument that Tort Reform will lead to positive externalities.

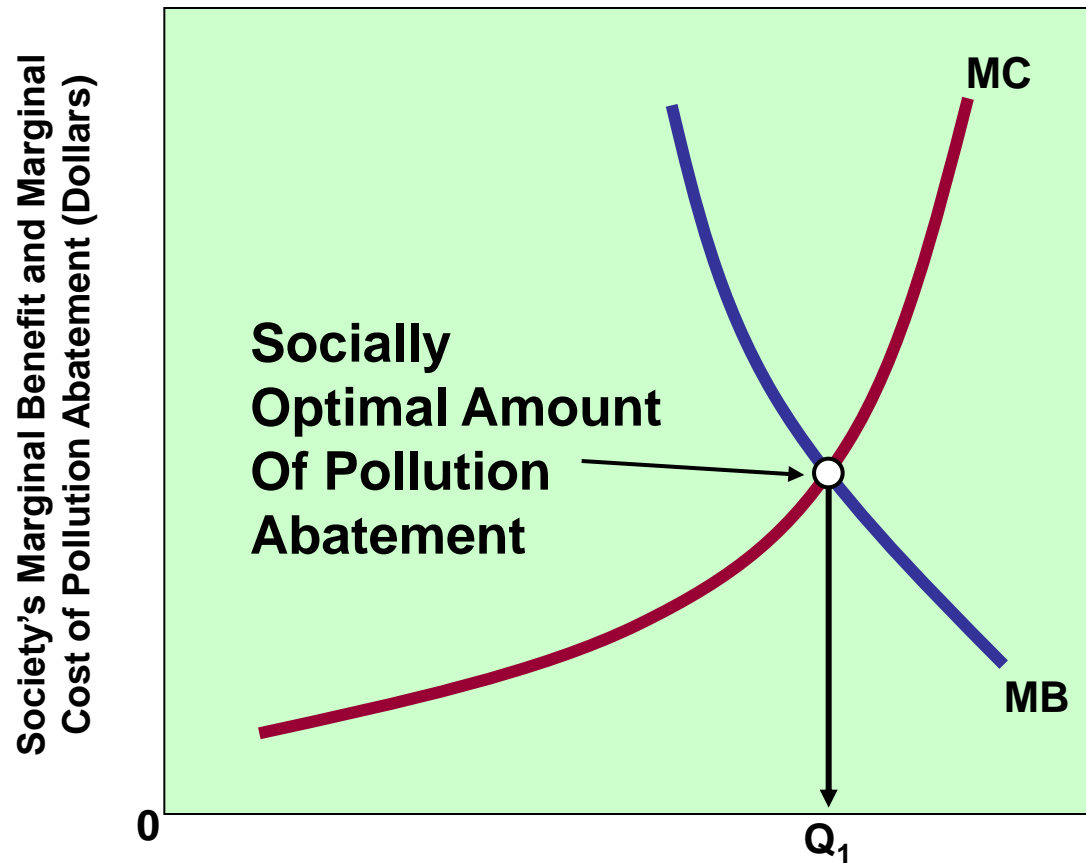
Market for Pollution Rights

- Advantages
- Real-world examples



Optimal Externality Reduction

- How much pollution abatement?
- $MC = MB$

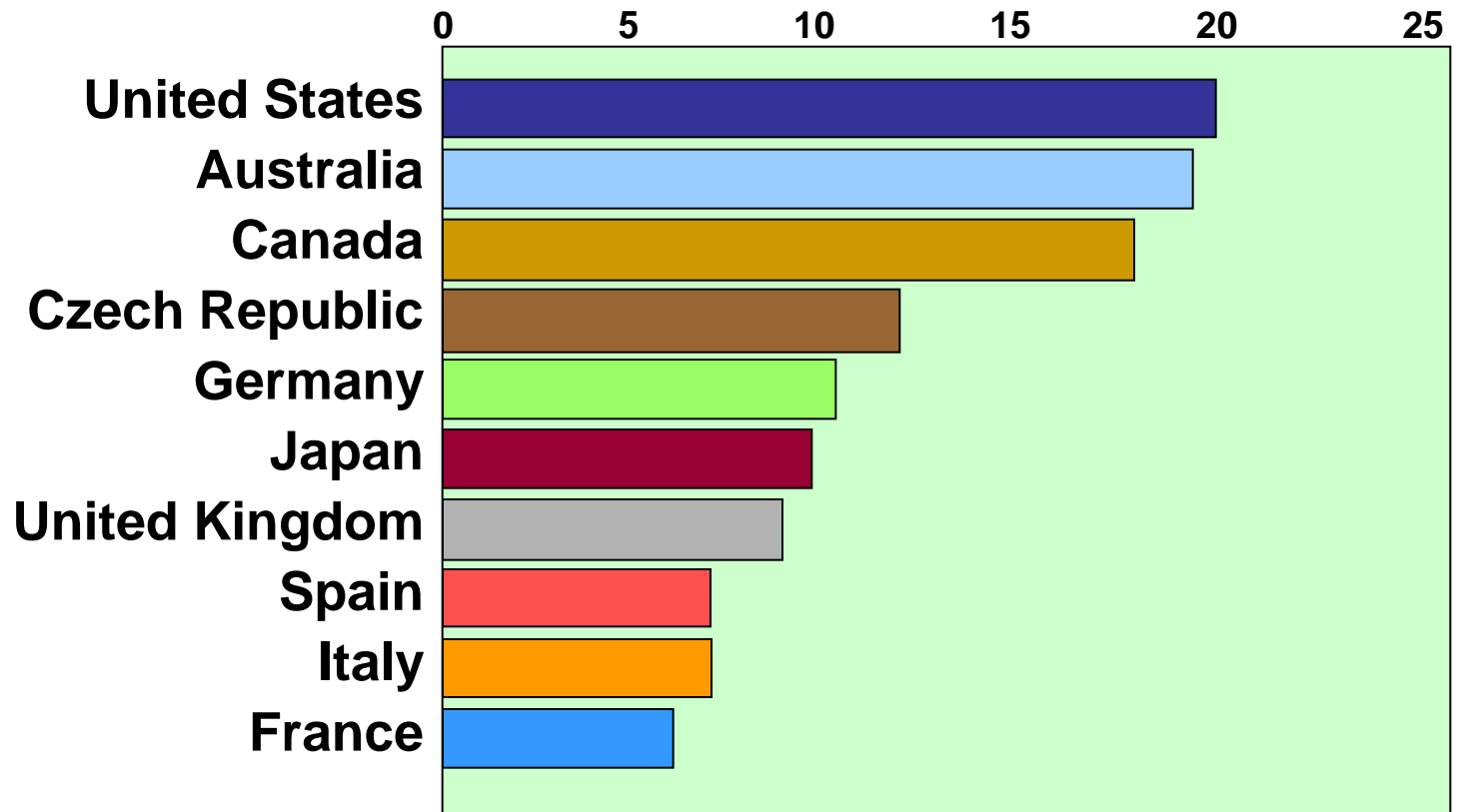


Climate Change

- Earth has warmed over the last century
- Human activity contributing factor
- Carbon dioxide and greenhouse effect
- Kyoto Protocol 1997
- Climate change policies

Climate Change

Carbon-Dioxide Emissions, Tons Per Capita, Selected Nations 2005



Source: OECD Environmental Data

Information Failures

- Asymmetric information
- Inadequate buyer information
 - Gasoline market
 - Licensing of surgeons
- Inadequate seller information
 - Moral hazard problem
 - Adverse selection problem
 - Workplace safety
- Qualification

Lojack: A Case of Positive Externalities

- Crime reduction expenditures \$300 billion
 - Some redistribute vs. reduce crime
- Lojack car recoveries 95% vs. 60%
- External benefits
 - Catch thieves
 - Locate and stop chop shops
- MSB 15 times the MC
 - Underallocation
 - Policy to encourage use of Lojack?

Key Terms

- private goods
- public goods
- free-rider problem
- cost-benefit analysis
- marginal-cost-marginal-benefit rule
- externalities
- Coase theorem
- tragedy of the commons
- market for externality rights
- optimum reduction of an externality
- cap-and-trade program
- climate-change problem
- asymmetric information
- moral hazard problem
- adverse selection problem

Next Chapter Preview...

Public Choice Theory and the Economics Of Taxation