OUTLINE — October 4, 2017

- Imperfect Competition, continued
  - Oligopoly
  - Monopolistic Competition
- Externalities
  - Definitions
  - Coase Theorem
  - Taxes & Subsidies (and what is "optimal")

PS 2 is due Wed/Thurs Oct 11/12

Oligopoly

- Few firms in a concentrated industry
  - ➜ top 4 firms sell over 90%
  - ➜ power to influence price
- Product may be homogeneous or heterogeneous
- Key: inter-dependence of firms
- *Suggestion: Take Econ 121*

Monopolistic Competition

- Lots of firms
- No barriers to entry/exit
- *Heterogeneous* product

Profit Maximization

- Max profit when choose q so that MR = MC

Entry erodes profit

Long-Run Equilibrium

Effect of increased variable cost?

Market Failure: Externalities

- Your activity affects someone else
- Negative externality
  - Cost borne by someone else
- Positive externality
  - Benefit received by someone else

Examples

Positive Externality

- Benefits accrue to people who are neither the buyer nor the seller
  - *Education !*
- Private Marginal Benefit
- External Benefit (or, marginal external benefit)
- Social Marginal Benefit (or, marginal social benefit)

Positive Externality

Negative Externality

- Marginal Private Cost (or, private marginal cost)
- Marginal Damage Cost (or, external cost)
- Marginal Social Cost (or, social marginal cost)

Negative Externality

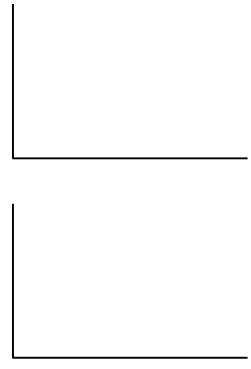
Coase Theorem

- Solution without government possible
- Requires
  - Well-defined property rights
  - No costs to bargaining
  - Only a few people
- Otherwise: government intervention

Encourage behavior with subsidy

- Private market produces too little when there are positive externalities
- Encourage with subsidies
- Example: Prof. Olney buys $48 Bart ticket each month, paid through pre-tax payroll deduction
  - $3 paid by Bart
  - $10 paid by UC Berkeley
  - $10 paid by federal government
  - $3 paid by state government
  - Which means just $22 is paid by Prof. Olney

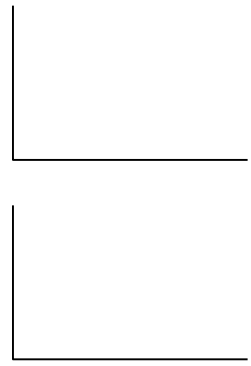
Positive Externality: A Subsidy



Externalities & Taxes or Subsidies

- The challenge: what is the ***right (or, optimal) size*** of tax (negative externality) or subsidy (positive externality)?
  - It's positive (not normative) analysis
  - "Right" or "optimal" means generating socially optimal quantity

Negative Externality: A Tax



Externalities & Taxes or Subsidies

- The challenge: what is the ***right (or, optimal) size*** of tax or subsidy?
  - It's positive (not normative) analysis
  - "Right" or "optimal" means generating socially optimal quantity
- Taxes discourage activity generating negative externalities
  - If Tax > MDC, then
  - If Tax < MDC, then
  - Only if tax = MDC, then
- What should the tax revenue be used for?
  - Offset (or, cover) costs represented by MDC

When q=0 is socially optimal

Cigarettes & cigarette taxes

Alternative Approach: Cap & Trade

- A market-based solution addressing negative externalities
- Authority determines total allowable pollution – the "cap"
  - Issues permission-to-pollute permits to manufacturers
  - One permit required for each "unit of pollution" generated
- Permits can be bought & sold – the "trade"
- Key assumption: manufacturers face different costs of reducing pollution
- Key characteristic: the price of permits will vary with S&D
- Key result: as cap is reduced (and price of permits rises), firms have economic incentive to pay to reduce pollution rather than pay for increasingly expensive permits

Cap & Trade: Pollution

- Suppose permits cost $500 per unit of pollution
- Firm A, "clean": Cost to reduce pollution (abatement) = $200 per unit
  - What will they do?
  - Effect on profit?
- Firm B, "dirty": Cost to abate = $900 per unit
  - What will they do?
  - Effect on profit?
- In the long run, which firms likely to exit industry?