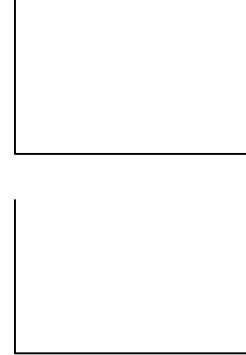## OUTLINE — October 9, 2017

- Externalities, continued
  - The Optimal Subsidy or Tax
  - Cap & Trade
- Asymmetric Information
  - Adverse Selection
  - Moral Hazard
- Behavioral Economics
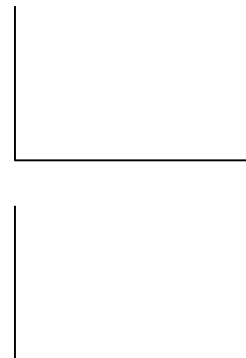
  _____

  PS 2 due 10/11 – 10/12 in section

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

Externalities   Adverse Selection   Moral Hazard   Behavioral Economics

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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

Externalities   Adverse Selection   Moral Hazard   Behavioral Economics

When q=0 is socially optimal

Externalities   Adverse Selection   Moral Hazard   Behavioral Economics

Cigarettes & cigarette taxes

Externalities   Adverse Selection   Moral Hazard   Behavioral Economics

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"
- <u>Key assumption</u>: manufacturers face different costs of reducing pollution
- <u>Key characteristic</u>: the price of permits will vary with S&D
- <u>Key result</u>: 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

Externalities   Adverse Selection   Moral Hazard   Behavioral Economics

Cap & Trade: Pollution

- Suppose permits cost $500 per unit of pollution
- Firm A: Cost to abate (reduce pollution) = $200 per unit
  - What will they do?

  - Effect on profit?

- Firm B: Cost to abate = $900 per unit
  - What will they do?

  - Effect on profit?

- In the long run, which firms likely to exit industry?

Externalities   Adverse Selection   Moral Hazard   Behavioral Economics

Costs of Abatement

- As price of permit rises…
  - Quantity demanded of permits (firms that will pollute)
  - Quantity supplied of permits (firms that will abate)

Externalities   Adverse Selection   Moral Hazard   Behavioral Economics

Cap & Trade: Pollution

Externalities   Adverse Selection   Moral Hazard   Behavioral Economics

Market Failure: Asymmetric Info

- When one party to a transaction has relevant info but doesn't share it with the other party

- Effect: markets fail . . .
  . . . to produce the quantity where
  p = MC = minimum ATC

- Two examples of asymmetric info
  - Adverse Selection
  - Moral Hazard

Externalities   **Adverse Selection**   **Moral Hazard**   Behavioral Economics
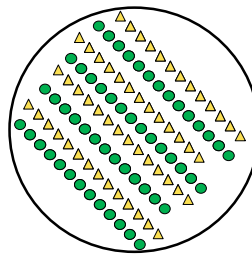
Adverse Selection

- "Adverse" means harmful or unfavorable
- When the selection of goods offered for sale is not a random selection but is instead an "adverse" (unfavorable) selection
  - Applies also to consumers buying insurance
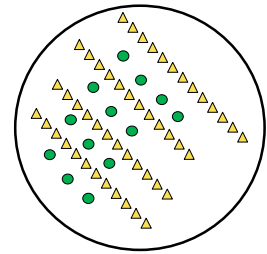- Occurs before transaction

Externalities   **Adverse Selection**   Moral Hazard   Behavioral Economics

Adverse Selection

Random Selection   Adverse Selection

Externalities   **Adverse Selection**   Moral Hazard   Behavioral Economics

Adverse Selection & Labor Markets

- You are an employer
- Workers are heterogeneous
  - A mix of high- and low-quality workers
- You want to hire high-quality workers
- You can't tell from the application who is & isn't a high-quality worker
- *Do you offer an above-market, at-market, or below-market wage?*
  - A. *Above-market wage*
  - B. *At-market wage*
  - C. *Below-market wage*

Externalities   **Adverse Selection**   Moral Hazard   Behavioral Economics

Adverse Selection

- Car Insurance
  - Good drivers or bad drivers?
  - State requires everyone to get car insurance
- Health Insurance
  - Healthy people or unhealthy people?
  - Effect on cost of insurance?
  - Affordable Care Act requires everyone to get insurance
- Consumer credit
  - Good credit risk or bad credit risk?
  - Effect on availability of credit?

Externalities   **Adverse Selection**   Moral Hazard   Behavioral Economics

Solutions: Screening

- Screening: the employer/insurance company (the party with less information) screens applicants
  - Is there a low-cost way to screen applicants?
  - Sort applicants based on characteristics
  - Note: With perfect screening, there is no asymmetry in information . . .

Externalities **Adverse Selection** Moral Hazard Behavioral Economics

Solutions: Signaling

- Signaling: the employee/insured party (the party with more information) offers a clue
  - Do signals have biased effects on markets?
  - Example: "ban the box"

Externalities **Adverse Selection** Moral Hazard Behavioral Economics

Solutions: mandatory enrollment

- Mandatory enrollment is another solution
  - Require everyone to buy insurance so that pool of applicants/purchasers remains full random sample

Externalities **Adverse Selection** Moral Hazard Behavioral Economics

Moral Hazard

- When one party to a contract changes behavior after the contract is signed
  - Part of a transaction that takes time to complete
- Occurs after contract is signed

Externalities Adverse Selection **Moral Hazard** Behavioral Economics

Moral Hazard

- Insurance
  - More careful or less careful?
  - Effect on cost of insurance?
- Bank Bailouts
  - More careful or less careful with risk?
  - Effect on likelihood of bank failure?
- Mortgage Rescue Plans
  - More careful or less careful with $ commitments?
  - Effect on likelihood of mortgage default?

Externalities   Adverse Selection   **Moral Hazard**   Behavioral Economics

Solution: Monitoring

- Monitoring is a solution to moral hazard
  - Low-cost way to monitor behavior

  - Cancel contracts that are low-quality high-cost
  - Maintain contracts that are high-quality low-cost

  - Note: With perfect monitoring, there is no asymmetry in information

Externalities   Adverse Selection   **Moral Hazard**   Behavioral Economics

Behavioral Economics

- A *very broad* overview . . .
- Economic models characterized by
  1. Question
  2. Simplifications
  3. Assumptions about behavior

- Interested?
  - *Econ 119 (Psych & Econ)*
  - *Econ 138 (Behavioral Econ)*

Externalities   Adverse Selection   Moral Hazard   **Behavioral Economics**

Example: Loss Aversion

- Do people hate losses more than they like wins?
- If so, implications for risk-taking behavior.
- Example: Two payouts, both with same mean (6.50).

Die roll	Payout A	Payout B
1	-2	7
2	10	5
3	20	9
4	-7	6
5	15	4
6	3	8

Externalities   Adverse Selection   Moral Hazard   **Behavioral Economics**

Example: Hyperbolic Discounting

- How patient are you?

Externalities   Adverse Selection   Moral Hazard   **Behavioral Economics**