Overview: Asymmetric Information and Market Structure

Bargaining Games

Asymmetric Information (hidden attributes)
• The “Lemons” problem
• Adverse Selection
• Solutions

Bargaining Games: Introduction

• You will bargain over a car.
• Cars can be either good or bad. Half the cars currently owned by potential sellers are good and half are bad.
• A good car is worth $7000 to a seller (S), while a bad car is worth only $2000 to a seller.
• A potential buyer (B) always values the car $2000 more than the seller. A good car is thus worth $9000 to a buyer, while a bad car is worth $4000.
• The above facts are common knowledge among buyers and sellers.
Bargaining Game I

• Instructions
  – Bargaining on whether to sell and at what price (you may refuse to trade)
  – Record
    • whether you reached an agreement
    • if so, at what price
    • how long it took to get agreement

Bargaining Game II

• Instructions
  – Bargain on whether to sell and at what price (you may refuse to sell)
  – You ARE allowed to make any claim about your actual value. (Remember though that everyone knows the distribution over possible values).
  – You are NOT allowed to give any personal assurances that your claims are true, such as promise a beer if you lie.
  – Record
    • whether you reached an agreement
    • if so, at what price
    • how long it took to get agreement
Questions We’ll Address:

• What are the implications of asymmetric information for market equilibrium and market structure?

• What can firms (or governments) do in such cases?
Examples of Asymmetric Information

• What happens when sellers know much more than buyers about the quality of a good that’s being offered for sale?

• The market for “lemons”

Bargaining Game II: Market Failure

• Note, expected value of car to B is
  \[0.5 \times 4000 + 0.5 \times 9000 = 6500\]
  \[\Rightarrow \text{Buyer would not pay more than 6500}\]

• At a price less than 7000, no good cars will be offered

• With only bad cars offered, equilibrium prices could be at most 4000.

• In equilibrium, only bad cars traded, at price between 2000 and 4000.
Market Responses to Asymmetric Information

• Sellers have strong incentives to provide information regarding product quality, but …

• Solutions to “market failure” caused by asymmetric information
  – by private firms
  – by government
Adverse Selection

- Refers to how health insurance tends to attract people with highest health risks
- Arises because insurance companies cannot observe an individual’s health
- Other examples of adverse selection

Harvard’s “Death Spiral”
Experience with Adverse Selection

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<th>Total Premium HMO</th>
<th>Employee Premium BC/BS</th>
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“SLOAN MBA”

Why do employers trust this signal?
Diplomas as Signals

• People with greater productive ability are more likely to attain a higher education level, *signaling* their productivity and thereby obtaining better-paying jobs and

• Firms are correct in considering educational attainment a signal of productive ability

Simple Example from Text

• Two types of workers - high ability and low ability (50/50)
• Value of employing high ability worker - $200,000
• Value of employing low ability worker - $100,000
• Cost of y years of college (financial + psychic):
  – $20,000y for high ability workers
  – $40,000y for low ability workers
• Note: here education doesn’t increase productivity
• Perfect information vs. Asymmetric information
Figure 17.2 Signaling

(a) Group I

Value of College Education

$200,000

$100,000

0 1 2 3 4 5 6

Optimal Choice of y for Group I

\( C_I(y) = 40,000y \)

\( B(y) \)

\( y^* \)

Years of College

(b) Group II

Value of College Education

$200,000

$100,000

0 1 2 3 4 5 6

Optimal Choice of y for Group II

\( C_{II}(y) = 20,000y \)

\( B(y) \)

\( y^* \)

Years of College
“Our Product Tastes Great”

• Is this credible?

• When might it be?

Information and Incentives

• Most situations involve several information phenomena
  – Adverse Selection
  – Signaling and Screening
  – Moral Hazard
• Volvo drivers
• Free eyeglasses
• Start-ups and venture capital
• VPI Insurance
Start-Ups and Venture Capital

- Information Issues with Start-Ups
  - Adverse Selection
    - Which ideas have potential for big markets, sustainable profits?
    - Do management teams have ability to make business a success?
  - Moral Hazard
    - Will management teams work hard enough?
- Venture Capital Markets
  - VC’s demand evidence of ongoing revenue, insist on severe conditions for lending
  - Market failure: VC’s have money but no one gets it.

Features of VPI’s 2004 Insurance Policy

- Eligibility:
  - Any individual 8 weeks old and up, no age limit.
  - No pre-existing conditions
- Coverage:
  - Most medical treatments and hospitalization, including mental health
  - Choose your own health care provider
  - No cosmetic surgery
  - Dollar cap for each condition (e.g., $300 for bladder infection)
- Cost Sharing:
  - 80% of first $180 per incident
  - $50 deductible per visit
Take Away Points

• Asymmetric Information can cause markets to fail.
• Adverse selection occurs when exactly the people with the worst characteristics accept the deal.
• To solve such information problems, you need credible communication.
• Signaling, screening, and warranties can provide credibility.