Introduction to Asymmetric Information

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Overview of the Economics of Asymmetric Information

- Prevalent in reality.
- An example of lemmons.
- Encroaching on efficiency of economy.
- Examples of attempts to (partially) solve information asymmetry:
  1. Certification
  2. Reviews (of books, movie, CD...)
  3. Warranty
  4. Advertisement
  5. Promotion system
  6. Political campaign

Two Types of Asymmetric Information

- Characteristics are private information (adverse selection):
    1. Cost
    2. Ability
    3. Quality
- Actions are private information (moral hazard):
    1. Output
    2. Effort level
    3. Decision

Moral Hazard: Principal - Agent Problem

- The most important of the moral hazard problems is the principal-agent problem.
- Two important strands of the adverse selection problem is mechanism design and signalling.

Principal-Agent Model

- One or several "principals" hire one or several "agents" to engage in certain activities.
- Agent's actions are unobservable to principal.
- Question: How does the principal provide incentives to the agent?

Principal-Agent Model

- Examples of principal-agent relationship:
  1. owner - salesman
  2. firm - worker
  3. voter - politician
  4. citizen - government
  5. shareholder - management
  6. lawyer - client

Adverse Selection

- There are two ways economic agents tackle the adverse selection problem:
  i. The side which does not have information can design "menu of choice" to screen the other side's information and thereby gain from it. This called screening or, more generally, mechanism design.
  ii. The side which has the private information can also send out "signals" to prove that he is of good type, and profits from it. This is the signaling.
- Corresponding to both kinds of behavior above, there are the "pooling equilibrium" and the "separating equilibrium".

Adverse Selection

- In a pooling equilibrium, all types of agents who have the private information choose the same action (in screening) or send the same signal (in signalling), and are thereby treated identically.
- In a separating equilibrium, different types of agents who have private information choose different actions, (in screening) or send different signals (in signalling), and are treated differently.

Mechanism Design

- A planner needs to achieve certain goal, but has imperfect information regarding the characteristics of agents interacting with him.
- Examples:
  1. Taxation
  2. Regulation
  3. Price discrimination
  4. Auctions design
  5. Promotion in organizations

Signaling

- Agents who are of superior characteristics spend resource to "signal" their quality.
- Examples:
  1. Warranty
  2. Advertisement
  3. Certification acquisition
  4. Product trials
  5. Volunteering
  6. Education acquisition