ECONOMICS OF INFORMATION

INFORMATION PROBLEMS & MARKET FAILURE

ASYMMETRIC INFORMATION

ADVERSE SELECTION

ECONOMICS 201 WEEK 8: INFORMATION PROBLEMS

ASYMMETRIC INFORMATION

ADVERSE SELECTION

“LEMONS” PROBLEM

STATISTICAL DISCRIMINATION

MORAL HAZARD

INFORMATION AND MARKET FAILURE

Perfectly competitive markets assume perfect information

- Perfect information means:
  - Both buyers and sellers have complete and equal information about the product being sold.
  - Both buyers and sellers have complete and equal information about prices for similar goods in the market.

INFORMATION AND MARKET FAILURE

In the real world, buyers and sellers do not usually have equal information.

- Imperfect information can be a cause of a market failure.
- Asymmetric information – Term used to describe a market when one party to a transaction has information that the other part does not have access to.

ASYMMETRIC INFORMATION

Example: the market for used cars.

Perfect Information – Markets work:

- Buyers and sellers have equal or "symmetric" information.
- Used car market separates into two markets:
  - "market for lemons" with low prices and
  - "market for cream puffs" with higher prices.
- The point is the both buyers and sellers know which cars are "lemons" and which cars are "cream puffs.

ASYMMETRIC INFORMATION

Example: the market for used cars.

Asymmetric Information – Markets fail:

- Sellers know more about the quality of their car than buyers
- One market all used cars. Same price for a lemon and for a cream puff leads to "market failure."
  - Buyers do not want to pay a high price for a car that might be a lemon. So price falls.
  - Sellers of cream puffs do not want to sell their cars for the lower price. Sellers of cream puffs keep their cars.
  - Used car market becomes dominated by lemons.

ASYMMETRIC INFORMATION

The Market for Used Cars

- This type of market failure is called: ADVERSE SELECTION.
  - Low quality goods drive high quality goods out of the market.
  - Too many low and too few high quality cars are on the market.
  - **Adverse selection** occurs: the only cars on the market will be low quality cars.

ASYMMETRIC INFORMATION

Example

- Will Jane sell her car to Tom?

Assume

- Jane wants to sell a 2000 Miata
  - 70,000 highway miles
  - Complete maintenance
  - Excellent condition
  - Average price is $8,000
  - Jane's reservation price is $10,000

ASYMMETRIC INFORMATION

Tom

- Reservation price
  - $13,000 if in excellent condition
  - $9,000 if not in excellent condition
- Will not pay $10,000 because he cannot tell if Jane's car is an excellent buy
  - cannot tell the quality of the car even by a mechanic, so treat Jane's as average.
  - Tom buys an average car at $8,000

ASYMMETRIC INFORMATION

Example

- There is a loss in economic surplus
  - Assuming Tom had paid Jane $11,000
- Tom
  - Pays $8,000 and has a gain of $1,000 ($9,000 - $8,000) if he buys the average car

ASYMMETRIC INFORMATION

- Tom's Gain if he buys at $11,000
  - $13,000 - $11,000 = $2,000 (bought from Jane)
  - Tom's Loss=$2,000 - $1,000 = $1,000 (compared to paying $8,000)
- Jane's loss is $1,000 (=11,000-10,000)
- Total loss is $2,000 ($1,000 for Jane & $1,000 for Tom)

Asymmetric information costs economic surplus

ASYMMETRIC INFORMATION

The Lemons Model

- Asymmetric information tends to reduce the average quality of goods offered for sale.
- People who have below average (lemons) cars, are more likely to want to sell them.
- Buyers know that below average cars are likely to be on the market and lower their reservation prices.

ASYMMETRIC INFORMATION

The Lemons Model

- Because used car prices are low, people with good cars keep them longer.
- The average quality of used cars falls even further.
- As the average quality of used cars falls, buyers' reservation price will fall as well.
- And so on and so forth.

ASYMMETRIC INFORMATION

Example

- Should you buy your aunt's car?
  - 4-year old Accord
  - The asking price of $10,000 is the blue book value.
  - You believe the car is in good condition.
  - It is a good deal because the blue book value is the equilibrium price for below average cars.

ASYMMETRIC INFORMATION

Example

- How much will a naïve buyer pay for a used car?

ASYMMETRIC INFORMATION

Assume

- There are only good cars and lemons.
- 10% of all new cars are lemons.
- Good used cars are worth $10,000 and lemons are worth $6,000.
- The used car market is 90% good cars and 10% lemons.

ASYMMETRIC INFORMATION

Example

- Calculating the expected value:
  - (.90)($10,000) + (.10)($6,000) = $9,600
  - Reservation price for a risk-neutral buyer
- A naïve buyer will pay $9,600 for a used car.

ASYMMETRIC INFORMATION

Example

- Who will sell a used car for what the naïve buyer is willing to pay?
  - Would not sell a good car that is worth $10,000
  - Would sell a lemon that is worth $6,000
  - Only lemons will be on the market
  - Price will fall to $6,000

ASYMMETRIC INFORMATION

If you have a good used car for sale, how can you get a higher price?

ASYMMETRIC INFORMATION

Another Example: Car Insurance

Risk of insuring driver is known to driver and unknown to insurer.

- Company offers car insurance at "average" cost of insuring all drivers.
- Too expensive for "good" drivers. Cheap for "bad" drivers.
- Good drivers opt out. Rates for remaining drivers go up. Bad drivers may not be able to afford insurance.
- **Adverse Selection occurs and market fails**.

ASYMMETRIC INFORMATION

Another Example: Health Insurance

Information about the risk of insuring individuals is more available to the individual than to the insurance company.

- Insurance Company offers insurance at "average" cost of insuring **all individuals**.
- Too expensive for "healthy" individuals. Cheap for "less healthy" individuals.
- Healthy individuals opt out. Rates for remaining individuals go up who may not be able to afford insurance.
- **Adverse Selection occurs and market fails**.

ASYMMETRIC INFORMATION

Information Problems lead to 2 other problems besides adverse selection:

- **Statistical Discrimination**
- **Moral Hazard**

ASYMMETRIC INFORMATION

Statistical Discrimination

- The practice of making judgments about the quality of people, goods, or services based on the characteristics of the groups to which they belong.
- Use information on groups (statistics) instead of on individual customer to make pricing decisions.

ASYMMETRIC INFORMATION

Statistical Discrimination

- Why do males under 25 years of age pay more than other drivers for auto insurance?
- The group of males under 25 years old tends to have more accidents than other group.
- If you belong to that group, you pay higher premium.

ASYMMETRIC INFORMATION

Moral Hazard

- The tendency of people to expend less effort protecting those goods that are insured against theft or damage.
- Moral hazard occurs any time an individual or business is protected from the consequences of their actions.
- More likely to choose risky behavior.

ASYMMETRIC INFORMATION

Moral Hazard

- Deductibles are used to reduce **moral hazard** as well as adverse selection.
- Deductibles mean an individual or company will pay at least part of the cost.
- Benefits from deductibles in the insurance policy
  - With car insurance (as well as other insurance), higher deductibles are associated with lower rates
  - Increase the incentive to drive safely
  - Reduce the number of claims, which lowers cost and premiums