Economics for Business

Lecture 12
Market Failure
Important Chapters: 21/22
Definition. Where the market mechanism fails to allocate resources efficiently.
Previous lectures looked at models in which

1) Everyone is equally knowledgeable

Competitive model… everyone knows all the facts

2) Everyone is equally ignorant

Uncertainty models… companies that sell insurance and people who buy insurance are equally uncertain about future events

Now turn to situations of information asymmetry where one party knows something that another party does not
• Information asymmetry leads to problems of *opportunism*
• More informed part can exploit less informed party
• Such behaviour leads to *market failure*
• Two major types of opportunistic behaviour:
  1. Adverse Selection
  2. Moral Hazard
Opportunism which is characterised by hidden information (unobserved characteristics)

e.g. people who buy life insurance are better informed about their health than insurance company

Unhealthy people more liable to buy life insurance and thus price of insurance policies driven up
In many markets, buyers know less than sellers

When buyers have difficulty determining quality of goods & services, can lead to an inefficient use of resources

When buyers cannot judge a product’s quality before buying it, low-quality goods (lemons) may drive high-quality goods out of the market

Akerlof 1970
Situation common in used car markets…

Owners of lemons are more likely to sell their cars, leading to adverse selection
Assume buyers willing to pay €1,000 for lemon

Willing to pay €2,000 for good used car

Only 1,000 owners of lemons and 1,000 owners of good used cars willing to sell

Reservation price of lemon owners: €750

Reservation price of good car owners: €1,250
If both buyers and sellers know quality of used cars, all cars are sold

i.e. all have same information

Good cars will sell for more than lemons

With *full* information…

1,000 lemons sell for €1,000

1,000 good cars sell for €2,000
Symmetric Information

Market for Lemons

Market for Good Cars

\[ S^L \]

\[ D^L \]

\[ 1,000 \]

\[ 750 \]

\[ 1,000 \]

\[ 2,000 \]

\[ 1,250 \]

\[ E \]

\[ S^G \]

\[ D^G \]

\[ 1,000 \]
If neither seller nor buyer can distinguish between a lemon and a good car both types of car will sell for same price

Assume all risk neutral and both buyers and sellers are *equally* ignorant

**EV of a used car is:**

\[(0.5 \times €1k) + (0.5 \times €2k) = €1,500\]

• Risk neutral buyer would pay €1,500 for car of unknown quality and sellers accept this amount
If sellers know quality but buyers do not… market can be inefficient

Good-quality cars might not be sold even though buyers value them more highly than owners

Market equilibrium depends on value owners of good cars place on their cars (\(v\))

Will depend on whether \(v\) is greater or less than EV of buyers, €1,500
If we assume owners of good cars value them at $v = €1,250$

EV of buyers is thus greater than $v$ and cars will be sold…

Equilibrium in good car market at $F$ with 1,000 cars sold for €1,500

Equilibrium in lemon market at $f$ with 1,000 lemons sold at €1,500

No efficiency problem but equity problem exists…

Sellers of lemons benefit while sellers of good cars suffer
Market for Lemons

Market for Good Cars

D^*

D^*

S^L

S^L

D^*

D^*

P

P

Q

Q

1,500

1,500

1,000

1,000

750

750

1,000

1,000

2,000

2,000

1,500

1,500

1,250

1,250
If we now assume owners of good cars value them at $v = €1,750$

EV of buyers is thus less than $v$ and no good cars will be sold…

No cars sold in good car market!

Buyers realise that at any price less than €1,750, they can only buy lemons

Thus equilibrium in lemon market is $e$ with 1,000 cars sold for €1,000
Market for Lemons

Market for Good Cars

Zero good cars sold
Adverse selection problem has led to competitive market becoming inefficient and lowered overall welfare

Lemons problem does not occur when information is symmetric

i.e. when buyers and sellers have *full* information or when both have *equal* partial information
Assume buyers & sellers are risk neutral

Buyers value lemons at €1,000

Buyers value good cars at €2,000

Reservation price for owners of lemons: €750

Reservation price for owners of good cars: €1,750

Share of owners who have lemons is $\theta$
Solution: first find out how much buyers are willing to pay for all used cars

\[ P = [\text{€2,000} \times (1 - \theta)] + (\text{€1,000} \times \theta) \]

\[ P = \text{€2,000} - \text{€2,000}\theta + \text{€1,000}\theta \]

\[ P = \text{€2,000} - \text{€1,000}\theta \]

Second: solve for values of \( \theta \) such that all cars are sold

All owners will sell if market price \( \geq \) reservation price of €1,750
We know $P = €2,000 - €1,000\theta$

We know $P$ must equal or exceed €1,750

$€1,750 = €2,000 - €1,000\theta$

$€250 = €1,000\theta$

$\theta = 250 \div 1,000 = \frac{1}{4}$

For $\theta \leq \frac{1}{4}$ all the cars are sold
Main methods for solving adverse selection problems…

Restrict opportunistic behaviour

Compulsory car insurance

Mandatory health insurance in some companies

Product liability laws
Next Week: Macroeconomics!