Market Failure

EC4004 Lecture 9
Today.
Online Exam.
Price

Demand at each Price, \( D(p) \)

Supply at each Price, \( S(p) \)

Quantity Demanded, Quantity Supplied at each price

\( t \)
086 067 6489
Today
Market Failure
Definition. Where the market mechanism fails to allocate resources efficiently
Efficiently?
Social Efficiency external costs/benefits accounted for.

Allocative Efficiency society produces goods/services at minimum cost to consumers.

Technical Efficiency production of goods/services using minimum resources.

Productive Efficiency production of goods/services at lowest factor cost.
We see market failure everywhere.
1. Imperfect Information
2. Market Power
Market Power
3. Inequalities
The world is an unequal place.
4. External Costs/Benefits
Results of Market Failure: Inadequate provision of Merit Goods
Street Lighting.
Defense.
Medical Care.
Public Goods.
Excludability (Free-Rider)
Rivalry (Societal Benefits)
Public Goods provide

1. External Costs

and

2. External Benefits
Market Failure

External Costs
Decision makers don’t take into account the cost imposed on society and others as a result of their decision.

Examples: pollution, traffic congestion, environmental degradation, depletion of the ozone layer, misuse of alcohol, tobacco, anti-social behaviour, drug abuse, poor housing
External Costs

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity Bought and Sold</th>
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<tbody>
<tr>
<td>€5</td>
<td>80</td>
</tr>
<tr>
<td>€12</td>
<td>100</td>
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MSC = MPC + External Cost

The Marginal Social Benefit curve (MSB) represents the sum of the benefits to consumers in society as a whole – the private and social benefits. The Marginal Private Cost (MPC) curve represents the costs to suppliers of producing a given output. The MPC does not take into account the cost to society of production. At an output level of 100, the private cost to the supplier is €5 per unit but the cost to society is higher than this (€12).

The true cost therefore is the MSC (the MPC plus the external cost). Current output levels therefore (100) represent some element of market failure – price does not accurately reflect the true cost of production.

The difference between the value of the MSB and the MSC represents the welfare loss to society of 100 units being produced.

Socially efficient output is where MSC = MSB

Value of the negative externality (Welfare Loss)
Market Failure

**External benefits** –
by products of production and decision making that raise the welfare of a third party

Examples: education and training, public transport, health education and preventative medicine, refuse collection, investment in housing maintenance, law and order
External Benefits

There can be a position where output is less than what would be socially desirable. In this case, the sum of the benefits to society is greater than the private benefit to the individual.
We can correct Market Failure via

State provision
Extension of property rights
Taxation
Subsidies
Regulation
Prohibition
Positive discrimination
Redistribution of income
Lemons.
Big idea: MSB = MSC
Information Economics
Idea: different amounts of information can lead to market failure.
Core: Asymmetric Information
Asymmetric Information: if one side of the market is better informed than the other
Examples

The market for used cars: Sellers know quality of the cars, but buyers might not.

Labour market: Workers know their ability or reliability, but firms might not.

Insurance markets: Drivers may know more about their driving habits than the insurance companies do.
Principle Agent Problem
**PA**: One individual (the agent) takes an action that affects the well-being of another (the principal)
2 Problems:

1. adverse selection (hidden information)
2. moral hazard (hidden action)
Adverse selection arises when an individual’s decision to participate in the market conveys negative information
Solutions?

**Screening**: when an uninformed party attempts to elicit information from an informed party
- e.g., offer a menu of insurance contracts

**Signaling** takes place when the informed party takes a costly action in an attempt to convey the information
- e.g., go to college
Lemon Market
(George Akerlof)

100 used cars are offered for sale.
- 50 cars are plums, 50 are lemons
- Buyers have identical preferences
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

Buyers of good cars benefit while buyers of lemons suffer
Asymmetric Information

Market for Lemons

Market for Good Cars

\[ P \]

\[ Q \]

\[ S^L \]

\[ D^* \]

\[ D^L \]

\[ f \]
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

*Lemons drive good cars out of the market*

Inefficient as good cars remain with owners who value them less than potential buyers
Asymmetric Information

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
A more general problem.
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 $\theta$

For what value of $\theta$ do all potential sellers sell their used cars?
Solution: first find out how much buyers are willing to pay for all used cars

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

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

\[ P = \€2,000 - \€1,000\theta \]

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

i.e. if a quarter or less of used cars are lemons all the used cars will be sold
Main methods for solving adverse selection problems:

1. Restrict **opportunistic behaviour**

2. Compulsory car insurance

3. Mandatory health insurance in some companies

4. Product liability laws
Summary:

When information asymmetry exists, bad products can drive out good. We can regulate against this.