

MARKET FAILURE

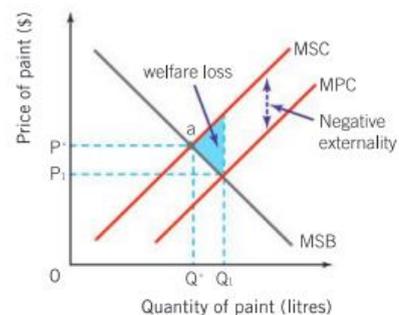
- Market failure is when a market fails to be allocative efficient, and therefore a product is overproduced or underproduced relative to the social optimum.
- Allocative efficiency is achieved when $MSC=MSB$
- MPC is the marginal private cost, which are the costs of production that are taken into account in a firm's decision making process.
- MPB is the marginal private benefit, which is the benefit the individual enjoys from the consumption of an extra unit of a good.
- MSC is the cost of production to society
- MSB is the benefit of consumption of an extra unit to society

Externalities:

An externality occurs when production or consumption of a good has an effect on a third party, for which the latter does not pay or does not get compensated.

Negative externalities of production

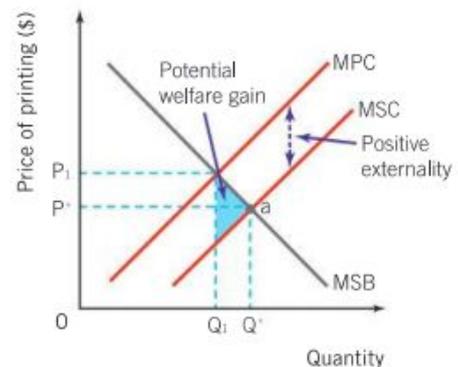
- $MSC > MPC$
- When there are external costs created by producers
- The costs to society are the costs of the firm plus the external costs that the firm creates, but does not pay for.
- Example.- Cement factory that emits smoke into the air and disposes its waste into the ocean. It is an externality because over the private costs of production of the firms, there are external costs that spill over onto society due to the polluted air and ocean.
- As it can be seen, the MSC is greater than the MPC, because there is an extra cost to society (air and ocean pollution) that is created by the firm. It is argued that in order to maximise their profits, the firm will only be concerned with its private costs and will produce at Q_1 . It does not produce at Q^* , where the $MSC=MPC$, and so it is market failure. There is a misallocation of resources as too much cement is being produced at too low of a price. There is a welfare loss to society from the extra units from Q^* to Q_1 , since the MSC is higher than the MSB in those units. Society would be better off if those units were not produced.
- Government-based approaches:
 - Legislation: the government can ban the polluting firms or restrict their output in some way. (maximum quantity of output for example) It could also pass laws relating to measurable environmental standards in the firm's production of units. In order to meet the standards, the firm would have to spend money, increasing MPC. A problem with this solution is that this may lead to job losses and the cost of setting and imposing the policies may be greater than the cost of pollution.
- Market-based approaches



- Taxes The government could tax the firm in order to increase their private costs in order to increase the MPC curve upwards. The best tax policy would be to impose a tax that is exactly equal to the external cost, internalizing the externality. If it is not equal then it will reduce the welfare loss, but not eliminate it. The problem with this solution is that it is often difficult to put a value on the pollution created by the firm, and also hard to identify which firms are polluting and to what extent each firm is responsible by polluting. Also, the tax does not actually stop the pollution from taking place.
- Tradable permits: These give firms the license to create pollution up to a certain level. Once they are issued, firms can buy, sell and trade the permits on the market. The government allocates these permits to individual firms, and so each has a quota of emissions that they are allowed to produce.

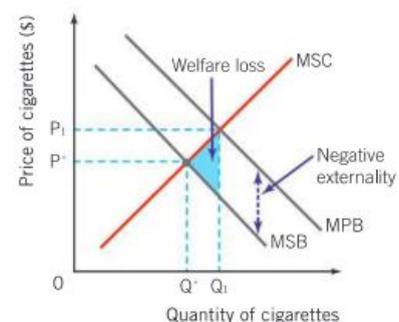
Positive externalities of production

- $MPC > MSC$
- When there are external benefits created by the production of the good
- A printing firm gives high quality training to their employees, which is a cost to the firm. When these employees leave to work in another firm, there is a benefit to other firms that do not have to spend for their training.
- The printing firm produces at a level of output Q_1 , which is below the socially optimum Q^* . Between these quantities there is a potential welfare gain shown by the shaded triangle. This is because the MSB is greater than the MSC . This is a market failure, because in a pure free market, there would be an underallocation of resources, firms would not engage in as much training as would be desirable from society's point of view.
- Solutions
 - Subsidize (market-based): Subsidize firms that offer training. The MPC would shift downwards by the amount of the subsidy, if it were to be the same as the external benefit, then $MPC = MSC$, reaching allocative efficiency, solving the externality. One problem is the opportunity cost and another one is that it is difficult for the government to estimate the level of subsidy.
 - Direct provision (government based): The government can provide the training through setting centers. Problem: opportunity cost, dissuade firms from providing themselves, etc.



Negative externalities of consumption

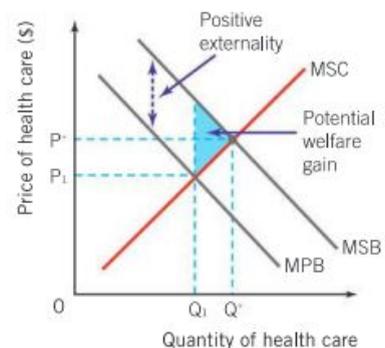
- $MSB > MPB$
- When there are external costs created by consumers
- Example.- smoking leads to second-hand smoking, discomfort of the smell, lung cancer, asthma, bronchial illness, etc.



- Because it is a free market, consumers will seek to maximise their private benefit or utility and consumer at the level where $MSC=MPB$, ignoring the externality created. They will over consume cigarette, smoking Q_1 cigarettes at price P_1 . The socially optimal output is Q^* and so there is an overconsumption from Q_1 to Q^* . MSC is greater than MSB for these over consumed units, and so there is also a welfare loss. Too many resources are allocated to this market.
- Solutions
 - Tax (market-based): The government could tax the firm increase their private costs in order to increase the MPC curve upwards. The best tax policy would be to impose a tax that is exactly equal to the external cost, internalizing the externality. If it is not equal then it will reduce the welfare loss, but not eliminate it. Government will gain revenue that can be used to correct the effects of externality. The problem with this solution is that cigarettes have an inelastic demand and so the quantity may not decrease to the socially optimum. If taxes raise prices too much then consumers will look for other sources of supply, other countries or black market.
 - Legislation (government-based): Regulations can be used to prevent or limit consumer activities that impose costs on third parties, such as legal restrictions on activities as smoking in public places.
 - Education and negative advertising, the costs of this may be high.

Positive externalities of consumption

- $MSB > MPB$
- When there are external benefits created by consumers
- Example.- If the consumer gets health care, then they will not spread the illness, will be able to work, etc.
- In a free market for healthcare, people will consume where $MPB=MSC$ at the quantity of Q_1 and price of P_1 . The socially optimal output is of Q^* , which is greater than the Q_1 , meaning that there is an underallocation of resources. Because the units between Q_1 and Q^* have a $MSB > MSC$ there is a potential welfare gain in the shaded triangle.
- Solutions:
 - Legislation: Pass laws insisting that citizens have vaccinations against certain diseases or regular health checks, but this will only happen if the government provides it free of charge.
 - Subsidize
 - Positive advertising, short run benefits are minimal and it is expensive.



Demerit and merit goods

- Merit goods are goods that are beneficial to consumers, but people may not consume them enough, either because they ignore the potential benefits obtained or because they underestimate them. Therefore, the demand for the good is lower than it "should be" → positive externality

- Demerit goods are goods that are harmful to consumers, but people who consume them are either unaware of the possible harm or ignore the possible risks. Consumers have imperfect information about the cost to themselves and others. Therefore the demand is higher than it “should be” → negative externalities.

Common access resources

- Common access resources are resources that are not owned by anyone, do not have a price and are available for anyone to use without payment. Examples include clean air, lakes, rivers, fish in the open seas, wildlife, etc.
- They are rivalrous and non-excludable. A good is rivalrous when its use by some people reduces availability for others. Nonexcludability means that consumers and producers use them abundantly and often overuse them because they have no price.
- The fear is that the nature of the resource and the inability to charge for them will encourage overuse and over-consumption and eventually lead to the depletion of the resource.
- For example, fishing, individuals will fish as much as they want as fish adds marginal utility to them. The benefits to the individual outweigh the external cost and give the individual the incentive to keep using the resource. So, the market failure is the overconsumption that will lead to the depletion of the resource.

Threats to sustainability

- High levels of poverty and pursuit for economic growth result in over-exploitation of resources.
- Low income households depending on wood as their main energy source (common access resource)
- Private companies looking to maximise profits and over producing wood at a low price → negative externality.
- Use of fossil fuels
 - Heavy global demand for fuels
 - The extraction and use of coal, oil and natural gas generate external costs which may pose immense threats to future generations (greenhouse gases emitted and climate change)
 - Driving of cars and trucks major contributor to air pollution
 - When companies burn coal to produce electricity → acid rain
 - Producers and consumers are unable to account for the external costs means that the good is both overproduced and over consumed → significant market failure

Government responses

Because this is a global problem, international negotiations and forward thinking is needed.

- Carbon tax: is imposed when fossil fuels are burnt. A higher tax raises the prices but the firm has the choice to keep polluting or to reduce emissions.
 - Benefits:
 - In order to maintain profitability, firms will look for newer and cleaner technologies that emit less carbon
 - Tax generates government revenue.

- Tradable permits (cap and trade systems): Set national targets for emission. Since emissions are not confined to borders, then an international agreement is necessary. This does not only work for gas emissions, but also to put a maximum amount of a common access resource to be exploited.
- Clean technologies: Governments can subsidize the development of clean technology or give tax credits to firms that invest on it. Since this form of electricity is a substitute for fossil fuels, then resources will be allocated away from these and onto cleaner technologies.
- Legislation

Public goods

- They are non-rivalrous: when one person consuming does not stop another person to consume it as well.
- They are non-excludable: people can't be excluded from the use of the good e.g. in the case of a dam, people living in the protected area can't be excluded from the protection by the dam
- Public goods are ones that will not be provided at all in a free market, as private firms cannot gain revenue from it.
- These are goods that are beneficial to society, and so the lack of public goods is considered to be a market failure.
- Government will provide the good themselves or subsidize private firms and covering all costs.

Imperfect information

- For a market to work perfectly (free of market failures) it is assumed that both consumers and producers have perfect knowledge or information.
- Allocative efficient if they are both aware of what products are available and the range of prices.
- Assymmetric information

Imperfect competition