IAQS | INSTITUTE OF ACTUARIAL & QUANTITATIVE STUDIES

Subject : Business Economics – Macro

Chp 1 – Market Failure

Allocative Efficiency

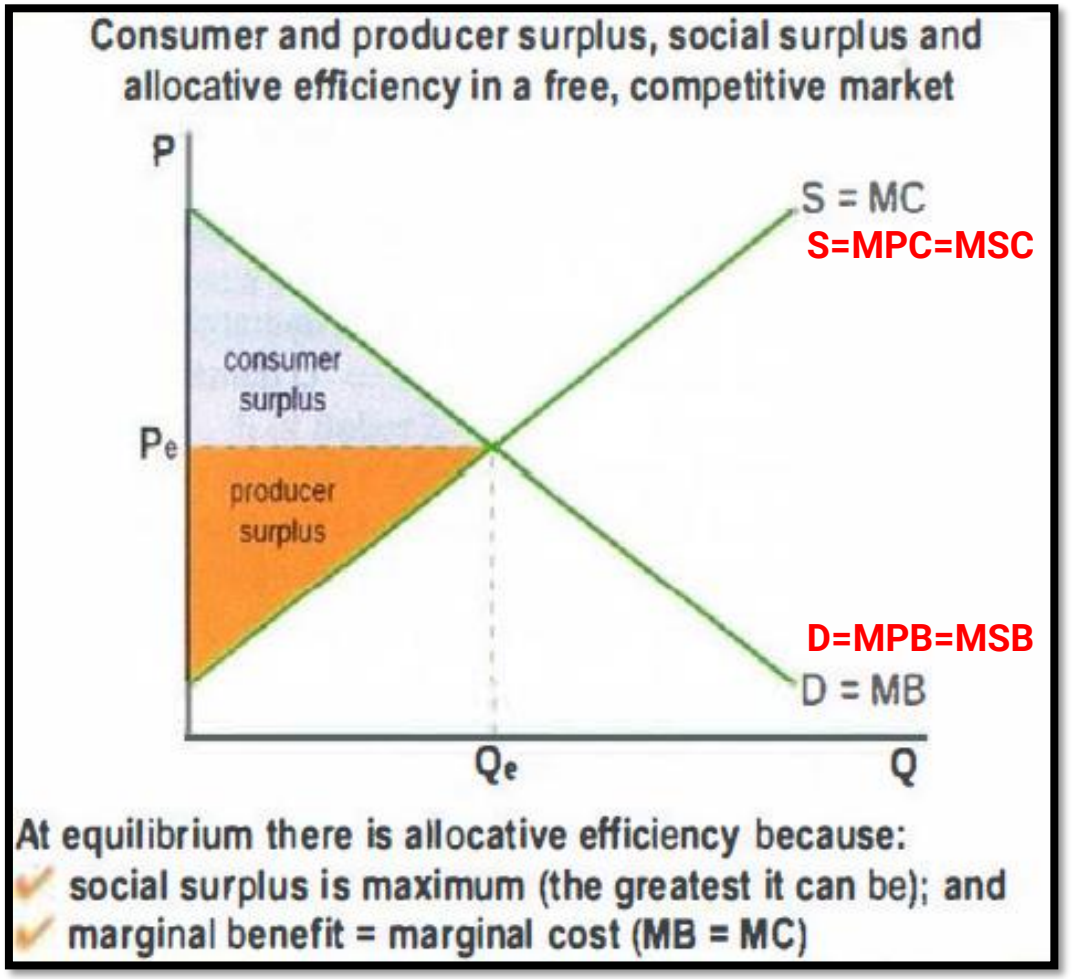
Allocative efficiency is simply the best allocation of resources from society's point of view, occurring in a free, competitive market.

PRIVATE COST (PC) – Producer's Cost of production

SOCIAL COST (SC) = PC + EC (External Cost)

PRIVATE BENEFIT (PB) – Individual Consumer benefit (satisfaction) upon consumption

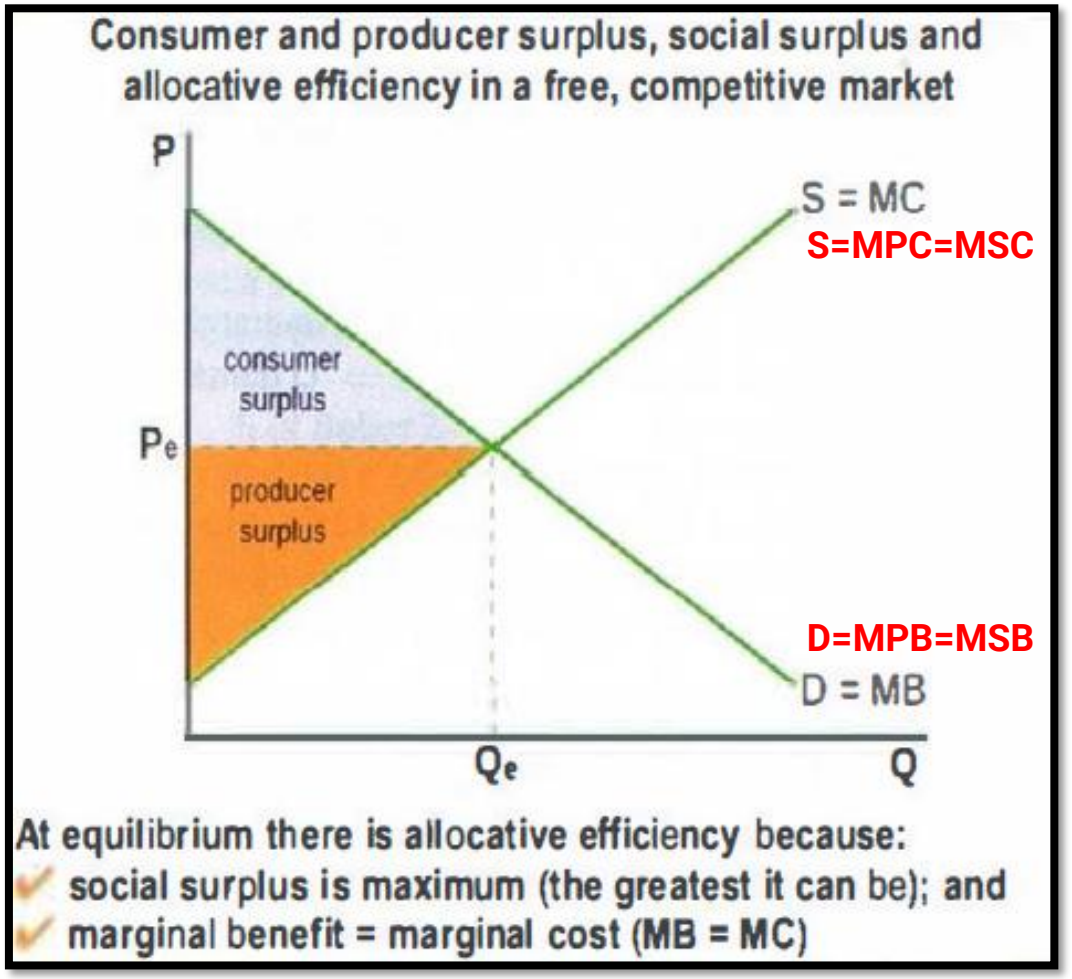
SOCIAL BENEFIT (SB) = PB + EB (External Benefit)



Allocative Efficiency

Marginal benefit {MB} = the extra benefit to consumers from consuming one more unit of a good, equal to the demand curve

Marginal cost {MC) = the extra cost to producers of producing one more unit of a good, equal to the supply curve.



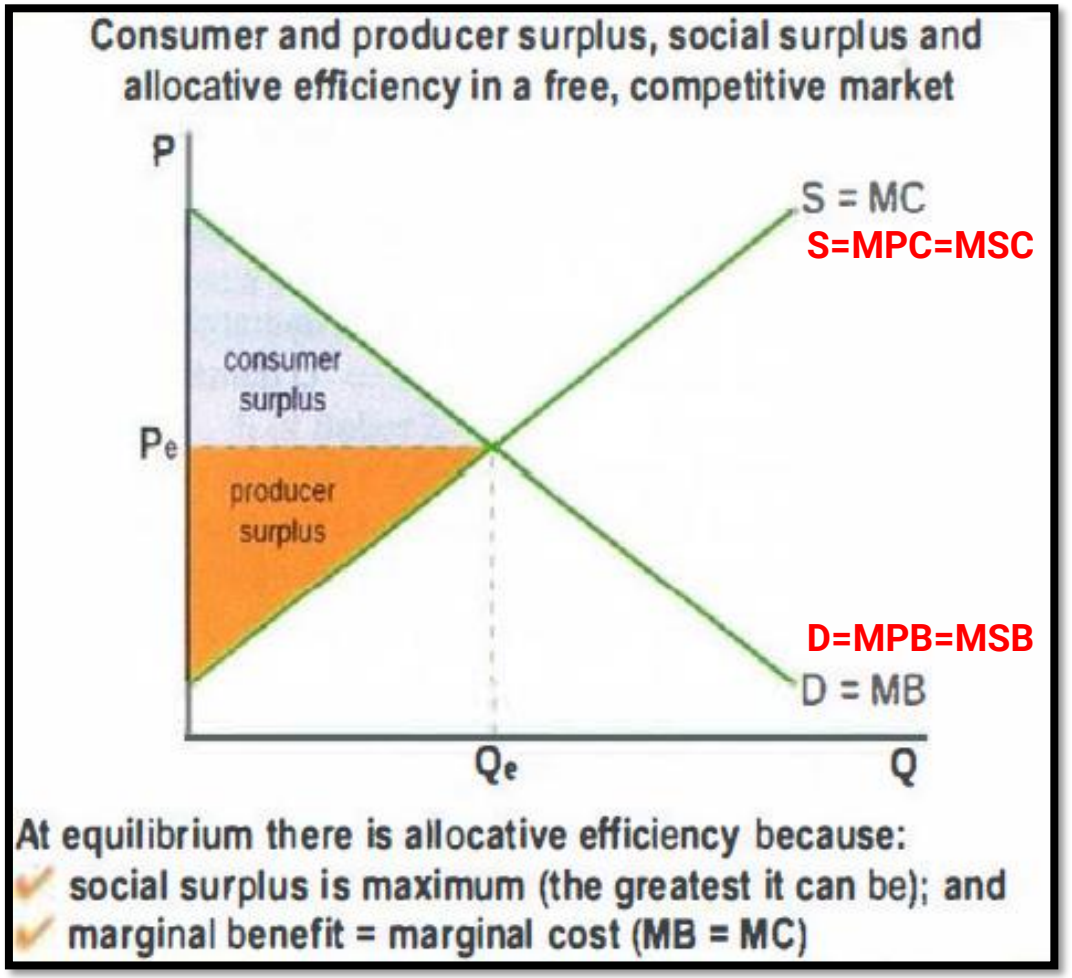
Allocative Efficiency

ALLOCATIVE EFFICIENCY WHEN:

1. Maximisation of Social Surplus (Consumer S +Producer S): **D=S**
2. Maximisation of Net social benefit:**MSB=MSC**
3. When resources perfectly follow consumer demand: **D=S**

MPC=MPB – Private Efficiency

MSC=MSB – Social Efficiency (Allocative Efficiency)



Private and Social Efficiency

- Rational behaviour involves doing more of any activity whose marginal private benefit (MPB) exceeds its marginal private costs (MPC) and less of any activity whose marginal private costs exceeds its marginal private benefits. The optimum level of consumption or production for the individual consumer or firm will be where **MPB = MPC**. This is called a situation of **'private efficiency'**.
- **Social efficiency** will be achieved when it is not possible to make anyone better off without making someone else worse off. Social efficiency is achieved where marginal social benefits (additional benefits for society arising from consumption of an additional unit of a good) equals marginal social cost (additional costs to society arising from production of an additional unit of a good) i.e. **(MSB = MSC).**

Pareto Optimality

If it were possible to make changes in the economy – changes in the combination of goods produced or consumed, or changes in the combination of inputs used – and if these changes benefited some people without anyone else being made worse off, economists would describe this as an improvement in social efficiency, or a **Pareto improvement.**

Where all possible Pareto improvements have been made: where, therefore, it is impossible to make anyone better off without making someone else worse off.– the economy is said to be **socially efficient**, or **Pareto optimal.**

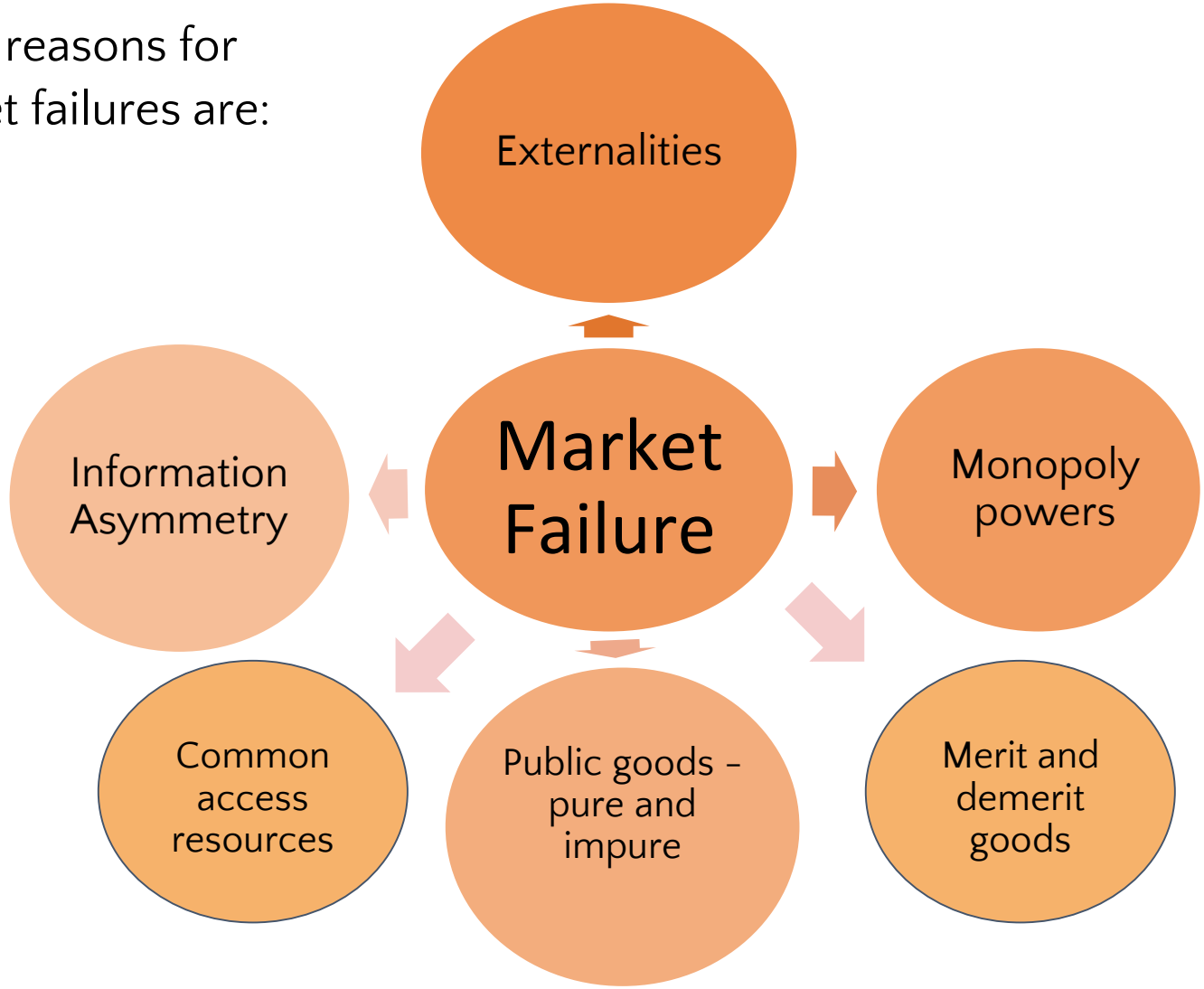
Market Failure

Market failure is the failure of the market to allocate resources efficiently, resulting in overallocation, underallocation or no allocation of resources to the production of a good or service relative to what is socially most desirable.

Thus, simply meaning that due to certain reasons the market does not achieve efficiency.

Reasons For Market Failures

Major reasons for market failures are:



1] Externalities

Externality = positive effect (benefit) or negative effect (cost) for third parties who are not part of a transaction and whose interests are not taken into account; the market fails to achieve allocative efficiency , because **marginal social benefits MSB ≠ marginal social costs MSC.**

Negative Externality = the market always over allocates resources: **too much** is produced relative to the social optimum. There is imposition of **external costs** on society

Positive Externality = the market always under allocates resources: **too little** is produced relative to the social optimum. There is creation of **external benefits** for society

Resource misallocation (overallocation or underallocation) leads to welfare loss i.e. deadweight loss for society.

Concepts

- Marginal private benefits **(MPB)** = additional benefits for consumers arising from consumption of an additional unit of a good.
- Marginal social benefits **(MSB)** = additional benefits for society arising from consumption of an additional unit of a good.
- Marginal private costs **(MPC)** = additional costs to producers arising from production of an additional unit of a good.
- Marginal social costs **(MSC)** = additional costs to society arising from production of an additional unit of a good.

External Cost and Benefits

External costs – Costs of production (or consumption) borne by people *other* than the producer (or consumer) directly involved in the transaction.

External benefits – Benefits from production (or consumption) experienced by people *other* than the producer (or consumer) directly involved in the transaction.

Suggest the external costs and benefits that arise when a company cuts down the trees of a part of the forest for setting up a technology park to conduct R&D.

Negative Externalities of Production

Producers impose external costs on society: social costs of production are greater than private costs, therefore **MSC > MPC:**

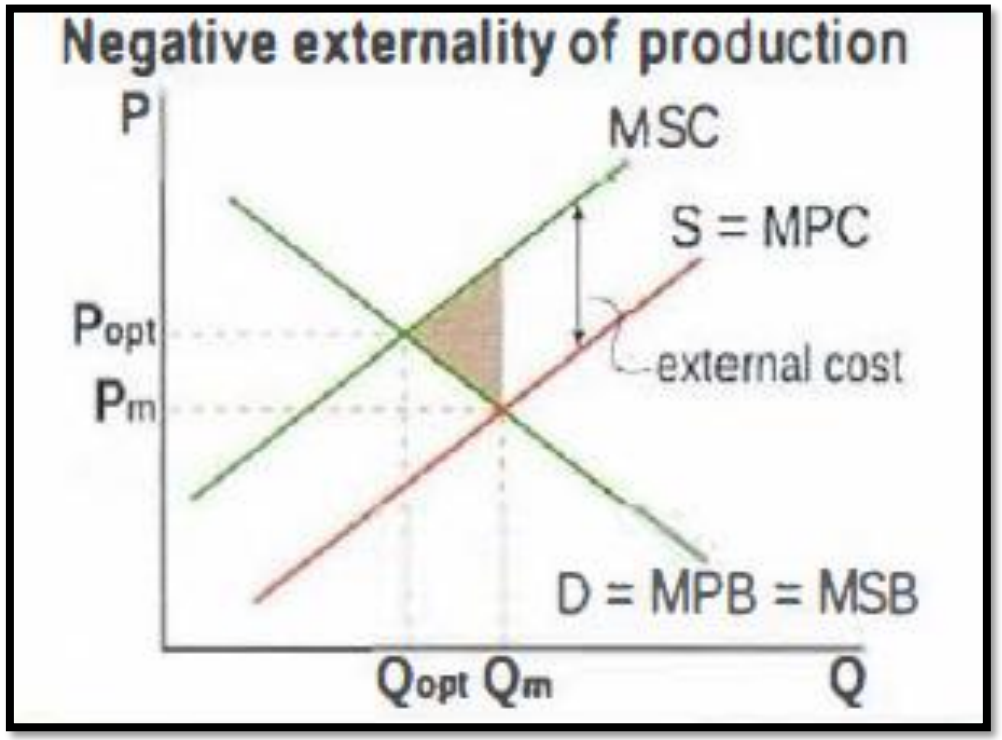
MSC curve lies above MPC curve.

Vertical difference between MSC and MPC curves = value of external costs.

Demand is not affected therefore D = MPB = MSB.

Qm > Qopt: the market over allocates resources: too much is produced.

Welfare loss (deadweight loss) is the brown shaded triangle.

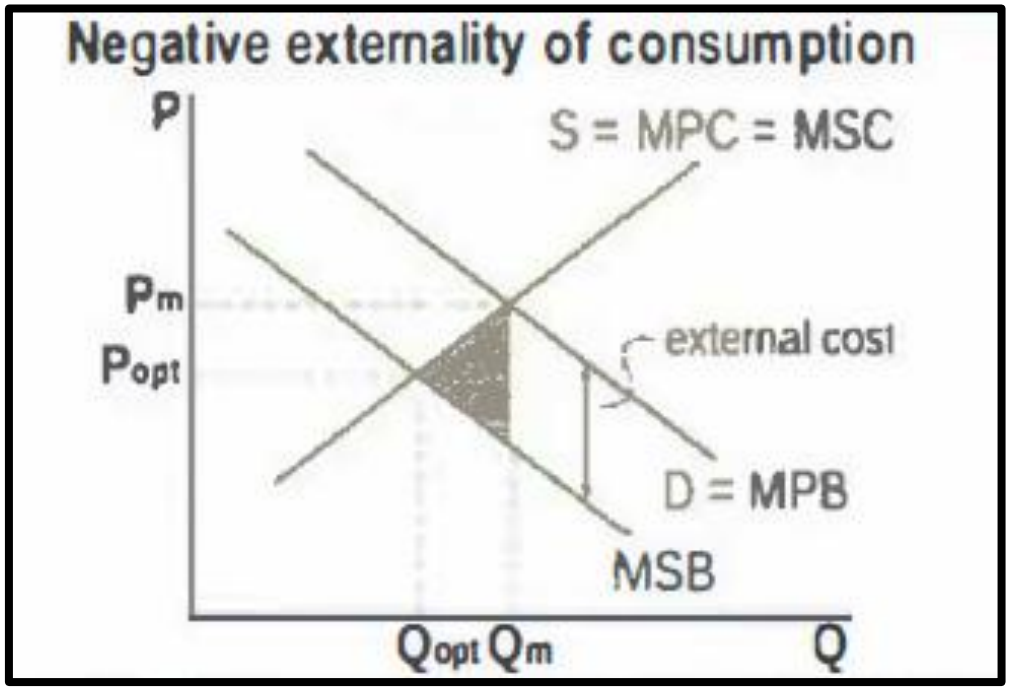


Example!

List down examples (other than mentioned below) of negative externalities of production that occur in real life:

Example: Negative production externalities include the external costs of pesticides used in intensive farming and damage to ocean beds from industrial fishing. The over-use of pesticides will pollute rivers and streams which then causes harm to those who use them.

Negative Externalities of Consumption



Consumers impose external costs on society: private consumption creates negative effects on others, therefore **MSB < MPB:**

MSB curve lies below MPB curve.

Vertical difference between MPB and MSB curves = value of external costs.

Supply is not affected therefore S = MPC = MSC.

Qopt > Qm : the market resources: too much is produced

The shaded region shows the deadweight loss.

Example!

List down examples (other than mentioned below) of negative externalities of consumption that occur in real life:

Example: Cigarette smoking, which can create passive smoking dangerous for non-smokers and also lead to increase health care costs. Consuming loud music late at night keeps your neighbours awake.

Positive Externalities of Production

Producers create external benefits for society: their production activities are beneficial for third parties, therefore **MSC < MPC.**

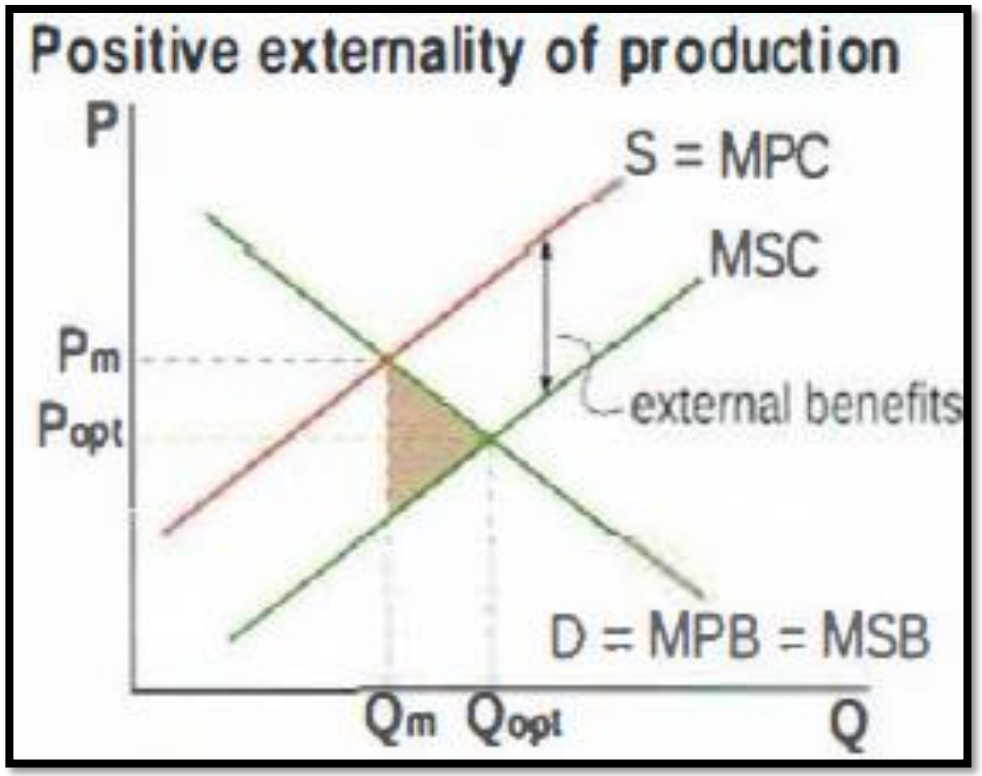
MSC curve lies below MPC curve.

Vertical difference between MPG and MSC curves = value of external benefits.

Demand is not affected therefore D = MPB = MSB.

Qm < Qopt: the market under allocates resources: too little is produced

Welfare loss (deadweight loss) is the brown shaded triangle



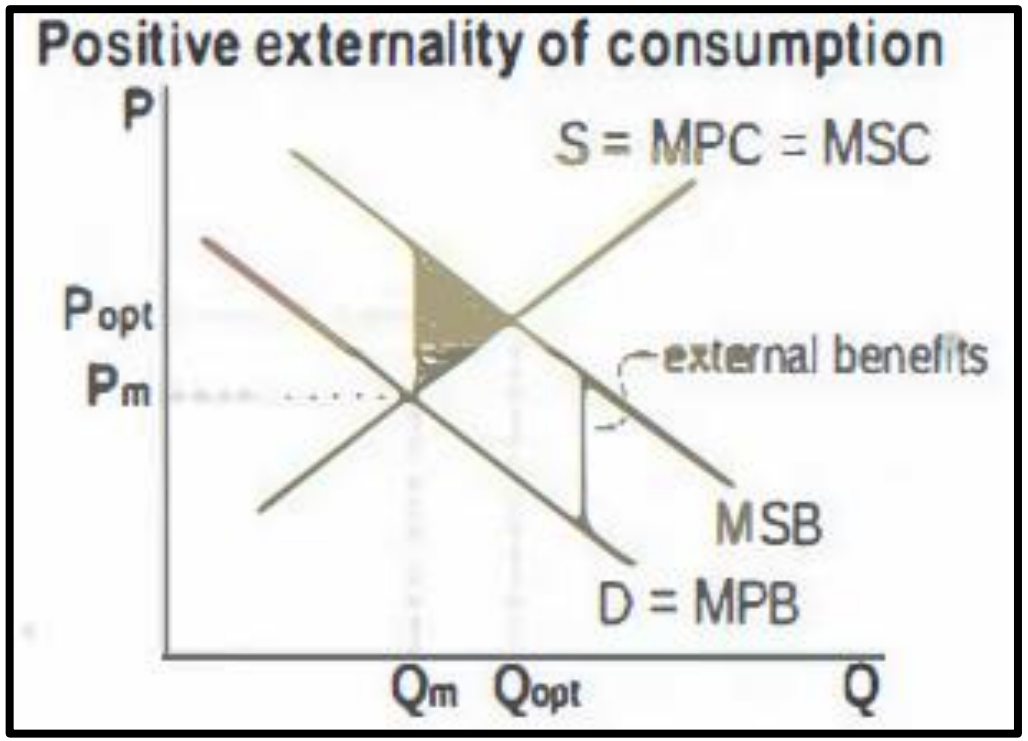
Example!

Try to think of positive production externalities that take place in and around us!

Example: If a company develops new technology, such as a database programme, this new technology can be implemented by other firms who will gain a similar boost to productivity.

Tim Berners Lee who developed the World Wide Web, made it freely available, creating a very large positive externality.

Positive Externalities of Consumption



Consumers create external benefits for society: private consumption is beneficial for third parties, therefore **MSB > MPB.**

MSB curve lies above MPB curve.

Vertical difference between MSB and MSC curves = value of external benefits.

Supply is not affected therefore S= MPC = MSC.

Qm < Qopt : the market under allocates resources: too little is produced.

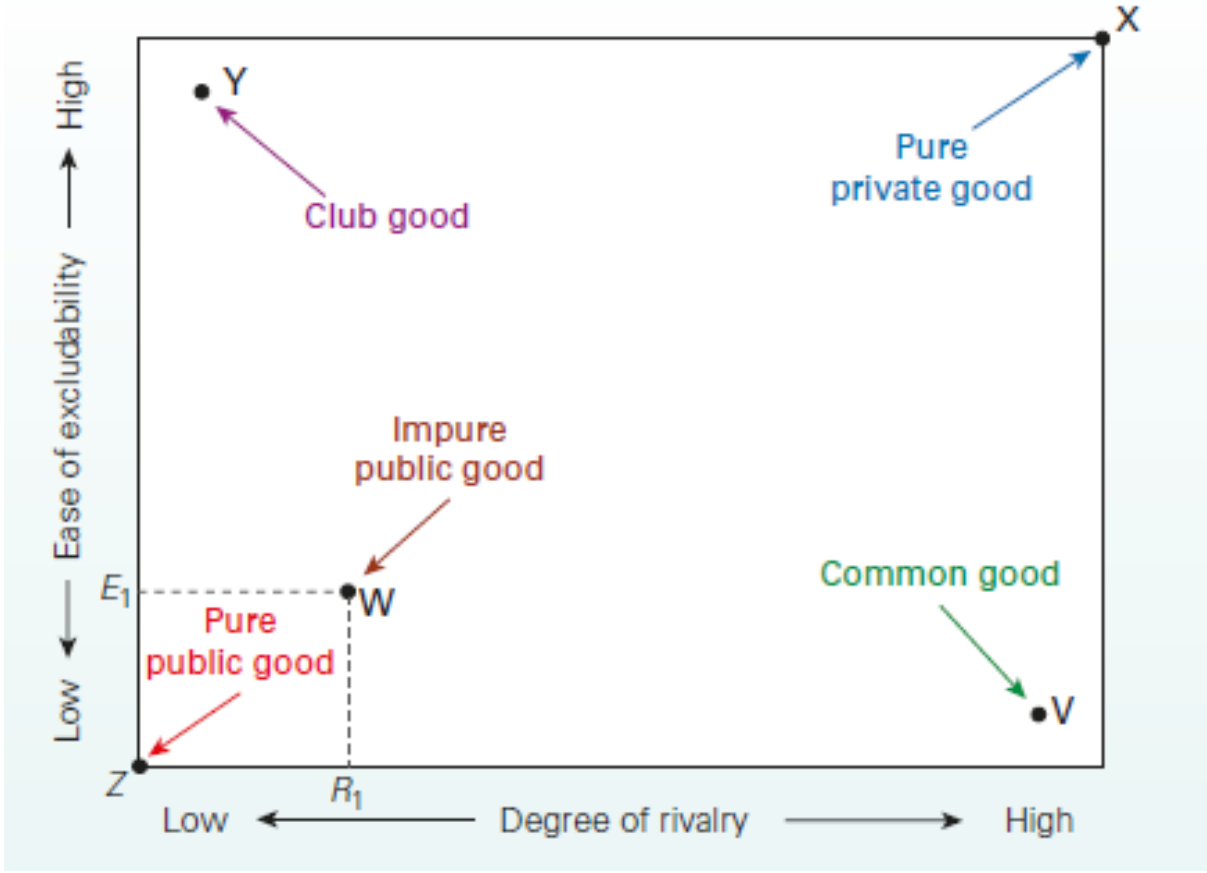
Example!

Now try to think of positive consumption externalities that we see!

Example: The most recent positive externality is due to the consumption of face masks in the pandemic of 2020. People use face masks for their own security so that they do not get contacted to the Covid virus. But while doing this, they also protect the health of others around them. This has proved to a very great positive consumption externality.

Non-rivalry and non-excludability

- **Non-rivalry** Where the consumption of a good or service by one person will not prevent others from enjoying it.
- **Non-excludability** Where it is not possible to provide a good or service to one person without it thereby being available free for others to enjoy.

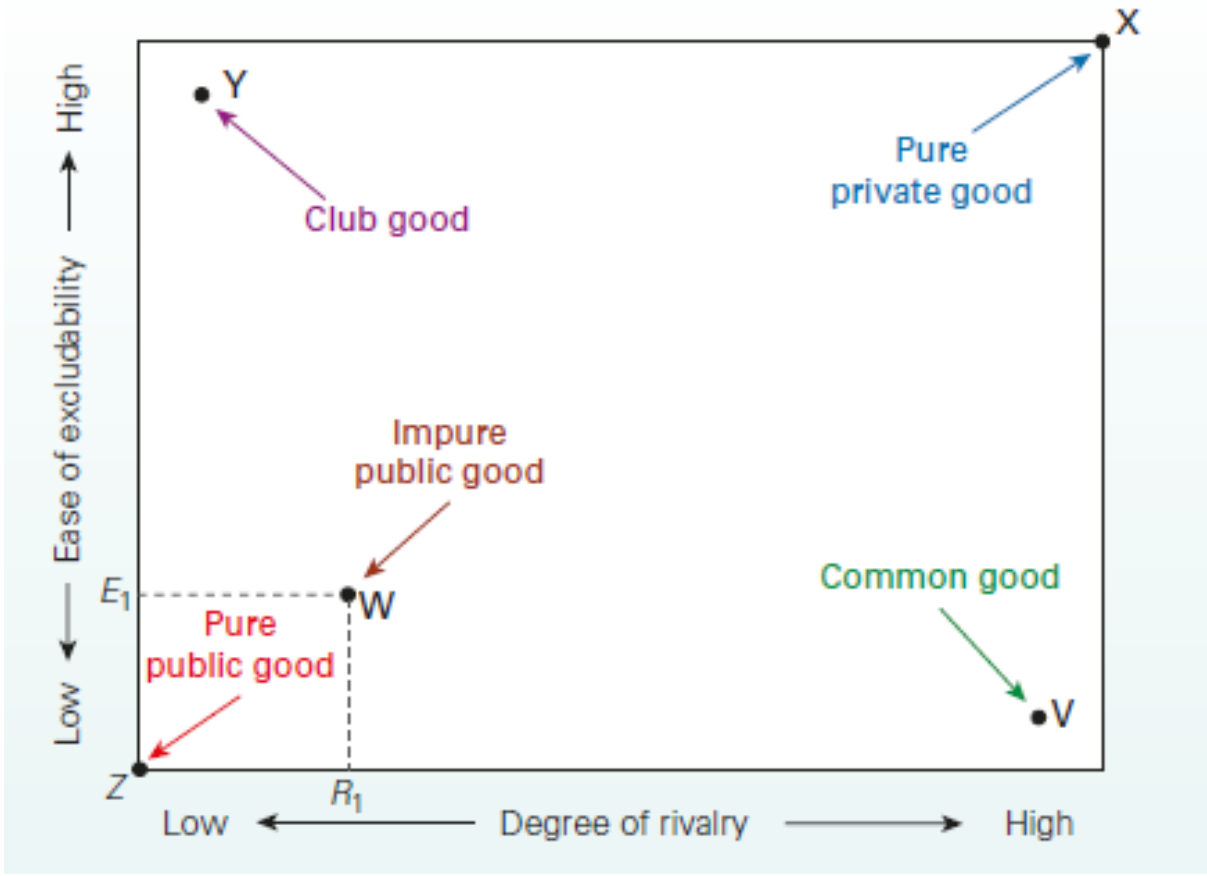


2] Public Goods

Public good = a good that is non- rivalrous (its use by one does not make it less available for use by others) and non excludable (it is not possible to charge a price and therefore exclude people from using the good). Ex national defence, the police force, lighthouses, knowledge, street lights.

Pure and Impure public goods

- **Pure public good** – A good or service that has the characteristics of being perfectly non-rival and completely non-excludable and, as a result, would not be provided by the free market.
- **Impure public good.** – It has a low level of rivalry, without being perfectly rivalrous, and it is difficult, but not impossible, to exclude non-payers.



Club Goods

Club good – A good which has a low degree of rivalry but is easily excludable. Wireless Internet connection on a train or in a café are examples of a club good if a password is required; other examples include subscription TV services, such as Netflix or Amazon Prime.

Common good or resource

Common good or resource – A good or resource that has a high degree of rivalry but the exclusion of non-payers is difficult. The high degree of rivalry means that the quantity or quality of the common resource available to one person is negatively affected by the number of other people who consume or make use of the same resource.

Fishing in the open ocean is an example. In the absence of intervention, fishing boats can catch as many fish as is possible. There is no 'owner' of either the fish or the sea to stop them. As one fishing boat catches more fish, it means there is less available for other fishing boats:

Tragedy of the commons – When resources are commonly available at no charge, people are likely to overexploit them. As seen above in the example.

Activity!!

Classify the following as public goods, club goods, common resources or none of these.

- Sunlight
- Gardens
- Public parking places
- Naval force
- Ice-creams
- Lighthouses
- Highways subject to tolls
- Public sanitation places
- Healthcare
- Amazon-Prime

Market Failure due to Public goods

Free rider problem occurs when people use a good without paying for it; it is closely related to non excludability.

When it is not possible to exclude people from using a good (ex a lighthouse) by charging a price for it, they take a "free ride", i.e. they use it without having to pay for its use.

Public goods represent market failure because of the free rider problem.

Since it is not possible to charge a price for the good, private firms will not produce it, even though it may be socially desirable and consumers may have a demand for it. Firms will not produce it because without a price it will be impossible for them to cover their costs.

Public goods are therefore a type of market failure because the market (i.e. private firms) fail to produce it at all.

Merit and Demerit Goods

- **Merit goods** are goods whose consumption creates positive consumption externalities. They are socially desirable but underprovided by the market and under consumed. It requires government policies to increase their provision (production) and consumption. Ex: education, health care, infrastructure roads, sanitation, sewerage systems .

- **Demerit goods** are goods whose consumption creates negative consumption externalities. They are socially undesirable but are overprovided by the market and over consumed. It requires government policies to reduce their provision (production) and consumption.
  Ex: cigarettes, gasoline as fuel for cars .

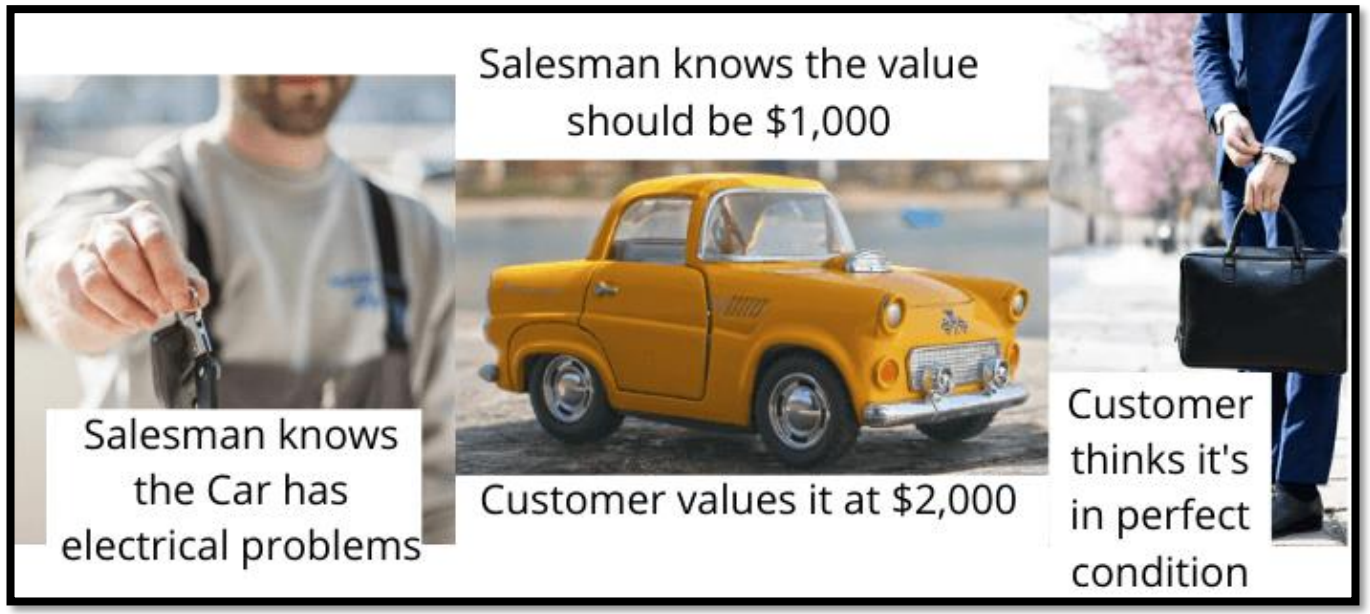
3] Asymmetric information

Asymmetric information is a type of market failure occurring when one party to a transaction (buyer or seller) has more information than the other party, leading to allocative inefficiency.

When sellers have more information than buyers

Examples: Sellers of used cars know more about the car's condition than the buyer; sellers of food and medicines (or in general, items important to human health) know more about the products they are selling than buyers etc.

In a free, unregulated market, these knowledge asymmetries usually result in an **underallocation of resources** to the production of the good or service, because buyers try to protect themselves against the risk of purchasing a good or service that is not in their best interests.



When buyers have more information than sellers

Two kinds of problems arise when the buyers know more, basically in the insurance industry.

1. The problem of adverse selection: the buyer of health insurance knows more about the condition of his/her health that the seller; this results in an underallocation of resources to health insurance, as sellers try to protect themselves against high-risk (i.e. unhealthy) insurance buyers, and also results in high prices for health insurance policies.

2. The problem of moral hazard: the buyer of insurance changes his/her behaviour after the purchase of insurance, increasing the chances of risky behaviour. Ex: the purchase of car theft insurance may make the buyer less careful about locking his/her car.

4] Abuse of monopoly power

Monopoly power is the ability of a firm to influence the price of the good that it produces and sells; it is type of market failure because it results in an underallocation of resources to the production of the good in question, and hence in allocative inefficiency and welfare loss.

Market failure in a monopoly can occur because not enough of the good is made available and/or the price of the good is too high. Without the presence of market competitors it can be challenging for a monopoly to self-regulate and remain competitive over time.

For example, De Beers is known around the world for creating the finest diamond engagement rings, wedding rings and other elegant diamond jewellery you'll treasure. De Beers used its monopoly power to control the supply of diamonds in the 20th century. As a result, customers paid higher prices, leading to an inefficient allocation of resources.

Good time Reading

https://www.thehindubusinessline.com/opinion/why-the-public-healthcare-system-is-seeing-a-market-failure/article31850960.ece

https://www.afr.com/wealth/personal-finance/coronavirus-is-creating-classic-market-failure-20200228-p545c3

https://www.huffpost.com/entry/the-4-or-5-worst-market-f_b_3807114