

1.3.1 INTRODUCTORY CONCEPTS

The **scientific method** consists of putting forward a theory with supported evidence gathered from experiments and observations.

In social sciences, this data is gathered from the real world, as experiments aren't possible.

A **model** is then formed using the data gathered. Assumptions are used to simplify it. The **Ceteris Paribus** assumption states that all factors apart from the one investigated remain unchanged.

Positive statements are those that can be proven true or false. **Normative statements** are those of opinions and viewpoints.

SCARCITY

The **basic economic problem** is the problem of **scarcity**: infinite wants and finite resources. This problem applies to all **economic goods**, which are goods that are (or are made of) scarce resources. Goods that aren't scarce are called **free goods**.

Renewable resources are ones that can be replenished. **Non-renewable resources** are ones that have a finite supply.

To solve the basic economic problem, resources have to be allocated. This is done through asking the 3 basic economic questions:

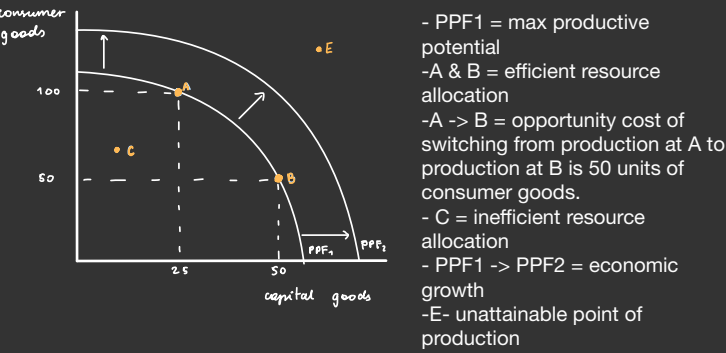
- what to produce?
- how to produce?
- for whom to produce?

This, in turn, leads to **opportunity cost**, which is the benefit lost from the next best alternative foregone when making decisions.

The 4 factors of production are the 4 groups of resources used in production:

- land- natural resources
- labour- human resources
- capital- man-made resources
- enterprise- control of the other 3 factors

The **PPF/ production possibility frontier** is a curve showing all the possible combinations of 2 goods an economy can produce when all its resources are used fully and efficiently.



A shift from PPF1 to PPF2 indicates a growth in the productive potential of the economy, as more of each good can be produced without opportunity cost. This shift can be caused by an increase in the quantity of the resources of production and/or the quality of the resources of production. For example, through technology innovation, better education, more training etc.

Consumer goods are goods that satisfy the consumer wants and needs. E.g clothes
Capital goods are goods that are used in the production of other goods. E.g machinery

On a PPF, 2 types of efficiency can be represented:

- productive efficiency**-maximizing the number of goods that can be produced with a set of resources
- allocative efficiency**- the point where the social welfare due to resource allocation is maximized.

SPECIALIZATION

Specialization is the division of the production process into simpler, more focused tasks. **Division of labour** is the specialization of workers.

Specializing at a task means workers become more efficient at doing it. This is because:

- each person is specialized at what they are best at.
- workers become very skilled at their task
- there is no switching between tasks, which saves time
- allows for easier use of machinery

This leads to microeconomic advantages of:

- increase in output
- reducing unit costs as producing a unit of a good becomes faster, which leads to more goods being produced
- improved quality of goods as workers become more skilled

However, also leads to the following disadvantages:

- work becomes more monotonous, leading to high absenteeism and high labour turnover
- workers lose motivation, which can lead to lower productivity and product quality
- workers can become alienated and/or depressed
- there is threat of structural unemployment if industry goes into decline.
- reduction of work force flexibility

FUNCTIONS OF MONEY

- a **medium of exchange**
- a **store of value**
- a **measure of value**
- a **method of deferred payment**

Money solves the problems of **barter**, which is the exchange of goods without the medium of money (for example trading a cow for an axe). Problems with barter:

- hard to fix a rate of exchange: how many cows is an axe worth
- double coincidence of wants**: in order to barter, both people have to want what the other one has and have what the other one wants
- saving**: there are goods which you cannot store for future exchange. E.g food

Money needs to be durable, divisible, acceptable, portable and scarce

The **financial market** is where the exchange of financial assets takes place (shares, currency, bonds). The roles of the financial markets:

- to facilitate saving
- to facilitate the exchange of goods and services
- providing forward market for currencies
- provide market for equities (stocks)

These roles fall on the commercial banks, investment banks and central banks.

Commercial banks:

- lend money to economic agents
- provide efficient means of payment
- accept deposits and provide security, thus facilitating saving
- provide customer service like foreign exchange and insurance

Investment banks:

- give advice on mergers and acquisitions
- advice on debt and raising money through equity
- buying and selling government bonds

Central banks:

- overseeing the monetary policy
- other macroeconomic goals

Types of economic systems

In a **free market economy**, market forces allocate resources through the **market mechanism**. There, the price and quantity produced of a good/service are determined by the forces of supply and demand. There is no government intervention.

+competition between firms leads to maximized efficiency
+there is more consumer choice as each firm will produce different goods in different ways
+there is more monetary investment to succeed, which encourages innovation

- wealth inequalities
- no regulation, leading to markets for harmful/demerit goods e.g. drugs
- little control of goods/services with negative externalities
- no public goods
- under provision of merit goods

In a **command/planned economy**, resources are allocated by the government through planning and rationing

+equality in wealth
+no demerit goods
+no unemployment

- potential exploitation of the labour force
- little consumer choice
- high chance of government failure
- little innovation as no incentive
- low efficiency as there is no profit incentive to maximize productive efficiency

In a **mixed economy**, resources are also allocated by both the government and the market mechanism. Here's the government will intervene in the market to:

- reduce negative externalities
- provide **public goods**
- encourage **merit goods**
- discourage **demerit goods**
- control macroeconomic variables
- create regulations



1.3.2 CONSUMER BEHAVIOR AND DEMAND

RATIONAL DECISION MAKING

Rational decision making is the assumption that consumers aim to **maximize utility** and producers aim to maximize profit.

Maximization is obtaining the most you can from an economic activity.

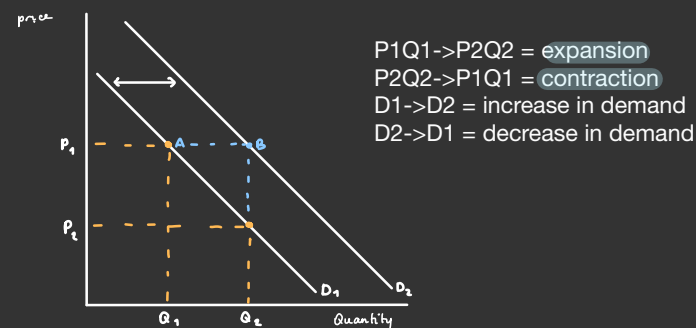
Profit satisfying means operating at a level below maximization in a way that satisfies the owners' needs. E.g. working less to enjoy leisure

Reasons why consumers behave irrationally:

- herding-the influence of other people's behavior
- habitual behavior-doing something because it is automatic and routine, as opposed to being preceded by conscious behavior
- inertia- the tendency to avoid change
- poor computational skills- not having the technical abilities to figure out which decision is best. E.g. not being able to calculate what deal is better
- the need to feel valued. E.g. following fashion and trends
- framing and bias- prejudice against brand
- information failure

DEMAND

Demand is the quantity of a good/service consumers are willing and able to buy at a given price.



A movement along the demand curve is either a contraction or expansion, always caused by a change in the price of a good or service resulting from a change in supply

A **shift** in the demand curve happens due to an increase/decrease in actual demand. An increase in demand means consumers are willing to buy a higher quantity of a good/service at every price. It is the reverse with a decrease in demand. Demand can be influenced by the following factors:

- income
- fashion
- advertising
- time of year. E.g. demand for coats will be low in summer
- population- more people means higher quantities of goods are in demand
- substitutes-if the good has many alternatives, its demand may be lower
- complements- for goods the demand of which are tied, the rise in demand for one may cause a rise in demand for the other. E.g. if the demand for iPhones rises, the demand for iPhone cases may rise
- availability of credit- more available credit-> more expendable money-> higher demand for goods/services

Diminishing marginal utility states that the additional utility of each extra unit of a good consumed decreases as its consumption increases. It is why demand is downward sloping, as the bigger the quantity that is bought, the smaller the price people are willing to pay for an additional unit of good is.

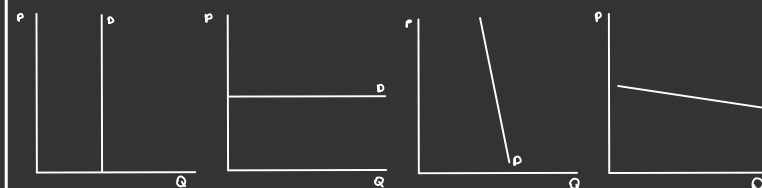
ELASTICITIES OF DEMAND

The **PED/price-elasticity of demand** is the responsiveness of demand to a change in price

$$PED = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}}$$

The value of the PED corresponds to the elasticity:

- 0 = perfectly inelastic-quantity demanded is the same no matter the cost
- $0 < PED < -1$ = inelastic- quantity demanded is unresponsive to changes in price
- -1 = unitary elasticity- an increase in price by 5% will cause a decrease in quantity by 5%
- $PED < -1$ = elastic-quantity demanded is responsive to changes in price
- Infinity = perfectly elastic- the good will only be brought at one price



Perfectly inelastic Perfectly elastic Inelastic Elastic

Elasticity of demand depends on:

- substitutes
- time- how time dependent is the purchase of a good: is it an emergency, or is there time to search for alternatives
- necessity- some goods are luxuries and you can do without them, while others are necessary (e.g. food or medicine)

The **YED/ income elasticity of demand** measures how responsive demand is to changes in income levels.

$$YED = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in income}}$$

How the value of the YED corresponds to the elasticity:

- $0 < YED < 1$ = inelastic
- $YED > 1$ = elastic
- $YED < 0$ = inferior good

When $YED < 0$ the good is said to be **inferior**, which means that the demand for it decreases as incomes increase. This happens, for example, for goods that are the cheap alternatives, like fake designer bags. A **normal good** is one for which the demand increases as incomes increase. This is the case for most goods.

A good being income inelastic indicates that the good is a **necessity** rather than a luxury.

YED is determined by:

- the level of income: lower incomes will spend a bigger percentage of their incomes on necessities. As people become wealthier, the YED for these necessities will move closer toward 0 as they take up a smaller percentage of income. This is also the case for luxuries, which means that goods that are considered luxuries for lower income families may be considered more as necessities for higher income families. E.g a new phone may haste a YED between 0 and 1 for higher incomes, but higher than one for lower incomes.
- standards of living: wealthier countries' citizens will have more disposable incomes, so for them more goods will have inelastic YED.
- economic cycle- when the economy is in decline, security and consumer confidence is low so people will spend less money on luxuries and more money on inferior goods.

XED/ cross-elasticity of demand is the responsiveness of demand for good X to changes in the price of good Y.

$$XED = \frac{\% \text{ change in quantity demanded of good X}}{\% \text{ change in price of good Y}}$$

How the value of the YED corresponds to the elasticity:

- $XED > 0 \rightarrow$ the correlation is positive \rightarrow the goods are substitutes
- $XED < 0 \rightarrow$ the correlation is negative \rightarrow the goods are complements
- $XED = 0 \rightarrow$ no relationship

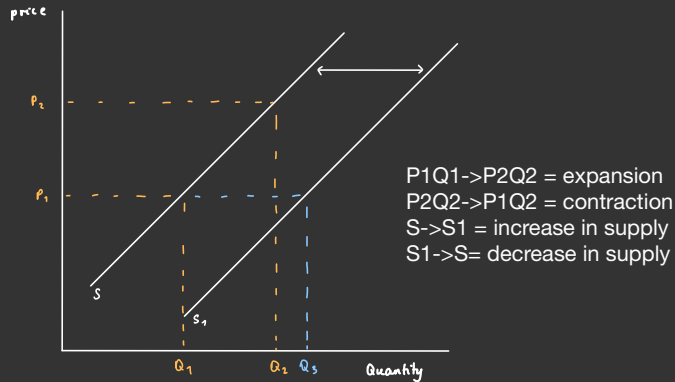
The closer the value is to 0, the more independent the two goods are from each other. The more dependent they are, the bigger the XED will be.

How firms utilize the XED:

- firms will aim to differentiate goods from competition so as to make them less substitutable. This is because a firm with less substitutes can increase the prices of it's goods more (the less substitutes a good has, the more price inelastic it is)
- firms will try to produce goods that accompany their main one. E.g. iPhone cases or AirPods

1.3.3 SUPPLY

Supply is the quantity of a good/service a producer is willing and able to sell at any given price.



A movement along the curve is either a contraction or expansion, and is always caused by a change in the price of a good/service resulting from a change in demand.

A **shift** in supply means an increase or decrease in supply. This means that there is an increase/ decrease in the quantity of a good a producer is willing to produce at every price. This is caused by changes in:

- weather- natural disasters, climate...
- technology- new technology means a more efficient and faster production process, increasing supply
- costs of production- increase in costs of production means less profit and decrease in supply
- taxes and subsidies- taxes mean an increase in costs, while subsidies cause decrease in costs
- industrial relations- e.g. are the workers happy with the wages?
- profitability in other industries- if other industries are more profitable, there is an incentive to switch production, decreasing supply of the original good.
- expectations- do producers expect the demand for the good to increase?

ELASTICITY OF SUPPLY

PES/ price elasticity of supply is the responsiveness of quantity of supply to changes in price.

$$PES = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$$

How the values correspond to elasticity:

- 0= perfectly inelastic
- $0 < PES < 1$ = inelastic
- 1= Unitarian elastic
- $PES > 1$ = elastic
- Infinity= perfectly elastic

PES determinants:

- costs of increasing output
- substitutes- what else can be produced instead?
- ease of switching production to more profitable industry
- time: goods are likely to be price inelastic in short-run as it is difficult to increase production quickly. Will be more elastic in long-term as there is too me top increase production.
- spare capacity will determine the speed and ease of increasing quantity supplied
- mobility of factors of production: occupational and geographical.

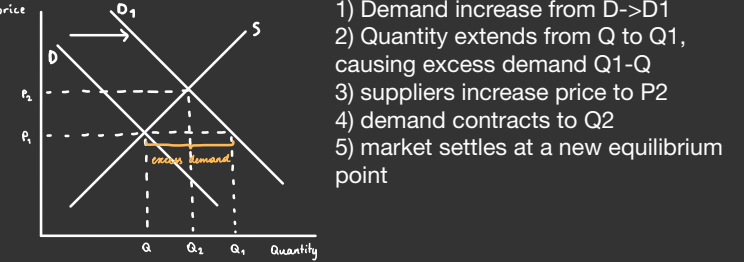
1.3.4 PRICE DETERMINATION

Market equilibrium is the point where demand equals supply. The equilibrium price is one at which the quantity of a good supplied will equal the quantity of good demanded. Market forces will always push toward market equilibrium. If the price is too low, causing excess demand, suppliers will increase prices toward P_e to get higher profits.

If the price is too high, causing excess supply, prices will fall because not enough people will purchase the product at the current price. Lowering the price will cause demand to extend, so that more of the good is purchased

Functions of the market mechanism:

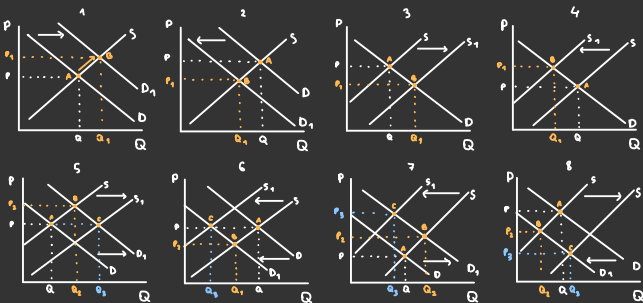
-**Rationing function**- the quantity of a good/service is restricted by the limited demand and supply. If demand rises, there is excess demand, causing suppliers to raise prices. At these prices, less of the good/ service is bought so the quantity is restricted. Scarce resources are thus rationed and conserved more.



- The **signaling function** will give a signal to consumers/producers as to whether to enter or leave a market. e.g if the price for iPhones falls, this may signal to consumers to enter the market for iPhones
- the **incentive function**- rising prices will give producers the signal to supply more of a good/service to get more revenue. Falling prices cause a loss in revenue, so there is less incentive to increase supply/ keep production at the current level.

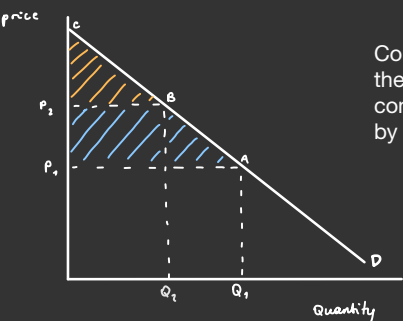
All situations to consider for market mechanism:

- 1) Demand increase when supply is constant
- 2) Demand decrease when supply is constant
- 3) Supply increase when demand is constant
- 4) Supply decrease when demand is constant
- 5) An increase in demand and supply both
- 6) A decrease in demand and supply both
- 7) An increase in demand and decrease in supply
- 8) A decrease in demand and increase in supply



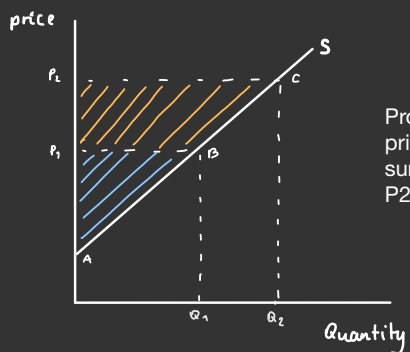
CONSUMER AND PRODUCER SURPLUS

Consumer surplus is the difference between the price a consumer is willing to pay and the price they actually pay.



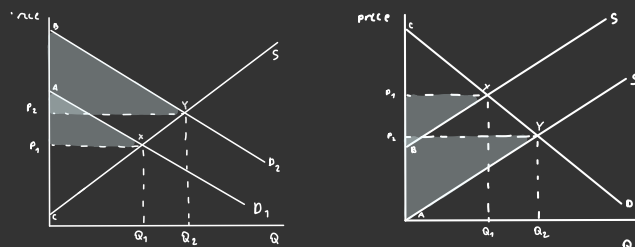
Consumer surplus = CAP1. If the price rises to P2, consumer surplus decreases by P1P2BA to P2BC.

Producer surplus is the difference between the price a producer is willing to sell a good at and the price they actually receive.



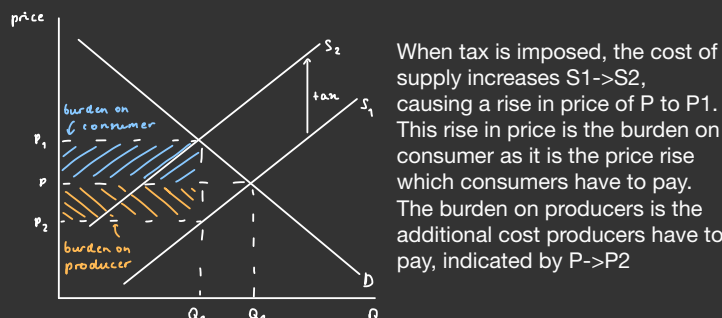
Producer surplus = P1AB. If price rises to P2, producer surplus rises by P2P1BC, to P2AC.

Surpluses when demand/supply increase/decrease



TAXES AND SUBSIDIES

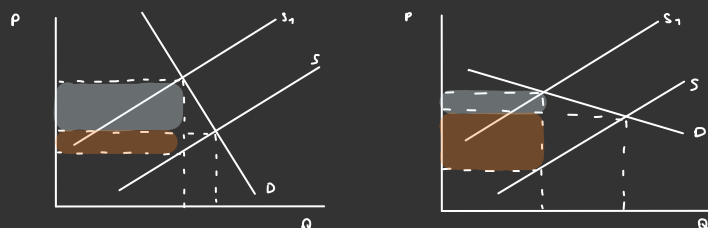
Taxes are charges on goods, businesses and individuals. **Subsidies** are government grants that incentivize the production/consumption of a good or service.



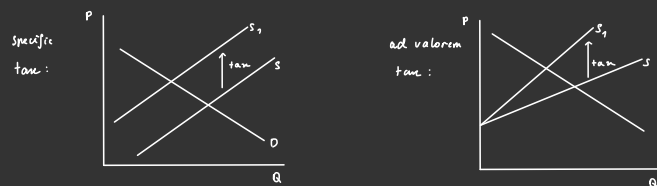
When tax is imposed, the cost of supply increases $S_1 \rightarrow S_2$, causing a rise in price of P to P1. This rise in price is the burden on consumer as it is the price rise which consumers have to pay. The burden on producers is the additional cost producers have to pay, indicated by $P \rightarrow P_2$.

The ratio of consumer and producer tax burden is determined by the elasticity of demand. If demand is inelastic, that means it is unresponsive to changes in price, so producers can afford to put more of the tax incidence on consumers without demand contracting significantly, thus retaining their profits.

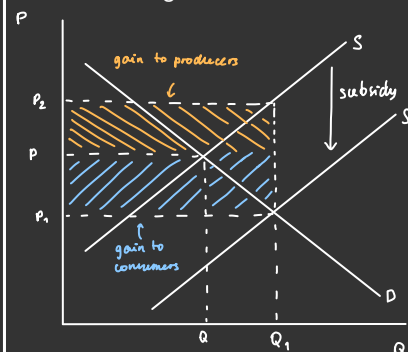
When demand is price elastic, it is responsive to changes in price, so increasing the prices significantly will result in significant losses in profit. Therefore, producers will pass on less of the tax to consumers.



There are 2 types of taxes. A **specific tax** is a set amount per unit. An **ad valorem tax** is a tax that is a percentage of a price of a good/service. An ad valorem tax will be more expensive at higher prices.



When a subsidy is given, the cost of supply decreases, causing it to shift to the right.



The shift from $S \rightarrow S_1$ causes the price for the good/service to fall from $P \rightarrow P_1$. This price drop benefits the consumers, which is why that area is the "gain to consumers". $P \rightarrow P_2$ is the gain to producers as it represents the fall in production costs.

1.3.5 MARKET FAILURE

Market failure happens when the market is unable to allocate resources efficiently in a way that satisfies society's wants/needs. **Complete market failure** is when there is no market at all for a good/service.

Partial market failure is when a market exists, but there is a misallocated number of resources.

Types of market failure:

- externalities
- public goods and the free rider problem
- information failure
- moral hazard
- speculation and market failure

EXTERNALITIES

Externalities are the costs and benefits to the third party created by an economic activity. **Negative externalities** are costs (e.g. pollution created through manufacturing), while **positive externalities** are the benefits.

Private costs are costs of an economic activity paid by the economic agent performing it (e.g. paying the monetary cost for a chocolate bar).

External costs are those paid for by the third party (e.g. pollution caused by the manufacture of said chocolate bar). **Social costs** are those paid for by the society: external+private costs.

Negative externalities occur when $\text{social costs} > \text{private costs}$, i.e. there are external costs. Positive externalities occur when $\text{social benefit} > \text{private benefit}$, i.e. there are external benefits.

MPB-marginal private benefit= private benefit of consuming one more unit

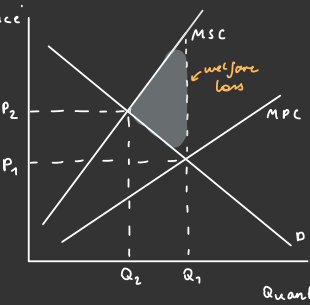
MSB- marginal social benefit= social benefit of consuming one more unit

MPC-marginal private cost= private cost of producing one more unit

MSC-marginal social cost= social cost of producing one more unit

4 types of externalities:

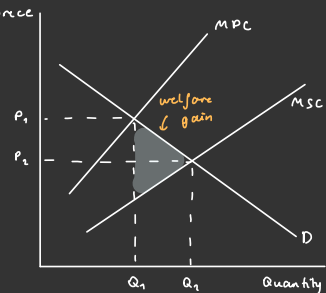
1) negative production externality:



MSC is higher (as private cost + external cost is higher than private cost alone) so it is to the left of MPC. Market price is P1, with quantity produced of Q1. Social optimum is P2Q2- a higher price and a lower quantity. So, firms are overproducing by Q1-Q2, which means there is allocative inefficiency.

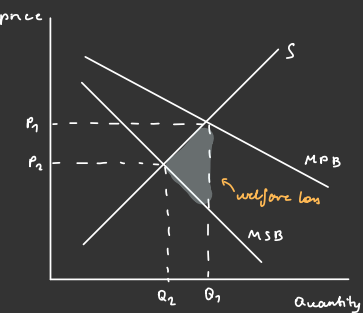
Firms will operate at P1Q1 instead of P2Q2 because they will only consider the private benefit.

2) positive production externality



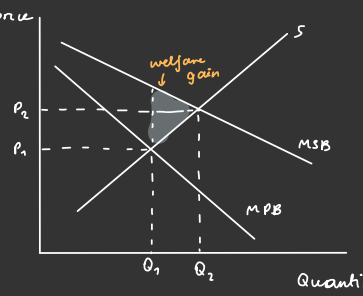
MSC is to the right of MPC because there is external benefit to the production. Market operates at P1Q1. Social optimum is P2Q2. Underproduction by Q2-Q1. Price too high by P1-P2.

3) Negative consumption externality



MPB is to the right of MSC, as there are external costs to consumption. Market operates at P1Q1. Social optimum is P2Q2. Overconsumption by Q1-Q2. Overvalued by P1-P2.

4) Positive consumption externality



MSB is to the right because there are external benefits to consumption. Market operates at P1Q1. Social optimum is at P2Q2. Underconsumption = Q2-Q1. Undervalued by P2-P1 (consumers don't appreciate full value of good/service).

PUBLIC GOODS

A public good is one that is non-rival and non-excludable. Non-rival means that one person's consumption of the good doesn't reduce the amount available to others. Non-excludable means that once it is provided, you can't stop someone from consuming the good. An example of a public good is street lighting.

Public goods cause market failure because of the free-rider problem, which is when someone will benefit from a good/service without paying for it. This means that in a free-market economy, public goods won't be supplied as there is no way to make profit off of them. This is market failure, as goods in demand will not be supplied/will be under supplied.

A private good is rival and excludable. Quasi-public goods are public goods that take on some characteristics of private goods.

INFORMATION FAILURE

Information failure occurs when consumers and producers don't have symmetrical information. I.e. have asymmetrical information. Symmetrical info. is when the information relevant to a transaction is known by both parties participating in it. Asymmetrical info. is when some parties have more information about the transaction than others.

This causes market failure because it is harder for economic agents to undertake rational decision making when they don't have enough information. So, resources may be misallocated.

Perfect knowledge is a theoretical concept where everyone in a market is aware of all the relevant information when making decisions.

- Examples of information failure:
- education: children don't understand the importance of education
 - pensions: young people aren't informed about the importance of saving
 - insurance: sellers have more information about the services they sell
 - healthcare: doctors have more information than patients.

MORAL HAZARD & SPECULATION

Moral hazard is a situation when someone has an incentive to increase their exposure to risk because they don't bear its full cost. E.g. in the case of insurance.

Speculation is conducting a financial transaction that has a significant risk of failing but also holds a significant gain if it succeeds.

Speculation can lead to market bubbles arising. Market bubbles are rapid increases in the market value, followed by a burst, where prices crash. In a market bubble, the price of an asset is above the asset's intrinsic value. This happens because the heightened demand is a result of expectations of prices rising in the future, rather than an actual increase in value.

For example, when demand for houses rises, people invest in property in order to make a profit. Others see that the demand is rising, so even more houses are bought. However, most people are buying houses not because they need the property, but in order to sell them later on. At some point everyone will start selling houses, but there will be no takers, causing prices to crash.

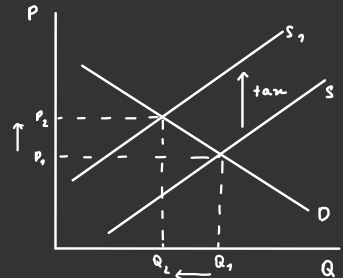
1.3.6 GOVERNMENT INTERVENTION IN MARKETS

The government will intervene in markets in order to reduce market failure. They will aim to:

- reduce negative externalities
- increase positive externalities
- provide public goods
- increase merit goods
- decrease demerit goods
- provide information
- (Also implement various macroeconomic policies to help achieve macroeconomic goals, but this is not part of microeconomics)

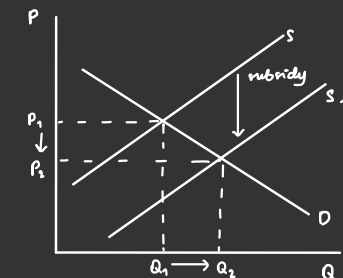
Methods of intervention:

1) Introducing indirect taxation in order to discourage consumption of a good/service



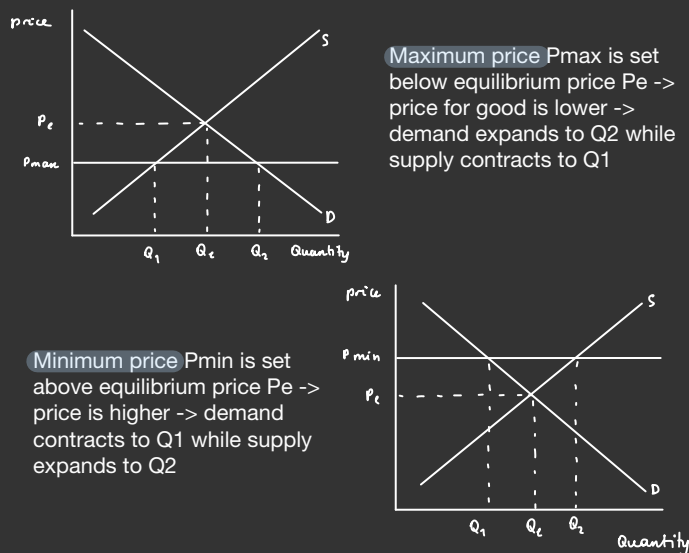
Tax -> decrease in supply as production becomes more expensive and less profitable -> prices rise (P1 -> P2) -> demand contracts (Q1 -> Q2) -> consumption falls.

2) introducing subsidies in order to encourage consumption of a good/service.

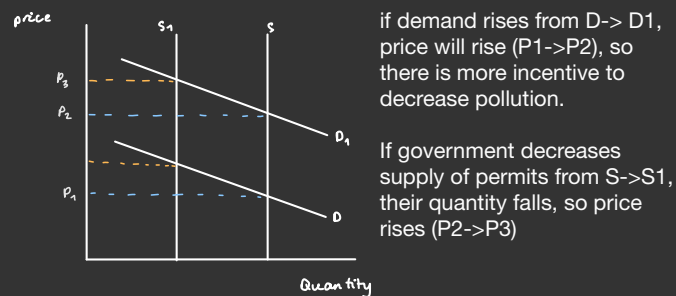


Subsidy -> increase in supply -> fall in price (P1 -> P2) -> demand expands (Q1 -> Q2) -> consumption rises.

3) **Price control**, which means setting minimum and maximum prices.



4) **tradable pollution permits** allow firms to produce a legal amount of pollution every year. Because they are tradable (i.e. can be sold and bought), an incentive is provided for firms to reduce pollution in order to sell more permits. One downside of this is that it is hard to keep track of the amount pollution, so it is hard to tell if someone went over the limit.



Here, the supply is perfectly inelastic as there is a limited amount of pollution permits set by the government, which means that no matter how high the price firms are willing to pay (the government) for permits is, their quantity remains the same. (In this situation the firms are the consumer and the government the supplier).

5) the government can extend **property rights** over scarce resources to protect them by granting the owners an opportunity to sue those who exploit the resource. E.g. if people litter in a park, the owners' property rights allow them to fine the people.

6) **state provision** is when the government intervenes in a market by supplying goods and services (usually public and merit goods).

7) will **provide information** in order to reduce information failure so consumers can make more informed decisions.

8) **regulation** - laws that control how a business can operate and behave.

GOVERNMENT FAILURE

Government failure is when government intervention leads to a net welfare loss in comparison to the free market operation by itself. This is because intervention can't lead to allocative inefficiency.

Causes:

- inaccurate information/ **Information gaps** (not having enough information to make a fully informed decision)
- conflicting objectives
- administrative costs** - the benefits of the intervention can be outweighed by the costs
- unintended consequences** - unexpected events occur.

TERMS:

Scientific method
 Model
 Ceteris paribus
 Positive statements
 Normative payments
 The basic economic problem
 Scarcity
 Economic good
 Free good
 Renewables resources
 Non-renewable resources
 Opportunity cost
 PPF/production possibility frontier
 Consumer goods
 Capital goods
 Productive efficiency
 Allocative efficiency
 Specialization
 Division of labour
 Barter
 Double coincidence of wants
 Financial markets
 Equities
 Free market economy
 Market mechanism
 Command economy
 Mixed economy
 Public good

Merit goods
 Demerit goods
 Rational decision
 Maximization
 Demand
 Diminishing marginal utility
 Price elasticity of demand
 Income elasticity of demand
 Inferior good
 Normal good
 Necessity
 Cross-elasticity of demand
 Price elasticity of supply
 Supply
 Market equilibrium
 Rationing function
 Signaling function
 Incentive function
 Consumer surplus
 Producer surplus
 Taxes
 Subsidies
 Specific tax
 Ad valorem tax
 Market failure
 Externality
 Negative externality
 Positive externality
 Private cost
 External cost
 Social cost
 Marginal benefit
 Marginal cost
 Social optimum
 Non-rival
 Non-excludable
 Free-rider
 Private good
 Information failure
 Symmetrical information
 Asymmetrical information
 Perfect knowledge
 Moral hazard
 Speculation
 Market bubble
 Price control
 Government failure
 Information gaps
 Administrative costs