Applications on Market Equilibrium

I. Equilibrium Mechanism:

Market equilibrium means reaching a state in which the forces of supply and demand for goods are in a state of stability, meaning that supply is completely equal to demand. If this condition is met, prices remain stable because there is no shortage or surplus on the market, and the price of the product is determined by the equilibrium between the quantity demanded of the product by buyers and the quantity supplied by sellers.

We will see how this price is determined numerically, graphically and mathematically.

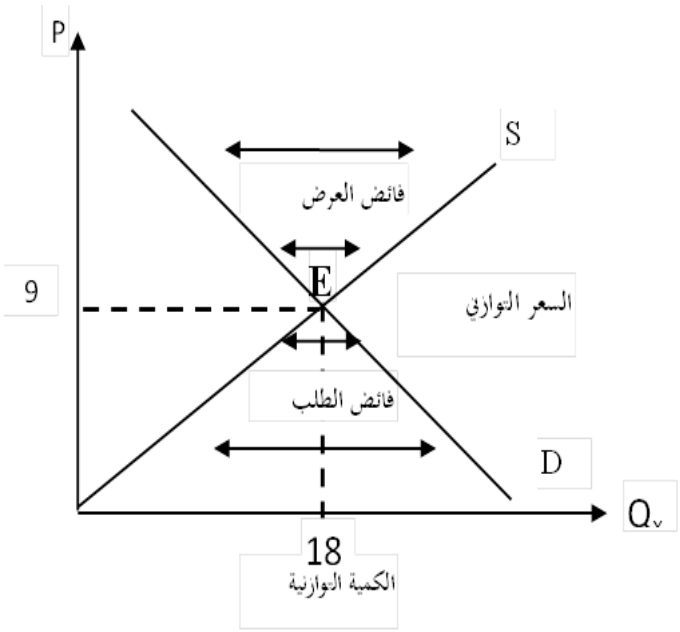
1. Mathematical Determination of the Equilibrium Position from the Supply and Demand table

Price	3	6	9	12	15
Quantity of Supply	5	12	18	22	25
Quantity of Demand	30	24	18	10	6
Surplus	25	12	0	12	19
Type of Surplus	Surplus of demand	Surplus of demand	Equilibrium	Surplus of supply	Surplus of supply

2. Market Equilibrium:

The equilibrium describes a state of the market in which the price stabilises at a certain level at which the quantity supplied of a product is equal to the quantity demanded of the same product on the market. Market equilibrium is determined by the interaction of the forces of supply and demand. From an analytical point of view, market equilibrium is determined graphically by the intersection of the supply curve with the demand curve. The point of intersection is known as the equilibrium point. It determines the price that all

buyers and sellers will accept, known as the equilibrium price, as well as the equilibrium quantity. Mathematically, equilibrium is represented by the equality of the supply function with the demand function.



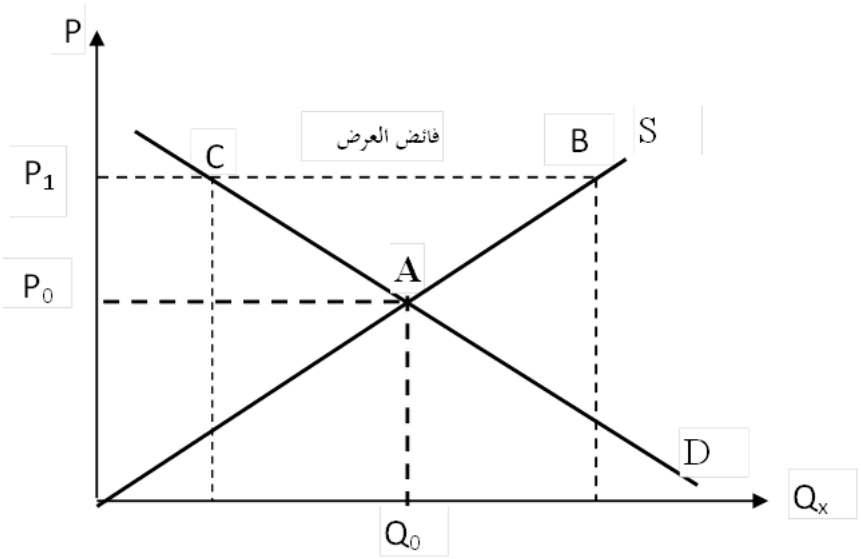
The only price at which the quantity offered is equal to the quantity demanded is 9, and this price is called the equilibrium price, and it is the price that achieves agreement between the desires of sellers and buyers. The quantity is 18 units and is called the equilibrium quantity

II. The Different Applications on Market Equilibrium

The freedom enjoyed by economic agents in a competitive market allows the market to adapt to changes in supply or demand, or both, and this results in a transition from the initial equilibrium situation to a new equilibrium situation without any restrictions. But there may be government intervention (in the search for equality in the market or in the event that the market is unable to achieve the price that realizes society's objectives). To restrict the movement of the market and prevent it from reaching equilibrium, the government intervenes by setting a minimum or maximum price for the product, imposing taxes of all kinds or granting subsidies.

1. Government Intervention: Price Fixing (Direct Intervention)

- **Fixing a minimum price** : the government sets a minimum price for a good or service above the equilibrium price and does not allow this good or service to be sold at a price below this limit.



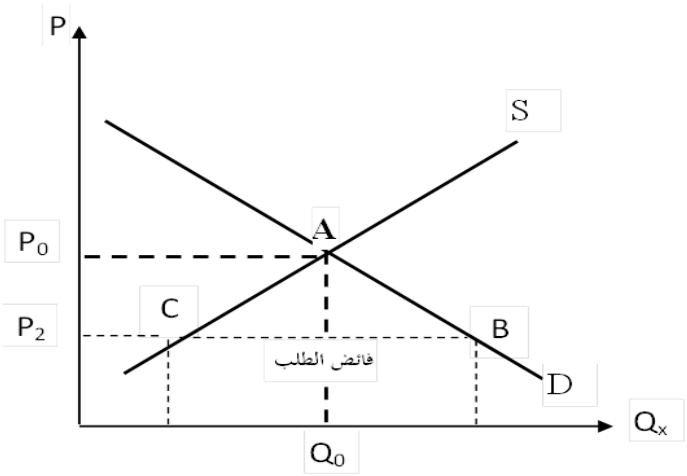
We suppose that the equilibrium situation is reached without any government intervention at point A in the figure above, where the equilibrium price P0 and the equilibrium quantity Q0 are located. We suppose that the government has intervened to support this product, by setting a minimum price above the equilibrium price. This will result in a surplus in the supply of the product by the amount BC, because at this high price, the quantity that producers will want to sell will be greater than the quantity that consumers will want to buy, and this surplus will continue for producers as long as the government restriction on the price of the product persists, and it will only disappear when this minimum price is abolished or the supply curve shifts to the left or the demand curve to the right.

Objective: This pricing policy aims to prevent the buying and selling of the product below the floor price. The government can intervene to set a price above the equilibrium price in order to ensure a minimum level of income, in order to ensure a certain degree of income stability, which generally concerns farmers' incomes. Due to IMPREVIOUS changes, leading to the appearance of abundance threatening the collapse of crop prices and a reduction in the income of groups of farmers.

The abundant supply is absorbed in two ways:
Either the government directly finances its purchase and bears the difference, or it encourages and helps farmers to store this surplus, for example by bearing the storage costs.

2. Fixing a maximum price (plafond price)

The aim of this pricing policy is to prevent the sale and purchase of a product at a price higher than the ceiling price. The government therefore intervenes to set compulsory prices for certain necessary goods that are below the equilibrium price for the benefit of consumers. The government often imposes a penalty on those who trade at a price higher than the officially set price. As a result of this pricing policy, there is excess demand (or a supply deficit) equal to the difference between the quantity demanded and the quantity offered. The question that arises in this case is: how can this surplus be disposed of?



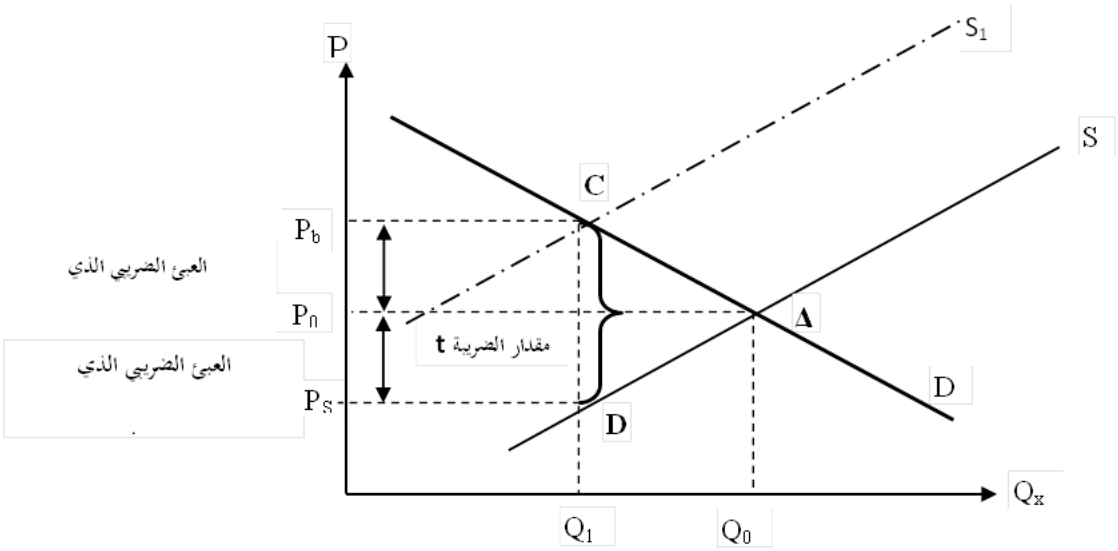
There are several solutions, including

- Importing this deficit (supply deficit) and selling it directly to consumers at prices below market prices
- Granting a subsidy to producers equivalent to the difference between the administratively fixed price and the market price, in order to produce the required quantity and sell it at low prices.
- Adopt a quota system in the distribution of the quantities available at low prices through the card system to guarantee a fair distribution of the specified quantities, while giving priority to people on low incomes. Whatever the solutions, excess demand will be disposed of in what is known as the black (parallel) market.

3. Government Intervention Through Taxes and Subsidies (Indirect Intervention)

- The effect of specific tax on the equilibrium

The specific tax is an amount deducted from each unit of production, for example by imposing a tax of 2 da on each metre of fabric. The specific tax is paid by the producer, so it shifts the supply curve towards a new supply curve while demand remains constant. This does not mean that the producer bears the tax burden alone, but rather that he attempts to shift the bulk of the tax burden onto the consumer, and his ability to do so depends on the elasticity of supply and demand.



The imposition of the tax has caused the supply curve to shift upwards, so that a new equilibrium situation arises at point A, which is the point where the shifted supply curve crosses the original demand curve.

Two prices are apparent:

Buyer's price: This is the price the buyer agrees to pay for the goods.

Seller's price: This is the price the seller receives after paying tax.

The buyer's price is determined from the demand curve, while the seller's price is determined from the supply curve. As for the amount: Pb-Ps it must be equal to the amount of the tax t.

The charge of the tax on the consumer is determined by the amount by which the price has increased in relation to what he paid before the imposition of the tax, i.e. $T_C = P_b - P_0$

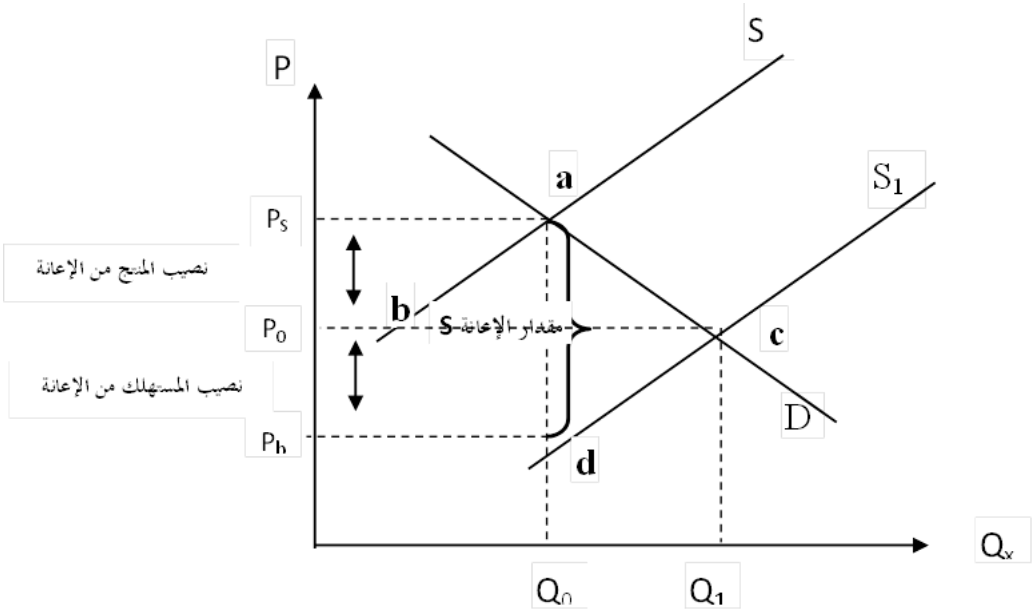
The charge to the producer is determined by the amount by which the price he received before the tax was imposed, i.e. $T_P = P_0 - P_S$

4. The Effect of Subsidies on Market Equilibrium

The govenment can sometimes use production subsidies for certain industries that it wishes to encourage, so that prices fall and demand increases, and therefore supply increases. Subsidies can be seen as a negative tax, so the effect of the subsidy is the opposite of the effect of the tax.

$$\begin{cases} Q_{OX} = c + b(P + S) \\ Q_{dX} = a - bP \end{cases}$$

The effect of the subsidy graphically



S= Ps-Pb