Market Equilibrium and Short Run Shock

- Market equilibrium occurs at the price where the demand equals to supply
- Impact of Outside shocks (OS), such as natural disasters, on market equilibrium
  - **Short Term Impacts:** OS Causes interruption in supply whereas impact on demand differs. Producers are unable to adjust their capacity to meet demand in short term (assuming demand remains same) hence supply falls short resulting in equilibrium prices to move upward
  - **Long Term Impacts:** In long run, producers adjusts the capacity if supply is short of demand to benefit from higher prices. New supply causes prices to fall and return to equilibrium prices prevailing before OS
Impact of Outside shock in SR

- In SR, Producers are unable to adjust their capacities hence supply fell short of demand causing supply curve to move upward and prices to increases.

Impact of outside shocks in short run

Equilibrium price increases in short run

Equilibrium Quantity decreases in short run

Demand

Price

Supply before outside shock

Supply after outside shock
Impact of Outside shock in LR

- In LR, Producers adjusts their capacities hence supply return to previous levels causing supply curve to move downward and prices to return to levels before shocks.

Impact of outside shocks in Long run

Producers respond to higher price by increasing output.
Price Ceiling

• An upper limit on the price which a seller can charge
• Price ceiling above the equilibrium price (EP): No effect
• Price ceiling below the Equilibrium Price:
  – Supply will fall short of demand
  – In such a situation consumers will be willing to pay an opportunity cost to make purchases
  – Causing deadweight losses due to reduction in quantity exchanged
Price Ceiling

Impact of Price Ceiling

- Price
- Demand
- Supply
- Dead Weight Loss
- Ceiling Price (Maximum)
- Quantity

$P_{ws}$

$P_c$

$Q_s$

$Q_d$
Price Floor in Labor Market

- A price floor is a minimum price that a buyer can offer for a good, service, or resource.
- PF < EP = No effect
- PF > EP =
  - Supply will exceed demand at the floor price
  - Causes loss of efficiency (deadweight loss) because the quantity actually transacted at PF is less than the efficient equilibrium quantity.
Incidence of Tax

- **Tax: Difference** between what buyers pay and what sellers get per unit
- Hence a tax on a good or service
  - Increases its equilibrium price and
  - decreases its equilibrium quantity because of the deadweight loss created
- Tax Revenue = Tax * Equilibrium Quantity
- Actual and statutory incidence of tax:
  - Actual: **Who actually bears tax** – buyer in the form of high prices paid or seller in the form of less prices received
  - Statutory: **Who is legally responsible to pay tax**
• Statutory tax on the producer results in the shift in supply curve towards left.

• Now the equilibrium price becomes \( P_{\text{Tax}} \) instead of \( P_{E} \), which results in decreased equilibrium production \( (Q_{\text{Tax}}) \).

• Now the difference between new price \( P_{\text{tax}} \) and \( P_{E} \) is the extra price which buyers would have to pay apart from the previous price of \( P_{E} \). This extra payout is the tax revenue from the buyers.

• Statutory tax on the producer is the difference between \( P_{\text{tax}} \) and \( P_{S} \) at quantity \( Q_{\text{tax}} \), out of which \( P_{\text{tax}} - P_{E} \) is borne by the buyer. Therefore actual incidence of tax on the producer becomes \( P_{E} - P_{S} \).

• In frictionless market the efficient quantity to be produced should be \( Q_{E} \) but the actual quantity produced is less than the efficient quantity which results in Dead Weight Loss defined by the triangle.
Tax on Buyer

• Statutory tax on the buyer results in the shift in demand curve downwards by the tax amount.
• Now the equilibrium quantity becomes $Q_{\text{Tax}}$ instead of $Q_{E}$, which results in the increase in price to $P_{\text{Tax}}$.
• Now the difference between new price $P_{\text{tax}}$ and $P_{E}$ is the extra price which buyers could have to pay apart from the previous price of $P_{E}$. This extra payout is the tax revenue from the buyers.
• Statutory tax on the buyer is the difference between $P_{\text{tax}}$ and $P_{S}$ at quantity $Q_{\text{tax}}$, out of which $P_{\text{tax}} - P_{E}$ is borne by the buyer. Therefore actual incidence of tax on the producer becomes $P_{E} - P_{S}$.
• In frictionless market the efficient quantity to be produced should be $Q_{E}$, but the actual quantity produced is less than the efficient quantity which results in Dead Weight Loss defined by the triangle.
Elasticity of Supply & Demand Influence the Incidence of a Tax

- **High elasticity causes less tax burden on that party hence**
  - If supply is less elastic (i.e., the supply curve is steeper) than demand, consumers will bear lower taxes than suppliers.
  - If demand is less elastic (i.e., the demand curve is steeper) than supply, the opposite occurs.

- **High inelasticity causes less deadweight loss because**
  - It occurs due to lack of substitutes or options with suppliers or /and buyers causing less effect on equilibrium quantity.

![Elastic Supply Curve](image1)

![Inelastic Supply Curve](image2)
Demand Elasticity and Incidence of Taxation

**Elastic Demand Curve**

- цена $P_{tax}$
- цена $P_E$
- цена $P_S$
- спрос $D$
- цена $S$
- налоговая выручка от продавцов
- налоговая выручка от покупателей
- DWL
- спрос $Q_{tax}$
- спрос $Q_E$

**Inelastic Demand Curve**

- цена $P_{tax}$
- цена $P_E$
- цена $P_S$
- спрос $D$
- цена $S$
- налоговая выручка от продавцов
- налоговая выручка от покупателей
- DWL
- спрос $Q_{tax}$
- спрос $Q_E$
Subsidies

- Through subsidiaries, governments compensates producers for difference between actual price of the goods and price at which goods sold.
- A subsidy raises marginal cost (supply costs curve) above marginal benefits (demand curve)
  - This leads to a deadweight loss from overproduction.
Production Quotas

- Govt. imposes an upper limit on the produced quantity of a good over a specified time period.
  - Causes reduction in the quantity produced leading to an inefficient allocation of resources and a deadweight loss to the economy
- Increases the market price and lowers the marginal cost of producing the quota quantity
Illegal Goods

- **Suppliers add expected penalty** (extra compensation) to their minimum prices, shifting the supply curve upwards.
- On the other hand, **buyers subtract expected penalties** (to co-purchase and possess illegal goods) from maximum price that they are willing to pay, causing the demand curve to shift downward.
- Hence, if the expected penalties for sellers and buyers are equal, the new market price remains at the original market price but the quantity purchased declines.

**Market of Illegal goods**

- Suppliers' minimum price \( P_S \)
- Buyers' maximum price \( P_B \)
- Market price \( P_M \)
- Price of legal goods \( P_L \)
- Price of normal goods \( P_N \)
- Expected penalty for suppliers \( EP_S \)
- Expected penalty for buyers \( EP_D \)
- Quantity demanded \( Q^* \)
- Quantity at market price \( Q_L \)