Supply

- **At a particular time period** when all other factors remain **constant quantities that are planned to sell** at **alternative market prices** from a **particular good or a service**.

- Based on whether supply is generated by a **single seller** or **all sellers in the market** supply can be categorized as,

    a. Firm's supply

    At a particular time period when all other factors remain constant quantities that are planned to sell at alternative market prices from a particular good or a service by one seller in the market.

    b. Market supply (Industry's supply)

    At a particular time period when all other factors remain constant quantities that are planned to sell at alternative market prices from a particular good or a service by all sellers in the market.

- Concept of supply" contains a different meaning than "supply" used as a colloquial term. Following are the differences;

    a. Goods that contains a market price

    Supply is not related to any good or a service. It is only related to goods and services that contain a market value.

    b. It is only an expectation or plan

    Supply refers to the quantities those are willing to be sold rather than quantities those are actually sold.

    c. It's a flow concept rather than a static concept

    Since supply is a continuous process it can only be stated for a particular time period only.

Determinants of Supply (Factors decide Supply)

    a. Price of the concerned good (Px)

    b. Prices of related goods (Producer substitutes) ($P_{1....n}$)

    c. Factor prices (P_f)

    d. Technology (T_e)

    e. Weather & climate (W)

    f. Number of sellers (N)

Theory of Supply

- Theory of supply explains as **how suppliers behave in choosing to supply goods**.

- Theory of supply can be explained in **supply function.** In this theory total supplier behavior is considered. In other words it explains how supply relatively changes with its supply determinants.

$$Qsx = \int (Px, Pn, Pf, Te, W)$$

Dependent

variable

Independent

variables
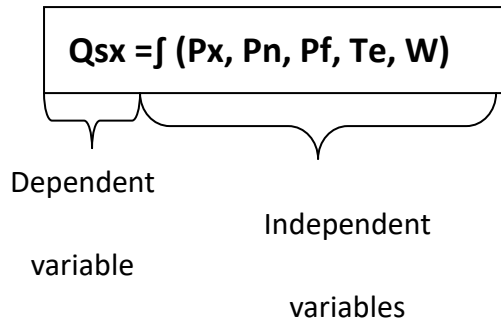
Assumption of Ceteris Paribus

- Since in real life all supply determinates can change at the same time in economic analysis it uses the assumption of Ceteris Paribas.

- It assumes that when one supply determinant changes all the other supply determinants remain unchanged.

Law of Supply

- The law of supply states that **at a specific time other factors being constant** (cetris peribus), price and quantity supply of a good/service **are directly related** to each other.

- When the price of a product increases, the supply for the same product will fall and vice-a-versa

$$Qsx = \int (Px,)$$

Assumptions behind the Law of Supply

a.   It depicts a situation at a specific time.

b.   Other supply determinants being constant other than price of the concerned good

Methods of expressing law of Supply

- ☐ There are 3 ways of expressing the direct relationship between price and quantity supply of the concerned good.

  a. Through a supply schedule

  b. Through a supply curve (supply graph)

  c. Through a supply equation

Supply Schedule

- ☐ At a particular time period when all other factors being constant quantities that are planned to sell at alternative market prices from a particular good or a service expressed through a numeric schedule is known as supply schedule.

  Example: - Assume that following table indicates quantity supply of a competitive market for rice.

Price (Rs.)	Quantity Supplied (Kg)
40	200
60	250
80	300
100	350

Supply Curve

- ☐ At a particular time period when all other factors being constant quantities that are planned to sell at alternative market prices from a particular good or a service depicted by a curve (graphical representation) is known as supply curve.

  Example: - Assume that following graph indicates quantity supply of a competitive market for rice.

Price of rice (vertical axis), Quantity supply of rice (horizontal axis)
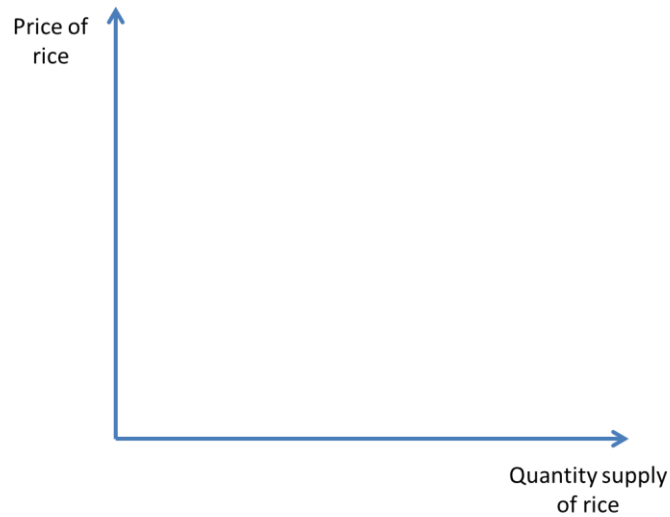
Shape of Supply Curve

- Normal supply curve **slope upwards from left to right**.

- Main reason for this shape is the direct relationship between price and quantity supply of the concerned good.

Supply Equation

☐ At a particular time period when all other factors being constant quantities that are planned to sell at alternative market prices from a particular good or a service expressed by a mathematical equation is known as supply equation.

$$Qs = a + bp$$

Qs   =   Quantity Supply

P   =   Price of the good

a   =   Qs at zero price/lowest supply   (Vertical intersection of supply curve)

b   = $\dfrac{\Delta Qs}{\Delta P}$

(change in quantity supply when price is changed by a unit)

Special note: - Supply equation can also be expressed as

$$P =$$

Steps to drive Supply equation

- Step 01 – Finding reciprocal of slope (b)

- Step 02 – Finding the Qs at zero price (a)

- Step 03 – Substituting (a) and (b) values to derive supply equation

Example: - Assume that following table indicates quantity Supply of a competitive market for rice.

Price (Rs.)	Quantity Supplied (Kg)
40	200
60	250
80	300
100	350

Step 01

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Step 02

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Step 03

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Deriving market supply schedule, curve and equation

☐ Market supply is the combined supply of all firms in the market. Therefore by combining individual supply of all firms market supply can be derived.

01. Deriving market supply schedule

Price	Individual supply			Market Supply
	Qs (A Firm)	Qs (B Firm)	Qs (C Firm)	
10	60	100	30	
20	80	150	40	
30	100	200	50	

02. Deriving market supply curve

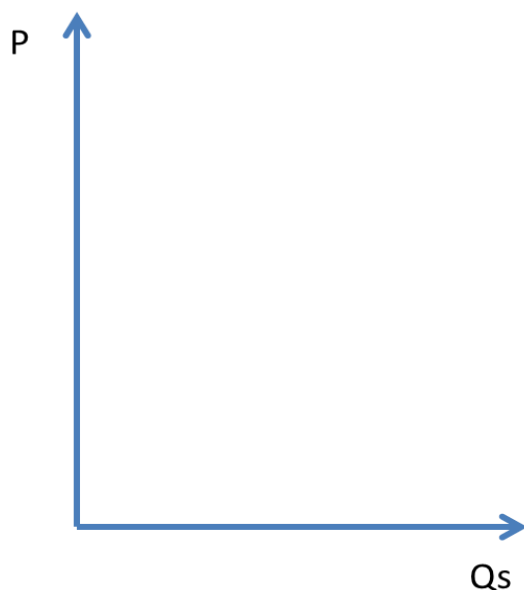|			
P	P	P	P
Qs	Qs	Qs	Qs
Firm A	Firm B	Firm C	Market
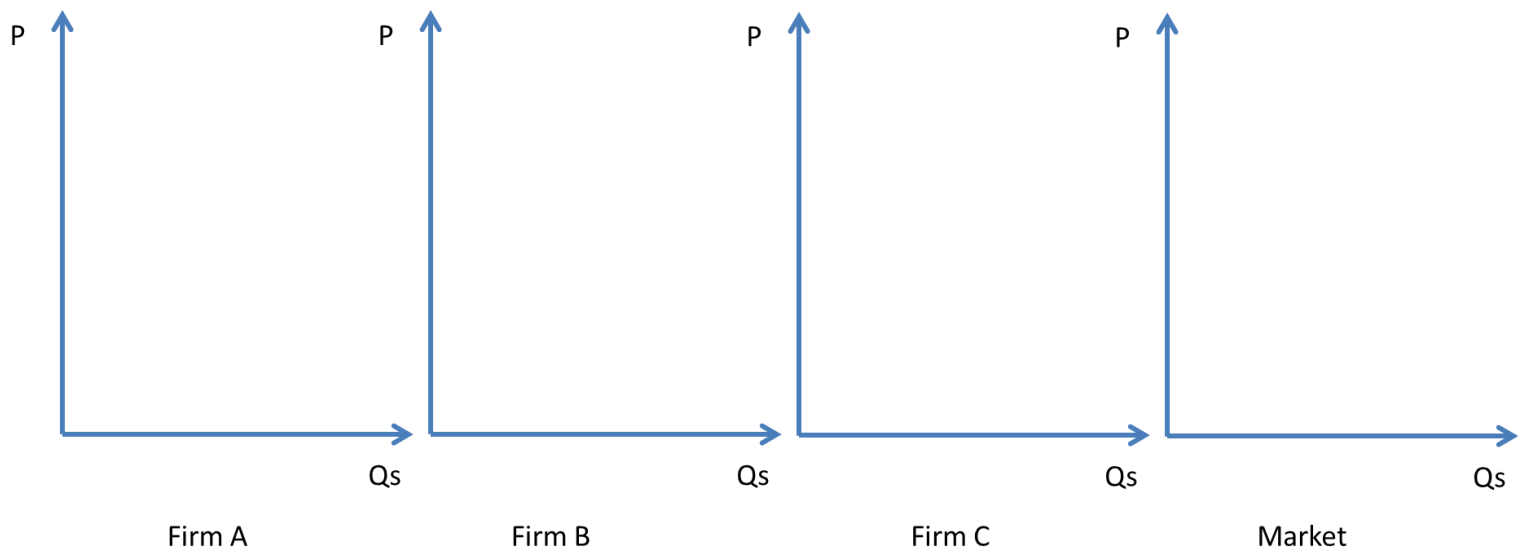
03. Deriving market supply equation

Supply equation of A firm	Supply equation of B firm	Supply equation of C firm	Market Supply Equation

Change in supply Vs. Change in quantity supplied

Change in quantity supplied

If price falls, quantity supplied falls and a

Quantity supply is the quantity that is willing to be sold at a particular market price. Therefore quantity supply is represented by a point on supply curve.
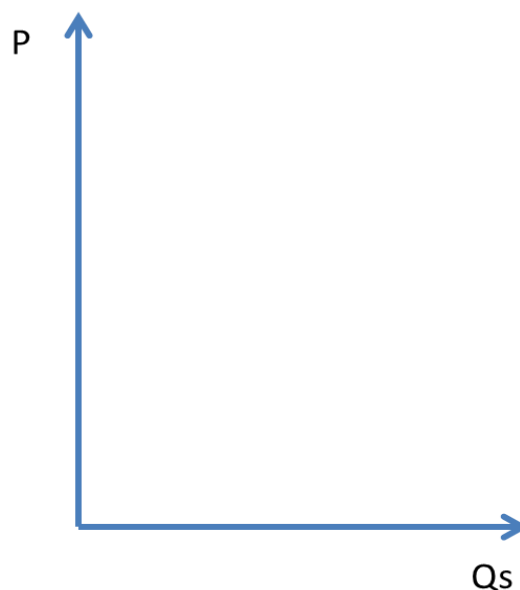
A change in quantity supplied refers to the response of a firm in its wiliness to sell with regard to changes in the **PRICES** of concerned commodity, ceteris paribus.

The fall and rise in amount supplied due to the change in price is technically called "*contraction*" and "*expansion/extension*" of

supply
.

Due to a change in quantity supplied supply function or the supply curve never changes. It is a change of point along the supply curve.

If price rises, quantity supplied rises and a

point moves upwards along the supply curve.
 (***Expansion of supply***)

point moves downwards along the supply curve.
 (***Contraction of supply***)

Change in supply

A change in supply refers to the response of a firm in its wiliness to sell with regard to changes in any other supply determinant **other than** price of concerned commodity, ceteris paribus.

In other words, change in supply refers to the change in the quantity willing to be sold as a result of prices of other related products, factor prices, technology etc, ceteris paribus.

The change in supply involves "**increase**" and "**decrease**" in supply of a commodity.

Due to a change in supply, supply curve shifts to either right or to left.

If any other supply determinant other than price of concerned commodity makes a favourable impact to supply then supply curve shifts to right. (***Increase in supply***)

If any other supply determinant other than price of concerned commodity makes an unfavourable impact to supply then supply curve shifts to left. (*Decrease in supply)*

	Increase	Decrease
Price of the concerned good (Px)	Point moves up along supply curve	Point moves down along supply curve
Prices of production substitutes (P1….Pn)	Supply curve shift to left	Supply curve shift to right
Production cost (Pf)	Supply curve shift to left	Supply curve shift to right
Improvement of Technology (T)	Supply curve shift to right	Supply curve shift to left
Number of sellers (N)	Supply curve shift to right	Supply curve shift to left

Example:-

How does following events affect supply curve of Coffee

	Impact on supply curve	Reason
Increase in price of producer substitute		
Coffee prices are falling		
Cost of production of coffee rises		
Technological improvements lead to bring better productivity to coffee industry.		
New variety of coffee can give better yield		
Indirect taxes on coffee		

Subsidies are provided to coffee cultivation		
Prices of coffee rises		
It is expected to have a steep fall in coffee prices in coming months		

Detailed Analysis of other supply determinants other than price

☐ Main supply determents other than price of the concerned good are as follows

    a. Prices of related goods (Producer substitutes) $(P_{1.....n})$

    b. Factor prices (Y)

    c. Technology (Te)

    d. Number of sellers (N)

    e. Future expectation of price (Ex)

Determinant of Supply	Variable		Relationship
	Increase	Decrease	
Prices of production substitutes (P1….Pn)			
Production cost/ Factor prices (Pf)			
Improvement of Technology (T)			
Number of sellers (N)			

Future expectations of price (E)			

Short notes

01. Producer Substitutes

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02. Factor Prices

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03. Technological improvement

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02. Future expectations of price

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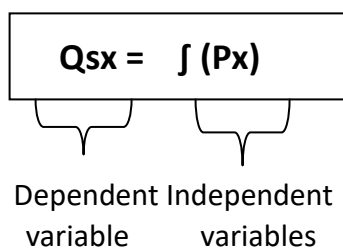
Elasticity of Supply

- Elasticity of supply refers to responsiveness of quantity that is willing to be sold from the concerned good (dependent variable) with regard to specific degree of change in a particular measurable supply determinant (independent variable).

- Some of the supply determents cannot be quantified.

- Therefore in calculating elasticity of supply only quantifiable supply determinants are used.

- However in the elasticity of demand analysis mainly price elasticity of demand id considered (PES).

Price Elasticity of Supply

Recap:-

$$\boxed{\textbf{Qsx} = \int \textbf{(Px)}}$$

Dependent Independent
variable   variables

- Price Elasticity of supply (PES) refers to at a specific time other factors being constant (cetris peribus) responsiveness of quantity supply of the concerned good (dependent variable) with regard to specific degree of change in price of the concern good (independent variable).

- Through PES relative responsiveness of quantity supply with regard to the relative change in price of concerned good is measured.

$$\boxed{\textbf{PES} = \frac{\textbf{Percentage change in quantity supply of concerned good}}{\textbf{Percentage change in price of concerned good}}}$$

$$\boxed{\textbf{PES} = \frac{\textbf{ΔQS \%}}{\textbf{ΔP\%}}}$$

- Answer of the PES is known as, PES co-efficient denoted by ed/$\sum$

Example

A market researcher obtains the following information about the supply for good X, Y & Z.

a.   If the prices of good X increase by 25%, 15% more units of good X are sold.

b.   If the prices of good Y decrease by 20%, 30% fewer units of good Y are sold.

c.   If the prices of good Z increase by 15%, 15% more units of good Z are sold.

Based on each of the possible events described above, answer the questions below:

- What is the price elasticity of supply for good X?

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- What is the price elasticity of supply for good Y?

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- What is the price elasticity of supply for good Z?

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Important aspects in analyzing co-efficient of PES

01. PES value is always positive if the good is in line with law of supply

- ☐ Since there is a direct relationship between price of the concerned good and quantity supply of the concerned good, co-efficient of PES value always be positive in the goods those are in line with law of supply.

Calculating PES

- ☐ Based on the way it is looked at PES, there are two ways in which it is calculated.

    a. Point price elasticity of supply

    b. Arc price elasticity of supply

Point price elasticity of supply

- Point price elasticity of supply (PES) refers to at a specific time other factors being constant (cetris peribus) responsiveness of quantity supply of the concerned good (dependent variable) with regard to **negligible (close to zero) change in price of the concern good** (independent variable).

- In the calculations, point price elasticity measures price elasticity at a particular point.

$$\Delta QS \% \text{ PES} = \underline{\hspace{3cm}} \Delta P\%$$

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$$\frac{\Delta QS}{\Delta P} \ X \ \frac{P}{QS} \qquad \text{OR} \qquad b \ X \ \frac{P}{QS}$$

$\dfrac{\Delta QS}{}$ = Reciprocal of traditional supply curve (b) ΔP

$\dfrac{P}{QS}$ = Ratio of price and quantity supply relating to the point at which PES is
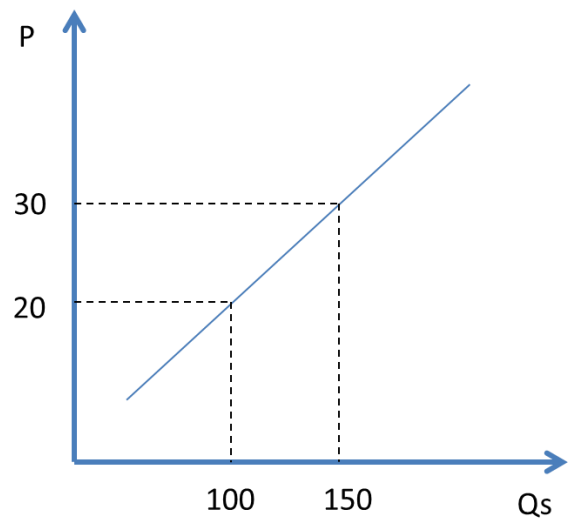
calculated

Example

01. Following supply schedule is extracted from a hypostatical apple market.
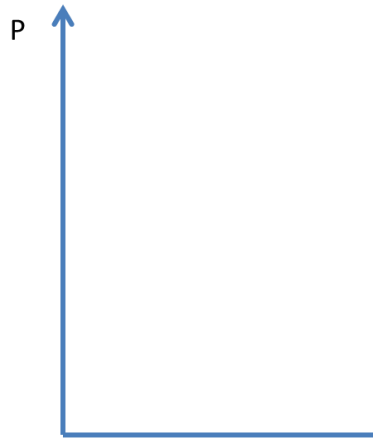
P (Rs.)	Qs (Units)
10	100
12	120

Calculate point price elasticity of supply at Rs. 10 & Rs. 12.

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02. This graph represents supply curve of

   Hypothetical good "X".

Calculate point price elasticity at Rs. 20/- and

Rs. 30/-

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03. Assume that a particular good has liner supply curve. At Rs. 50/- quantity supply is 1000 units and point

   price elasticity is 2.5. Draw a supply curve using these information.

S   P

| P (Rs.)	Qs (Units)
50	1000

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04. **Following figures are extracted from a competitive market where only two suppliers exist.**

Price	Supplier 01 Supply	Supplier 02 Supply
10	200	300
15	250	400

a. Develop supply equation of individual suppliers

b. Develop supply equation of total market

c. Calculate price elasticity of this market at price Rs.20/-

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PED at point X = $\dfrac{AC}{OC}$

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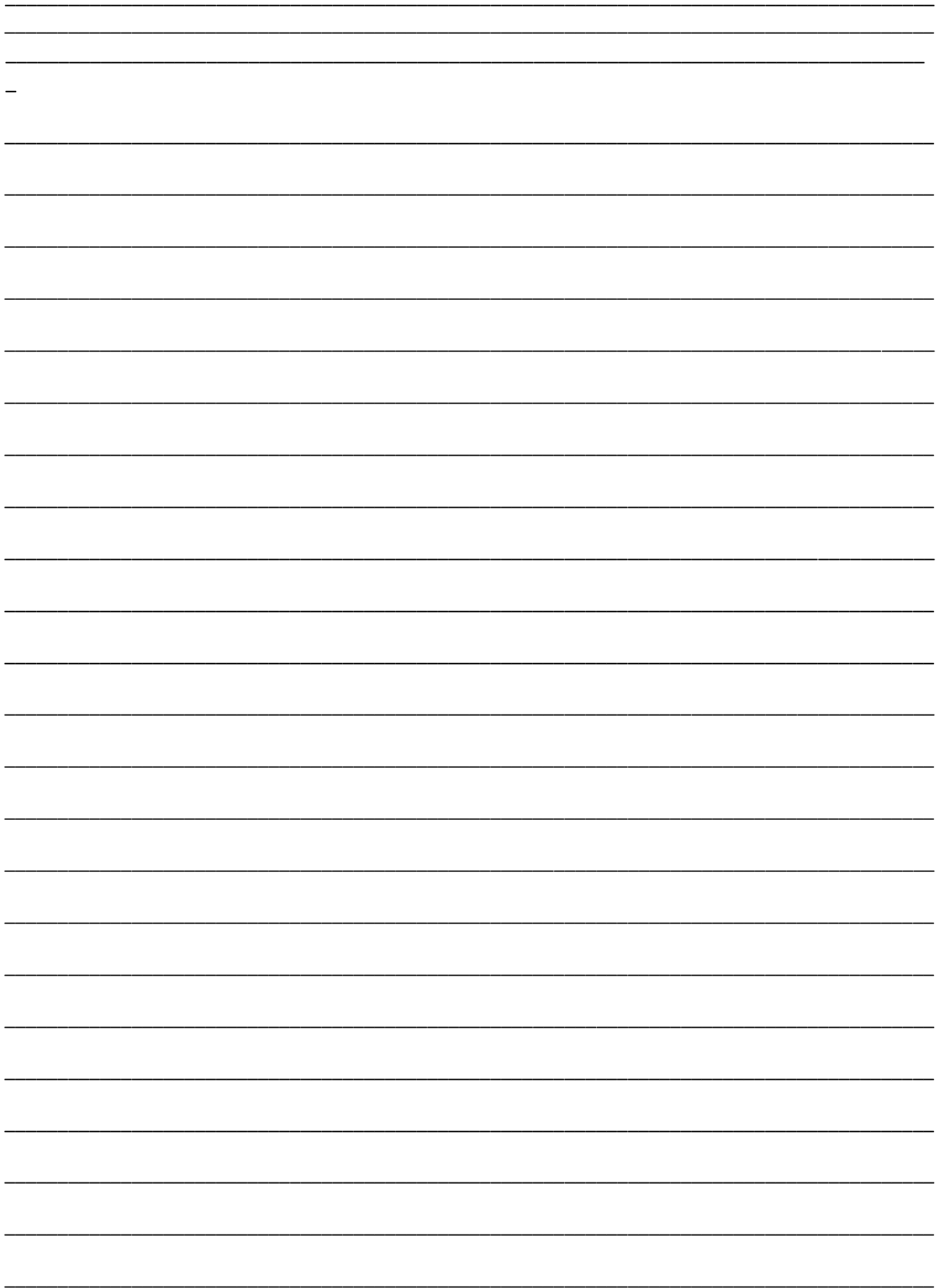
Calculating point price elasticity of supply graphically

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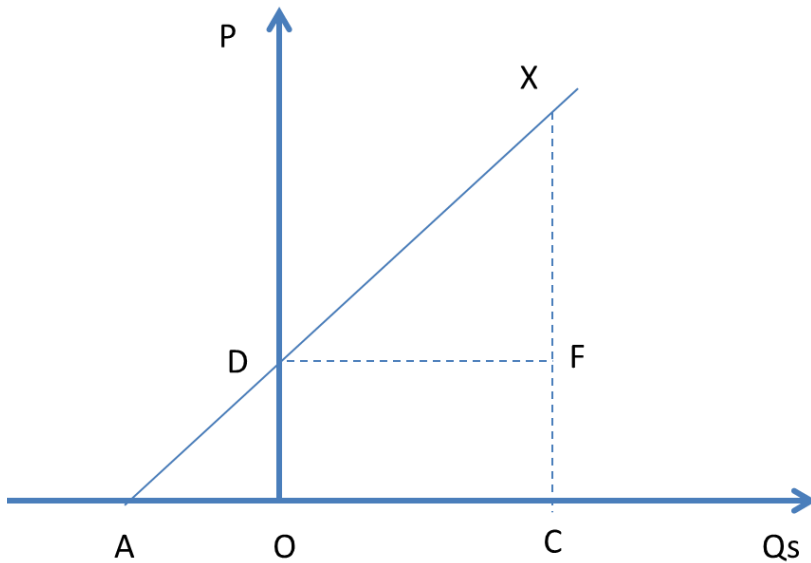
Drawback of point price elasticity of supply

☐ The main drawback of point price elasticity is when elasticity is calculated of a given price change two different answers are obtained since point elasticity is only concerned about elasticity at a particular point.

Example

If following figures are related to a hypothetical product "X".

Combination	P (Rs.)	Qs (Units)
A	50	500
B	100	600

P

Qs

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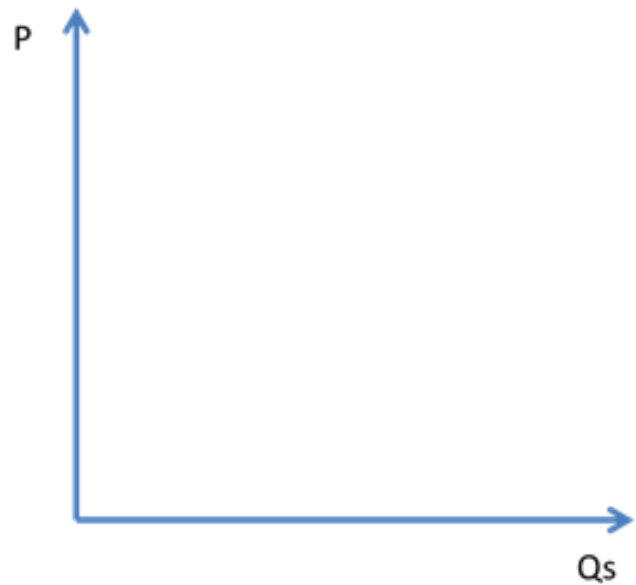
- In the same supply curve elasticity co-efficient at point A and point B are different to each other. Therefore when price changed from Rs.50- Rs.100 or Rs.100- Rs.50 it is difficult to arrive to an exact elasticity using point price elasticity.

- In order to avoid this problem, **arc price elasticity of supply is calculated**.

Arc price elasticity of supply *(Arc price elasticity has been removed from new syllabus)*

$\frac{\Delta QS}{\Delta P}$ X $\frac{P1 + P2}{QS1 + QS2}$	**OR**	b X $\frac{P1 + P2}{QS1 + QS2}$

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Example

If following figures are related to a hypothetical product "X".

Combination	P (Rs.)	QS (Units)
A	50	500
B	100	600

P

Qs

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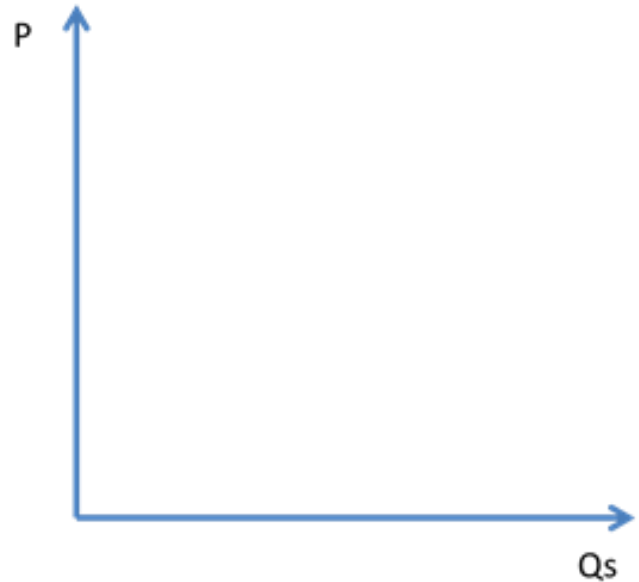
Classifying Price Elasticity of Supply

☐ Based on the co-efficient PES can be classified in to main 5 classes.

es = α	**Perfectly elastic supply**
es > 1	**Elastic supply**
es = 1	**Unitary elastic supply**
es < 1	**Inelastic supply**
es = 0	**Perfectly inelastic supply**

Good	ΔP %	ΔQS %	PES Co-efficient	Category of PES

A	20	0		
B	-20	-16		
C	-20	-20		
D	-16	-20		
E	0	20		

Perfectly Inelastic supply

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Example

Combination	P (Rs.)	Qs (Units)
A	5	20
B	10	20

P ↑

Qs →

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Inelastic supply

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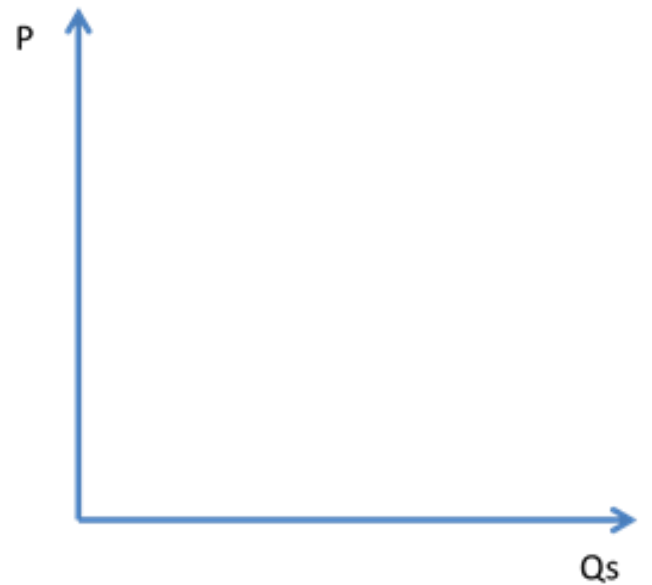
Example

Combination	P (Rs.)	Qs (Units)
A	5	30
B	15	40

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Unitary elastic supply

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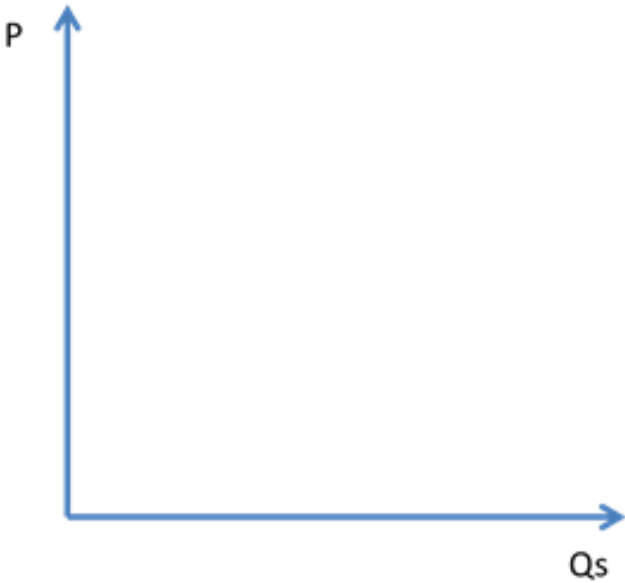
Example

Combination	P (Rs.)	Qs (Units)
A	10	100
B	20	200
C	30	300

P

Qs

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Elastic supply

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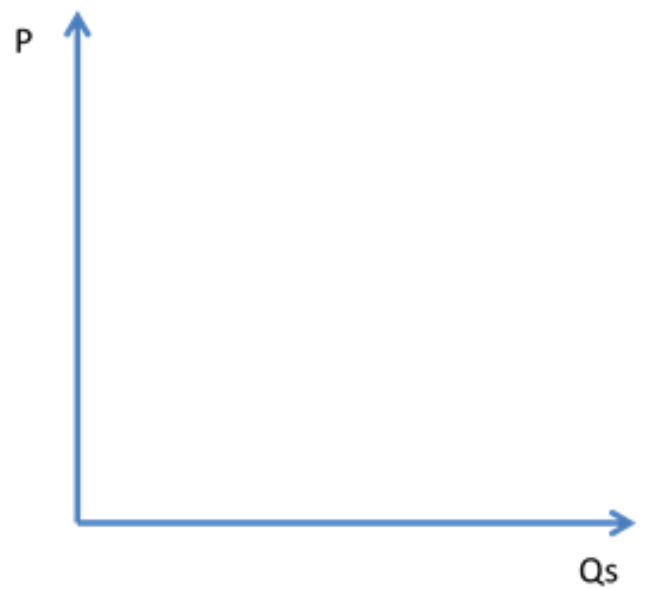
Example

Combination	P (Rs.)	QS (Units)
A	10	50
B	15	150

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Perfectly elastic supply

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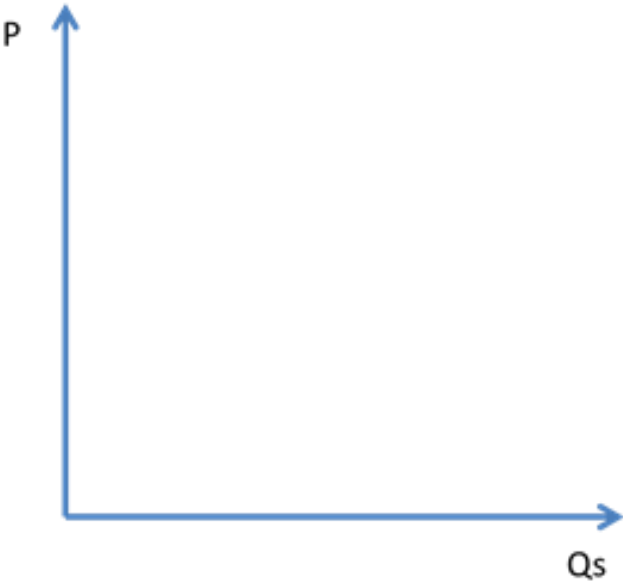
Example

Combination	P (Rs.)	Qs (Units)
A	20	50
B	20	10

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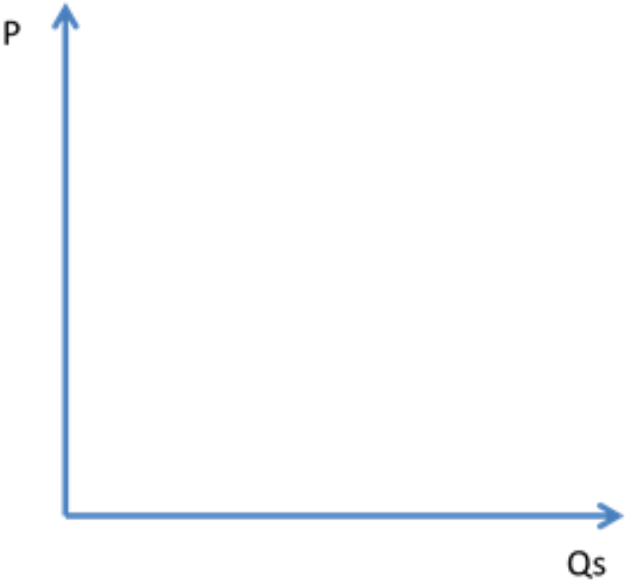
Proving that a supply curve starts from horizontal axis (Qs axis) has less than 1 elasticity of Supply (Inelastic)

PES at point X = $\dfrac{AC}{OC}$

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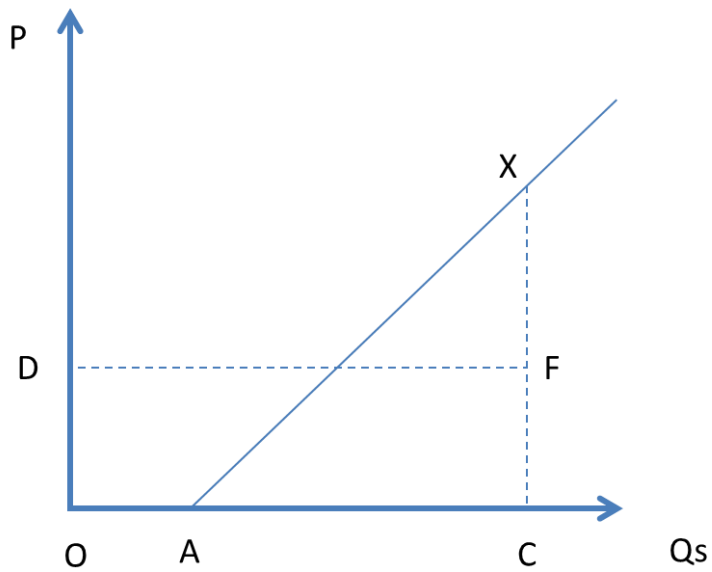
Proving that a supply curve starts from vertical axis (P axis) has more than 1

elasticity of Supply (elastic)

PES at point X = $\dfrac{AC}{OC}$

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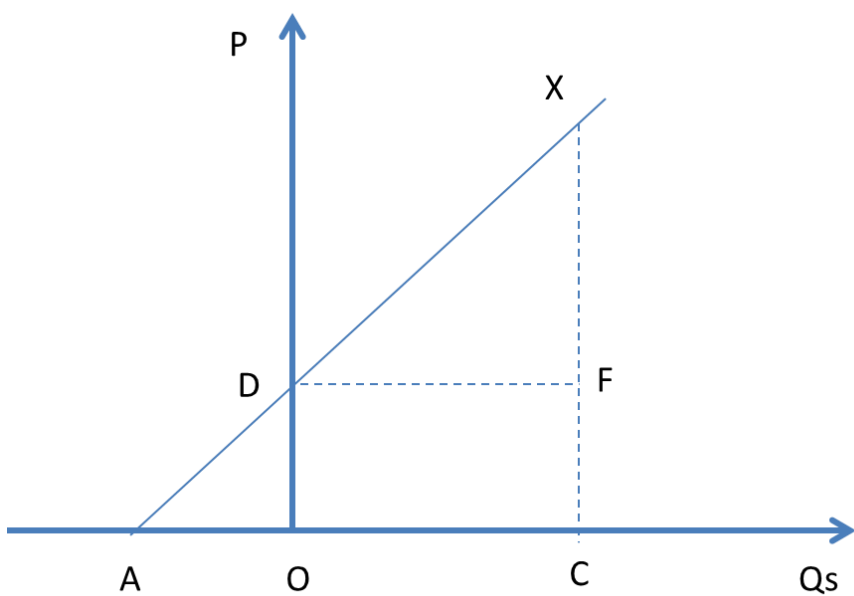
Proving that a supply curve starts from origin has unitary elastic of supply

PES at point X =	$\dfrac{AC}{OC}$

P

X

D

O   A = C   Qs

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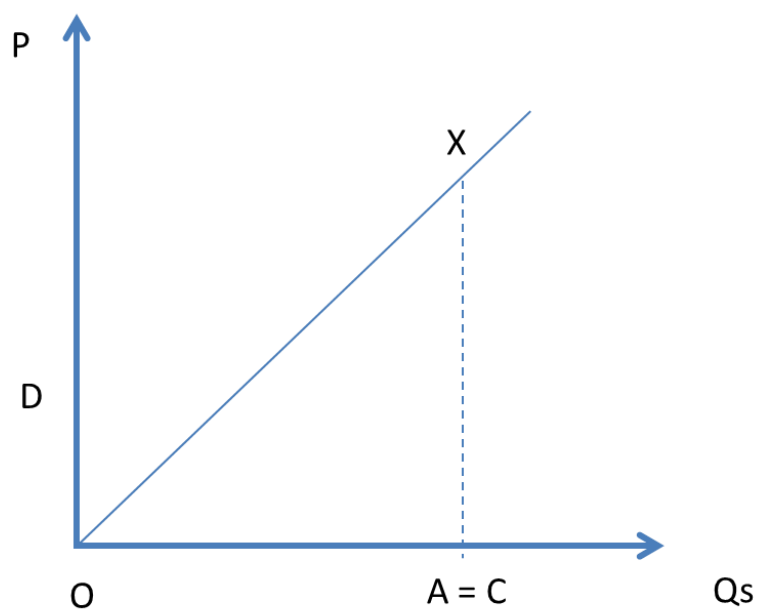
Supply curves that have fixed elasticity at each point

- ☐   There are 3 main supply curves those have fixed elasticity at every point.

    1. Perfectly inelastic supply curve

    2. Perfectly elastic supply curve

    3. Unitary elastic supply curve

01. Perfectly inelastic supply curve

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P

Qs
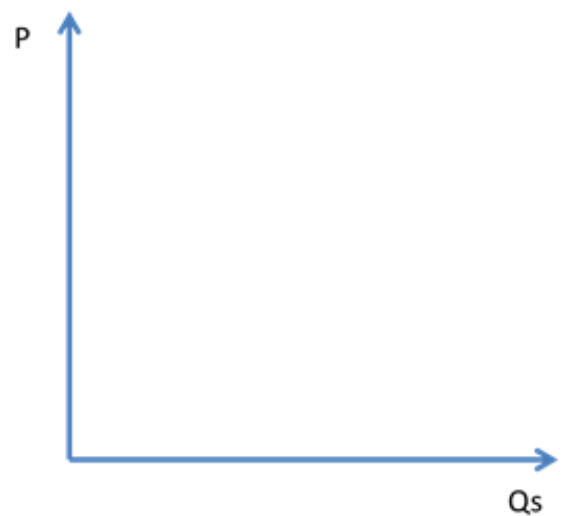
02. Perfectly elastic supply curve

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P

Qs
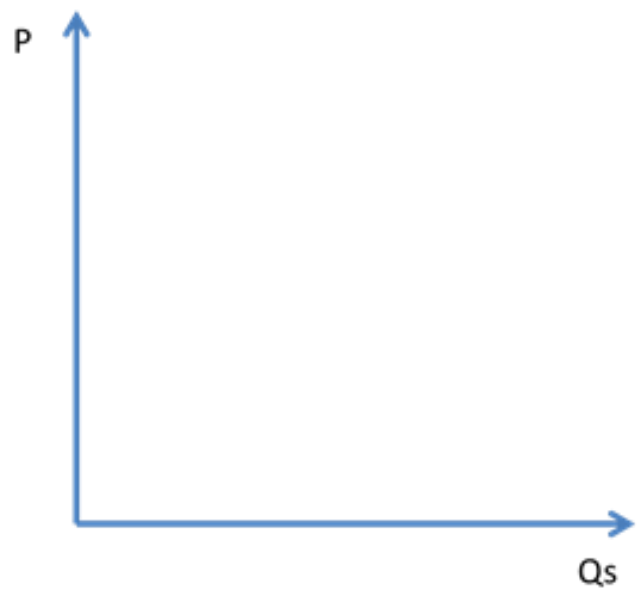
03. Unitary elastic supply curve

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Qs
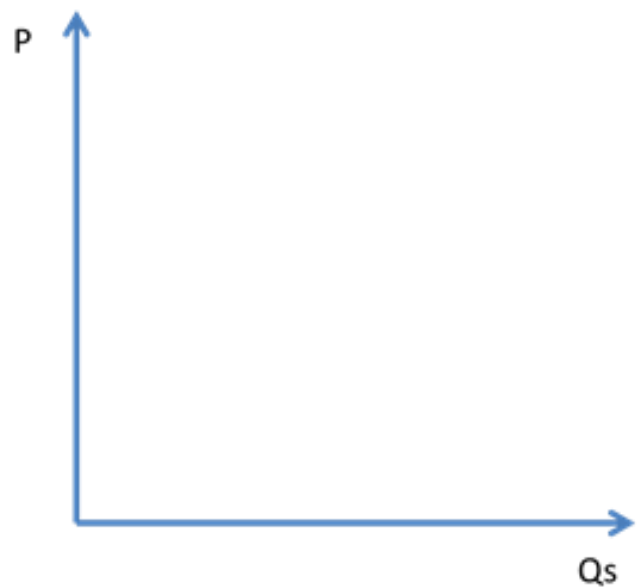
Determinants of Price Elasticity of Supply

01. Resource mobility in between industries

- This describes how easy to shift resources already employed in one industry in to anther industry.

- If resource mobility is fast and easy in between industries elasticity of supply become **relatively elastic** since resources can be easily supplied to increase supply when necessary.

Ex;-Potato cultivator can easily shift potato cultivation to any other crop such as cabbage when price of potato falls.

- If resource mobility is difficult in between industries elasticity of supply become **relatively inelastic** since resources cannot be easily supplied to increase supply when necessary. Ex;- Tea cultivator cannot easily shift tea plantations to any other crop when tea price falls

02. Time taken to respond to price changes

- Based on the complexity and length of the production process, time taken to respond for a particular price change in the market differs from industry to industry.

- If an industry is less complexity and length of the production process is shorter elasticity of supply become **relatively elastic** since industry can quickly respond to price changes in the market.
  Ex:- Bakery industry can easily respond to price changes with their supply since bakery production is less complex and has shorter length of production.

- If an industry is highly complexity and length of the production process is longer elasticity of supply become **relatively inelastic** since industry cannot quickly respond to price changes in the market.
  Ex:- Ship building industry cannot easily respond to price changes with their supply since it has highly complex and lengthy of production process.

03. Ability to store

- If an industry store its production and preserve for future use such industries have the flexibility to control its supply based on the price changes.
- If an industry can store its production they will not release its entire supply during times when market prices fall. However they will release stored supply when prices rise. Thus, if ability store is higher elasticity of supply become **relatively elastic** and vise-a-versa.

04. Time lapsed after the price change

- Most of the time suppliers are unable to change its production capacity as soon as price of a concerned good is increased or decreased.

- However suppliers can change its capacity with time.

  Ex:- build new factory or sell current machines.

- Therefore **immediately after price change, price elasticity of supply is relatively inelastic. But with time elasticity becomes more elastic.**

	Elastic	Inelastic
Resource Mobility	High	Low
Time taken to respond	Less complex and shorter production process	Highly complex and longer production process
Ability store and preserve stocks	High	Low
Time lapsed after the price change	Long run	Short run

Market Equilibrium

- Equilibrium is a situation where opposite force come to a point of balance.

- Therefore, market equilibrium is the situation where demand and supply forces (opposing forces) come to an agreement and creates a balance in the market.

- This market equilibrium is created by price mechanism (market mechanism).

- Hence, market equilibrium could change with the changers in the behaviors of consumers and producers in the market.

- When markets settle at equilibrium, there will be an equilibrium price and an equilibrium market quantity.

Characteristics of market equilibrium

1. Demand price equals to supply price.
2. Quantity demand equals to quantity supply.
3. Excess demand quantity and Excess supply quantity equals to zero.
4. Excess demand price and Excess supply price equals to zero.

Key methods of presenting market equilibrium

☐ There are 3 key ways of presenting market equilibrium

1. Through a schedule
2. Through a graph
3. Through an equation

01. Presenting market equilibrium through a schedule

☐ By constructing demand and supply schedules market equilibrium can be found

Price	Quantity Demand
10	100
20	80
30	60
40	40
50	20

Equilibrium price

_____

Equilibrium quantity

_____

02. Presenting market equilibrium through a graph

Price

```
┌─────────────────────────┐
│                         │
│     Equilibrium price   │
│                         │
│   _____  │
│                         │
│   Equilibrium quantity  │
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│                         │
│   _____  │
│                         │
└─────────────────────────┘
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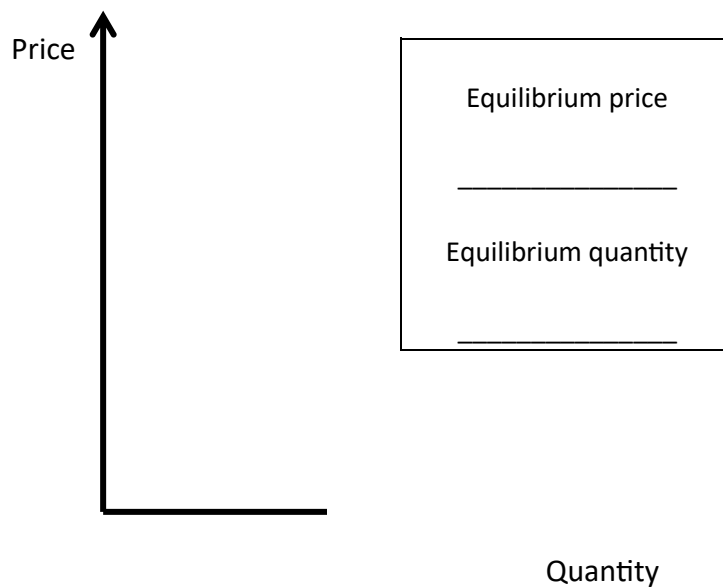
Quantity

03. Presenting market equilibrium through an equation

- ☐ At market equilibrium quantity demand and quantity supply equals to each other. Therefore by equating QD and QS equilibrium price and quantity can be obtained.

01 .Example:- $Qd = 100-10p$
$Qs = 20 + 10p$

Find equilibrium quantity and price.

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02 .Example:- $Qd = 40 - 2p$ $Qs = -10 + 3p$

a) Find equilibrium quantity and price.

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b) Draw it in a graph

Price

Quantity

Market disequilibrium

- Market disequilibrium is a situation where market demand does not equal to market supply at a particular market price.

- In fact at all the other price points other than equilibrium market price there is market disequilibrium.

- Due to market disequilibrium there will be an excess demand (shortage) or excess supply (surplus) in the market.

Excess Demand (shortage)

- Excess demand is the demand that exceeds supply at a particular price point.

Excess demand	**= QD**	**-**	**QS**

- At all the price points below equilibrium market price excess demand can be found.

Price

Quantity
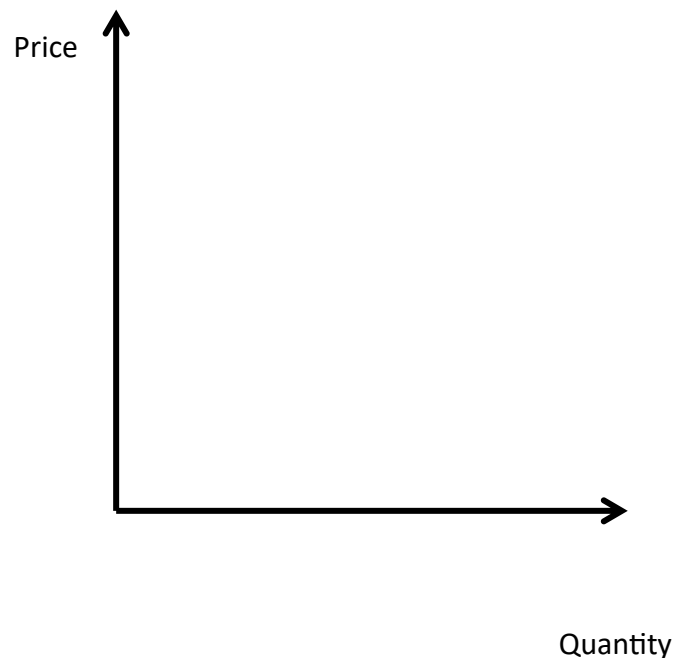
- Due to excess demand (shortage) market mechanism pushes market price up.

- This process is known as **upward pressure on price by consumer**.

Depicting the excess demand (shortage)

☐ There are several ways that excess demand can be depicted.

1. Excess demand schedule

2. Excess demand curve

Excess demand schedule

Price	Quantity Demand	Quantity Supply	Excess Demand
5	50	10	
10	40	20	
15	30	30	
20	20	40	
25	10	50	

Excess demand curve

☐ At the market equilibrium price excess demand becomes zero.

Price
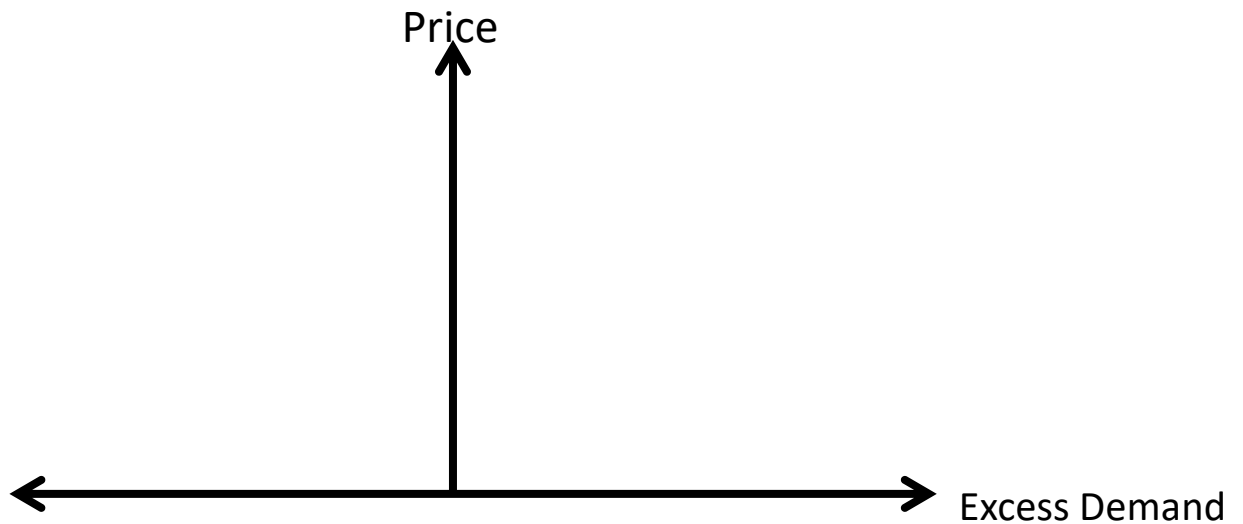
Excess Demand

Excess Supply (surplus)

- Excess supply is the supply that exceeds demand at a particular price point.

Excess supply   = QS   -   QD

- At all the price points above equilibrium market price excess supply can be found.

Price

Quantity
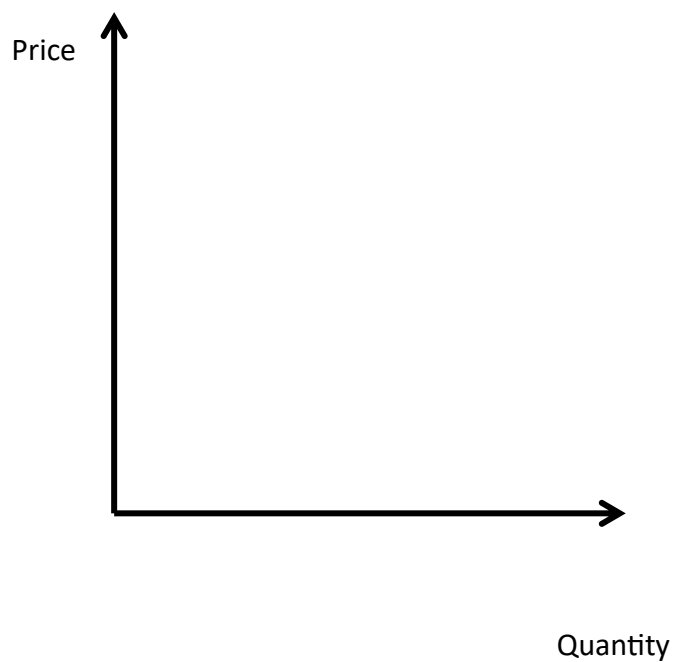
- Due to excess supply (surplus) market mechanism pushes market price down.

- This process is known as **<u>downward pressure on price by producer</u>**.

Depicting the excess supply (surplus)

☐ There are several ways that excess supply can be depicted.

1. Excess supply schedule

2. Excess supply curve

Excess demand schedule

Price	Quantity Demand	Quantity Supply	Excess supply
5	50	10	
10	40	20	
15	30	30	
20	20	40	
25	10	50	

Excess supply curve

☐ At the market equilibrium price excess supply becomes zero.

Price
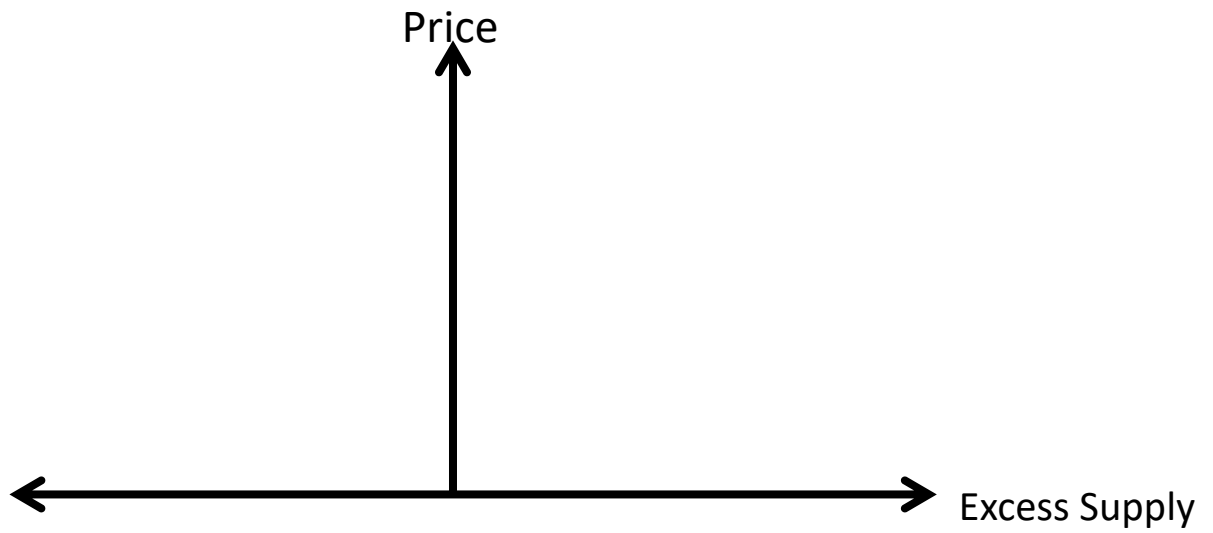
Excess Supply

Exercise 01:-

a) Find excess demand and excess supply using below schedule

Price	Quantity Demand	Quantity Supply	Excess demand	Excess supply
0	100	-20		
4	80	0		
8	60	20		
12	40	40		
16	20	60		
20	0	80		

b) Find equilibrium price using excess demand and supply

Price

ED & ES
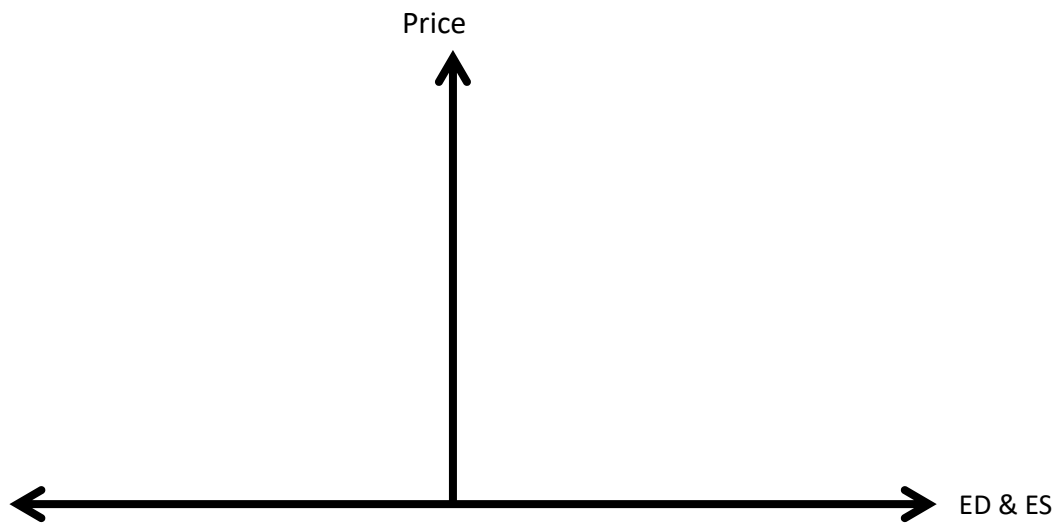
Equilibrium price is _____

Exercise 02:-

a) Following equation shows excess demand equation of a hypothetical market. Find equilibrium price of this market.

Ed = 70- 5p

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b) If following equation shows supply of this market, find equilibrium price of this market.

Ed = - 30 + 3p

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Process that converts market disequilibrium to market equilibrium (Market clearing process)

Price

Quantity

At a higher price than equilibrium market price	At a lower price than equilibrium market price
↓	↓
Market experience a surplus (excess	Market experience a shortage (excess demand)
↓	↓
There will be competition among suppliers to sell stocks in hand	There will be competition among consumers to buy goods
↓	↓
Suppliers cut their prices to clear excess stocks	Consumers will offer a higher price to obtain goods they require
↓	↓
When price comes down QS falls but QD rises	When price raises QS rises but QD falls
↓	↓
This process continues until total market surplus is cleared	This process continues until total market shortage is cleared
↓	↓
Market arrive to equilibrium	Market arrive to equilibrium

Economic surplus

- Economic surplus is the total surplus benefit passed on to both consumer and supplier at the market equilibrium.

- Economic surplus depicts the contribution to social fair through voluntary exchange between consumers and suppliers

- Therefore, economic surplus is considered as a measure the efficiency of a competitive market.

- Economic surplus is comprised of two parts:

  1. Consumer surplus

  2. Producer surplus

> **Economic Surplus = Consumer Surplus + Producer Surplus**

Consumer surplus

- Consumer surplus is the additional benefit passed on to consumers since they could purchase goods at an equilibrium price which is lower than the price that they were willing to pay.

- Price that consumers willing to pay represents total utility (satisfaction) that consumers obtained by purchasing a particular quantity.

- When that particular quantity is bought at equilibrium price it shows actual consumer expenditure.

- Therefore, consumer surplus can also be known as the **surplus utility that the consumer receives over and above the actual consumer expenditure.**

> **Consumer Surplus = Total Utility - Consumer expenditure**
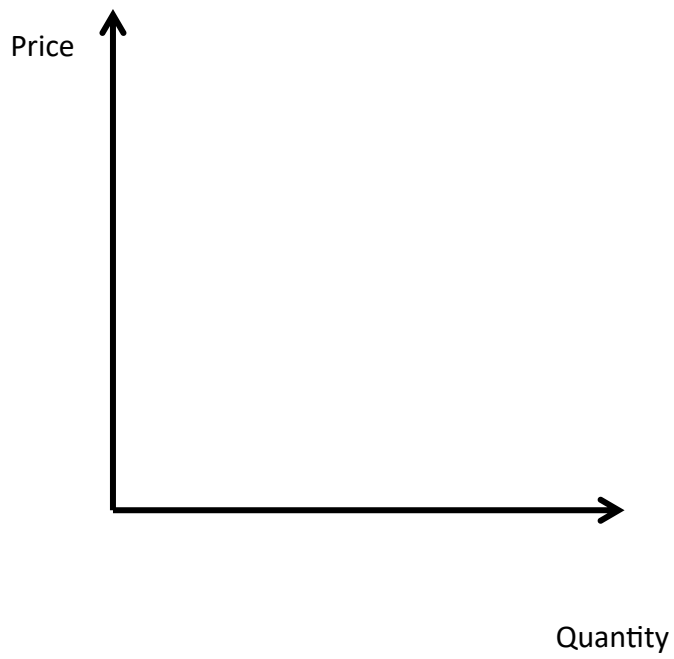
Price

Quantity

Consumer Surplus =

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Exercise:-

Following equations shows the demand and supply of a hypothetical market.

Qd = 40- 2p Qs = 2p

a) Draw a graph using above information and find out equilibrium price and quantity.
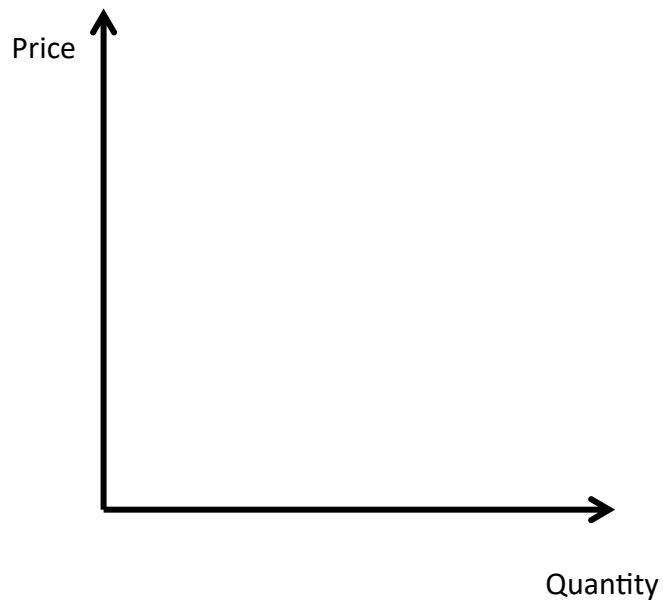


Equilibrium price is _____

Equilibrium quantity is _____

b) Find consumer surplus of this market.

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Producer surplus

- Producer surplus is the additional benefit passed on to producers since they could sell goods at an equilibrium price which is higher than the price that they were expecting to charge.

- Price that producers expecting to charge represents total variable cost of a particular quantity.

- When that particular quantity is sold at equilibrium price it shows actual producer revenue.

- Therefore, producer surplus can also be known as the **surplus utility that the consumer receives over and above the actual consumer expenditure.**

	Total Producer Revenue	**Variable Cost**
Producer Surplus =		**-**
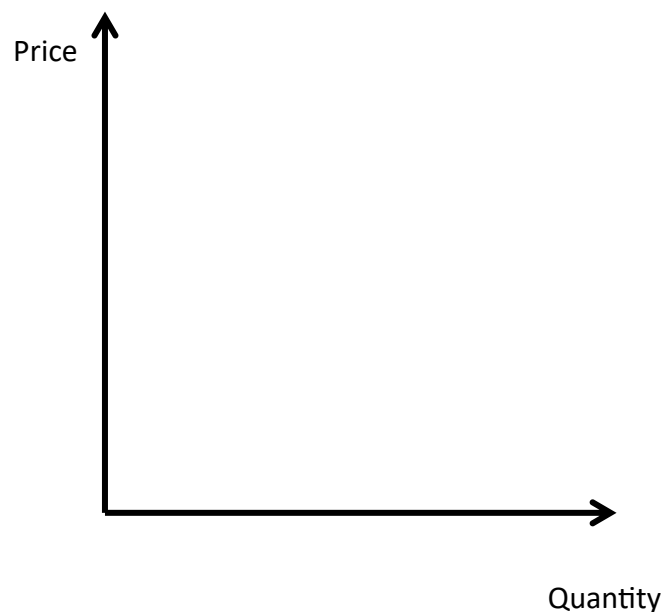
Price ↑

Quantity →

Producer Surplus =

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Exercise:-

Following equations shows the demand and supply of a hypothetical market.

Qd = 50- 3p Qs = -10 + 2p

a) Draw a graph using above information and find out equilibrium price and quantity.
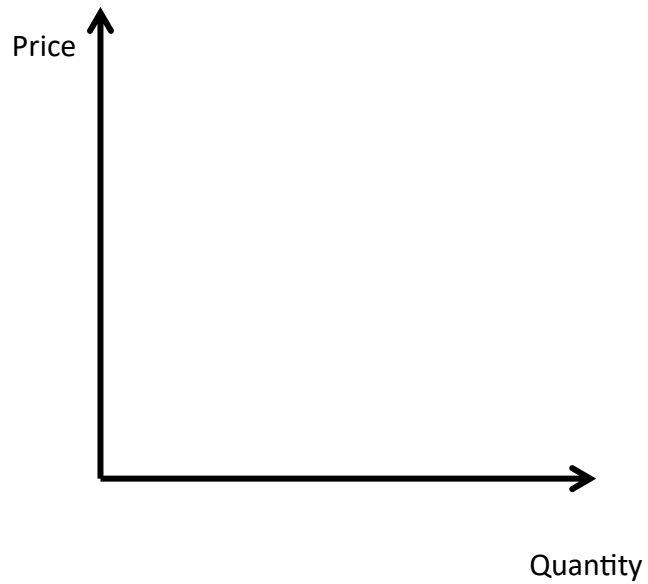
Price

Quantity

Equilibrium price is _____

Equilibrium quantity is _____

b) Find producer surplus of this market.

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Change of Equilibrium

- Due to the changes of demand and supply forces market equilibrium changes.

- These changes can be mainly categorized in to 3 categories:

    1. Demand changes while supply being constant

2. Supply changes while demand being constant

3. Both demand and supply changes at the same time

01. Demand changes while supply being constant

Price

Quantity
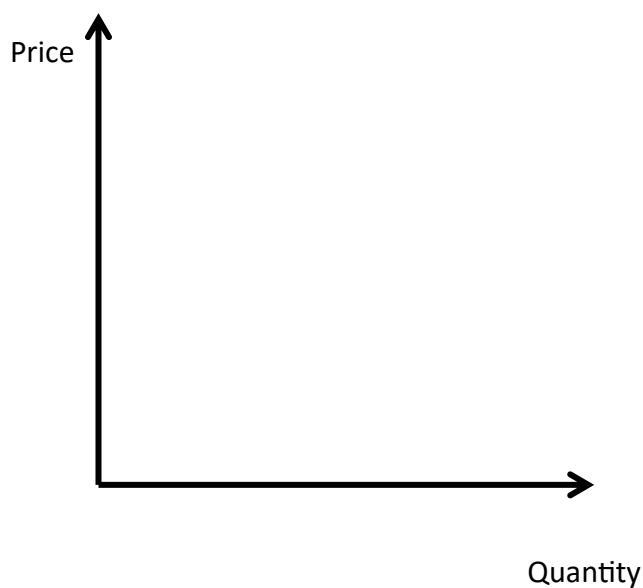
Demand curve shifts to right

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Price

Quantity
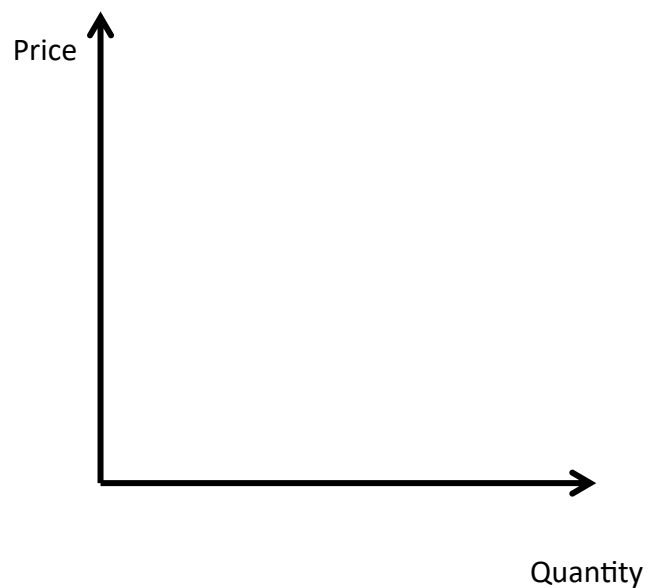
Demand curve shifts to left

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02. Supply changes while demand being constant

Price

Quantity

Price

Quantity
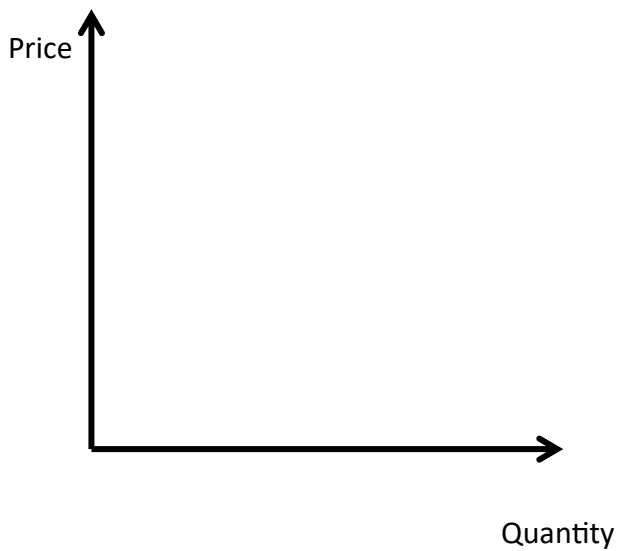
Supply curve shifts to right
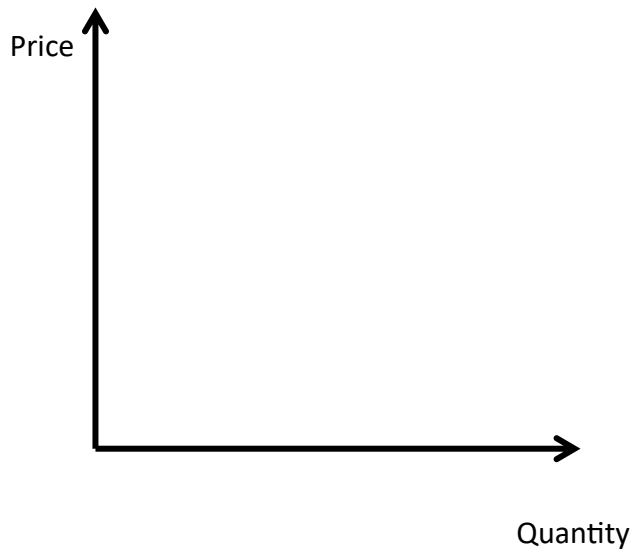
Supply curve shifts to left

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03. Both demand and supply changes at the same time

Price

Quantity

Price
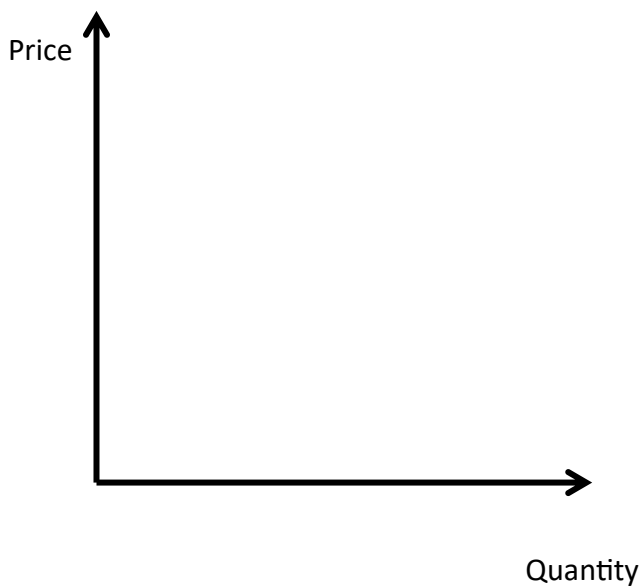
Quantity

Both demand and supply rises by the same proportion

Both demand and supply falls by the same proportion

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Price

Quantity
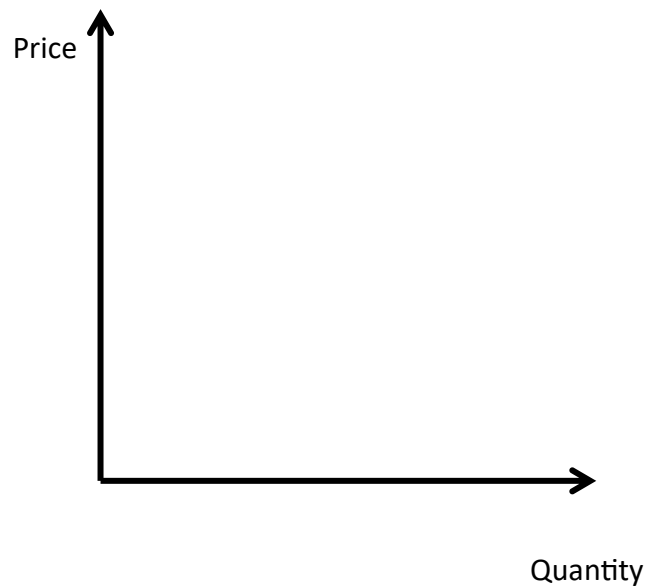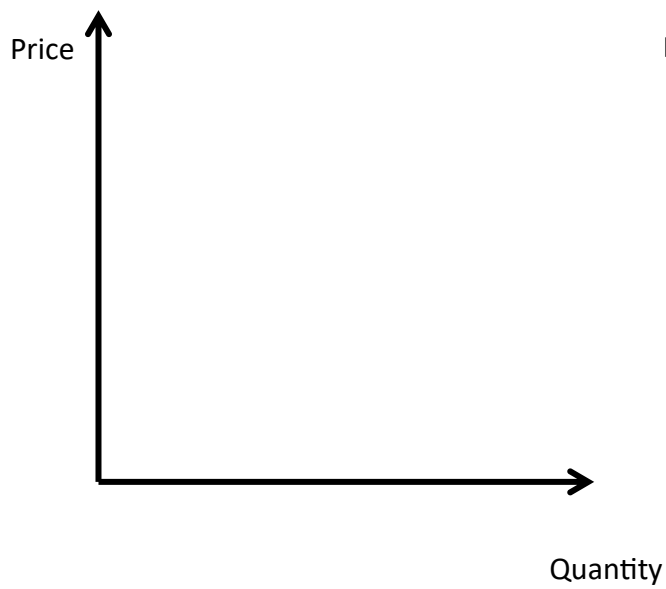
Price

Quantity

Demand rises and supply falls by the same proportion
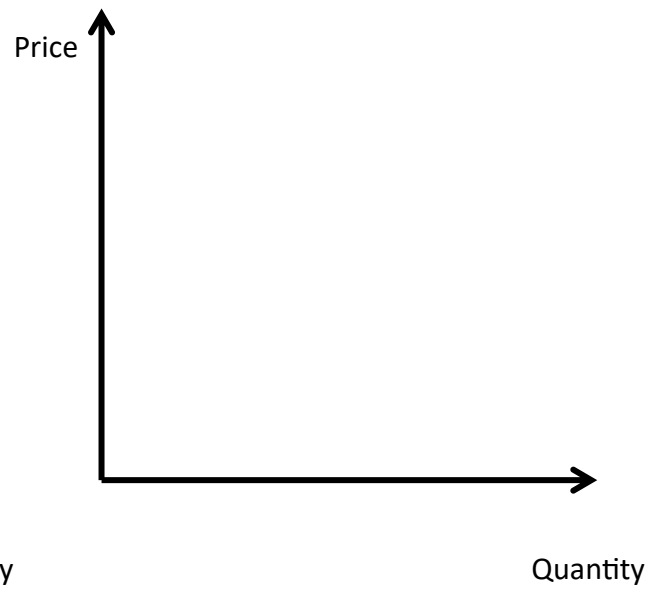
Demand falls and supply rises by the same proportion

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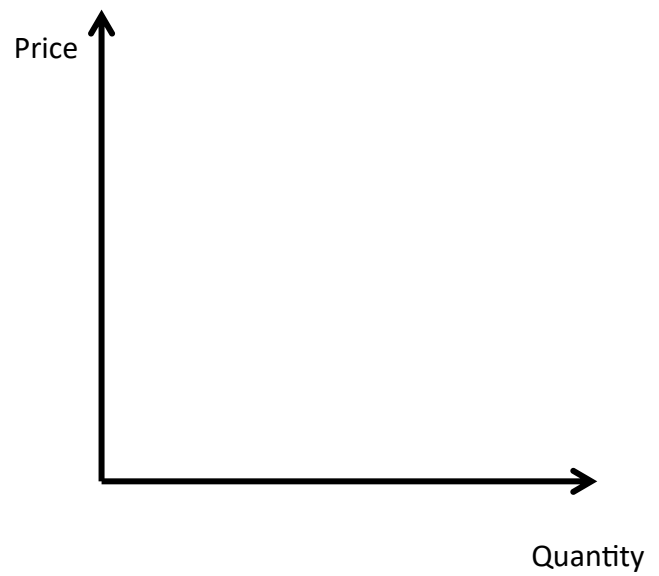_____
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Quantity

Quantity

Price

Price

Supply rises more than proportionate times to the rise of demand

Supply falls more than proportionate times to the rise of demand

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Price

Quantity

Price

Quantity
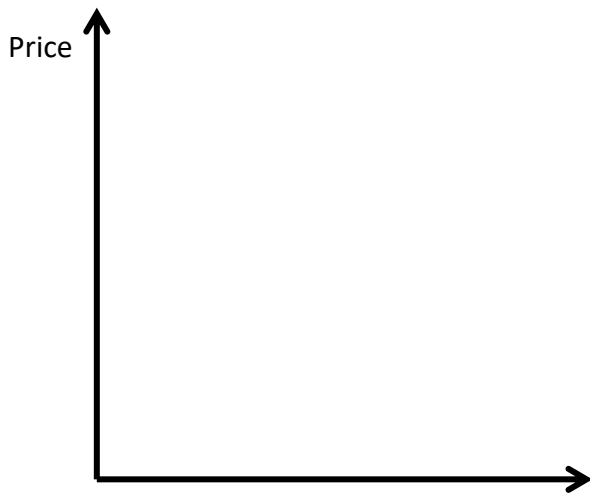
Supply rises more than proportionate times to the fall of demand

Supply falls more than proportionate times to the fall of demand

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Quantity

Quantity

Price ↑

Supply falls less than proportionate demand

Price ↑

Supply rises less than proportionate times to the rise of demand times to the rise of

_____

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Price ↑

Price ↑

Quantity

Quantity

Supply rises less than proportionate times to the fall of demand

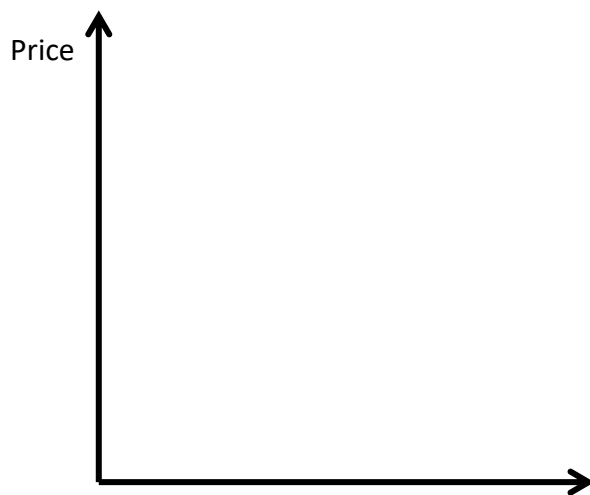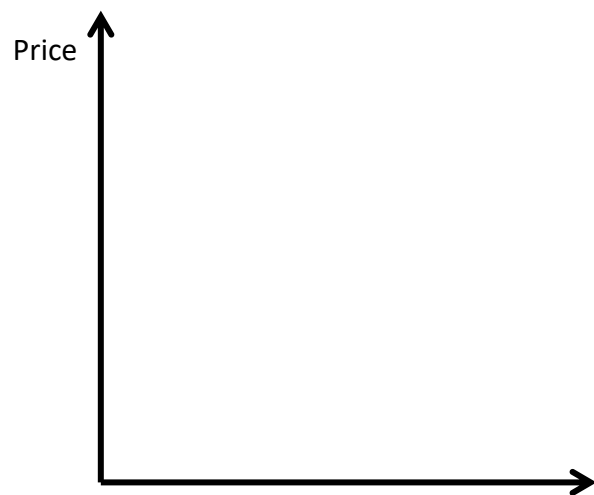**Supply falls less than proportionate times to the fall of demand**

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Summery;-

	Demand Rises	**Demand Falls**
Supply Rises	☐ Equilibrium Quantity rises ☐ Equilibrium price can either go up or go down or stay constant	☐ Equilibrium price falls ☐ Equilibrium quantity can either go up or go down or stay constant
Supply Falls	☐ Equilibrium price rises ☐ Equilibrium quantity can either go up or go down or stay constant	☐ Equilibrium Quantity falls ☐ Equilibrium price can either go up or go down or stay constant

Practice Questions:

01. Demand and supply equations of a competitive market given below.

Qd = 20 – p
Qs = -8 + 6p

a) Calculate equilibrium price and quantity in this market.

b) Find point price elasticity of demand in this market.

c) Find point price elasticity of supply in this market.

d) While supply equation being constant demand equation changes to Qd = 36 – 5p. Calculate new equilibrium price and quantity in this market.

e) While demand equation being constant as the original equation, supply equation changes to Qs = -10+4p. Calculate new equilibrium price and quantity in this market. f)

Show (a), (d) and (e) in a same diagram.

02. Following information is with regard to two points in demand and supply curves of a competitive market.

Price	QD	QS
0	600	-100
10	100	400

a) Draw demand and supply curves. Find equilibrium price & quantity.

b) In this market at what price elasticity of demand equals to one (1).

c) Find out consumer surplus and producer surplus in this market.

03. Following equations are with regard to demand and supply of a competitive market.

Qd = 20 – p
Qs = -8 + 6p

a) Calculate equilibrium price and quantity.

b) Find economic surplus in this market.

c) How much is the total consumer utility in this market?

d) What is the variable cost of suppliers in this market?

e) At Rs.12/- what is the excess demand in this economy?

04. Even though both demand and supply curves changed,

a) Equilibrium price did not change.
b) Equilibrium quantity did not change

Show (a) situation and (b) situation in separate diagrams.

05. Explain followings situations with related to competitive fish market using appropriate diagrams.

a) Due to Tsunami lot of fishing boats have been destroyed.

b) Consumer preference of fish rises.

c) Prices of chicken falls

d) Grating a fuel subsidy to fishermen

e) Programs implemented to improve technical knowledge of fishermen.