# THEORY OF DEMAND

**WHAT IS DEMAND**? Demand can be defined as the quantity of a commodity that a consumer is willing to buy at a given price and at a particular period of time.
In economics, demand is quite different from want or need. Wants or needs refers to a mere desire for a commodity but not backed up by the willingness and ability to pay for it.

**HOUSE DEMAND**: Is the demand of an individual or family for a particular commodity.
**MARKET DEMAND**: This is the demand of the entire household (individual in the market).
**EFFECTIVE DEMAND**: A consumer desire for a commodity and ability to pay for such commodity.
**INEFFECTIVE DEMAND**: Is the desire of a consumer for commodity and inability to pay for such commodity.

**LAWS OF DEMAND**

These are divided into two categories;
1. Normal demand law
2. Abnormal demand law

1. **NORMAL DEMAND LAW**: This states that "the higher the price of the commodity, the lower the quantity demanded and the lower the price, the higher the quantity demanded'' "ceteris paribus.
2. **ABNORMAL DEMAND LAW**: This is the second law of demand and it is also called "exceptional demand law". It states that "the higher the price of a commodity, the higher the quantity demanded and the lower the price, the lower the quantity demanded".

**DEMAND FUNCTION**

This is the relationship between quantity demanded and the factors that affect it. It is
Is illustrated in a mathematical expression=> Qd = F(P).

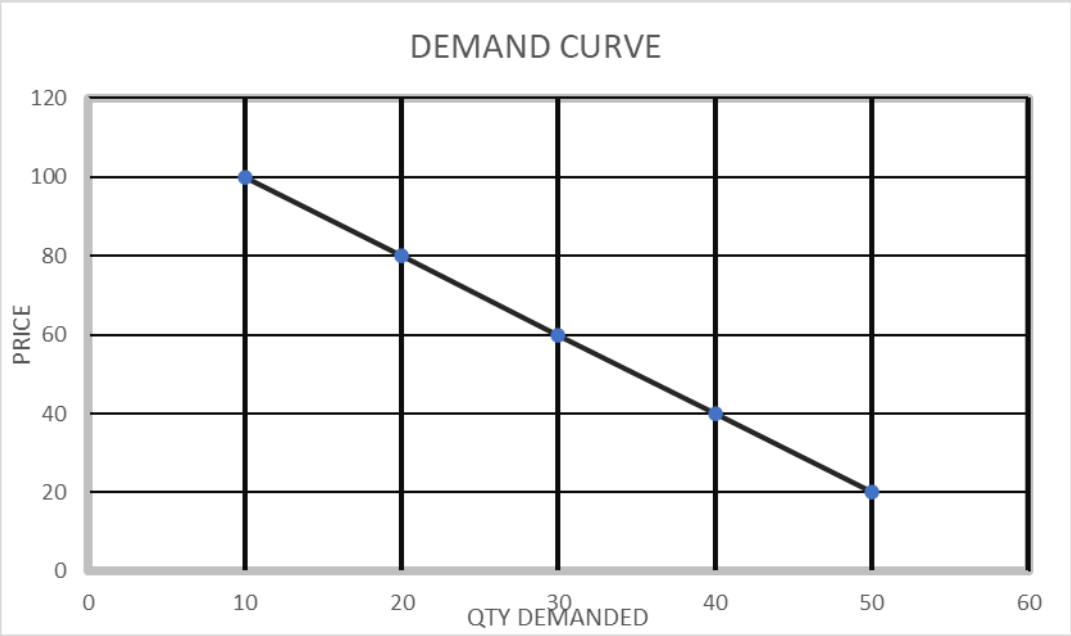
**DEMAND SCHEDULE**

The demand schedule shows the relationship between the quantity of goods demanded at a particular time and the given market price of the same goods at the same time. Example of a demand schedule:

| PRICE PER TIN (NAIRA) | QUANTITY DEMANDED |
|---|---|
| 100 | 10 |
| 80 | 20 |
| 60 | 30 |
| 40 | 40 |
| 20 | 50 |

**DEMAND CURVE**

A demand curve is a diagrammatical representation of the relationship between price and the quantity demanded at any point in time. The price of the commodity "Q" on the x-axis as on independent variables respectively.




**TYPES OF DEMAND**

1. **DERIVED DEMAND**: This is a situation in which a commodity is wanted not for its immediate satisfaction of want but because of the demand for another commodity.
2. **JOINT DEMAND**: Demand for two or more commodities that are jointly used to satisfy a want. E.g. car and petrol, tea and sugar, e.t.c. A change (rise and fall) in the demand for one brings about similar change in the other.
3. **COMPETITIVE DEMAND**: This is the demand for two or more commodities that are close substitutes. E.g. Coke and Pepsi.
4. **COMPOSITE DEMAND**: Demand for commodity that is used for more than one purpose e.g. sugar (for domestic and industrial use).

## FACTORS AFFECTING DEMAND

1. **PRICE**: Demand moves in opposite direction with price; the higher the price, the lower the demand.
2. **PRICE OF OTHER COMMODITIES**: This applies to commodities that have close substitutes; if the price of such commodity is high, consumers may demand for close substitute.
3. **INCOME OF CONSUMER**: The more income a consumer earns the more commodities that he will demand for.
4. **CHANGES IN FASHION**: The demand of people changes according to the fashion of the day.
5. **CHANGES IN TASTE**: People demand changes according to their taste.
6. **POPULATION**: The population of a place determines the extent of which goods and services will be demanded.

## ELASTICITY OF DEMAND

Elasticity of demand refers to the degree or responsiveness of demand to little change in price or income. The definition is telling us the reaction of demand as a result of changes in prices, of goods and services, income

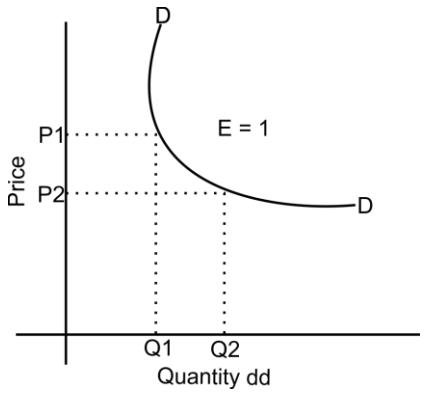
**TYPES OF ELASTICITY OF DEMAND**

1. Price elasticity of demand
2. Income elasticity of demand
3. Cross elasticity of demand

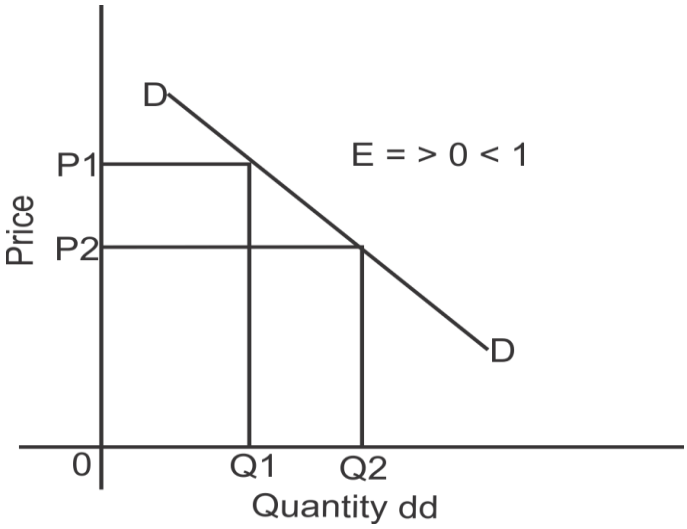
**PRICE ELASTICITY OF DEMAND**: This is the degree of responsiveness of demand to change (increase or decrease) in price. This is how goods demand reacts as a result of change in prices of goods and services.

## TYPES OF PRICE ELASTICITY OF DEMAND

A. **UNIT OR UNITARY ELASTIC DEMAND**: This is when a change in price leads to equal change in demand e.g. 30% fall in price will lead to 30% rise in demand. This is equal to one.

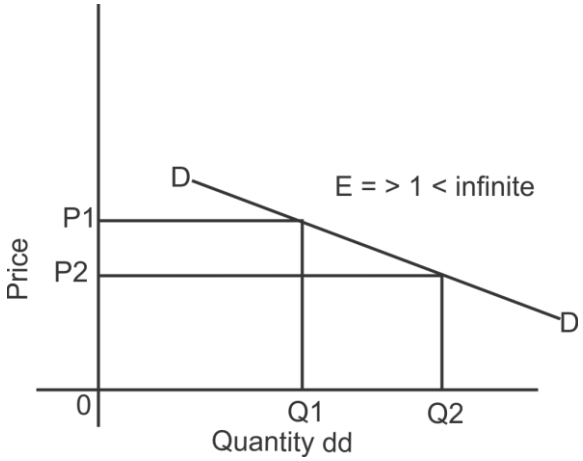


B. **INELASTIC DEMAND**: When a change in price of commodities leads to little or no Change in demand, inelastic demand is less than 1, e=1.

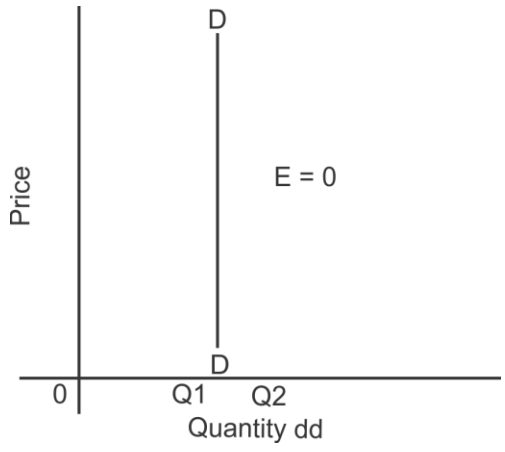



C. **ELASTIC DEMAND**: This is a change in price that brings about a greater change in the quantity demanded. E.g. a fall of 30% in price leads to 50% rise in demand; it is greater than one E=1< infinity.

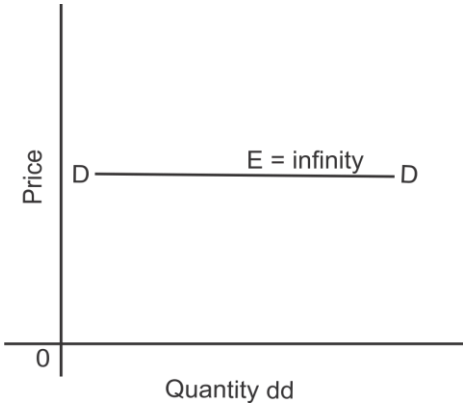
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D. **ZERO ELASTICITY OF DEMAND**: This is a case where demand is perfectly or completely inelastic as a result of changes in price. In this case, demand remains unchanged.



E. **PERFECT ELASTICITY OR INFINITELY ELASTIC DEMAND**: This is when a change on price brings about a change in demand; for instance, a consumer will demand for a mere commodity if there is a fall in price of that commodity and vice versa.




**Measurement of Elasticity of Demand or Co-Efficient of Price Elasticity of Demand**.

The co-efficient of price elasticity of demand is expressed in form of Equation, thus:

$$\text{Elasticity of demand} = \frac{\%\text{ change in demand}}{\%\text{ change in price}}$$

**Examples**

Note: If e=1 (unitary elastic demand).

If e<1 (inelastic demand).

If e>1 (elastic demand).

Example:

| **Price (N)** | **Quantity Demanded** |
|---|---|
| 10 | 40 |
| 8 | 48 |

*First step*: Find % of change in demand

$$\frac{\text{Change in Qd}}{\text{Old Qd}} \times 100$$

$$(48 - 40);\ \frac{8}{40} \times 100 = 20\%.$$

***Second step***: Find % of change in price

$$\frac{\text{Change in Price}}{\text{Old price}} \times 100$$

$$\frac{2}{10} \times 100 = 20\%.$$

*Third step*: Find the co-efficient of price elasticity = $\frac{20\%}{20\%}$ =1 (unitary demand)

2. **Income Elasticity of Demand**

Income elasticity of demand refers to the degree of responsiveness of demand to change in income of consumers. It shows how income of individual will affect the Quantity of goods and services demanded.

**Types of Income Elasticity of Demand**.

a. **Positive income elasticity of demand**: This is when an increase in the income of a consumer leads to increase in the quantity demanded. This applies to normal commodities.

b. **Negative income elasticity of demand**: this is when an increase in the income of consumers leads to decrease in quantity of goods and services demanded. This applies to given goods or inferior goods.

***Examples:***

The following shows household income and demand at different periods.

| Income | | Quantity demanded of rice. | |
|---|---|---|---|
| Old (N) | New (N) | Old (Kg) | New (Kg) |
| 40,000 | 50,000 | 200 | 280 |

1. Compute income elasticity of demand
2. What kind of good is rice to the consumer?

Solution

Elasticity (income) = $\frac{\%\text{ change in demand}}{\%\text{ change in income}}$

*Step1*: Solve for % change in demand

$$\%\text{ change in Ad} = \frac{\text{New Qd - Old Qd}}{\text{Old Qd}} \times 100$$

$$= \frac{280 - 200}{200} \times 100 = 40\%$$

*Step 2*: solve for % change in income

$$\%\text{ change in income} = \frac{\text{New Income - Old income}}{\text{Old income}}$$

$= \frac{50{,}000-40{,}000}{40{,}000} \times 100$

$= 25\%$

*Step 3*: Find income elasticity of demand = $\frac{\%\text{ change in dd}}{\%\text{ change in income}} = \frac{40\%}{25\%} = 1.6$

(b) Rice to the consumer is a normal good. His income rose from N40, 000 to N50, 000, his demand for the rice also increase from 200kg to 280kg, thus indicating positive elasticity.

**Factors affecting price Elasticity of demand**

a. Availability and closeness of substitutes.
b. Numbers of in, which the commodity can be used.
c. Magnitude of expenditure on the commodity.
d. Habit / adjustment Time.

## Cross Elasticity of Demand

This is the degree of responsiveness of quantity demanded of one commodity (e.g. x) to a Change in the price of another commodity (e.g.). It measures how changes on the price of a commodity will affect the demand of another commodity. It is applied to goods with close substitutes as well as complementary goods. For example, the demand for "omo" detergent will increase if there is an increase in the price of "Bimbo".

Cross elasticity of demand = $\frac{\%\text{ change of quantity of commodity X}}{\%\text{ change of price of commodity Y}}$

*Example:*

| ***Price of omo.*** | | ***Quantity demanded of Elephant.*** | |
|---|---|---|---|
| Old | New | Old | New |
| (N) | (N) | (Packet) | (Packet) |
| 25 | 40 | 150 | 200 |

1. Calculate the cross elasticity of demand.
2. What kind of goods are omo and elephant detergents?

**Solutions**

1. % change in Qd of omo= (200 -150) ÷ 150 × 100= 33.33%
   % change of price of omo = (40-25) ÷25 ×100 =60%

Therefore, CED = $\frac{33.33\%}{60\%}$ = 0.56

2. Omo and elephant are substitute and competitive goods because when the price of omo rose from N 25 to N 40, the demand for elephant increased from N 150 to N 200. This indicates that they are positively correlated and this is normally the case with substitute goods.

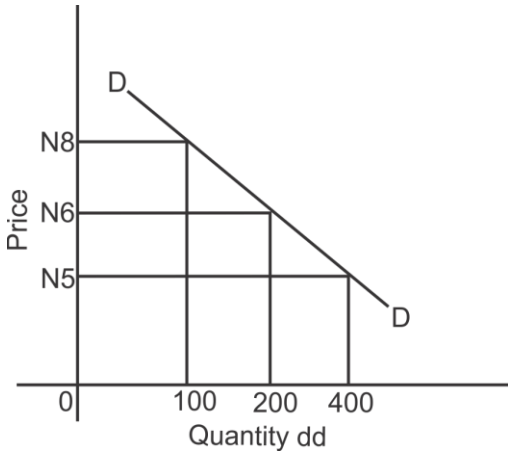
## CHANGES IN QUANTITY DEMANDED AND CHANGE IN DEMAND

Change in quantity demanded and change in demand mean different things.

***Change in Quantity Demanded*** means an increase or decrease in the number of goods and services bought at a time as a result of fall or rise in prices.

This means that price is the only cause of a change in the quantity demanded while other factors that affect demand remain unchanged.

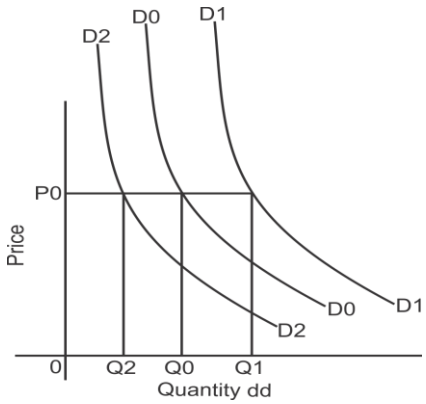
**Demand curve illustrating a change in the quantity demanded.**




The diagram above illustrates changes in quantity demanded as the price decreases from N8 to N5, the quantity increases from 100 to 400. Movement took place prom A to B and to C on the same demand curves OD and that is what is known as movement along a demand curve.

It is important to note that downward movement along demand curve indicates increases in demand while upward movement indicates otherwise.

**Change in demand**: This is when different quantity of goods and services are demanded at a particular price. A change in demand is caused by those factors that bring about changes in demand, except the price of the commodity or service in question. What this implies is that a change in demand while price remains constant, other factors will bring about increase or decrease in the quantity of goods and services bought. A change in demand can occur if demand shifts either to the right or to left.




From the above demand curve, QD is the original demand curve and a change in demand can cause either the curve to shift to the right D1 D1 or the left D2 D2. A shift of demand curve to the right D1D1 is referred to as increase in demand while a shift to the curve to the left. D2D2 is known as decrease in demand.

## Point Elasticity of Demand

This is used when there is a very small change in price and quantity

$$= \frac{\text{Change in quantity}}{\text{Change in price}} \times \frac{Po}{Qo}$$

## Arc Elasticity of Demand

This measures elasticity where a large change in price and quantity occurs.

$$= \frac{DQ}{DP} \times \frac{Po+P1}{Qo+Q1}$$

# THEORY OF SUPPLY

**What is Supply?**

Supply can be defined as the quantity of a given commodity or service which a producer is willing, able and ready to offer for sale over a period of time at a particular market place.

**TYPES OF SUPPLY**

1. **Joint or Complementary Supply**: Supply of two or more commodities that are derived together from the same source e.g. kerosene and fuel. An increase in the supply of one leads to fall in the price of the other.

2. **Competitive Supply**: Supply of a commodity that that can be asked for more than one purpose e.g. flour for bread and biscuit, etc.
3. **Composite Supply**: When a particular commodity can serve two or more purposes, it is said to be composite supply. The supply of the commodity for one purpose will greatly affect the supply of the same commodity for other purposes. An example can be palm oil; the supply of palm oil for the production of soap will greatly affect the production of pomade and the use of some palm oil for cooking of food. If more palm oil is needed for soap making, the price of palm oil for other purposes will also be faced with one higher price.

## FACTORS AFFECTING SUPPLY

1. **Price**: Supply moves in the same direction with price, the higher the price, the higher the supply and vice-versa, etc.
2. **Price of other commodities**: If the price of close substitutes to a commodity is lower than the price of that commodity, the demand for that commodity will be low and as a result, its supply will be low and vice-versa.
3. **Cost of production**: When the cost of production is high, less quantity of goods will be produced and supply will be greatly affected.
4. **Level of Technological Development**: The level of technological development goes a long way in affecting supply. The more the level of technological development the higher the level of supply and vice-versa.
5. **Availability of capital**: Capital plays a big role in production process, the lack or inadequate capital can reduce supply.
6. **Festival period**: More commodities are demanded and supplied during festival period like: Christmas, Easter, Selah, etc.

## LAWS OF SUPPLY

The law of supply states that "the higher the price of a commodity, the higher the quantity supplied or vice-versa.

## SUPPLY SCHEDULE

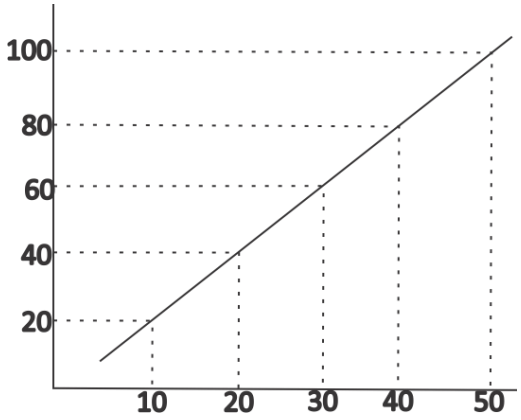
A table showing the relationship between market price and quantity supplied for such commodity and vice versa. Example of supply schedule:

| Price of Rice (₦) | Quantity Supplied (Kg) |
|---|---|
| 100 | 40 |
| 90 | 35 |
| 80 | 30 |
| 70 | 25 |
| 60 | 20 |

## SUPPLY CURVE

A supply showing the relationship between market price and quantity supplied of a given commodity.

It is the graphical illustration of the supply schedule. It slopes upward from left to right.




## CHANGE IN SUPPLY AND CHANGE IN QUANTITY SUPPLIED

1. **CHANGE IN SUPPLY**: This is an increase or decrease in quantity supplied as a result of changes in factors affecting supply other than price of the commodity. It involves a complete shift in the supply curve rightward or leftward as the cause may be. It shows rise and fall in the quantity supplied at constant price.

Fig 1

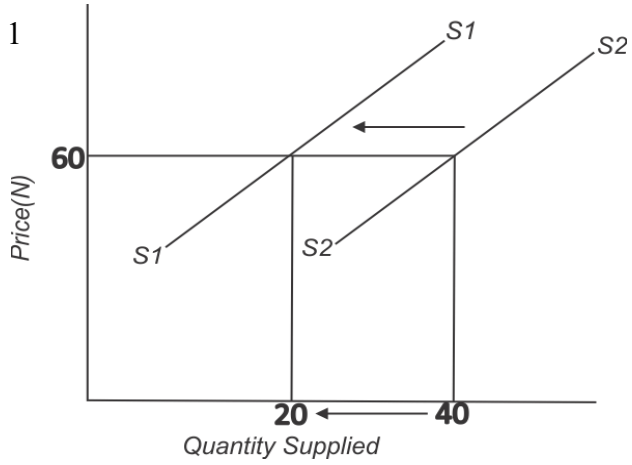



Fig 2

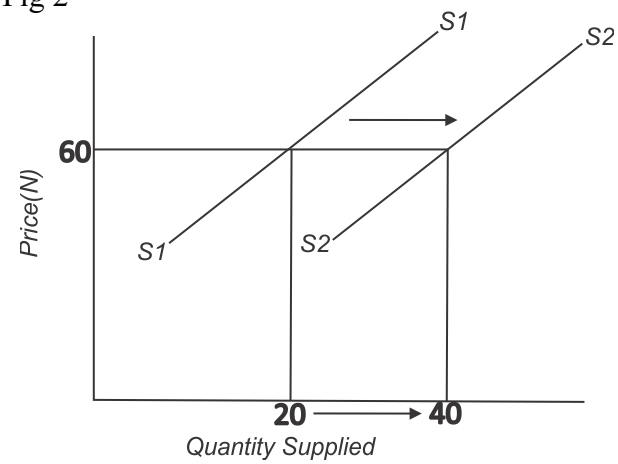



**Fig 1 Diagram:** illustrates **Decrease in Supply**; this occurs when the supply curve shifts to the left indicating that with the old price N60 less commodity is being supplied. A decrease in supply brought about by an Unfavourable change in any of the factors affecting supply except the price of the commodity example if there is an increase in taxation, e.g. an increase in taxation against a commodity, the supply for it will fall, at the former price.

**Fig 2 Diagram:** illustrates **Increase in Supply**; this occurs when the supply curve shifts to the right indicating that with the old price N60 more of the commodity will be supplied. An increase in supply brought about by a favourable change in the factors affecting supply other than the price of the commodity. For example, if there is improvement in the level of technology more of the commodity is likely to be supplied at the old price.

2. **CHANGE IN QUANTITY SUPPLIED**: This is an increase or decrease in quantity supplied caused solely by a change in the price of the commodity. It is otherwise known as movement along the supply curve caused by price.

Fig 1

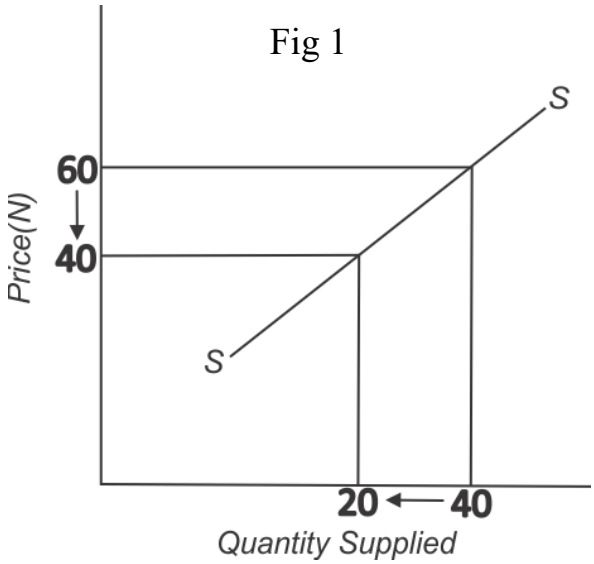



Fig 2

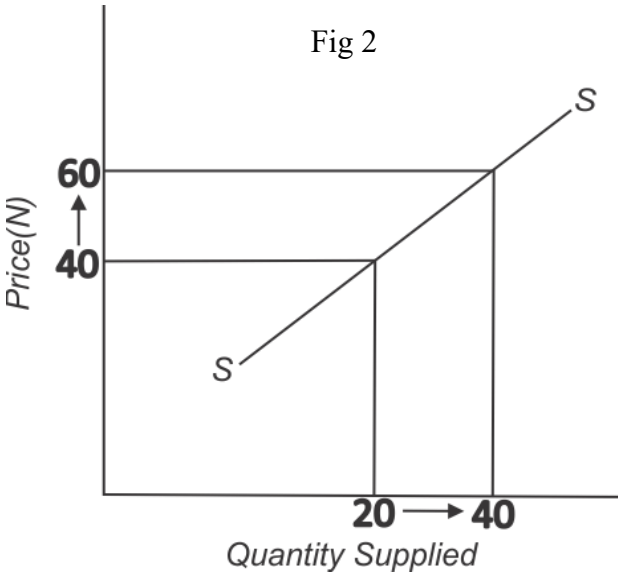


**Fig 1 Diagram:** illustrates **Decrease in the quantity Supply**; in this case, there is a decrease in the quantity supplied if the quantity of the commodity supplied decreases because of a decrease in price of the commodity.

A decrease in the price of the commodity from N60 to N40 brought about a corresponding decrease in the quantity supplied from 40 to 20 units.

**Fig 2 Diagram:** illustrates **Increase in the quantity Supply**; in this case, there is an increase in the quantity supplied if the quantity of the commodity supplied increases because of a increase in price of the commodity.

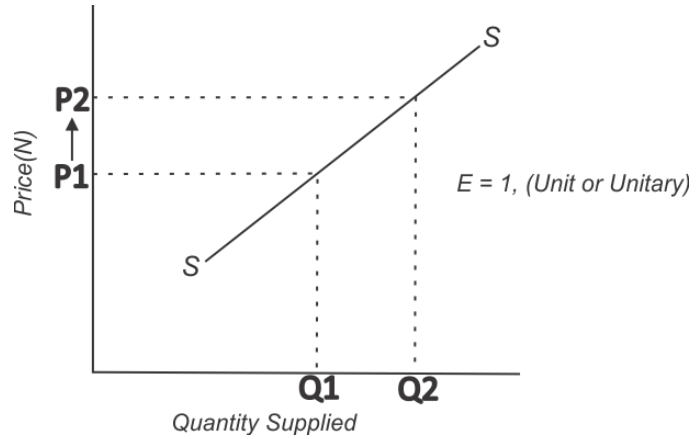
An increase in the price of the commodity from N40 to N60 brought about a corresponding increase in the quantity supplied from 20 to 40 units.

## ELASTICITY OF SUPPLY

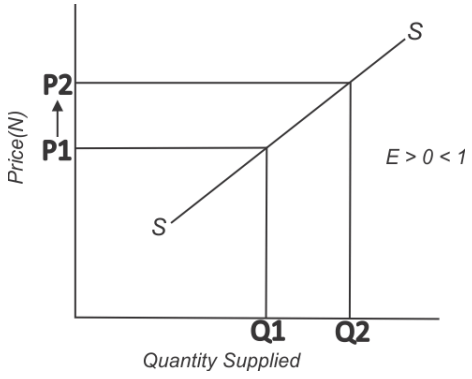
Elasticity of supply is the degree of responsiveness of supply to little change in price of goods. Its low price change affects the quantity of goods and services supplied.

### TYPES OF ELASTICITY OF SUPPLY

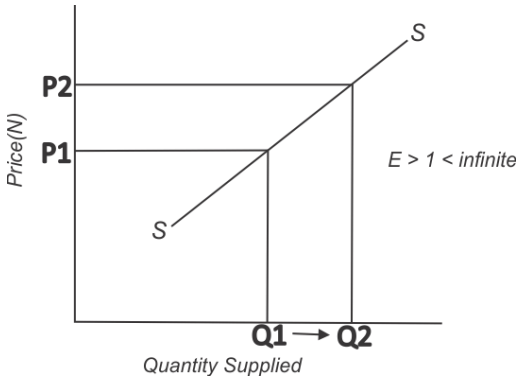
1. **UNIT ELASTICITY OF SUPPLY**: If a change in price leads to equal change in supply, it is said to be unit elasticity of supply. For instance, if 35% increase in price leads to 35% rise in supply.



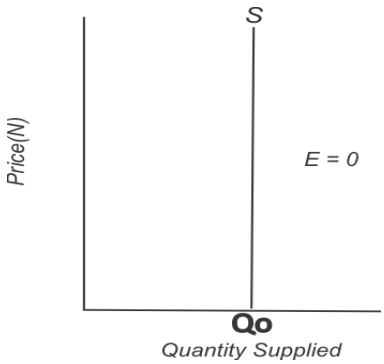

2**. INELASTIC SUPPLY**: When a change in price of commodities lead to little or no change in the quantity of goods supplied, it is said to be inelastic.



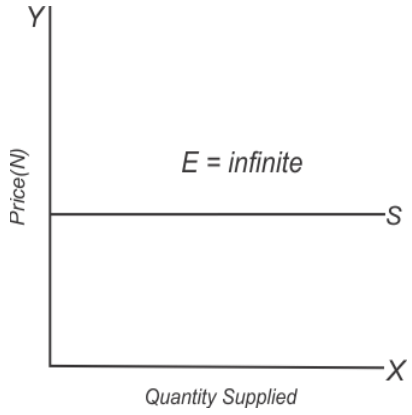
3. **ELASTIC SUPPLY**: When a change in price brings about a greater change in quantity of goods supplied, here elasticity is greater than one or unitary.




4. **ZERO ELASTIC SUPPLY**: In this case, a fixed quantity to be supplied does not change no matter the change in price of goods. For instance, 50% increase in price does not increase the quantity supplied.




5. **INFINITE SUPPLY**: In this case, supply is fixed while the quantity of goods supplied is endless or cannot be measured unlike zero elastic supply where supply is fixed and price might change.




**MEASUREMENT OF ELASTICITY OF SUPPLY**

The co-efficient of the elasticity of supply is expressed in form of equation thus:

$$\text{Price of elasticity of supply} = \frac{\%\ \text{change in supply}}{\%\ \text{change in price}}$$

***Note:***

1. If elasticity=1, we have unit or unitary supply.
2. If elasticity is less than one, supply is inelastic.
3. If elasticity is more than one, supply is elastic

Examples:

| **Price (₦)** | **Quantity supplied** |
|---|---|
| 10 | 80 |
| 6 | 48 |

1. ***% change in supply***= $\frac{\Delta Qs}{\text{Old Qs}} \times 100 = \frac{80-48}{80} \times 100$

$= \frac{32}{80} \times 100 = 40\%$

2. ***% change in price***= $\frac{\Delta Ps}{\text{Old P}} \times 100 = \frac{10-6}{10} \times 100$

$= \frac{4}{10} \times 100 = 40\%$

Elasticity demand= $\frac{40\%}{40\%} = 1$ => supply is unit or unitary

**DEMAND/SUPPLY FUNCTION**

This is the terminal relationship between demand and supply expressed in mathematical terms to determine equilibrium price and quantity e.g. assume the demand and supply function of a commodity is given as Qd=12+3p, Qs=6p-3; where Qd and Qs are quantity demanded and supplied respectively.

Calculate the equilibrium price of the quantity

Qd =12 + 3p, Qs = 6p - 3

Qd = Qs = E

12 + 3p = 6p - 3

12 + 3 = 6p - 3p

15 = 3p

P = 15\3 = 5

Qd = 12 + 3p

Since P = S. Then Qd=12 + 3(5)

Qd = 12 + 15

Qd = 27
Qs= 6p - 3
Since P = 5
Then Qs = 6(5) -3
Qs = 30 - 3
Qs = 27

An equilibrium price is that price at which the quantity demanded is equal to the quantity of commodity supply.
An equilibrium quantity is the point where demand is equal to supply at a given price.