

INTRODUCTION

Theory of demand is a very important concept in economic analysis. An average customer will purchase one commodity or the other to satisfy his/ her need.

Demand for a commodity is quite different from mere want. In this chapter, the following shall be examined: the meaning of demand, demand and supply curves, laws of demand and supply, factors affecting demand and supply, types of demand and supply, and the laws of demand and supply.

OBJECTIVES

At the end of this chapter, students should be able to:

- ◆ Explain the meanings of the demand and supply;
- ◆ Draw the demand and supply curves;
- ◆ Explain the term market equilibrium;
- ◆ Distinguish between factors causing a shift in demand and supply; curves and those causing movement along demand and supply curves;
- ◆ Draw the schedules and curves to explain the changes in demand;
- ◆ Distinguish between various types of demand and supply.

2.1 Demand Theory

Demand for a commodity is either effective or ineffective. Demand is effective when it is backed up by the ability to pay for such goods and services. Demand can therefore be defined as the quantity of commodity that an individual is willing, ready and able to pay for at a specific price per given period of time.

2.2 Demand Schedule

This is a table showing quantities of goods and their prices which consumers would be willing and ready to buy at a particular time. It may be for an individual or for an entire market.

2.2.1 Individual Demand Schedule

An individual demand schedule is a table showing a list of different quantities of commodity purchased by a consumer at different prices at particular given time.

Example:

TABLE 2.1 A Demand Schedule Showing Eggs Purchased by Mrs. Obi

Price per Egg (₦)	Quantity of Eggs Purchased
10	60
20	30
30	15
40	10
50	7

Table 2.1

2.2.1.1 Demand Curve

A demand curve is the graphical representation of a demand schedule.

It is a diagrammatic way of illustrating the relationship between the price of a commodity and the quantity bought at each price. The demand schedule in Table 2.1 is translated into a demand curve as shown in Fig. 2.1.

The curve is downward sloping from left to right indicating that the higher the price, the lower the quantity of eggs demanded. As price falls, Mrs. Obi increased the quantity of eggs demanded.

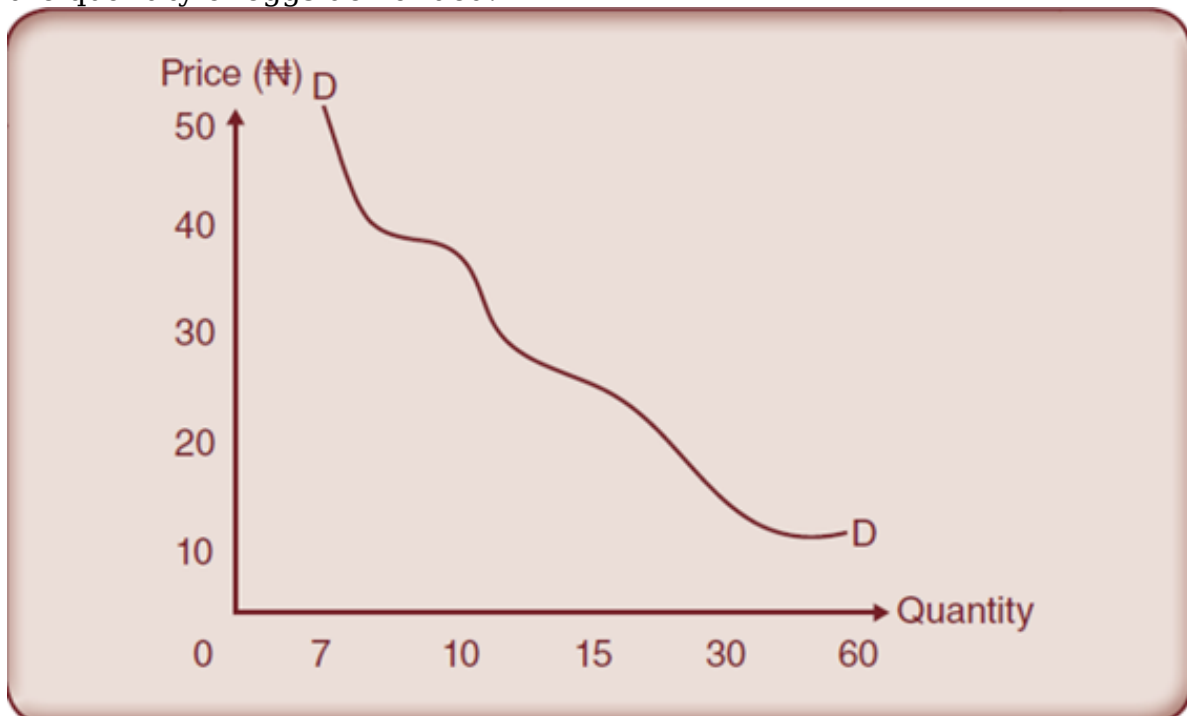


FIG. 2.1 Demand curve for Mrs. Obi's weekly purchase of eggs

2.2.2 Market Demand Schedule

The market demand table shows the total quantities of goods that all the individual consumers are willing to buy at various prices at a given period of time. The level of demand varies between individuals hence, the demand schedule for different individuals may or may not be the same.

TABLE 2.2 Market Demand Schedule of Eggs Purchased by Individual Consumers

Price (₦)	Mrs Obi	Mrs Ojo	Mrs Adamu	Total no. of Eggs Purchased
10	60	80	100	240
20	30	40	50	120
30	15	20	25	60
40	10	13	16	39
50	7	10	12	29

The market demand schedule can then be determined by adding together the number of units that each consumer in the market wishes to buy at each price. It is also referred to as an aggregate or a total demand schedule.

Table 2.2 shows that the different consumers purchase of different quantities of eggs which, when summed up, represents the market demand schedule.

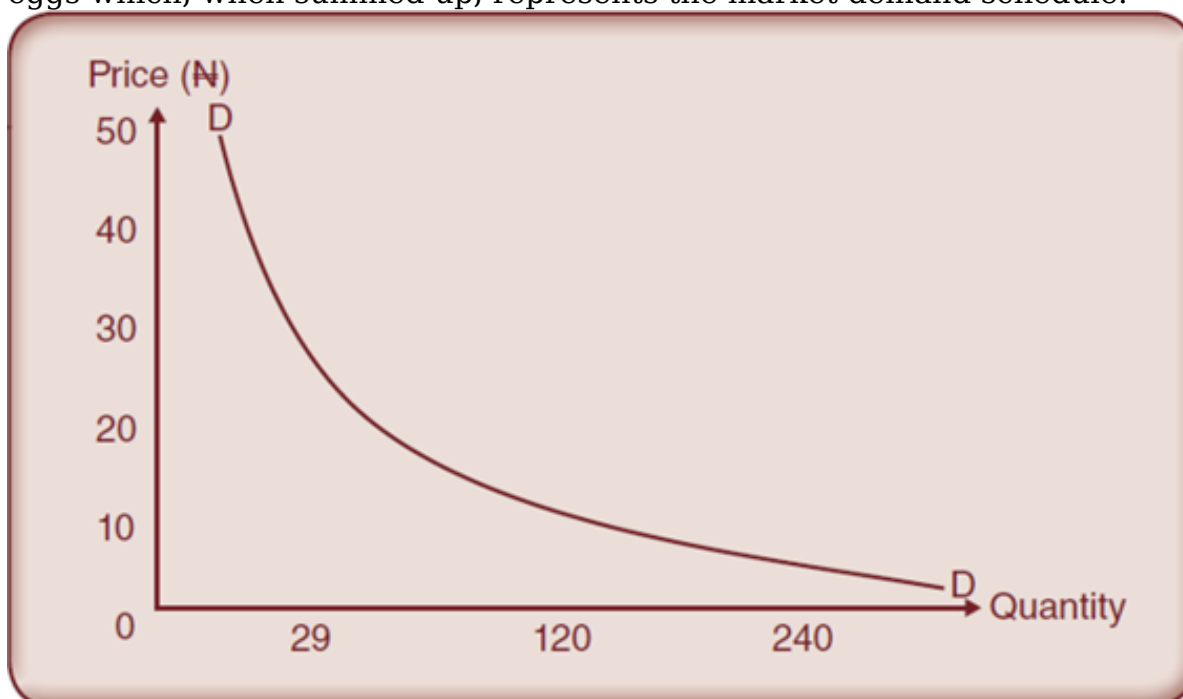


FIG. 2.2 Market demand curve for eggs

From the market demand schedule, the above curve was drawn using the prices and the total demand of the three housewives. It illustrates the total market demand curve, which slopes downward from left to right. As the quantity demanded increases from 120 eggs to 240 eggs, the price falls from N20 to N10. This is referred to as an extension of demand. If the quantity demanded drops from 120 eggs to 60 eggs when the prices increased from N10 to N30 it is called a contraction of demand.

2.2.2.1 Contraction or Extension of Demand

By contraction or extension of demand, it means a movement along the demand curve induced by changes in the prices of the commodity.

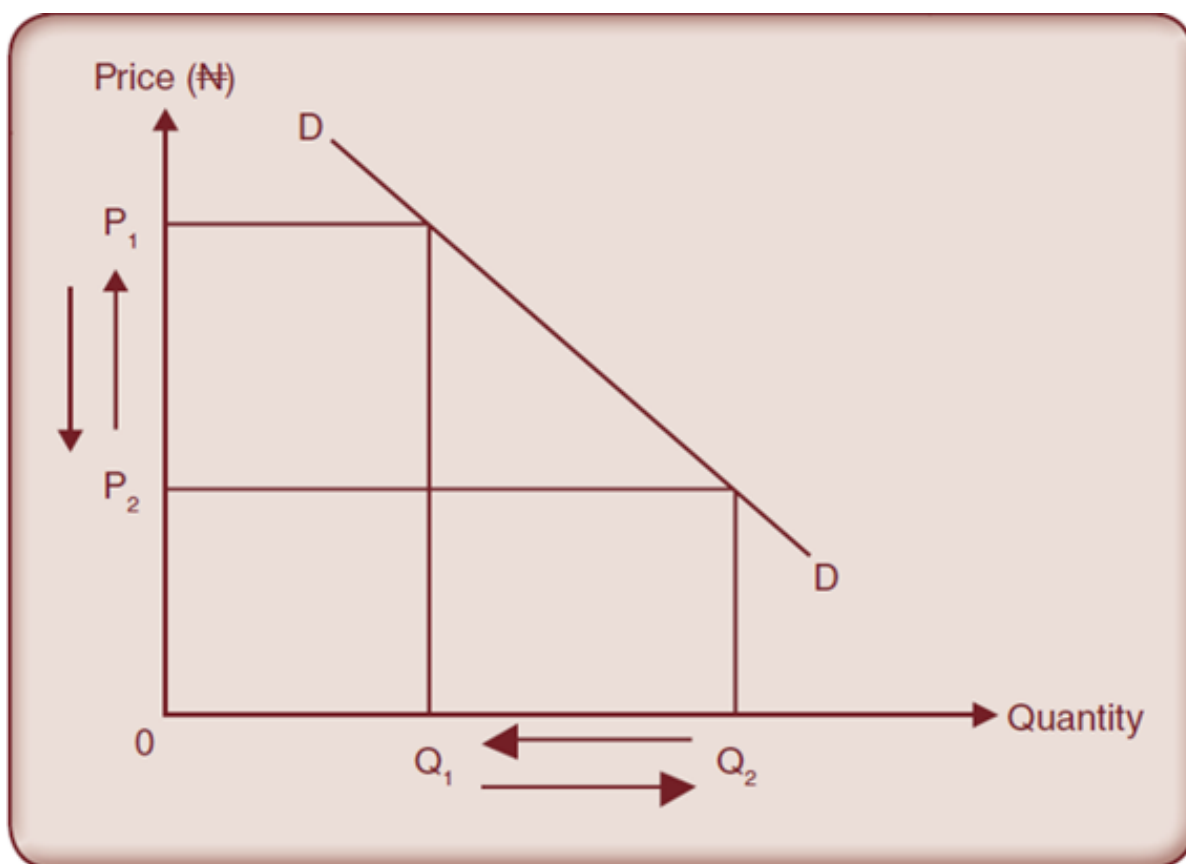


FIG. 2.3 Extension and contraction of demand

From Fig. 2.3 above, when the price moved from OP_1 to OP_2 , showing a fall in price, the quantity demanded increased from OQ_1 to OQ_2 . This however is an extension in demand. If the price moved from OP_2 to OP_1 , quantity demanded reduced from OQ_2 to OQ_1 . This shows a contraction in demand for goods.

2.2.3 Change in Demand

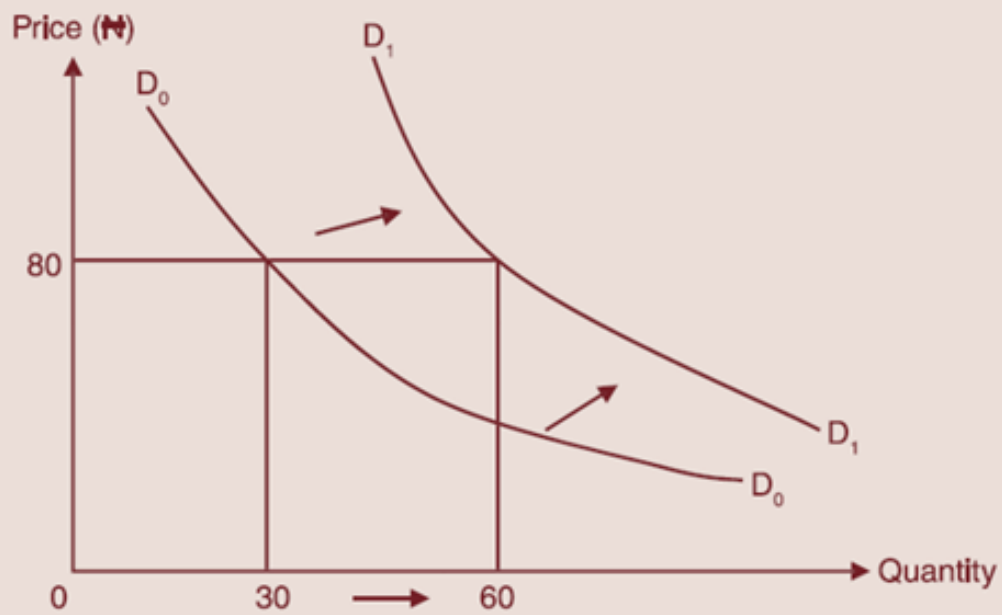
A change in demand occurs when there is a shift in the demand curve caused by other factors other than the price of that commodity as shown in Fig. 2.4a and b.

2.2.3.1 Changes in Quantity Demanded

Any movement along the same demand curve, whether upwards or downwards, is called a change in quantity demanded as shown in Fig. 2.5.

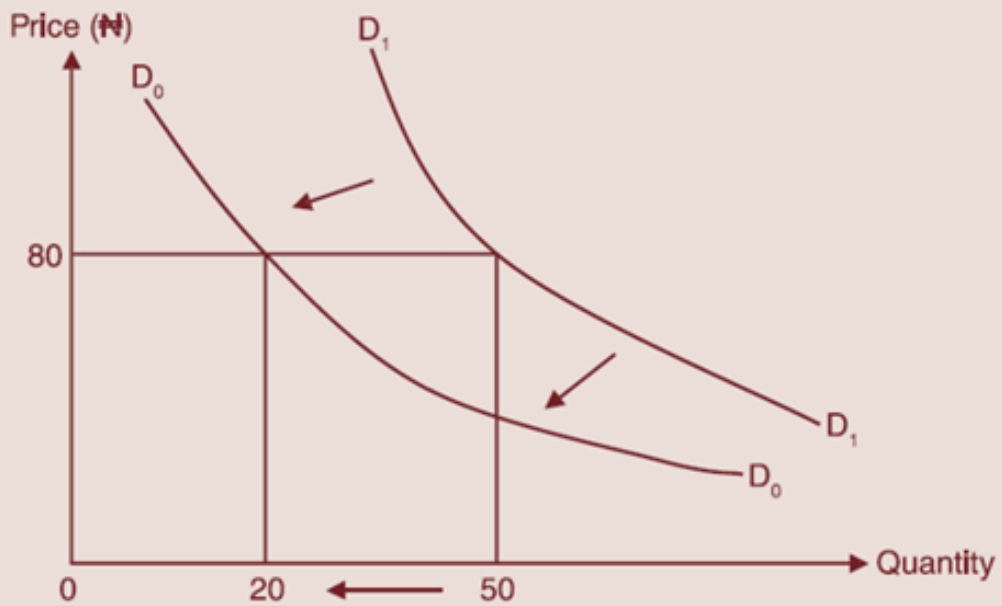
2.2.3.2 Changes in Demand

The quantities of a product which buyers want to purchase depend on the price of that product. It also depends on other factors. For example,



(a) Graph showing an increase in demand

An increase, in demand causes a shift of the entire demand curve to the right, as in Fig. 2.4a



(b) Graph showing a decrease in demand

A decrease in demand causes a shift of the entire demand curve to the left

FIG. 2.4 Changes in demand

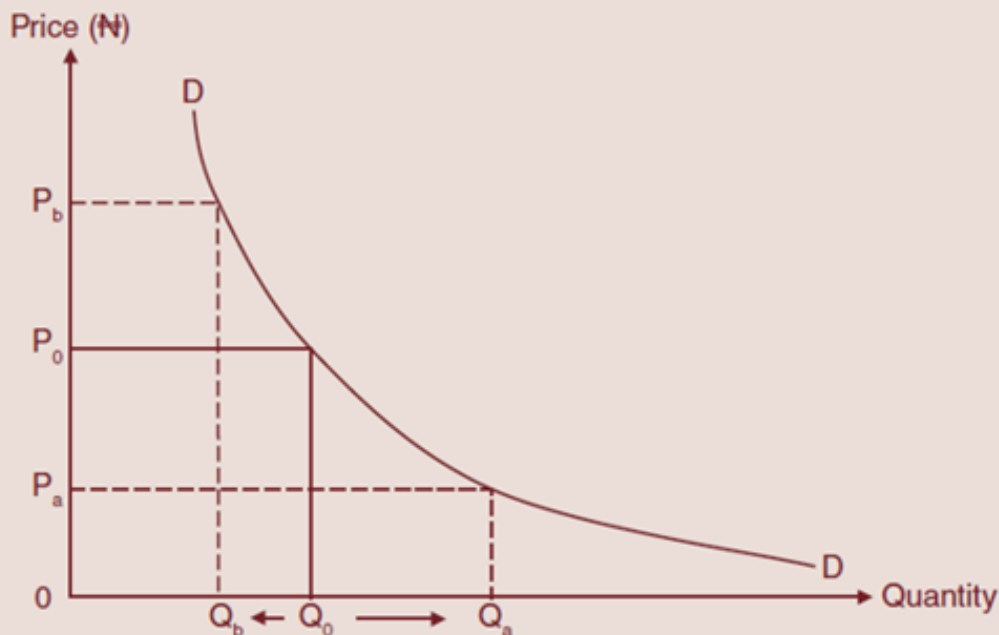
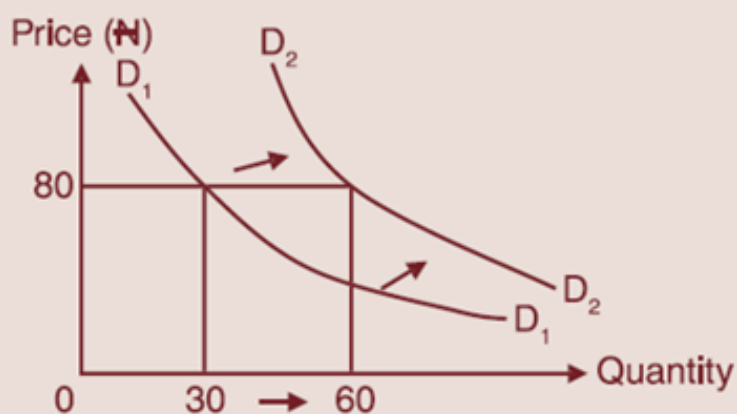


FIG. 2.5 A change in the quantity demanded caused by a change in price.

A downward movement along the demand curve signifies an increase in the quantity demanded, when the price is reduced. An upward movement in demand curve signifies a decrease in the quantity demanded when the price is increased. If the income of consumers rise, they will want to buy more of certain commodities say rice or fish. Therefore, a change in any of the other factors except price that influences demand will cause a shift of the demand curve to a new position. When this happens, we say there is a change in demand. This change can be an increase when the demand curve shifts to the right (outward) or a decrease when the demand curve shifts to the left (inward) as shown in Fig. 2.6a & 2.6b.

2.2.3.2.1 Causes of Changes in Demand

- The price of the goods or services:** If the price of a commodity either increases or decreases, the demand for that commodity will change thus, there might be an increase or decrease in the quantity of that commodity.
- Price of other goods or services:** When the goods are substitutes, then a rise in the price of the commodity may lead to a fall in the quantity of that commodity bought while the demand for its substitute will increase.



If the curve shifts to the right as in Fig. 2.6a, it moves from D_1D_1 to D_2D_2 showing that there is an increase in demand, while the price of the goods remain the same.

FIG. 2.6a Changes in demand (Outward Shift)

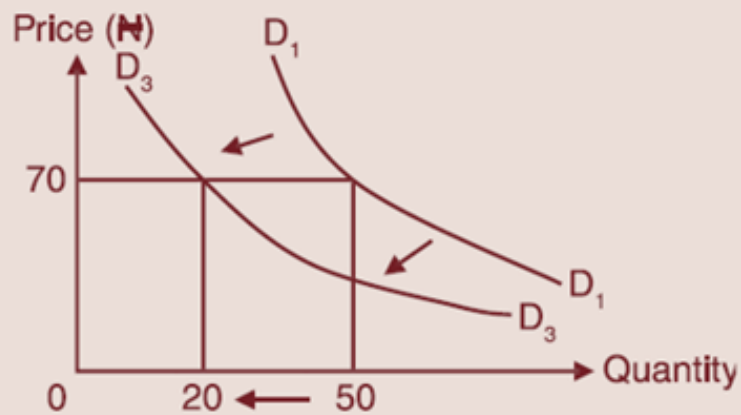


Figure 2.6b above shows a leftward shift in the demand curve. If the shift is to the left as in Fig. 2.6b, where the curve moves from D_1 to D_3 , it means that there is a decrease in demand, while the price remains constant.

FIG. 2.6b Changes in demand (Inward Shift)

When a particular commodity has substitutes for use in the price of such a commodity, it leads to a fall in the quantity demanded, while the price for its substitutes will increase. For instance, an increase in the price of knorr cube may lead to a fall in the demand, but the demand for maggi cube which is a substitute for it may increase.

For complementary goods, a rise in the price of one may lead to a fall in the quantity demanded of both the good and its complement, even though the price of the complement is relatively cheaper. For instance, if the price of thread goes beyond the reach of the consumer, the demand for needle will fall even if it costs relatively cheaper.

- c. A change in income:** A rise in income may lead to an increase or decrease in the quantity of goods purchased.
- d. Expectation of a change in price:** A rumour of possible increase in price of certain goods tends to induce many customers to buy and hoard goods which they do not normally need. This may lead to artificial scarcity, which may also lead to increase in the quantity of goods purchased.
- e. Changes in fashion:** The demand of people changes according to the reigning fashions of the day.

2.2.4.3 Types of Demand

Composite demand: This is a demand for commodities that serve more than one purpose. They serve for two or more purposes. For example, sugar is used in the home for beverages and so on. It is also used in industries for producing pastries. If the industrial demand for sugar increases, it will affect the quantity of sugar demanded domestically.

- a) **Independent demand:** This refers to products which have no clear relationship with one another. For example, there is no direct link between eggs and books, but when families spend large proportions of their incomes on books for their children, they will eat less eggs.
- b) **Derived demand:** This deals with goods that are needed because of demand for other goods. For example, labour is needed to construct good roads; thus labour here is a derived demand. A rise in the demand for good roads will cause a rise in the quantity of labour demanded for road construction.
- c) **Complimentary demand:** Goods that are related to each other are called complimentary goods, for example, petrol and car, and bread and butter. At times, they are called joint demand because one item is incomplete without

the other. In this case, a change in demand for one leads to a change in the demand for the other in the same direction.

- d) **Competitive demand:** These are goods that are in competition with one another, for example, groundnut oil and palm oil, and tea and coffee. When the goods can replace each other, the competitive nature becomes obvious.

2.2.4 Law of Demand

The law of demand states that the higher the price, the lower the quantity demanded, and the lower the price, the higher the quantity demanded.

2.3 Definition of Supply

Supply is the quantity of commodity that producers are willing and ready to make available to the market at a given price and at a particular period of time.

2.3.1 Supply Schedule

A supply schedule is a table that shows the various quantities of a commodity that would be offered for sale at various prices and at a particular time. When we add up individual supplies, we get a market (composite) supply schedule. More supply is made when price rises than when price falls, because a fall in price will lead to a fall in supply as can be seen below.

TABLE 2.3 Supply Schedule

Price per (₦) Egg	No. of Eggs Supplied
5	30
10	40
20	60
30	120
40	240

When price falls to N5 an egg, only 30 eggs are supplied. When the price rises to N40 an egg, 240 eggs are available for sale.

2.3.2 Supply Curve

A supply curve is a graphical illustration of a supply schedule. It shows the relationship between the price of a commodity and the quantity supplied at each price. The supply schedule above can be graphically presented thus:

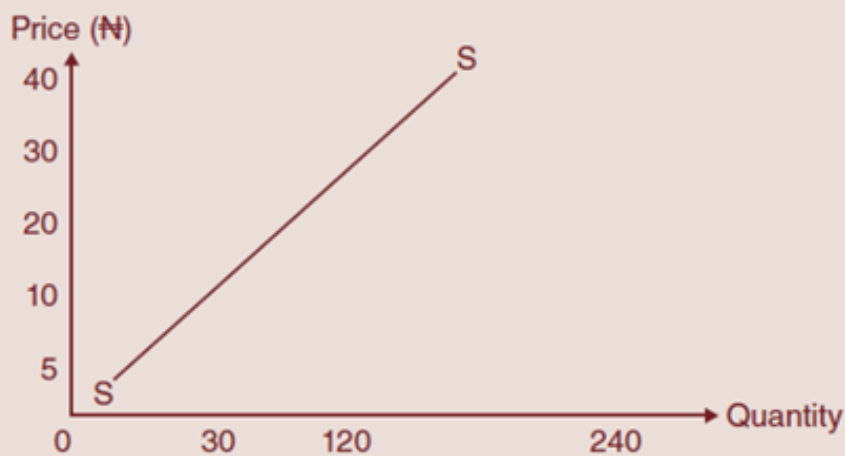


FIG. 2.7 Graphical presentation of the supply schedule

The curve slopes upward from left to right showing that producers supply more eggs for sale when the price rises and less when the price falls.

2.3.3 Changes in Supply

Changes in supply are:

- a. Changes in the quantity supplied
- b. Changes in supply

2.3.3.1 Changes in the Quantity Supplied

Any downwards or upwards movement along the same supply curve indicates a change in the quantity supplied as shown in Fig. 2.8.

When there is an increase in price from OP_2 to OP_1 , the quantity supplied also increased from OQ_2 to OQ_1 . There is an upward movement along the supply curve. If the price were to fall from OP_3 , to OP_1 , there would be a downward movement along the supply curve from OQ_3 to OQ_1 and less quantity would be supplied as can be seen in Fig. 2.8.

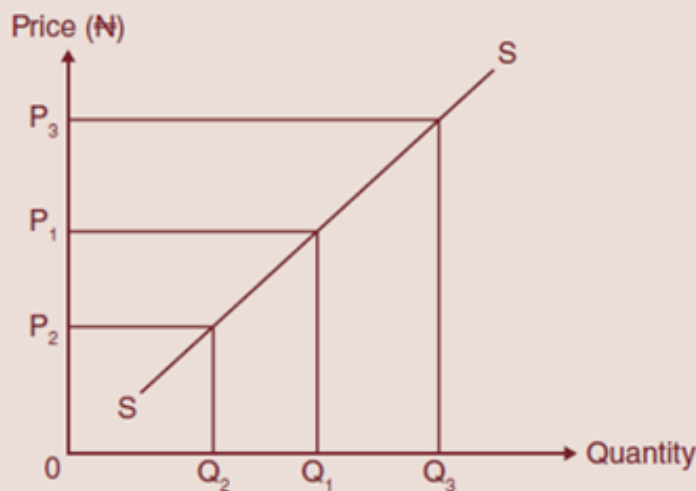


FIG. 2.8 Change in quantity supplied caused by a change in price

2.3.3.2 Changes in Supply

A change in supply occurs when there is a shift in the supply curve caused by factors other than the price of the commodity as shown in Fig. 2.8. A change in supply caused by a change in factors other than price will mean a shift in the entire curve, that is the supply curve would be shifted to an entirely new position as shown below.

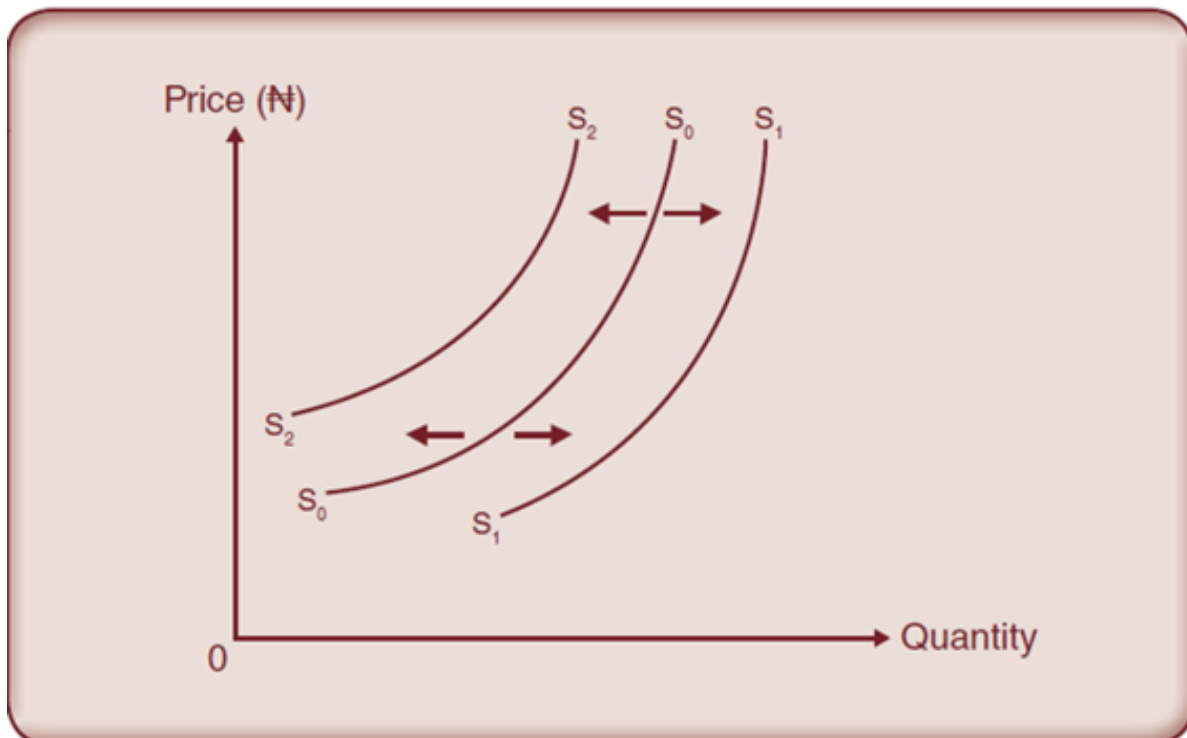


FIG. 2.9 Changes in supply

The supply curve shifts to the right from S_0S_0 to S_1S_1 showing an increase in supply. It could also be a decrease in supply. In this case, the supply curve shifts to the left from S_0S_0 to S_2S_2 as shown below in Fig. 2.9 above.

2.3.3.3 Factors Influencing Changes in Supply

The following are the factors that influence the changes in supply of a commodity.

- Changes in production technique:** An improvement in the production technique of a commodity will lead to an increase in the production output of that commodity. This therefore, leads to an increase in supply of that commodity and vice-versa.
- Changes in the cost of production:** All things being equal, a higher cost of production tends to reduce supply of goods, while a lower cost of production tends to increase supply of such an item.
- Natural disasters:** A plague of insects, flood, draught, fire, war or epidemic will affect the supply of commodities.
- Prices of other commodities:** The supply of a commodity will be affected if the prices of other commodities rise. This is because the increase in the prices of other commodities will attract and encourage more production of those commodities and less production of the commodity whose price has fallen. For instance when there is an increase in the price of cocoa, farmers will prefer the cultivation of more cocoa to coffee whose price is cheaper.
- Efficiency in methods of production:** This will reduce cost per unit of production and increase supply. Greater automation in the poultry industry has given rise to mass production of eggs.
- The price of the commodity:** As a general rule, more of a commodity will be supplied at a higher price than at a lower price. A favourable price induces a greater supply of the commodity.
- Government policy:** If government increases tax on goods such as cigarettes, alcohol etc. This will reduce the supply of such items because prices will be high due to high cost of production.

2.3.4 Types of Supply

- Joint supply:** Some commodities are often produced together. Such commodities come from the same source and are said to be jointly supplied. Examples are kerosene and petrol, palm oil and palm kernel. It is not possible to increase the supply of one without increasing the other.
- Composite supply:** This deals with commodities that compete with one another. Composite goods are substitutes. Beverages such as tea, coffee and bournvita are in composite supply. Also, fuel, electricity and coal

compete with one another as alternative sources of energy. The prices of commodities in composite supply tend to move in the same direction. If one of the goods in composite supply becomes cheaper, the supply for its substitutes will be reduced and the prices of the substitutes will tend to fall too.

2.3.5 Law of Supply

The law of supply says that the lower the price, the lower the quantity of goods supplied and the higher the price, the higher the quantity of goods that will be supplied to the market.

2.3.6 Price determination under Demand and Supply Conditions (Equilibrium Price and Quantity)

As earlier discussed in Book One the price of a commodity is determined by the forces of demand and supply. The equilibrium price is that price at which the quantity of goods demanded is equal to the quantity of goods supplied. This is shown in Table 2.4 below. The price that equates demand with supply is known as the equilibrium price as shown in the table below.

TABLE 2.4 Demand and Supply Schedule

Price (₦)	Quantity Demanded	Quantity Supplied
60	100	700
50	200	600
40	300	500
30	400	400
20	500	300
10	600	200
50k	700	100

From the above schedule, N30.00 is the equilibrium price, because at the price, 400 tubers of yam were demanded and the same number was supplied. This can also be translated into a curve or a graph.

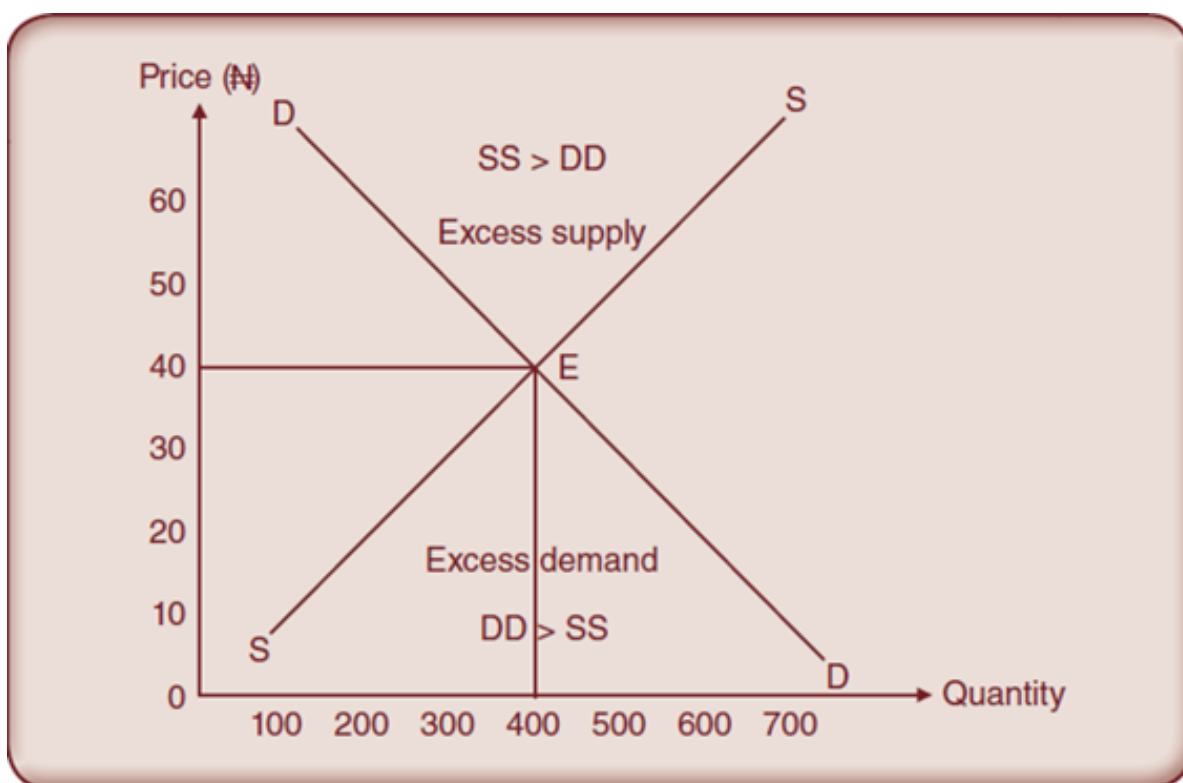


FIG. 2.10 Equilibrium Curve

From the above figure, when the price is higher, than the equilibrium price, the quantity offered for sale will increase because the suppliers will be willing to supply more due to higher price that will assure them of more profits. The quantity that will be demanded will decrease because consumers will not be ready to buy more as a result of higher prices. As a result of this higher price than the equilibrium price, excess supply will occur. On the other hand, when the price is lower than the equilibrium price, the quantity the consumers will demand for will be greater than the quantity supplied. This will create shortage and give rise to excess demand.

2.3.7 Effects of Changes in Demand and Supply on Equilibrium Price and Quantity

The market equilibrium price can be affected in the following ways.

- a. **An increase in demand:** An increase in demand will lead to a shift in demand curve to the right. Such an increase will cause a rise in equilibrium price and quantity as shown in Fig. 2.11 below.

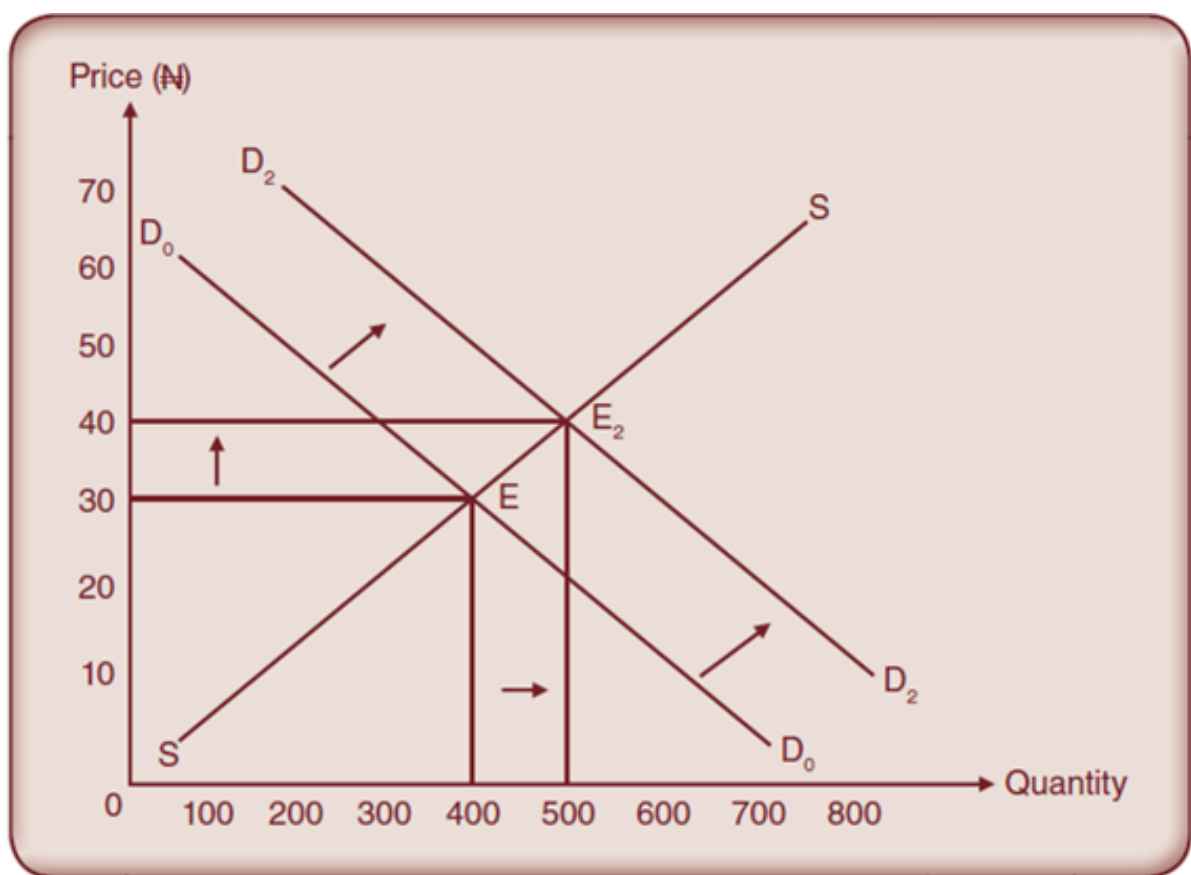


FIG. 2.11 Increase in demand and outward shift in equilibrium point

The equilibrium point moved from E to E₂. The old demand curve was D₀D₀ which shifted to the new Curve D₂D₂, while the supply curve was constant. The outward shift in the demand curve led to new price N40, new equilibrium quantity 500 and new equilibrium point E₂.

- b. A decrease in demand:** This will lead to a shift of the demand curve to the left. A decrease in demand causes both the equilibrium price and quantity to fall as shown in Fig. 2.12.

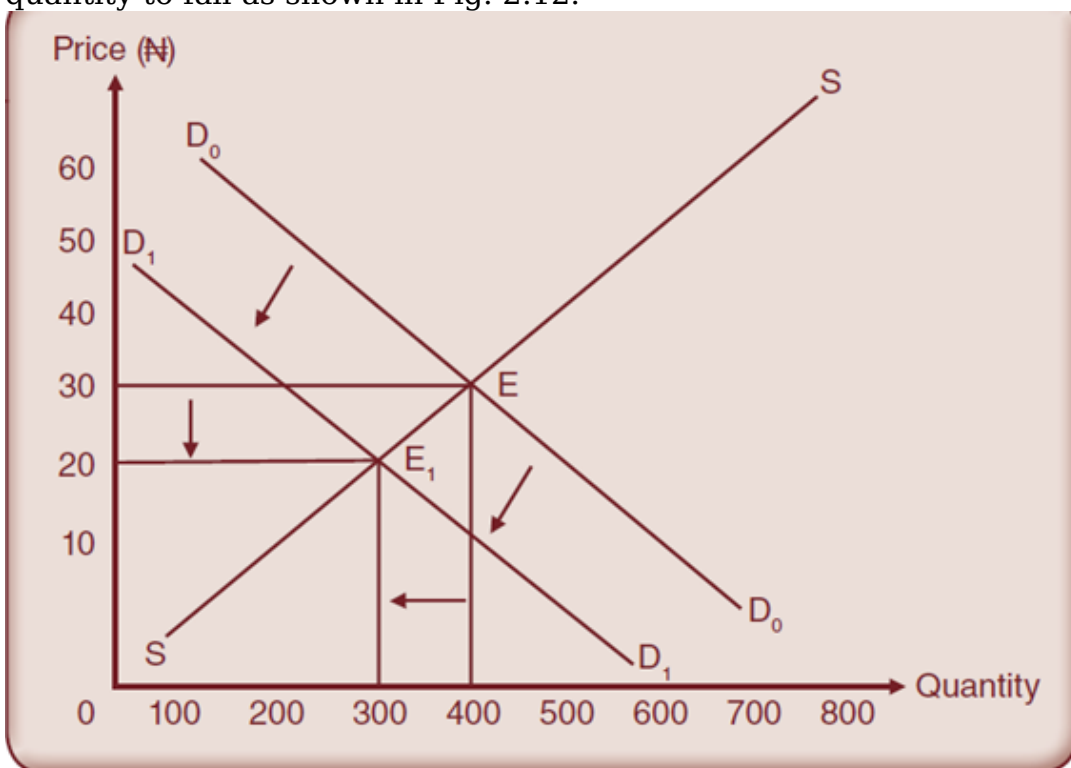


FIG. 2.12 Decrease in demand and inward shift in equilibrium point

From the above, it could be seen that the equilibrium point moved from E to E₁, the equilibrium price decreased from N40 to N30 and the equilibrium quantity demanded and supplied decreased from 400 to 300.

- c. An increase in supply:** An increase in supply will lead to a shift of supply curve to the right. This will cause the equilibrium price to fall and

equilibrium quantity to increase.

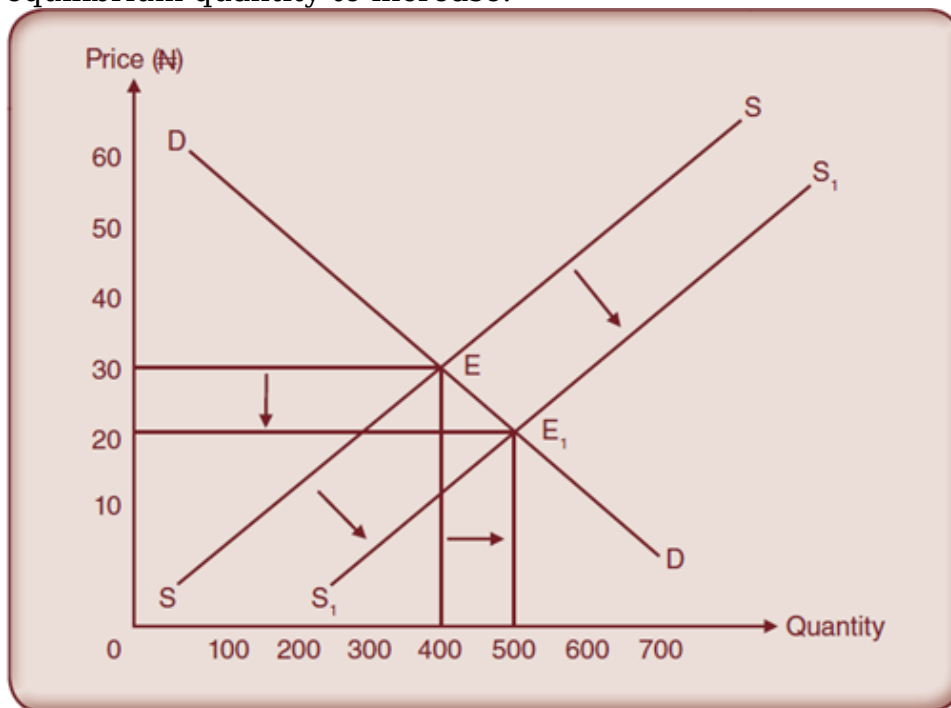


FIG. 2.13 An increase in supply and outward shift in equilibrium point

From the graph above, the original supply curve was SS, which shifted outwards to S_1S_1 , while the demand curve was constant. It can be seen from the graph therefore that the equilibrium point moved from E to E_1 , the equilibrium price decreased from N30 to N20 and the equilibrium quantity increased from 400 to 500.

- d. A decrease in supply:** A decrease in supply will lead to a shift of the supply curve to the left such a decrease in supply will cause equilibrium price to rise and equilibrium quantity to fall. Movement from SS to S_1S_1 shows a decrease in supply and moves the equilibrium point from E to E_1 . The equilibrium price increased from N30 to N40 and the equilibrium quantity decreased from 200 to 100.
- e. A change in demand and supply:** It is very much possible for demand and supply to change at the same time. This may occur in the following ways:

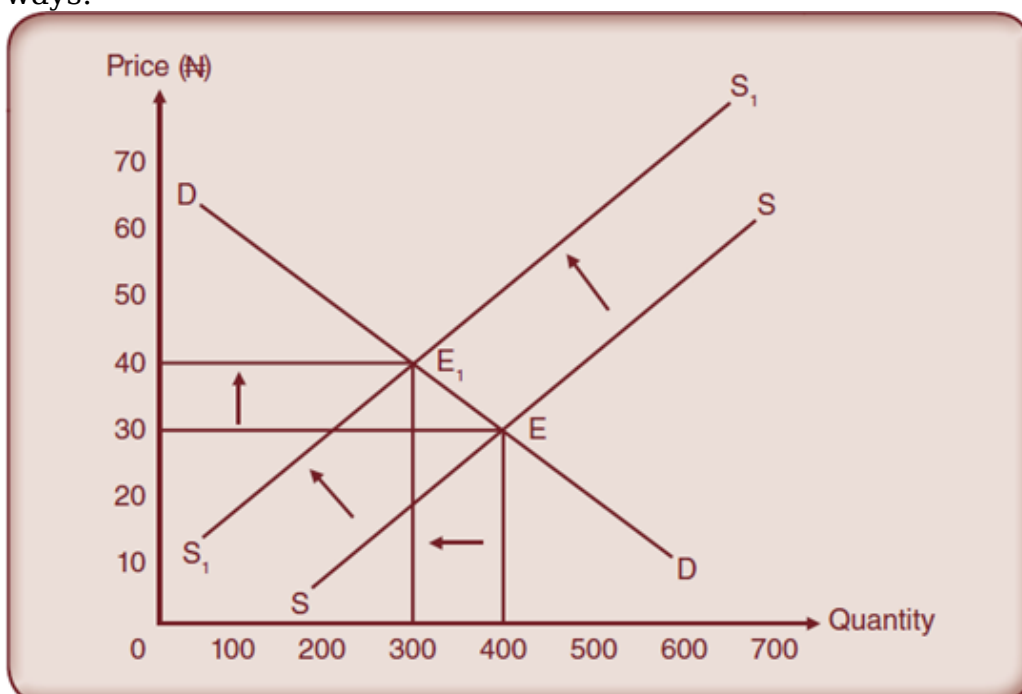


FIG. 2.14 Decrease in supply and inward shift in equilibrium point

- (i) Both demand and supply may increase**

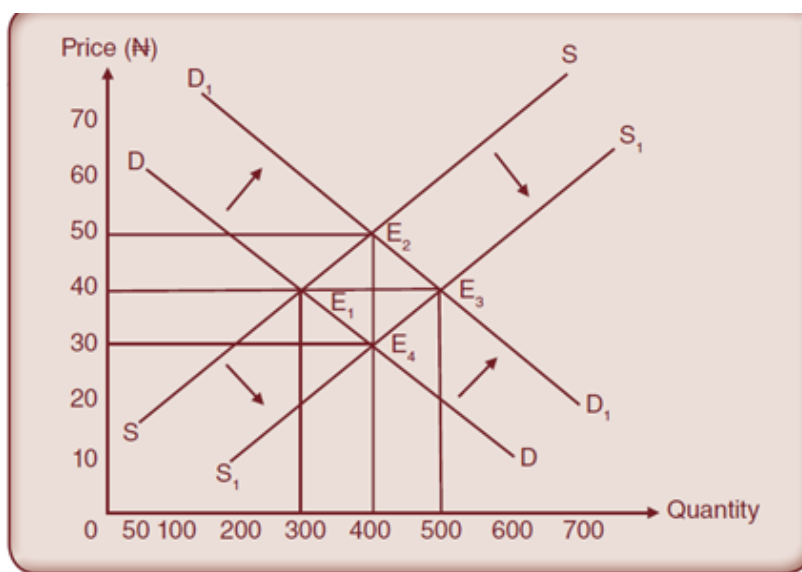


FIG. 2.15 An increase in both demand and supply

Figure 2.15 shows an increase in both the demand and supply and with its effects as shown. The original demand curve was DD while the original supply curve was SS with equilibrium point E_1 while the equilibrium price was N40 and original equilibrium quantity was 300. Demand curve shifted from DD to D_1D_1 , and at the same time original supply curve shifted from SS to S_1S_1 . This led to attainment of new equilibrium quantities 400 and 500 at N50 and N40 respectively at points E_2 and E_3 . From the graph, it should be noted that at N30 and N50 two equilibrium points E_2 and E_4 were attained at quantity 400. At Price N40, two equilibrium quantities 300 and 500 were also attained. But a vivid look at the averages of the prices and quantities that yielded two equilibrium prices and quantities, the average ends up to be N40 as the equilibrium price and 400 as the equilibrium quantity.

(ii) Both demand and supply may decrease

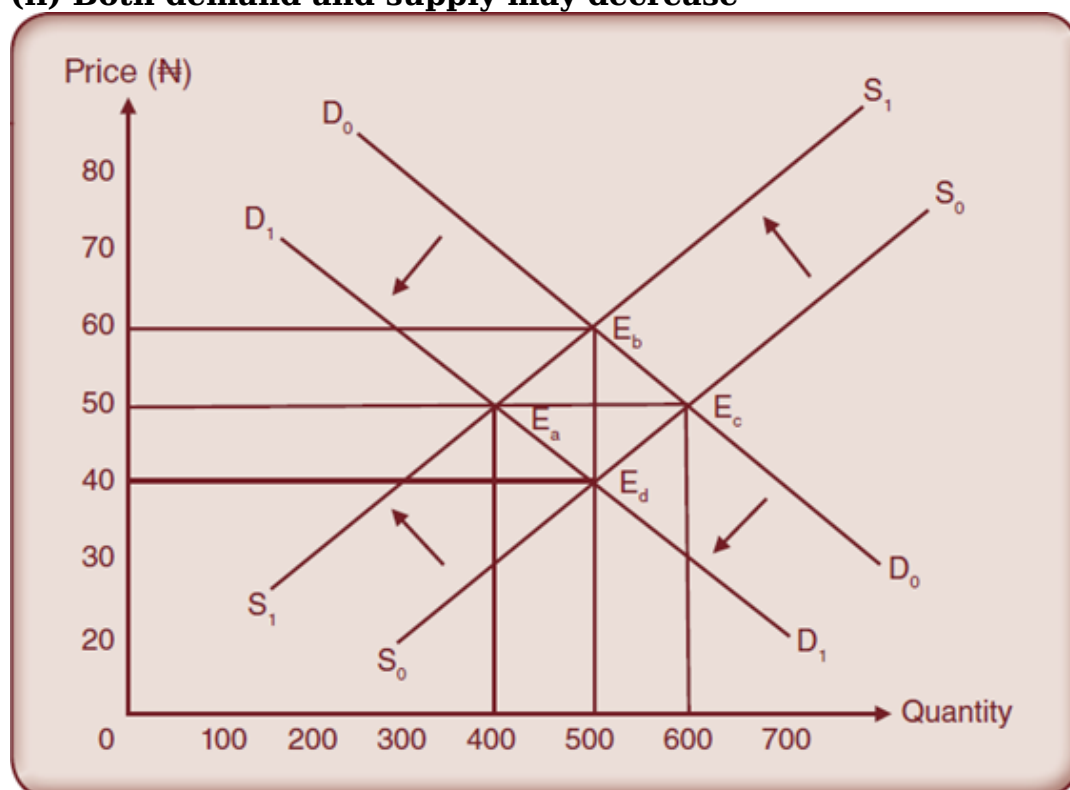


FIG. 2.16 A decrease in both demand and supply

Figure 2.16 shows a decrease in both the demand and supply and with its effects as shown on the graph. The original demand curve was D_0D_0 while the original supply curve was S_0S_0 with equilibrium point E_c while the equilibrium price was N50 and original equilibrium quantity was 600. Demand curve shifted from D_0D_0 to D_1D_1 , and at the same time original

supply curve shifted from S_0S_0 to S_1S_1 . This led to attainment of new equilibrium quantities 400 and 500 at N50 and N60 respectively at points E_a and E_b . From the graph, it should be found that at N40 and N60 two equilibrium points E_b and E_d were attained at quantity 500. At Price N50, two equilibrium quantities 400 and 600 were also attained. But a vivid look at the averages of the prices and quantities that yielded two equilibrium prices and quantities, the average ends up to be N50 as the equilibrium price and 500 as the equilibrium quantity.

(iii) Demand may decrease while supply increases

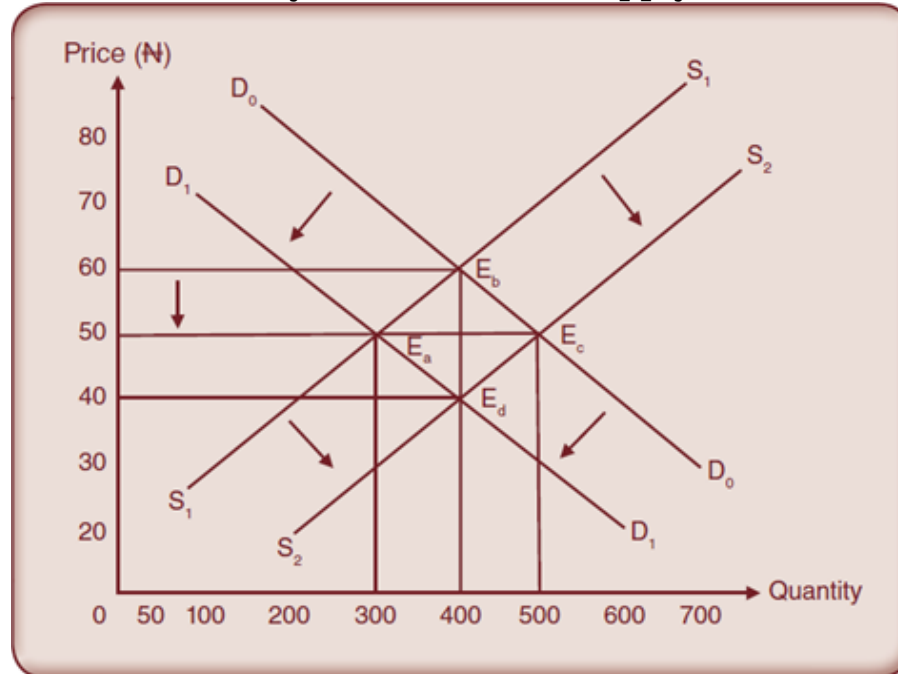


FIG. 2.17 Decrease in demand and increase in supply

Figure 2.17 shows a decrease in demand from D_0D_0 to D_1D_1 . Supply increased from S_1S_1 to S_2S_2 . The new equilibrium point is E_d . The equilibrium price dropped from N60 to N50 while the equilibrium quantity is 400. Before these shifts, the original equilibrium point was E_b , while the price was N60 and the quantity was 400.

(iv) Increase in demand and decrease in supply

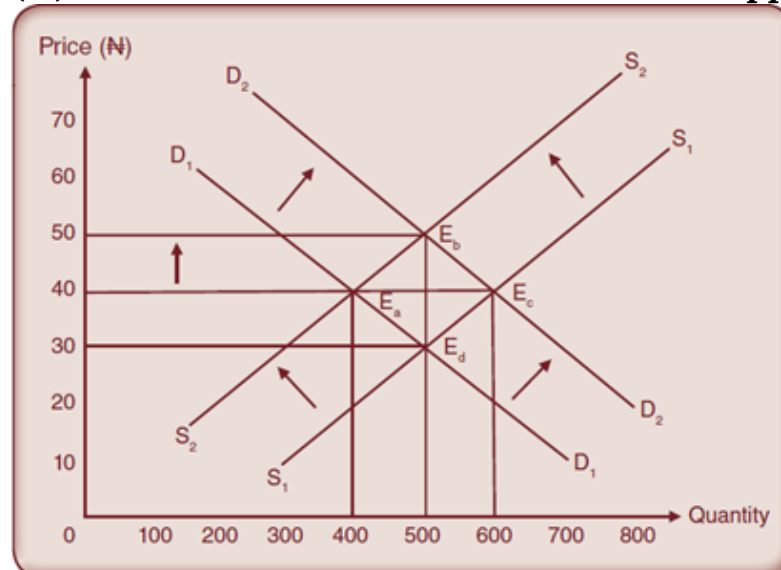


FIG. 2.18 Increase in demand and decrease in supply

Figure 2.18 shows an increase in demand from D_1D_1 to D_2D_2 , while Supply decreased from S_1S_1 to S_2S_2 . The new equilibrium point is E_b . The equilibrium price increased from N40 to N50 while the equilibrium quantity reduced from 600 to 500. Before these shifts, the original equilibrium point was E_d , while the price was N30 and the quantity was 500. Equilibrium price increased to E_b .

2.3.8 Minimum and Maximum Price Legislation

The government regulates the price system by the use of price legislation. It may do this through its agencies or pass a law.

2.3.8.1 Price Control

- a) **Maximum price control:** Maximum prices are fixed at which goods and services would be sold. It can be fixed for both raw materials and finished products. They are fixed in order to protect buyers from exploitive attitude of sellers. For example, the government of Nigeria fixes her fuel pump price at N97.00 per litre. This means that any person selling above this price is doing an illegal business. The prices, income and productivity board was set up in 1986 to regulate prices and income.
- b) **Minimum price control:** Minimum price control are fixed to protect producers. This means the government fixes minimum prices at which commodities are to be sold. The marketing board and commodity boards played a major role in this regard in Nigeria. For instance, before each crop season, the government fixed minimum prices at which agricultural produce would be bought from farmers. The government sometimes passes laws which regulate wages. For example, the minimum wage act 2010 in Nigeria fixed the minimum wage at N18, 000.00 for civil and public servants.

Summary

This chapter has discussed:

- ❖ Demand schedule which is a table showing a list of different quantities of a commodity purchased by consumers at different prices at a given time.
- ❖ Demand curve which is the representation of a demand schedule in a graphical form.
- ❖ Causes of a change in demand which include:
 - i. The prices of the goods or services
 - ii. Prices of other goods and services
 - iii. Change in real income
 - iv. Changes in fashion
- ❖ Types of demand which are:
 - i. Composite demand
 - ii. Independent demand
 - iii. Derived demand
 - iv. Complimentary demand
 - v. Competitive demand
- ❖ Supply schedule which is a table showing the various quantities of a commodity that would be offered for sale at various prices at a particular time.
- ❖ Supply curve which is a graphical representation of a supply schedule.
- ❖ Maximum price control which is a situation where government fixes a maximum price at which a particular commodity should be sold.
- ❖ Minimum price control which minimum price is fixed by government, and it is the price at which goods or service would be offered.

Class Activity

The students shall create hypothetical demand and supply table and plot the values on the graph so as to obtain the curves and the equilibrium point.

Revision Questions

Objective Questions

1. Demand schedule is:

- (a) A table containing the price of goods
- (b) A table showing the relationship between price and quantity demanded of a commodity
- (c) A table showing the consumer demand in order
- (d) The quantity of goods the consumer is prepared to buy

- (e) The market demand (**SSCE 1988**)
2. A shift of the demand curve to the right when supply remains constant implies that:
- (a) Both price and quantity demanded will increase
 - (b) Only price increases
 - (c) Both price and quantity demanded will decrease
 - (d) The price remains constant
 - (e) The price falls (**SSCE 1991**)
3. A market equilibrium exists when:
- (a) Demand and supply are equal
 - (b) The market is large
 - (c) The price is fluctuating
 - (d) No buyer goes home empty handed
 - (e) No seller has an unsold stock (**SSCE 1993**)
4. If price falls below equilibrium:
- (a) Demand will equal supply
 - (b) Demand will be greater than supply
 - (c) Supply will be greater than demand
 - (d) Price will become intermediate
 - (e) Quantity supplied will be zero
5. Effective demand in economics means:
- (a) The desire for a commodity
 - (b) A proposal to purchase goods on credit
 - (c) The desire for a commodity or service backed by purchasing power
 - (d) An irreversible instruction to the seller to meet up the needs of buyers
 - (e) The propensity to consume goods produced by manufacturers

Essay Questions

1. Given that quantity demanded per period of time is a function of price and that the relation is expressed as : $Q = 60 - \frac{1}{3}P$, where q is quantity demanded and P is the price,

(a) Find the quantity demanded when price is:

i. N30.00; ii. N210.00; iii. N0.00.

(b) Comment on (a) (ii) above.

(c) Suppose the relation is now expressed as $P = N(180 - 3Q)$; find P when

i. $Q = 0$; ii. $Q = 60$; iii. $Q = 59$. (**SSCE 1989**)

2. The demand and supply function of a commodity are given as follows:

Quantity demanded (Q_d) = $20 - 2P$; Quantity Supplied (Q_s) = $6P - 12$, where P = Price in naira.

(a) Determine the equilibrium price and quantity bought and sold at that price.

(b) If the price of the commodity is fixed at N60.00, what is the magnitude of the excess supply? (**SSCE 1990**)

3. With the aid of diagrams, explain what is meant by a change in:

i. The quantity demanded

ii. Demand (**SSCE 1991**)

4. (a) A demand curve slopes downwards from left to right, but this may not always be so. Explain this statement (**SSCE 1992**)

(b) "Price tends towards the level which equates supply with demand". Explain this statement (**SSCE 1994**)

(c) What is meant by price elasticity of demand?

(i) The following figures were extracted from a schedule of demand and supply: Calculate the elasticity of demand when price rises from N10.00 to N11.00

(ii) State whether the demand in (A) is elastic or inelastic.

(iii) Calculate the elasticity of supply when price falls from N1,000 to N900.

(iv) State whether the supply is elastic or inelastic.

Glossary

Effective demand: Demand backed up by purchasing power

Demand schedule: A table showing relationship between the quantities demanded of a commodity at different prices.

Demand curve: A graphical illustration of a demand schedule

Complementary goods: These are jointly used goods

Supply schedule: A table showing the relationship between the quantities supplied of a commodity at different prices.

Supply curve: Graphical representation of a supply schedule

Equilibrium price: The price at which the quantity supplied of a commodity is equal to the quantity demanded of it.