

UNIT-2

DEMAND AND SUPPLY ANALYSIS

Meaning of Demand:

- Demand is not just a desire for a product, but a desire backed by the ability and willingness to pay for it.
- It's a combination of consumer's needs, wants, and their financial capacity to purchase those needs and wants.
- It's a dynamic concept, changing with price fluctuations and other influencing factors.

Types of Demand

1. Individual Demand

Individual demand refers to the **demand of a single consumer for a particular commodity or service at a given price and during a given period of time**. It shows the quantity of a product that one person is willing and able to purchase.

Example:

If Mr. Kumar is willing to buy **5 kg of rice per month at ₹60 per kg**, his demand for rice is called individual demand.

Other Examples:

- A student's demand for a notebook.
- A family's demand for milk.
- A consumer's demand for a mobile phone.

Individual Demand = Demand of one consumer

2. Market Demand

Market demand refers to the **total quantity of a commodity demanded by all consumers in a market at a given price and during a given period of time**. It is the sum of the individual demands of all consumers.

Formula: **Market Demand = Sum of Individual Demands**

Example:

Suppose the individual demand for a product is:

- Consumer A = 10 units
- Consumer B = 15 units

- Consumer C = 20 units

Therefore:

Market Demand = 10 + 15 + 20 = 45 units

Thus, the total market demand is **45 units**.

Market Demand = Total demand of all consumers

3. Derived Demand

Derived demand refers to the **demand for a commodity or factor of production that arises due to the demand for another commodity or final product**. The demand for the first product is therefore **derived from** the demand for the second product.

Example: Steel and Cars. Cars require steel as an important raw material. When the demand for cars increases, automobile manufacturers need more steel. Therefore, the demand for steel increases.

Thus:

Demand for Cars → Demand for Steel

Other Examples:

- Demand for labour is derived from the demand for goods and services.
- Demand for cement is derived from the demand for buildings.
- Demand for cotton is derived from the demand for textile products.
- Demand for teachers is derived from the demand for education.

Demand for final product → Demand for inputs or factors

4. Joint Demand

Joint demand occurs when **two or more goods are demanded together because they are used jointly to satisfy a particular want**. Such goods are generally known as **complementary goods**.

Examples:

- Car and petrol
- Pen and ink
- Printer and ink cartridge
- Computer and software
- Mobile phone and charger

Example Explanation:

A car cannot be used effectively without fuel. Therefore, when consumers purchase and use cars, they also demand petrol or other fuel.

Thus:

Car + Petrol → Joint Demand

Joint Demand = Demand for goods that are used together

5. Composite Demand

Composite demand arises when **a single commodity is demanded for several different uses**. In this case, the same commodity satisfies different wants or serves different purposes.

Example: Electricity

Electricity is demanded for:

- Lighting
- Cooking
- Heating
- Operating household appliances
- Industrial production
- Commercial activities

Therefore, electricity has composite demand because it is used for **many different purposes**.

Other Examples:

- Water – drinking, agriculture, cleaning and industrial purposes.
- Milk – drinking, making curd, butter, cheese and sweets.
- Coal – electricity generation, industrial production and heating.

Composite Demand = One commodity + Many uses

6. Direct Demand

Direct demand refers to the **demand for goods and services that directly satisfy the wants and needs of consumers**. These goods are generally purchased for **personal consumption or direct use**.

Examples:

- Food
- Clothing
- Furniture
- Mobile phones

- Television
- Personal vehicles

Example Explanation:

A person purchases food to satisfy hunger and clothing to satisfy the need for dress. These goods directly satisfy human wants. Therefore, food and clothing have **direct demand**.

Direct Demand = Goods that directly satisfy consumer wants

DETERMINANTS OF DEMAND

The **determinants of demand** are the various factors that influence the **quantity of a commodity or service that consumers are willing and able to purchase** at a given price and during a given period. Demand does not depend only on the price of a commodity. Several **economic, social, psychological, demographic, and governmental factors** influence the demand for goods and services.

The major determinants of demand are explained below.

1. Price of the Commodity

The **price of the commodity** is one of the most important determinants of demand. Generally, there is an **inverse relationship between price and quantity demanded**, assuming other factors remain constant.

- When the **price increases**, the quantity demanded generally **decreases**.
- When the **price decreases**, the quantity demanded generally **increases**.

This relationship is explained by the **Law of Demand**.

Example:

If the price of apples falls from ₹200 per kg to ₹150 per kg, consumers may buy more apples.

In short:

Price ↑ → Demand ↓
Price ↓ → Demand ↑

2. Income of the Consumer

The **income of consumers** significantly affects their purchasing power and demand. Generally, when consumer income increases, the demand for **normal goods** increases. When income decreases, demand for normal goods may decrease.

Example:

If a person's monthly income increases, they may spend more on:

- Better quality food
- Branded clothes
- Electronic goods
- Vehicles
- Recreation and entertainment

However, the effect of income differs according to the type of good.

- **Normal goods:** Income $\uparrow \rightarrow$ Demand $\uparrow$
- **Inferior goods:** Income $\uparrow \rightarrow$ Demand may $\downarrow$

Example:

When income rises, a consumer may shift from low-quality products to higher-quality products.

3. Prices of Related Goods

The demand for one commodity is also influenced by the prices of **related goods**. Related goods are mainly classified into **substitute goods** and **complementary goods**.

A. Substitute Goods

Substitute goods are goods that can be used **in place of each other** to satisfy the same want.

Examples:

- Tea and coffee
- Butter and margarine
- Bus and train

If the price of tea increases, consumers may buy more coffee instead.

Example:

Price of Tea $\uparrow \rightarrow$ Demand for Coffee $\uparrow$

B. Complementary Goods

Complementary goods are goods that are **used together**.

Examples:

- Car and petrol
- Pen and ink
- Printer and ink cartridge
- Computer and software

If the price of petrol increases significantly, the demand for cars may decrease.

Example:

Price of Petrol $\uparrow \rightarrow$ Demand for Cars $\downarrow$

4. Taste and Preferences

The **tastes, habits, preferences, fashions, customs, and lifestyles** of consumers influence demand. If a product becomes popular or fashionable, its demand may increase. If consumers lose interest in a product, its demand may decrease.

Example:

If a particular style of clothing becomes fashionable, more consumers may purchase it, increasing its demand.

Similarly, growing health consciousness may increase demand for:

- Organic food
- Fresh fruits
- Fitness products
- Healthy beverages

In short:

Favourable tastes and preferences $\rightarrow$ Demand $\uparrow$

Unfavourable tastes and preferences $\rightarrow$ Demand $\downarrow$

5. Population

The **size and composition of the population** influence market demand. Generally, an increase in population leads to an increase in the **market demand** for essential goods and services.

Example:

A growing population may increase demand for:

- Food
- Clothing
- Houses
- Education
- Healthcare
- Transportation

However, population size alone is not enough. **Age structure, gender composition, occupation, and income levels** of the population also influence demand.

Example:

A city with a large young population may have greater demand for:

- Mobile phones
- Education
- Fashion products
- Entertainment

6. Distribution of Income

The **distribution of income** among people affects the demand pattern in an economy. If income is distributed more equally, a larger number of people may have sufficient purchasing power to buy consumer goods and services.

Example:

Suppose income is concentrated among a small group of wealthy people. Demand may be high for luxury goods but relatively low for mass consumer goods.

If income is more evenly distributed, demand may increase for:

- Food products
- Clothing
- Household appliances
- Two-wheelers
- Consumer durables

Therefore, the **distribution of income** can influence both the **quantity and type of goods demanded**.

7. Advertisement

Advertisement and sales promotion play an important role in influencing consumer demand.

Effective advertising:

- Creates awareness about products.
- Provides information about products.
- Attracts new customers.
- Influences consumer preferences.
- Encourages consumers to purchase products.
- Helps build brand loyalty.

Example:

A company launches a new soft drink and promotes it through television, social media, and online advertisements. Effective advertising may increase consumer awareness and demand for the product.

In short:

Effective Advertisement → Consumer Awareness ↑ → Demand may ↑

8. Expectations About Future Prices

Consumer expectations regarding **future prices** can influence present demand. If consumers expect the price of a commodity to **increase in the future**, they may purchase more of it now to avoid paying a higher price later.

Example:

If consumers expect gold prices to increase significantly in the coming months, some may purchase gold now.

Similarly, if consumers expect prices to fall in the near future, they may postpone their purchases.

In short:

Expected Future Price $\uparrow$ $\rightarrow$ Present Demand may $\uparrow$

Expected Future Price $\downarrow$ $\rightarrow$ Present Demand may $\downarrow$

9. Climate and Weather

Climate and weather conditions have a significant influence on the demand for seasonal goods. Demand for certain products changes according to the season.

Summer:

Demand may increase for:

- Cold drinks
- Ice cream
- Air conditioners
- Fans
- Cotton clothes

Winter:

Demand may increase for:

- Woollen clothes
- Heaters
- Blankets

Rainy Season:

Demand may increase for:

- Umbrellas
- Raincoats

- Waterproof footwear

Thus, weather conditions can cause **seasonal variations in demand**.

10. Government Policy

Government policies can influence demand through taxation, subsidies, regulations, and other economic measures.

A. Taxes

When the government imposes higher taxes on a product, its price may increase, leading to a reduction in demand.

Example: Higher taxes on certain products may reduce their consumption.

B. Subsidies

Government subsidies can reduce the effective cost of certain goods and encourage demand.

Example: Subsidies on agricultural inputs may increase farmers' demand for those inputs.

C. Regulations

Government regulations and policies may also influence consumer choices and demand.

Example: Government campaigns promoting energy-efficient appliances may increase demand for such products.

Meaning of the Law of Demand

The law of demand defines that with the change in price, there will be a change in the quantity demanded. An increase in price decreases the demand, and inversely when there is a drop in price, there will be an increase in the quantity demanded.

For example, the consumers who used to purchase 25 kgs of rice for rupees 1650 with an increase in price to 2000 rupees for 25 kgs the consumers may end up buying only 20 kgs of rice. In microeconomics, the law of demand has an inverse relationship between the price of a particular product or service and the quantity demanded of the same product or service.

Exceptions to the Law of Demand

Inferior goods/ Giffen goods

Some special varieties of inferior goods are termed as giffen goods. Cheaper varieties of goods like low priced rice, low priced bread, etc. are some examples of Giffen goods. This exception was pointed out by Robert Giffen who observed that when the price of bread increased, the low paid British workers purchased lesser quantity of bread, which is against the law of demand. Thus, in case of Giffen goods, there is indirect relationship between price and quantity demanded.

Goods having prestige value

This exception is associated with the name of the economist, T. Veblen and his doctrine of conspicuous consumption. Few goods like diamonds can be purchased only by rich people. The prices of these goods are so high that they are beyond the capacity of common people. The higher the price of the diamond the higher the prestige value of it. In this case, a consumer will buy less of the diamonds at a low price because with the fall in price, its prestige value goes down. On the other hand, when price of diamonds increase, the prestige value goes up and therefore, the quantity demanded of it will increase.

Price expectation

When the consumer expects that the price of the commodity is going to fall in the near future, they do not buy more even if the price is lower. On the other hand, when they expect further rise in price of the commodity, they will buy more even if the price is higher. Both of these conditions are against the law of demand.

Fear of shortage

When people feel that a commodity is going to be scarce in the near future, they buy more of it even if there is a current rise in price. For example: If the people feel that there will be shortage of L.P.G. gas in the near future, they will buy more of it, even if the price is high.

Change in income

The demand for goods and services is also affected by change in income of the consumers. If the consumers' income increases, they will demand more goods or services even at a higher price. On the other hand, they will demand less quantity of goods or services even at lower price if there is decrease in their income. It is against the law of demand.

Change in fashion

The law of demand is not applicable when the goods are considered to be out of fashion. If the commodity goes out of fashion, people do not buy more even if the price falls. For example: People do not purchase old fashioned shirts and pants nowadays even though they've become cheap. Similarly, people buy fashionable goods in spite of price rise.

Basic necessities of life

In case of basic necessities of life such as salt, rice, medicine, etc. the law of demand is not applicable as the demand for such necessary goods does not change with the rise or fall in price.

Luxury goods:

The consumption of luxury goods and services doesn't cease even if the price of a certain product or service increases. For example, gold, real estate, etc.

Consumers negligence:

At certain times, the consumers are unaware of the price changes that take place in the market. At these times, the end consumers may end up paying more than the maker price.

Effect of demonstration:

Middle-income consumers tend to imitate or copy the upper-middle-class consumer behaviours and may tend to purchase the same products or services of the upper-middle class.

Changes in taste, preferences, and fashionable products:

Consumers' changes in taste and preferences in fashionable products don't change the quantity demanded with an increase in price rise as the consumers are willing to spend more on these products and services.

Trading in stock exchanges:

The law of demand won't hold good in the speculation market. According to the law of demand, an increase in price will reduce the demand, but in the case of speculation and trading, people will buy more stocks even though there is an increase in the price of the stocks.

Meaning of Change in Demand

Change in demand refers to a **shift in the entire demand curve** due to changes in factors **other than the price of the commodity**. It means that consumers are willing to buy **more or less** of a product at the **same price** because of changes in income, tastes, population, expectations, prices of related goods, etc.

There are **two types of change in demand**:

1. **Increase in Demand**
2. **Decrease in Demand**

1. Increase in Demand

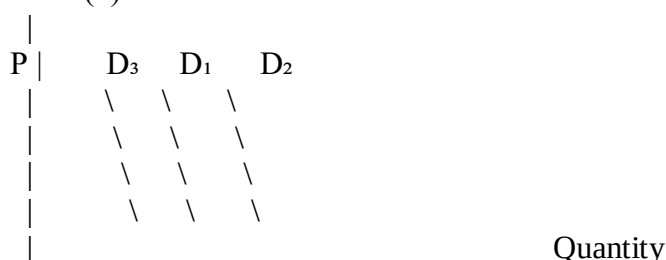
Definition

Increase in demand refers to a situation where consumers are willing to purchase **more quantity of a commodity at the same price** due to favorable changes in non-price factors.

As a result, the **entire demand curve shifts to the right**, from **D₁ to D₂**.

Diagram

Price (₹)



Rightward Shift: $D_1 \rightarrow D_2$

Causes of Increase in Demand

1. Increase in Consumer Income

When people's income increases, they can afford to buy more goods.

Example:

A person's monthly income increases from ₹30,000 to ₹40,000. They buy more branded clothes and electronic gadgets.

2. Increase in Population

A larger population increases the number of consumers, leading to higher demand.

Example:

Growing urban population increases the demand for houses and apartments.

3. Change in Consumer Taste and Preference

If consumers develop a stronger preference for a product, its demand increases.

Example:

Health awareness increases the demand for organic food.

4. Increase in the Price of Substitute Goods

When the price of a substitute rises, consumers shift to the cheaper alternative.

Example:

If coffee becomes expensive, more people buy tea.

5. Decrease in the Price of Complementary Goods

A fall in the price of complementary goods increases the demand for related products.

Example:

If petrol prices decrease, the demand for cars may increase.

6. Favourable Expectations

If consumers expect prices to rise in the future, they purchase more today.

Example:

People buy gold before an expected price increase.

7. Government Policies

Reduction in taxes or subsidies can increase demand.

Example:

Government subsidies on electric vehicles increase their demand.

Effects of Increase in Demand

- Demand curve shifts **rightward**.
- Quantity demanded increases at every price level.
- Sellers experience higher sales.
- Production and employment may increase.
- Firms may earn higher profits.

Example

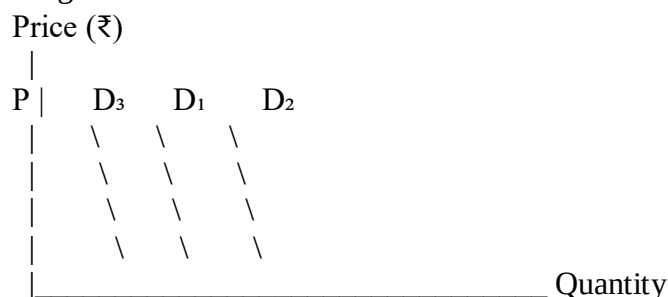
Price (₹)	Quantity Demanded Before	Quantity Demanded After
20	100 units	140 units
30	80 units	120 units
40	60 units	100 units

At every price, demand has increased.

2. Decrease in Demand**Definition**

Decrease in demand refers to a situation where consumers are willing to purchase **less** quantity of a commodity at the same price **due to unfavourable changes in non-price factors**.

As a result, the **entire demand curve shifts to the left**, from **D₁** to **D₃**.

Diagram

Leftward Shift: D₁ → D₃

Causes of Decrease in Demand**1. Decrease in Consumer Income**

Lower income reduces consumers' purchasing power.

Example:

During a recession, families reduce spending on luxury products.

2. Decrease in Population

A smaller population leads to lower demand.

Example:

Migration from rural areas reduces demand for local shops.

3. Unfavourable Changes in Taste and Preference

Consumers may lose interest in a product.

Example:

Demand for DVDs declined due to streaming platforms.

4. Decrease in the Price of Substitute Goods

Consumers switch to the cheaper substitute.

Example:

If tea becomes cheaper, the demand for coffee may decrease.

5. Increase in the Price of Complementary Goods

When complementary goods become expensive, demand for the related product falls.

Example:

An increase in petrol prices may reduce the demand for cars.

6. Unfavourable Expectations

Consumers expect prices to fall in the future, so they postpone purchases.

Example:

Customers delay buying smartphones expecting festive discounts.

7. Increase in Taxes

Higher taxes increase the effective cost to consumers, reducing demand.

Example:

An increase in GST on luxury goods reduces their demand.

Effects of Decrease in Demand

- Demand curve shifts **leftward**.
- Quantity demanded decreases at every price level.

- Sales and production decline.
- Employment opportunities may reduce.
- Business profits may decrease.

Example

Price (₹)	Quantity Demanded Before	Quantity Demanded After
20	100 units	70 units
30	80 units	50 units
40	60 units	35 units

At every price, demand has decreased.

Meaning of Change in Quantity Demanded

Change in quantity demanded refers to the **increase or decrease in the quantity of a commodity purchased due to a change in its own price**, while all other factors such as income, taste, population, prices of related goods, and expectations remain **constant**.

Unlike **change in demand**, the demand curve **does not shift**. Instead, there is a **movement along the same demand curve**.

There are **two types of change in quantity demanded**:

1. **Expansion of Demand**
2. **Contraction of Demand**

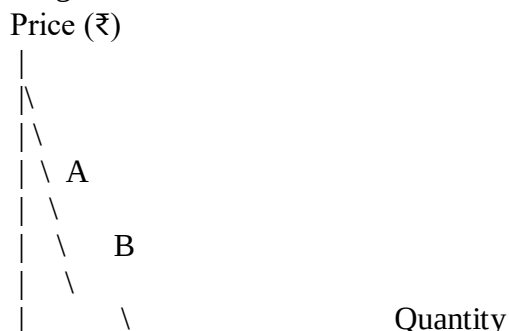
1. Expansion of Demand

Definition

Expansion of demand refers to an **increase in the quantity demanded of a commodity due to a fall in its price**, while all other factors remain unchanged (*ceteris paribus*).

In this case, the consumer moves **downward along the same demand curve** from point **A** to **B**.

Diagram



Movement: A → B (Downward along the same demand curve)

Causes of Expansion of Demand

1. Fall in the Price of the Commodity

When the price decreases, consumers are willing and able to buy more.

Example:

The price of rice falls from ₹60 per kg to ₹50 per kg. Consumers purchase more rice.

2. Increase in Purchasing Power

The same amount of money can buy more units after a price reduction.

Example:

With ₹1,000, a consumer can buy 20 shirts instead of 16 after a price reduction.

3. Law of Demand

According to the **Law of Demand**, when price falls, quantity demanded increases, assuming other factors remain constant.

Effects of Expansion of Demand

- Quantity demanded increases.
- Consumer satisfaction increases.
- Sales volume rises.
- Producers may increase production.
- Consumers enjoy greater purchasing power.

Example

Price (₹)	Quantity Demanded (Units)
100	10
90	15
80	20
70	25
60	30

As the **price decreases**, the **quantity demanded increases**.

2. Contraction of Demand

Definition

Contraction of demand refers to a **decrease in the quantity demanded of a commodity due to a rise in its price**, while all other factors remain constant (*ceteris paribus*).

In this case, the consumer moves **upward along the same demand curve** from point **B to A**.

Diagram

Price (₹)



Movement: B → A (Upward along the same demand curve)

Causes of Contraction of Demand

1. Rise in the Price of the Commodity

When the price increases, consumers buy less.

Example:

The price of sugar increases from ₹40 per kg to ₹50 per kg. Consumers reduce their purchases.

2. Reduction in Purchasing Power

Consumers can afford fewer units with the same income when prices rise.

Example:

With ₹500, fewer chocolates can be purchased after a price increase.

3. Law of Demand

According to the **Law of Demand**, when price increases, quantity demanded decreases, assuming all other factors remain unchanged.

Effects of Contraction of Demand

- Quantity demanded decreases.
- Consumer expenditure may increase.
- Sales decline.
- Producers may reduce production.
- Business revenue may fall if demand is elastic.

Example

Price (₹)	Quantity Demanded (Units)
60	30
70	25
80	20
90	15
100	10

As the **price increases**, the **quantity demanded decreases**.

Difference Between Change in Demand and Change in Quantity Demanded

Basis	Change in Demand	Change in Quantity Demanded
Meaning	Change in demand refers to a shift in the entire demand curve due to changes in factors other than price.	Change in quantity demanded refers to movement along the same demand curve due to a change in the price of the commodity.
Reason	Caused by non-price factors such as income, taste, population, prices of related goods, expectations, advertising, and government policies.	Caused only by a change in the price of the commodity.
Demand Curve	The demand curve shifts to the right (increase in demand) or to the left (decrease in demand).	There is movement upward or downward along the same demand curve .
Price	Price remains constant while demand changes due to other factors.	Price changes , causing a change in the quantity demanded.
Other Factors	Income, taste, population, consumer expectations, prices of related goods, advertising, etc., change .	All other factors are assumed to remain constant (Ceteris Paribus) .
Types	Increase in Demand and Decrease in Demand .	Expansion of Demand and Contraction of Demand .
Nature of Change	Represents a change in consumers' willingness to buy at every price level.	Represents a change in the quantity purchased due to a change in price.
Law Applied	Not directly explained by the Law of Demand; influenced by non-price determinants of demand.	Directly explained by the Law of Demand , which states that price and quantity demanded are inversely related.
Example	If consumers' income increases, they buy more smartphones even though the price remains the same.	If the price of smartphones falls from ₹20,000 to ₹18,000 , consumers buy more smartphones.

Basis	Change in Demand (Shift of demand curve)	Change in Quantity Demanded (Movement along the demand curves)																
1. Factors responsible for rise or fall	It is increase or decrease in demand of a commodity due to the factors other than price of the commodity.	It is increase or decrease in quantity demanded due to price of the commodity while keeping other factors constant.																
2. Price effect	No price effect i.e., At the same price demand is more	Price effect is negative i.e., At a lower price demand is more.																
3. Shift of Demand curve	No price effect i.e., In case of increase in demand, demand curve shifts to the right and in case of decrease in demand, demand curve shift to the left.	Demand curve remains the same. However, in case of increase in quantity demanded there is a downward movement and in case of decrease in quantity demanded there is upward movement.																
4. Diagram																		
5. Demand Schedule	<table><tr><th>Price</th><th>Quantity demanded</th></tr><tr><td>10</td><td>100</td></tr><tr><td>10</td><td>50</td></tr><tr><td>10</td><td>200</td></tr></table>	Price	Quantity demanded	10	100	10	50	10	200	<table><tr><th>Price</th><th>Quantity demanded</th></tr><tr><td>10</td><td>120</td></tr><tr><td>15</td><td>100</td></tr><tr><td>20</td><td>80</td></tr></table>	Price	Quantity demanded	10	120	15	100	20	80
Price	Quantity demanded																	
10	100																	
10	50																	
10	200																	
Price	Quantity demanded																	
10	120																	
15	100																	
20	80																	

Elasticity of Demand

Meaning of Elasticity of Demand

Definition:

Elasticity of demand refers to the degree of responsiveness of the quantity demanded of a product to changes in factors such as price, income, or the price of related goods.

In simple words, it measures how much the demand for a product changes when its determinants change.

Definitions by Economists

Alfred Marshall: "Elasticity of demand is the degree of responsiveness of demand to a change in price."

Paul A. Samuelson: "Elasticity measures the responsiveness of quantity demanded to changes in price or other economic variables."

Types of Elasticity of Demand

Elasticity of demand measures the responsiveness of the quantity demanded of a product to changes in different economic factors. Based on the factor causing the change, elasticity of demand is classified into **four main types**.

1. Price Elasticity of Demand (PED)

Price Elasticity of Demand (PED) measures the degree of responsiveness of the quantity demanded of a commodity to changes in its own price, while all other factors remain constant.

- If demand changes greatly due to a small change in price, demand is **elastic**.
- If demand changes only slightly despite a price change, demand is **inelastic**.

Formula

$$PED = \frac{\% \text{ Change in Quantity Demanded}}{\% \text{ Change in Price}}$$

$$PED = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

Where:

- Q_1 = Initial quantity demanded
- Q_2 = New quantity demanded
- P_1 = Initial price
- P_2 = New price

Example

A shop reduces the price of a notebook from ₹50 to ₹45 (10% decrease). As a result, demand increases from 200 units to 240 units (20% increase).

$$PED = \frac{20\%}{10\%} = 2$$

Interpretation: $PED = 2 (>1)$, so the demand is **elastic**.

Business Example

When mobile phone companies announce festive discounts, sales usually increase significantly because consumers respond positively to lower prices.

2. Cross Elasticity of Demand (XED)

Cross Elasticity of Demand measures the responsiveness of demand for one product when the **price of another related product** changes.

It applies only to **related goods**, namely:

- **Substitute goods** (e.g., Tea and Coffee)
- **Complementary goods** (e.g., Car and Petrol)

Formula

$$XED = \frac{\% \text{ Change in Quantity Demanded of Product A}}{\% \text{ Change in Price of Product B}}$$

$$XED = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

or

$$XED = \frac{(Q_2 - Q_1)/Q_1}{(P_2 - P_1)/P_1}$$

Where:

- Q_1 = Initial demand for Product A
- Q_2 = New demand for Product A
- P_1 = Initial price of Product B
- P_2 = New price of Product B

Examples

Substitute Goods

The price of coffee increases by **20%**, and demand for tea increases by **30%**.

$$XED = \frac{30}{20} = 1.5$$

Since XED is **positive**, tea and coffee are **substitute goods**.

Complementary Goods

The price of petrol increases by **10%**, and demand for cars decreases by **5%**.

$$XED = \frac{-5}{10} = -0.5$$

A **negative XED** indicates that cars and petrol are **complementary goods**.

3. Income Elasticity of Demand (YED)

Income Elasticity of Demand measures how demand changes when **consumer income changes**, assuming other factors remain constant.

Economists use **Y** to represent income.

Formula

$$YED = \frac{\% \text{ Change in Quantity Demanded}}{\% \text{ Change in Income}}$$

$$YED = \frac{(Q_2 - Q_1)/Q_1}{(Y_2 - Y_1)/Y_1}$$

Where:

- **Q₁** = Initial quantity demanded
- **Q₂** = New quantity demanded
- **Y₁** = Initial income
- **Y₂** = New income

Examples

A person's monthly income increases from **₹40,000 to ₹44,000** (10% increase). The demand for branded clothing increases from **10 units to 12 units** (20% increase).

$$YED = \frac{20}{10} = 2$$

Demand is highly responsive to income changes.

Interpretation

- **YED > 0**: Normal goods (e.g., clothes, electronics)
- **YED < 0**: Inferior goods (e.g., low-quality products)
- **YED > 1**: Luxury goods (e.g., cars, jewellery)

Business Example

As people's income rises, they tend to purchase premium smartphones, branded apparel, and holiday packages.

4. Advertising Elasticity of Demand (AED)

Advertising Elasticity of Demand measures the responsiveness of demand to changes in **advertising expenditure**. It helps businesses evaluate the effectiveness of their advertising campaigns.

Formula

$$AED = \frac{\% \text{ Change in Quantity Demanded}}{\% \text{ Change in Advertising Expenditure}}$$

$$AED = \frac{(Q_2 - Q_1)/Q_1}{(A_2 - A_1)/A_1}$$

Where:

- Q_1 = Initial quantity demanded
- Q_2 = New quantity demanded
- A_1 = Initial advertising expenditure
- A_2 = New advertising expenditure

Example

A company increases its advertising budget from **₹1,00,000 to ₹1,20,000** (20% increase). Sales increase from **5,000 units to 5,500 units** (10% increase).

$$AED = \frac{10}{20} = 0.5$$

Interpretation: AED = 0.5 indicates that demand is moderately responsive to advertising.

Business Example

Companies such as Coca-Cola, Apple, and Amazon invest heavily in advertising to strengthen brand awareness and increase sales.

Meaning of Supply Analysis

Supply analysis refers to the study of the quantity of goods and services that producers are willing and able to offer for sale at different prices during a given period of time.

In simple words, it explains how much a seller is prepared to sell and the factors that influence the quantity supplied.

Example

Imagine a **vegetable seller** selling tomatoes:

- If the price is **₹20 per kg**, the seller may supply **10 kg**.
- If the price increases to **₹30 per kg**, the seller may supply **20 kg**.
- If the price increases to **₹40 per kg**, the seller may supply **30 kg**.

So, **when the price increases, sellers generally want to supply more.**

Determinants of Supply

While the price is an important aspect for determining the willingness and desire to part with goods/services, many other factors determine the supply of a [product](#) or service as discussed below:

Price of the Good/ Service

The most obvious one of the determinants of supply is the price of the product/service. With all other parameters being equal, the supply of a product increases if its relative price is higher. The reason is simple. A [firm](#) provides goods or services to earn profits and if the prices rise, the profit rises too.

Price of Related Goods

Let's say that the price of wheat rises. Hence, it becomes more profitable for firms to supply wheat as compared to corn or soya bean. Hence, the supply of wheat will rise, whereas the supply of corn and soya bean will experience a fall.

Hence, we can say that if the price of related goods rises, then the firm increases the supply of the goods having a higher price. This leads to a drop in the supply of the goods having a lower price.

Price of the Factors of Production

Production of a good involves many costs. If there is a rise in the price of a particular factor of production, then the cost of making goods that use a great deal of that factors experiences a huge increase. The cost of production of goods that use relatively smaller amounts of the said factor increases marginally.

For example, a rise in the cost of land will have a large effect on the cost of producing wheat and a small effect on the cost of producing automobiles.

Law of Supply

As mentioned in the introduction, a man of normal intellect always prefers to increase his profit. Talking about the suppliers, when a supplier gets more price for his supply, the normal behavior would be to increase the supply, in order to extract greater profits. This is the law of supply.

Technically, the law of supply states that other factors remaining constant, the quantity of a good produced and offered for sale would increase with an increase in its price and decrease as the price falls.

Thus the law of supply acts as a bridge between the supply of a commodity and its price. Further, we can say that there is a direct relationship between the supply of a commodity and its price.

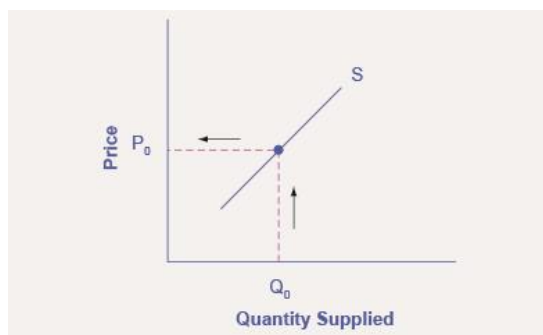
Again, this law is a result of common sense, as at higher prices a supplier would be looking at greater profit margins and hence it acts as an incentive for increasing the supply.

This law is true for a majority of day-to-day occurrences of supply. However, there are some exceptions to the law of supply. The supply of labor at high wages, for example, decreases instead of increasing.

This is because an employer pays more only when you possess a skill which is not so common. Thus, the supply depends upon the phenomenon under consideration and the extent to which supply can be altered.

Further, the behavior of supply is also the slave of time, for obvious reasons. When talking about short-run, we can play with supply only up to a certain extent, permissible under the short time frame.

On the contrary, in the long run, changes on a large scale become a part of the equation allowing us to alter the supply to a greater extent. Below, is the graphical representation of the law of supply, the supply curve.



Market Equilibrium

Market equilibrium is a situation where the quantity demanded by consumers is equal to the quantity supplied by producers at a particular price. The price at which demand and supply are equal is called the Equilibrium Price, and the quantity bought and sold at that price is called the Equilibrium Quantity. For example, when the price of a product is ₹30, if consumers demand 300 units and producers supply 300 units, the market is in equilibrium. Therefore, the Equilibrium Price is ₹30 and the Equilibrium Quantity is 300 units.

Disequilibrium

When demand and supply are not equal, the market is said to be in disequilibrium. There are two types of disequilibrium: excess demand (shortage) and excess supply (surplus).

1. Excess Demand / Shortage

Excess demand occurs when quantity demanded is greater than quantity supplied. For example, at ₹20, if demand is 400 units and supply is only 300 units, there is a shortage of 100 units. This shortage generally causes the price to increase.

2. Excess Supply / Surplus

Excess supply occurs when quantity supplied is greater than quantity demanded. For example, at ₹40, if supply is 400 units and demand is only 200 units, there is a surplus of 200 units. This surplus generally causes the price to decrease.

Law of Diminishing Marginal Utility Analysis

1. Meaning

The Law of Diminishing Marginal Utility explains the relationship between the quantity consumed of a commodity and the additional satisfaction obtained from each unit. It states that, as a consumer consumes more and more units of the same commodity, the marginal utility obtained from each additional unit gradually decreases, other things remaining constant. In simple words, the first unit gives more satisfaction, while each additional unit gives less satisfaction.

2. Marginal Utility

Marginal Utility (MU) means the additional satisfaction obtained from consuming one additional unit of a commodity. For example, if a person eats one more chocolate and gets additional satisfaction from it, that satisfaction is called marginal utility.

Formula:

$$MU = \text{Change in Total Utility} \div \text{Change in Quantity Consumed}$$

3. Example

Suppose a thirsty person drinks glasses of water. The **first glass** gives very high satisfaction because the person is very thirsty. The **second glass** gives satisfaction, but less than the first. The third glass gives still less satisfaction. After consuming several glasses, the person may not get any additional satisfaction.

Units of Water	Total Utility	Marginal Utility
1st	10	10
2nd	18	8
3rd	24	6
4th	28	4

Units of Water	Total Utility	Marginal Utility
5th	30	2
6th	30	0

The table shows that **marginal utility decreases as consumption increases**.

4. Relationship Between Total Utility and Marginal Utility

When **marginal utility is positive**, total utility increases. When marginal utility becomes **zero**, total utility reaches its maximum level. If marginal utility becomes **negative**, total utility starts to decrease. Therefore, marginal utility helps us understand how total satisfaction changes as consumption increases.

5. Assumptions of the Law

The Law of Diminishing Marginal Utility is based on certain assumptions. The consumer's income, tastes, preferences, and the price of the commodity remain constant. The units of the commodity should be similar in size and quality, and consumption should take place continuously without a long time gap. The consumer is also assumed to behave rationally.

6. Importance of the Law

This law is important in understanding consumer behaviour and demand. It explains why consumers are generally willing to pay a higher price for the first unit of a commodity but a lower price for additional units. It also helps explain the downward-sloping demand curve and the principle of consumer satisfaction.

7. Conclusion

The Law of Diminishing Marginal Utility means that the additional satisfaction obtained from each successive unit of a commodity decreases as consumption increases. A simple example is drinking water: the first glass gives the highest satisfaction, while subsequent glasses provide less and less satisfaction. Thus, the law explains an important aspect of consumer behaviour and economic decision-making.