Law of Demand

DEMAND

• In the **ordinary sense, demand means desires**.

•**Demand in Economics means both the willingness as well as the ability to purchase a commodity** by paying a price and also its actual purchase.

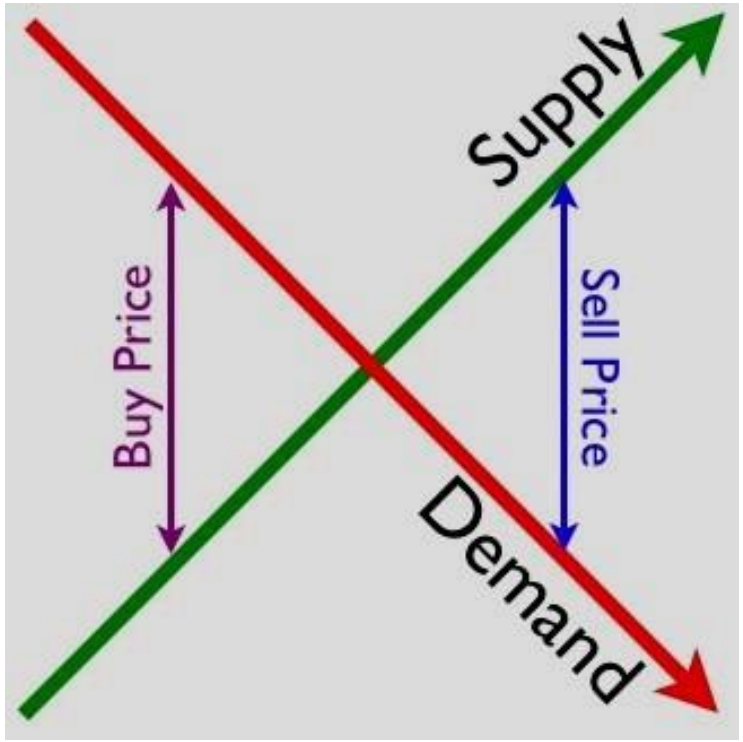
•**A man may be willing to get a thing but he is not able to pay the price**. It is not demand in the economic sense.

• **Demand is related to price.**

•**Generally demand for a commodity depends upon the price** of the commodity.

DEMAND


Demand =
desire for a product
+
willingness and ability to pay for it


Supply
Buy Price
Sell Price
Demand

Law of Demand

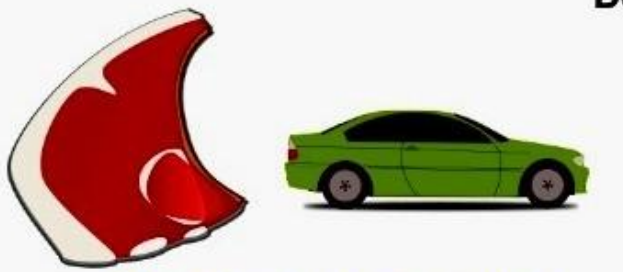
The **Law of Demand** states that, **ceteris paribus** (all other factors being constant), the quantity demanded of a good or service decreases as its price increases, and conversely, the quantity demanded increases when the price decreases. In simpler terms, there is an **inverse relationship** between price and quantity demanded.

Example: Movie Tickets: If the price of movie tickets increases from ₹200 to ₹300, fewer people may choose to go to the movies, causing the quantity demanded to fall. Conversely, if the price drops to ₹150, more people are likely to buy tickets, increasing the quantity demanded.

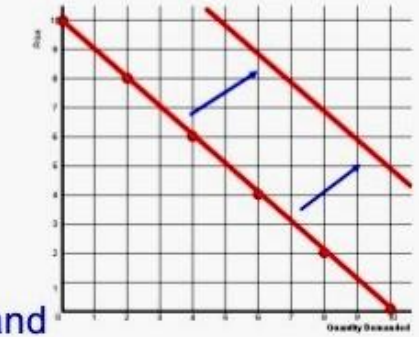
Income & Demand

Income can affect demand

If income increases, demand for most goods will probably increase



Demand for normal goods



These goods are normal

When our income goes up, we demand more of these items.

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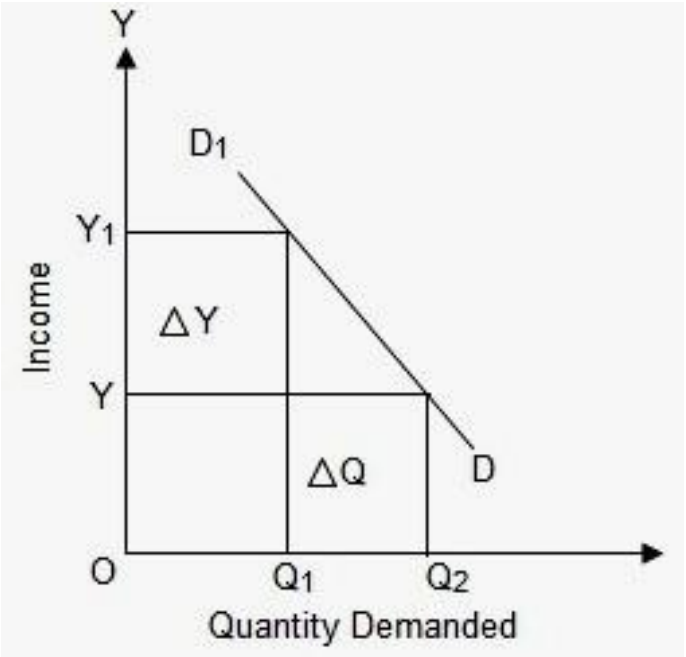
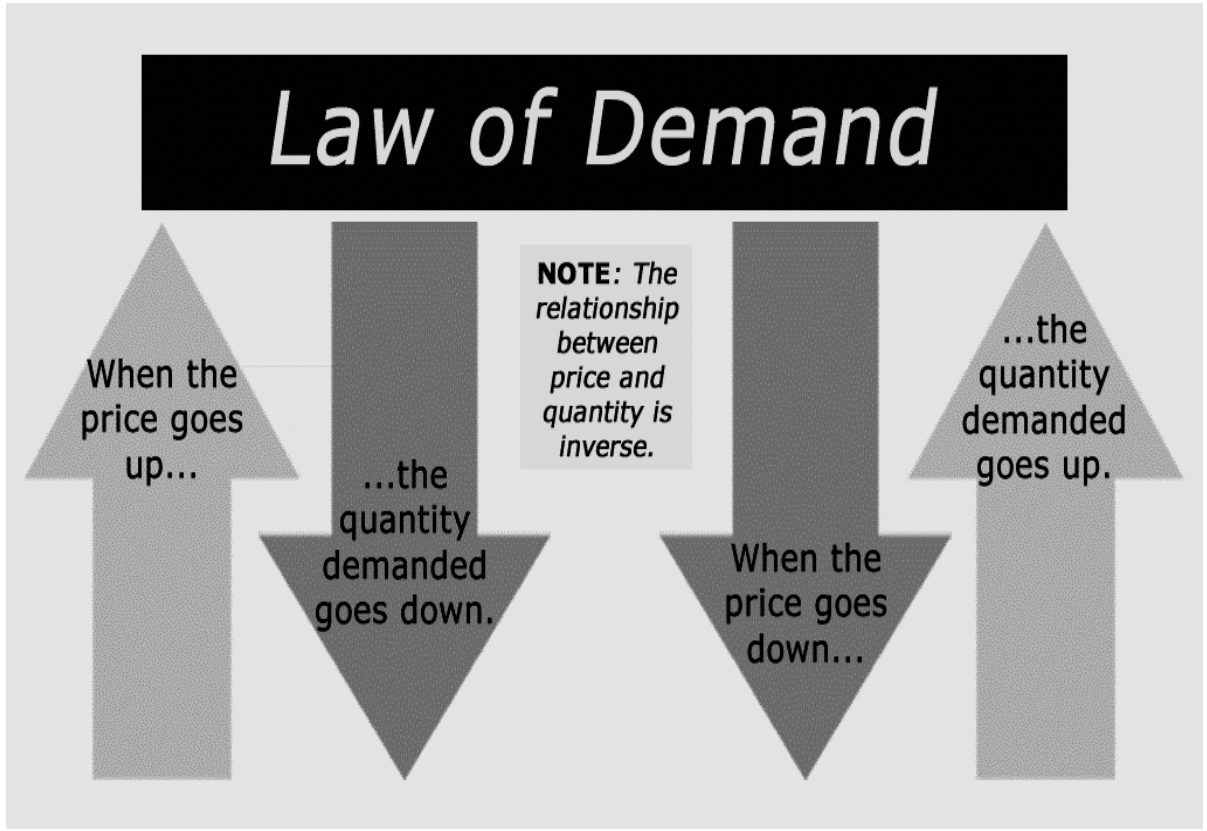
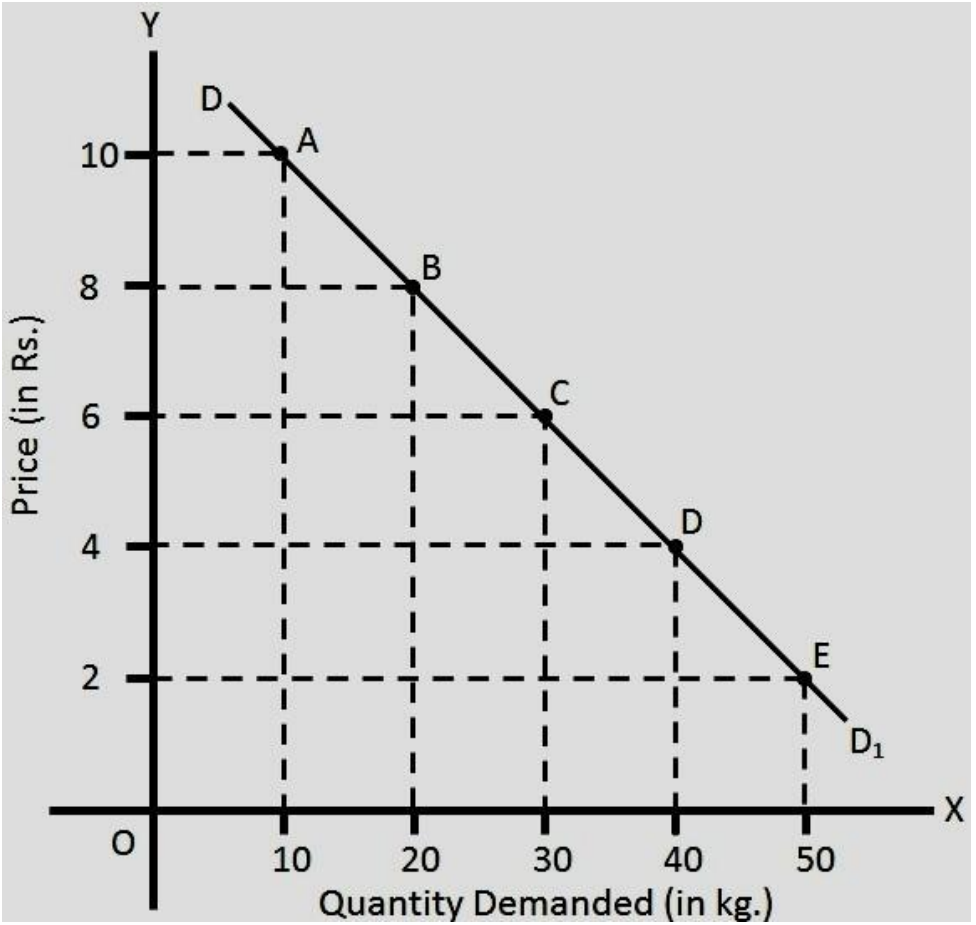


Law of Demand





Law of Demand

- **Assumption:**

(i) Income of the people remaining unchanged.

(ii) Taste, preference and habits of consumers unchanged.

(iii)Prices of related goods i.e., substitute and complementary goods remaining unchanged

(iv) There is no expectation of future change in price of the commodity.

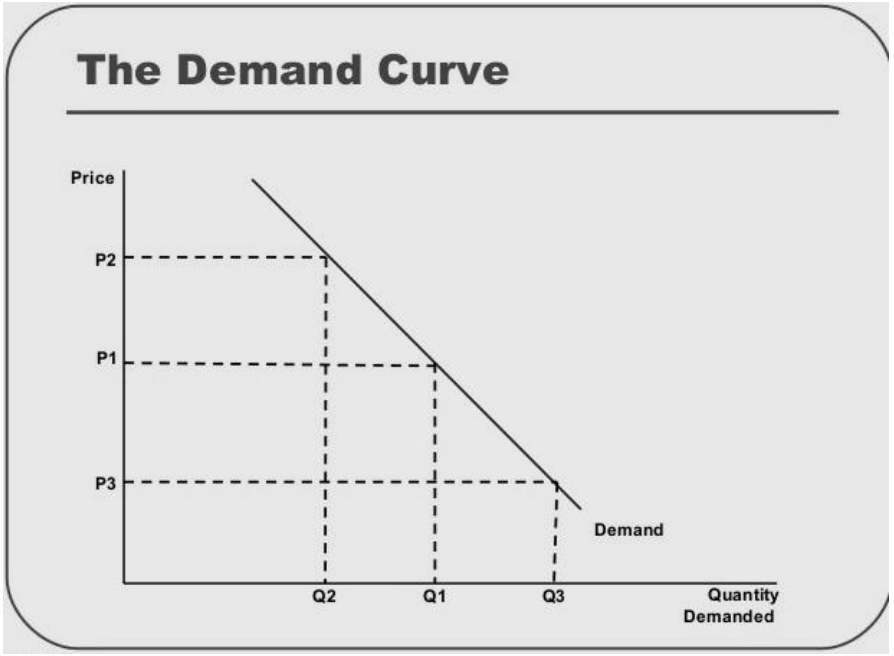
(v) The commodity in question is not consumed for its prestige value.

Determinants Of Demand

- **Price of the good or service**: Inverse relationship with quantity demanded.
- **Income of consumers**: Affects demand for normal and inferior goods.
- **Prices of related goods**: Substitute and complement goods affect demand.
- **Consumer preferences**: Changing tastes and preferences can drive demand.
- **Expectations**: Future price changes can shift current demand.
- **Number of buyers**: More buyers increase overall demand.
- **Government policies**: Taxes and subsidies can influence demand.
- **Seasonal factors**: Some goods have cyclical demand based on seasons.

Determinants Of Demand

(i) Price of the Commodity : There is an inverse relationship between the price of the commodity and the quantity demanded. It implies that lower the price of commodity, larger is the quantity demanded and vice-versa.

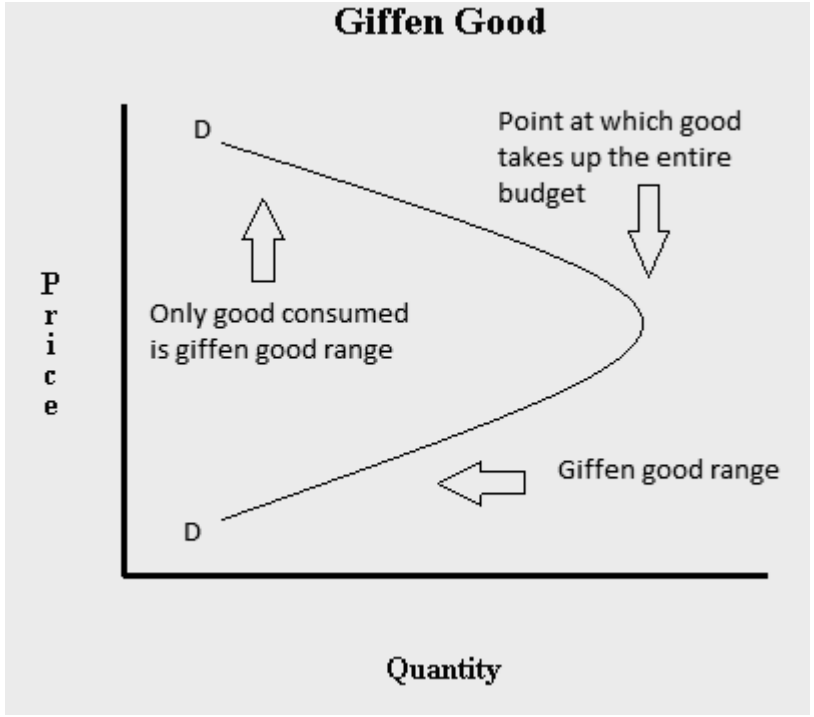


Determinants Of Demand

(ii) Income of the consumers: Usually there is a direct relationship between the income of the consumer and his demand. i.e. as income rises his demand rises and vice-a-versa. The income demand relationship varies with the following three types of commodities :

- **(a) Normal Goods :** In such goods, demand increases with increase in income of the consumer.
- For e.g.. demands for television sets, refrigerators etc. Thus income effect is positive.
- **(b) Inferior Goods :** Inferior Goods are those goods whose demand decrease with an increase in consumers income. For e.g. food grains like Malze , etc. If the income rises demand for such goods to the consumers will fall. Thus income effect is negative.
- **(c) Giffen goods (low Income, non luxury goods) :** In case of Giffen goods the demand increases with an increase in price but it decreases with the rise in income. Thus income effect is negative.

Giffen Goods



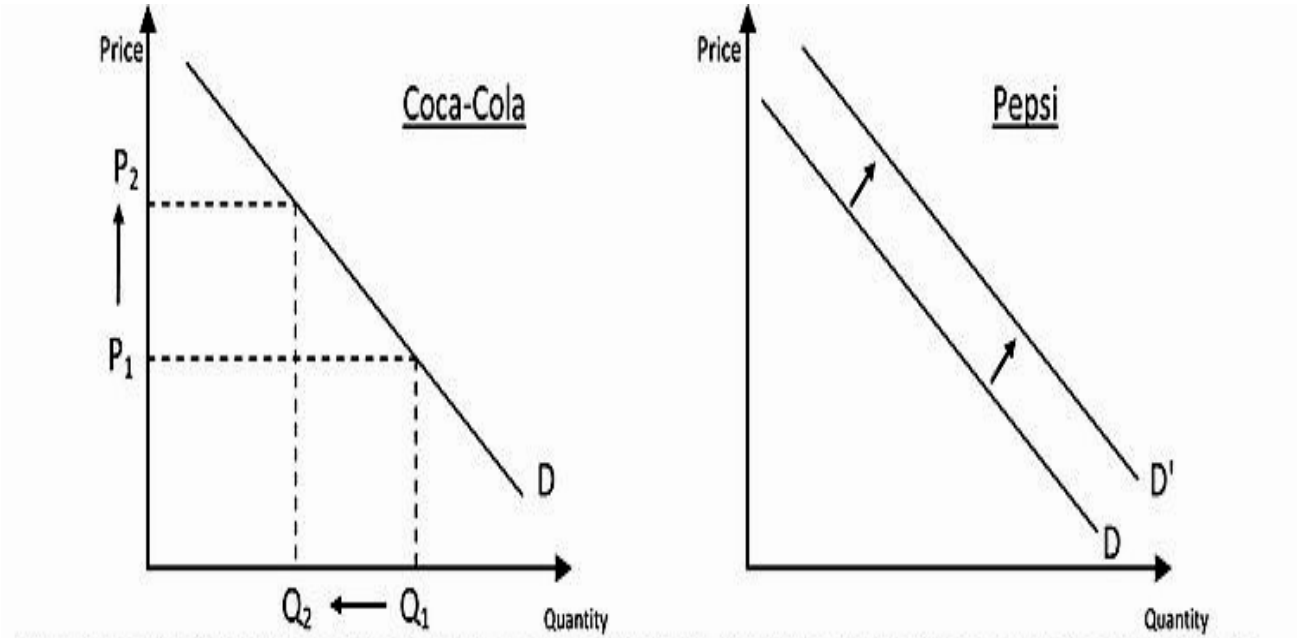
Determinants Of Demand

(iii) Consumers Taste and Preference: Taste and Preferences which depend on social customs, habit of the people, fashion, etc. largely influence the demand of a commodity.

(iv) Price of Related Goods: Related Goods can be classified as substitute and complementary goods.

(v) Substitute Goods: In case of such goods, if the price of any substitute of commodity rises, then the commodity concern will become relatively cheaper and its demand will rise. The demand for the commodity will fall if the price of the substitute falls. e.g.. If the price of coffee rises, the demand for tea will rise.

Substitute Goods



Suppose the price of Coca-Cola rises from P_1 to P_2 because one of the inputs rises in price. This would cause people to consume less coke, quantity decreases from Q_1 to Q_2. For the substitute good Pepsi the demand curve shifts out for all price levels, from D to D', leading to more of the substitute good consumed.

Determinants Of Demand

(vi)Complementary Goods: In case of such goods like pen and ink with a fall in the price of one there will be a rise in demand for another and therefore the price of one commodity and demand for its complementary are inversely related.

(vii)Consumer's Expectation: If a consumer expect a rise in the price of a commodity in a near future, they will demand it more at present in anticipation of a further rise in price.

(viii)Size and Composition of Population: Larger the population, larger is likely to be the no. of consumers.

- Besides the composition of population which refers to the children, adults, males, females, etc. in the population. The demographic profile will also influence the consumer demand.

Elasticity of Demand

- **Whenever a policy maker wishes to examine the sensitivity of change in quantity demanded due to the change in price, income or price of the related goods**, he wishes to study the magnitude of this response with the help of "elasticity" concept. **Thereby, the concept is crucial for business decision-making and also for forecasting future demand policies.**
- **The change in quantity with respect to a change in price, a concept economists call elasticity.**
- **Eg. Netflix, Books, Reels/tiktok, Pizza/Movie Price, Sin tax on Cigarettes, Alcohol**

Elasticity Of Demand

- **Elasticity of demand is the measure of the responsiveness of quantity demanded of a commodity in response to change in a particular demand determinant (say price)** while keeping other determinants constant(such as:, income, or price of related good , advertisement, growth of population and so on). **Algebraically, it is defined as**

$$e_D = \frac{Proportionate\ change\ in\ quantity\ demanded}{Proprtionate\ change\ in\ demdnd\ determint}$$

$$e_D = \frac{\frac{dQ}{Q}}{\frac{dZ}{Z}}$$

$$e_D = \left(\frac{dQ}{dZ}\right)\left(\frac{Z}{Q}\right)$$

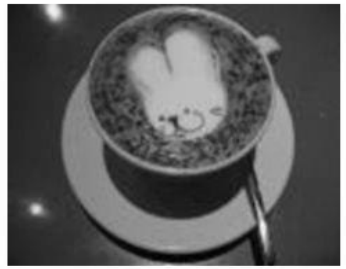
Where e_D is elastic of demand
Q is quantity demanded ()
Z is any demand determinant (initial)
dQ is change in quantity demanded
dZ is change in demand determinant

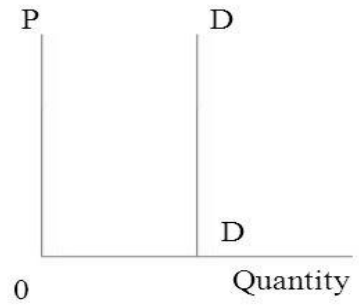
Elasticity of Demand

Elastic Demand

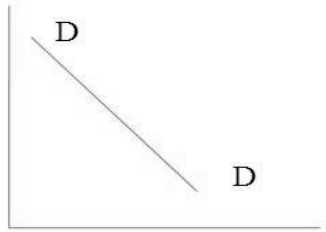
Inelastic Demand

Determinants Of Elasticity Of Demand





Highly inelastic because very essential and no substitution.



These commodities are not essential for life; moreover, tea and coffee are close substitute for each other. So, their demand curve should be elastic

Determinants of Elasticity of Demand

1. **Nature of the Good**: Necessities have inelastic demand, while luxuries have elastic demand.
   - Elastic: Demand for luxury watches is elastic because they are not essential.
   - Inelastic: Demand for water is inelastic because it's a necessity for survival.
2. **Availability of Substitutes**: Goods with more substitutes tend to have elastic demand as consumers can switch to alternatives.
   - Elastic: Demand for Pepsi is elastic because Coke is a close substitute.
   - Inelastic: Demand for electricity is inelastic because there are few practical substitutes.
3. **Proportion of Income**: Goods that take up a large share of income have more elastic demand, while cheaper goods are inelastic.
   - Elastic: Demand for a car is elastic as it represents a significant portion of a consumer's income.
   - Inelastic: Demand for salt is inelastic as it takes up a tiny portion of income.
4. **Time Period**: Demand is more elastic in the long run as consumers can adjust their behavior over time.
   - Demand for petrol becomes elastic in the long run as consumers can switch to electric vehicles.
   - Inelastic: Demand for petrol is inelastic in the short run because people cannot immediately change transportation methods.

Determinants of Elasticity of Demand

5. **Habitual Consumption**: Demand for cigarettes is inelastic due to their addictive nature.
6. **Definition of the Market**: Demand for "smartphones" is elastic, but demand for "Apple iPhones" is more elastic.
7. **Durability of the Good**: Demand for refrigerators is elastic since purchases can be postponed.
8. **Consumer Expectations**: Demand for electronics becomes elastic if consumers expect prices to fall during sales.
9. **Number of Uses:** Demand for sugar is elastic because people can reduce usage in multiple areas like cooking or baking.

Concepts Of Elasticity Of Demand

- **There may be as many as concepts of elasticity of demand as the number of demand determinants. Most important concepts of elasticity of demand are:**
- **Price elasticity of demand** (here the demand determinant is price of the commodity)
- **Income elasticity of demand** (here the demand determinant is income of consumer)
- **Cross elasticity of demand** (here the demand determinant is price of related goods)

Price Elasticity of Demand

- It is definedas the degree of responsiveness of quantity demanded of a commodity due to change in its price

w

Algebraically,

$$e_P = \frac{percdntage\ \ change\ in\ quanity\ demanded}{percentage\ change\ in\ price}$$

$$e_P = \frac{\frac{dQ}{Q}}{\frac{dP}{P}}$$

$$e_P = \left(\frac{dQ}{dP}\right) x \left(\frac{p}{Q}\right)$$

Where e_P is elastic of demand
Q is quantity demanded (initial)
P is price of the commodity (initial)
dQ is change in quantity demanded
dP change in price

***Price elasticity usually carries a negative sign because of inverse relationship between price and demand. However, it is absolute value of price elasticity of demand that determines the different degrees/kinds of price elasticity of demand.

Kinds Of Price Elasticity Of Demand

- **Perfectly Elastic Demand :** $|e_p| = \alpha\ (infinty)$
- **Elastic Demand /Relatively Elastic Demand:** $|e_p| > 1$
- **Unit Elastic Demand:** $|e_p| = 1$
- **Inelastic Demand / Relatively Inelastic Demand :** $|e_p| < 1$
- **Perfectly Inelastic Demand:** $|e_p| = 0$

Income Elasticity Of Demand

- **Income Elasticity of demand is the measure of the responsiveness of quantity demanded of a commodity in response to change in income of the consumer, ceteris paribus.**

$$e_Y = \frac{percdntage\ \ change\ in\ quanity\ demanded}{percentage\ change\ in\ income\ of\ comusmer}$$

or, $$e_Y = \frac{dQ/Q}{dY/Y}$$

or, $$e_Y = \left(\frac{dQ}{dY}\right)\left(\frac{Y}{Q}\right)$$

Where

e_Y is income elasticity of demand
Q is the quantity demanded (initial)
Y is the income of the consumer (initial)
dQ is the change in quantity demanded
dY is the change in income

Types of Income Elasticity of demand

1. Positive income elasticity of demand ($E_Y>0$)
   - Income elasticity greater then unity ($E_Y > 1$)
   - Income elasticity equal to unity ($E_Y = 1$)
   - Income elasticity less then unity ($E_Y < 1$)
2. Negative income elasticity of demand ($E_Y<0$)
3. Zero income elasticity of demand ($E_Y=0$)

Income Elasticity of Demand

A measure of how demand for a product changes when people's incomes change

Income Elasticity of Demand – 3 Types

Negative	Positive	Zero
Associated with inferior goods.	Associated with luxury goods.	These are sticky goods.
For example, cheap cars. When my income rises, I stop buying cheap cars.	For example, when my income rises I buy more vacations abroad.	For example, electricity, butane gas, water, salt, cooking oil, and kerosene.

Cross Elasticity Of Demand

- **Cross Elasticity of demand is the measure of the responsiveness of quantity demanded of a commodity in response to change in price of its related goods, ceteris paribus (**all other things being unchanged or constant) **. It can be written as:**

$$e_{AB} = \frac{percdntage\ \ change\ in\ quanity\ demanded\ \ of\ good\ A}{percentage\ change\ in\ price\ of\ related\ good\ B}$$

$$\text{or,} \quad e_{AB} = \frac{dQ_A/Q_A}{dP_B/P_B}$$

$$\text{or,} \quad e_{AB} = \left(\frac{dQ_A}{dP_B}\right)\left(\frac{P_B}{Q_A}\right)$$

Where

e_{AB} is cross elasticity of demand
Q_A is the quantity demanded of commodity A (initial)
P_B is the Price of the commodity B(initial)
d Q_A is the change in quantity demanded of commodity A
d P_B is the change in price

Kinds Of Cross Elasticity Of Demand

- **Positive Cross elasticity of demand ($e_{AB} > 0$)**
  when the goods A and B are substituted e.g. Coca cola and Pepsi, chinese mobile phone
- **Negative Cross elasticity of demand ($e_{AB} < 0$)** [when the goods A and B are complementary] e.g. vehicles and petrol
- **Zero Cross elasticity** of ($e_{AB} = 0$) [when the goods A and B are independent/unelated e.g. gold and rice

Demand Forecasting

- **In modern business, production is carried out in anticipation of future demand.**
- **There is thus a time-gap between production and marketing. So production is done on the basis of demand forecasting. The success of a business firm depends to a large extent upon its successful forecasting.**
- **Demand forecasting** is a field of which tries to understand and predict customer demand to optimize supply decisions by corporate supply chain and business management. Demand forecasting involves quantitative methods such as the use of data, and especially historical sales data, as well as statistical techniques from test markets. Demand forecasting may be used in production planning, inventory management, and at times in assessing future capacity requirements, or in making decisions on whether to enter a new market.
- Critical business assumptions like turnover, profit margins, cash flow, capital expenditure, risk assessment and mitigation plans, capacity planning, etc. are dependent on Demand Forecasting.
- E.g. Leading car sales, food manufacturing company etc

Demand Forecasting

Demand Forecasting types

Demand Forecasting can be broadly classified based on the level of detailing, time span considered and the scope of market considered.

- **Passive Demand Forecasting:** Passive Demand Forecasting is carried out for stable businesses with very conservative growth plans. Simple extrapolations of historical data is carried out with minimal assumptions. This is a rare type of forecasting limited to small and local businesses.
- **Active Demand Forecasting:** Active Demand Forecasting is carried out for scaling and diversifying businesses with aggressive growth plans in terms of marketing activities, product portfolio expansion and consideration of competitor activities and external economic environment.
- **Short-term Demand Forecasting:** Short-term Demand Forecasting is carried out for a shorter term period of 3 months to 12 months. In the short term, the seasonal pattern of demand and the effect of tactical decisions on the customer demand are taken into consideration.
- **Medium to long-term Demand Forecasting:** Medium to long-term Demand Forecasting is typically carried out for more than 12 months to 24 months in advance (36-48 months in certain businesses). Long-term Forecasting drives the business strategy planning, sales and marketing planning, financial planning, capacity planning, capital expenditure, etc.
- **External macro level Demand Forecasting:** This type of Forecasting deals with the broader market movements which depend on the macroeconomic environment.

Demand Forecasting

The following methods are commonly used in forecasting demand.

(a) Expert opinion method – experts or specialists in the fields are consulted for their opinion regarding future demand for a particular commodity.

(b) Survey of buyers' intentions – generally a limited number of buyers' choice and preference are

- surveyed and on the basis of that the business man forms an idea about future demand for the product it is going to produce.

Demand Forecasting

Demand Forecasting

(c) Collective opinion method – the firm seeks opinion of retailers and wholesalers in their respective territories with a view to estimate expected sales.

(d) Controlled experiments – the firm takes into account certain factors that affect demand like-price, advertisement, packaging.

On the basis of these determinants of demand the firm makes an estimate about future demand.

(e) Statistical methods – More often firms make statistical calculations about the trend of future demand.

- Statistical methods comprising trend projection method, least squares method progression analysis etc. are used depending upon the availability of statistical data.

Importance of Demand Forecasting

- Demand Forecasting is the pivotal business process around which strategic and operational plans of a company are devised. Based on the Demand Forecast, strategic and long-range plans of a business like budgeting, financial planning, sales and marketing plans, capacity planning, risk assessment and mitigation plans are formulated.
- Short to medium term tactical plans like pre-building, make-to-stock, make-to-order, contract manufacturing, supply planning, network balancing, etc. are execution based.
- Demand Forecasting also facilitates important management activities like decision making, performance evaluation, judicious allocation of resources in a constrained environment and business expansion planning.