

DEMAND

:- refers to the quantity of a good or service that buyers are willing and able to purchase at various prices during a given period of time.

Demand depends on:

- 1) Desire
- 2) Ability (means to purchase)
- 3) Willingness
- 4) Price

⇒ Quantity demanded is a flow concept, there's a continuous flow of purchase.

Determinants of Demand

1) Price of a commodity:- $P \uparrow Q \downarrow$, $P \downarrow Q \uparrow$

2) Price of related commodity:- Complementary goods (consumed together)

Substitute goods (competing goods)

$P_x \propto Q_y$ (Direct or Positive relation)

$\uparrow$ $\uparrow$
 $\downarrow$ $\downarrow$

$P_x \propto \frac{1}{Q_y}$

$\uparrow$ $\downarrow$ (Inverse relation)
 $\downarrow$ $\uparrow$

3) Income of the consumer:-

Normal goods

$Y \propto Q$

$\uparrow$ $\uparrow$

$\downarrow$ $\downarrow$

Inferior goods

$Y \propto \frac{1}{Q_{IG}}$

$\uparrow$ $\downarrow$

$\downarrow$ $\uparrow$

Necessities

$\uparrow$ se will be less than proportionate to the $\uparrow$ se in income.

Luxury goods

Keep rising as income rises.

4) Consumer's expectations:-

If expect: $\uparrow$ se in future prices, $\uparrow$ se in income, shortage of supply: $\uparrow$ Demand
 $\downarrow$ se in future price, $\downarrow$ fall in income, : $\downarrow$ Demand

- 5) Size of population:- Larger the size of population $\Rightarrow$ Demand $\uparrow$
- 6) Age distribution of population:-
People belong to older age groups:- $\uparrow$ Demand for care services,
 $\downarrow$ Demand for toys.
Population consists more of children:- $\uparrow$ Demand for toys, toffees, etc.
- 7) Consumer credit facility:- Rate of Interest $\downarrow \Rightarrow$ Demand $\uparrow$
- 8) Govt. policies & regulations:- Taxes $\Rightarrow$ ~~P~~ $\uparrow$ & $\downarrow$
Subsidies $\Rightarrow$ $P \downarrow$ & $T \uparrow$
- 9) Level of National Income & its distribution:-
Higher the National income $\Rightarrow$ Demand $\uparrow$
Distribution: Unevenly distributed $\rightarrow$ Rich ppl (very few), Poor (majority)
 $\text{Propensity to consume} \downarrow$ Demand $\downarrow$
: Distribution of Income equally $\rightarrow$ $\text{Propensity to consume} \uparrow$ Demand $\uparrow$
- $\text{Propensity to consume, of rich people} < \text{poor people}$
- 10) Tastes & Preferences:- Modern / fashionable goods $\Rightarrow$ Demand $\uparrow$
- Demonstration effect: (James Duesenberry) desire of people to copy others out of jealousy, people buy because they see other people are able to have them. (If my friend can have it, I can also)

- Bandwagon effect:- as others are also consuming the same commodity, people desire to buy in order to be fashionable or stylish or to join the grp of ppl they want to be associated with.
- Snob effect:- People desire to be Exclusive, different or separate from common herd, demand $\downarrow$ due to the fact that others are also consuming the same commodity.
- Veblen effect:- Highly price goods $\rightarrow$ consumed by status seeking rich people $\rightarrow$ to satisfy need of conspicuous consumption.
 $\rightarrow$ It's a function of price.

Demand function

Relationship b/w demand for a product & its determinants

$$D_n = f(P_n, P_s, P_c, T, Y, A)$$

Law of Demand (Prof. Alfred Marshall)

Relationship b/w Quantity demanded & its Price.

states that when $P \uparrow Q \downarrow$ and $P \downarrow Q \uparrow$, thus an inverse relationship b/w Price & quantity demanded, *ceteris Paribus* (other things remaining constant) assumption of law of demand.

Demand Schedule

Table showing quantities of a good demanded at various prices.

Adding up the various qty demanded $\Rightarrow$ Market demand schedule.

Demand Curve

Graphical presentation of the demand schedule.

Vertical (Y-axis) $\Rightarrow$ Price per unit Horizontal (X-axis) $\Rightarrow$ Quantity

Market demand curve horizontal summation of all individual demand curves.

$\rightarrow$ Both curves slopes downwards to the right.

$\rightarrow$ Demand curve may be Linear, straight line or Curvilinear.

Slope of Demand Curve

$$\frac{-\Delta P}{\Delta Q}$$

(change along vertical axis divided by change along horizontal axis)

"negative sign" due to law of demand & inverse relationship in it.

Reasons for Law of Demand / Why DC slope downwards

1) Price effect :- Income effect + Substitution effect

Income effect :- normal good $\Rightarrow$ Price $\downarrow$, Purchasing power / real income $\uparrow$, Demand $\uparrow$

Exception: inferior good $\Rightarrow$ income effect works in the opp. direction to the subst. effect.

$\Rightarrow$ Expansion in demand, due to price fall will only take place if **SE > IE**

Substitution effect :- (Hicks and Allen) Price $\downarrow$, become relatively cheaper, induce consumer to substitute the commodity whose price has fallen for other commodities, results in Demand $\uparrow$ SE is always Positive

Substitution effect is stronger when:

- Goods are closer substitutes.
- lower cost of switching
- lower inconvenience while switching

2) Arrival of new consumers:- Price ↓, more consumers can afford it, Demand ↑ raises the no. of consumers.

3) No. of uses:- Price ↓, commodity have multiple uses, Demand ↑

4) Utility maximising behaviour of consumers:-

Consumer is in Eq. when $MU = Price$

According to the law of DMO, he will be willing to pay less for each additional unit, so induced to buy more only when Prices ↓.

Exceptions to Law of Demand

1) Conspicuous goods:- Status symbol goods / Veblen goods / Snob goods become more attractive only if Price ↑ [Veblen - doctrine of Consh. consumption]

2) Giffen goods:- (Sir Robert Giffen) exhibit direct Price-demand relationship

- Inferior goods of low quality
- No close substitutes
- Consumes majority income
- Upward sloping DC.

3) Conspicuous necessities:- Demonstration effect

goods → due to constant usage → becomes necessities of life.

Eg:- rising price of T.V., A.C, Fridge still demand not falling.

4) Future expectations about prices:- expecting that the prices in the future will be still higher, so buy larger quantities at price rise.

5) Incomplete information & Irrational behaviour:- Impulsive purchases without any rational calculations about price.

6) Demand for necessities:- irrespective of price changes, have to consume $\rightarrow$ necessary commodities

7) Speculative goods:- speculative / share / stock market, more will be demanded when price $\uparrow$, less Demand when Price $\downarrow$

other factors:- Income, price of related goods, tastes & fashion, etc.

$\Rightarrow$ Due to change in Price { other factors remaining constant }

$\rightarrow$ Enhansion of Demand:- $P \downarrow$ Quantity demanded $\uparrow$
Downward movement

$\rightarrow$ Contraction of Demand:- $P \uparrow$ Quantity demanded $\downarrow$
Upward movement.

$\Rightarrow$ Due to change in other factors { Price constant }

$\rightarrow$ Rightward shift:- Increase in Demand

$\rightarrow$ Leftward shift:- Decrease in Demand

Elasticity of Demand [Price elasticity of demand]

→ responsiveness of the quantity demanded to change in one of the variable.

1) Price Elasticity of Demand [always negative (-) due to $P \propto Q$]

$$\Rightarrow \frac{\% \text{ change in } QD}{\% \text{ change in Price}} \Rightarrow \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

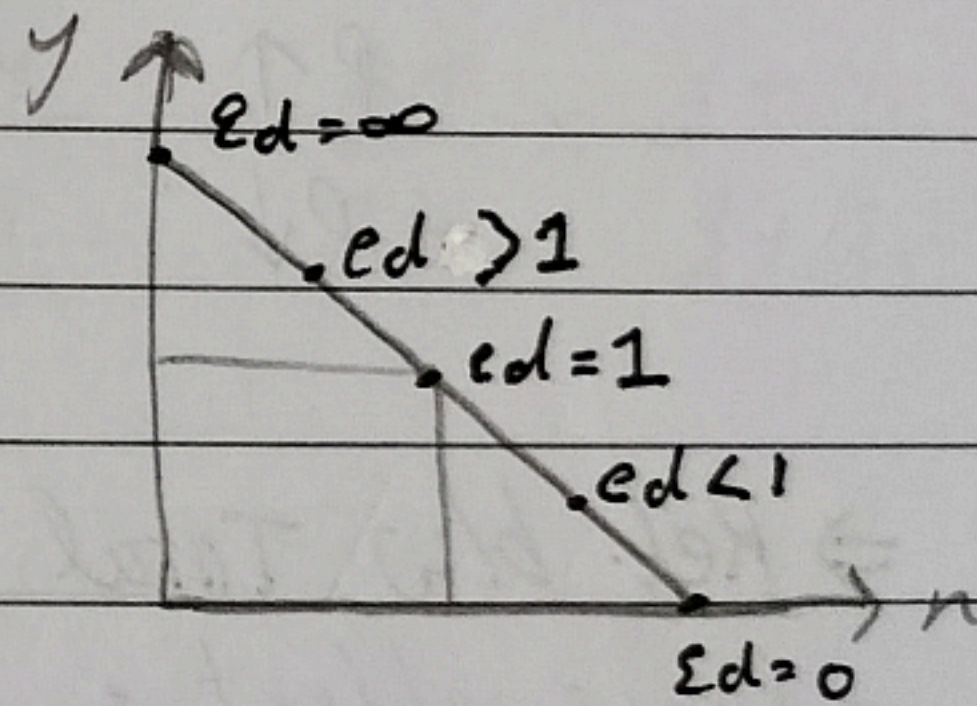
• Point elasticity of demand

→ measures price elasticity at a particular point. (where change in price is minimum.)

$$\Rightarrow - \frac{dq}{dp} \times \frac{P}{Q}$$

• Geometric method [on linear demand curve] → slope constant

2) length of lower segment
length of upper segment



on Y axis $\Rightarrow Ed = \infty$

Mid pt $\Rightarrow Ed = 1$

on X axis $\Rightarrow Ed = 0$

• Arc Elasticity

→ Price elasticity over some portion of the DC rather than single pt.

$$\Rightarrow \frac{\Delta Q}{\Delta P} \times \frac{P + P_1}{Q + Q_1}$$

- $\epsilon_d = 0$ Vertical DC, Perfectly Inelastic, || to y axis
 $0 < \epsilon_d < 1$ Steeper DC, Inelastic
 $\epsilon_d = 1$ Rectangular Hyperbola, Unit Elastic
 $1 < \epsilon_d < \infty$ Flatter DC, Elastic
 $\epsilon_d = \infty$ Horizontal DC, Perfectly elastic, || to X axis

- Total expenditure method [less exact $\rightarrow$ ignores $\epsilon_d = 0$ and ∞]

$P \uparrow$
 $P \downarrow$

expenditure

No change

$\epsilon_d = 1$

$P \uparrow$
 $P \downarrow$

Decrease

$\epsilon_d > 1$

Increase

$P \uparrow$
 $P \downarrow$

Increase

$\epsilon_d < 1$

Decrease

$\Rightarrow$ Rel. b/w Total revenue & Price elasticity

• Price effect :- $P \uparrow$ $TR \uparrow$
 $P \downarrow$ $TR \downarrow$

• Quantity effect :- $P \uparrow$ $TR \downarrow$
 $P \downarrow$ $TR \uparrow$

$\epsilon_d > 1$ $P \uparrow$ $TR \downarrow$ or $P \downarrow$ $TR \uparrow \Rightarrow \Delta E > \Delta PE$

$\epsilon_d = 1$ $TR \rightarrow$ No change $\Rightarrow \Delta E = \Delta PE$

$\epsilon_d < 1$ $P \uparrow$ $TR \uparrow$ or $P \downarrow$ $TR \downarrow \Rightarrow \Delta E < \Delta PE$

Determinants of Price Elasticity of Demand

- Availability of substitutes: substitutes available $\rightarrow$ elastic
- Position of commodity in consumer budget: Majority income consume $\rightarrow$ elastic
- Luxury $\rightarrow$ elastic Necessities $\rightarrow$ Inelastic
 - $\hookrightarrow$ consumption can be postponed $\hookrightarrow$ cannot be postponed
- No. of uses of commodity $\uparrow$ Ed $\uparrow$
- Longer time period: Ed $\uparrow$
- Tied demand: Inelastic Independent demand: Elastic
- Consumer is habitual: Inelastic
- Minor complementary items: Inelastic

2) Income elasticity of Demand :- larger in long run > short run

$\Rightarrow \frac{\% \text{ change in } QD}{\% \text{ change in Income}} \Rightarrow \frac{\Delta Q}{Q} \times \frac{Y}{Y} \Rightarrow \frac{\Delta Q}{Q} \times \frac{Y + Y_1}{Q + Q_1}$

Ed = 1 Income $\uparrow$ Proportion of income spent remains same

Ed > 1 Income $\uparrow$ Proportion of income spent on good $\uparrow$

Ed < 1 Income $\uparrow$ " " " " $\downarrow$

Income Elasticity

Negative

Positive

~~Between~~ $1 < Ed < \infty$

Less than one

Type of Goods

Inferior goods

Normal goods

~~Between~~ Luxury

Necessities (Income inelastic)

3) Cross-Price elasticity of demand

$$\Rightarrow \frac{\% \text{ change in } Q_D \text{ for } X}{\% \text{ change in price of } Y} \Rightarrow \frac{\Delta Q_X}{\Delta P_Y} \times \frac{P_Y}{Q_X}$$

Substitute Goods

DC slope upwards

Direct relationship

cross elasticity is +ve

Perfect substitutes ∞

Close substitutes +ve & large

Not close substitutes +ve & small

Complementary goods

DC slope downwards

Inverse relationship

It is -ve

Strong complements -ve & high

Weak complements slightly below 0.

Cross elasticity = 0 goods totally unrelated

-ve Income effect of price change is very strong.

4) Advertisement Elasticity (Promotional Elasticity)

$\therefore$ responsiveness of a good demand to change in firm's spending on advertising.

$$\Rightarrow \frac{\text{Proportional change in demand}}{\text{Proportional change in Adv. exp.}} \Rightarrow \frac{\Delta Q_X}{\Delta A} \times \frac{A}{Q}$$

Adv. Elasticity (typically positive) $[0 \leq E_a < \infty]$

$$E_a = 0$$

Demand does not respond

$$0 < E_a < 1$$

change in demand < change in adv. exp.

$$E_a = 1$$

change in demand = change in adv. exp.

$$1 < E_a \leq \infty$$

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Demand Forecasting [From book]