Thursday, 11 April 2024 11:09 AM

chapter: Theory of Demand

Effective Demand
- Desire
- Ability to pay
- willingness to pay.

Express
- Quantity
- Time
- Price

Factors Affecting Demand

i. Price of commodity (ceteris Paribus: Other things Being constant)

$P\uparrow$ $D\downarrow$
$P\downarrow$ $D\uparrow$
} Inverse Relationship

ii Price of Related commodity.

Substitutes/ competening | Complimentary Goods

HD Tea $_O$ | AB Coffee $_R$

P	Q	P	Q
10	100	10	100
10	150	20	50
10	50	5	150

$P_R\uparrow$ $D_O\uparrow$
$P_R\downarrow$ $D_O\downarrow$

Direct Relationship

Pen $_R$ | Ink $_O$

P	Q	P	Q
10	100	10	100
20	50	10	50
5	150	10	150

$P_R\uparrow$ $D_O\downarrow$
$P_R\downarrow$ $D_O\uparrow$

Inverse/Indirect Relationship

iii Disposable Income of consumer (Micro level)

↓

Total Income − Income Tax

Income ↑ Demand ↑
Income ↓ Demand ↓

Exceptions: i. Neccessity. ii. Interior Goods

iv. Taste & Preferences

a) Bandwagon Effect
b) Demonstration Effect
c) Snob Effect (consumption)
d) Veblen Effect

v. Consumers Expectations

a) Future Prices $F_P\uparrow$ $C_D\uparrow$
$F_P\downarrow$ $C_D\downarrow$

b) Income $F_{inc}\uparrow$ $C_D\uparrow$
$F_{inc}\downarrow$ $C_D\downarrow$

c) Supply conditions $F_S\uparrow$ $C_D\downarrow$
$F_S\downarrow$ $C_D\uparrow$

vi. Size of population size ↑ Demand ↑
size ↓ Demand ↓

vii composition of population

Age
Children
Adults
Old

Sex
Male
Female

viii level of National Income (macro)

ix. credit Facility & Interest Rate

✓ Demand ↑ | ✗ Demand ↓ | High Demand ↓ | Low Demand ↑

x. Government policies

Taxes
Subsidies
Import - Export

xi. weather conditions/ climatic conditions
summers: Ice-cream/ caps/ sunscreen
winters : sweaters/ cold cream / Heater
Rainy : Umbrella/ Raincoats/ Gum Boots

xii level of education

xiii marital status

xiv. Business conditions eg: Rapido / private taxis
@ Airport/ Railways

xv. Advertisement / salesmanship

xvi. financial status/ socio-economic class/ Group membership

xvii social customs & conventions

→ Demand function $Q_D = f(P, P_R, Y \dots)$

Law of Demand.: Other things Being constant
Alfred Marshall
(ceteris paribus)

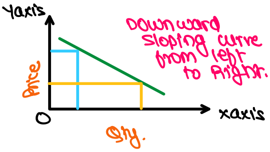
Based on Assumption

Price ↑ Demand ↓
Price ↓ Demand ↑

→ Individual Demand schedule

P	Q
50	1
25	2
10	4
5	5

→ Individual Demand curve.

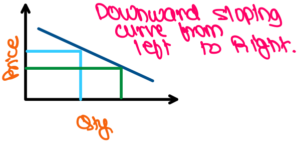


Downward sloping curve from left to Right.

→ Market Demand schedule

P					Total
50	1	0	2	1	4
25	2	1	4	2	9
10	4	2	6	3	15
5	5	3	8	4	20

→ Market Demand curve



Downward sloping curve from left to Right.

Rationale of Law of demand

a) Price Effect

i. Substitution Effect : Hicks & Allen

Tea$_O$	
P	Q
10	100
20	50
5	150

Coffee$_R$	
P	Q
10	100
10	150
10	50

ii Income Effect (only in case of Normal Goods)

① Income = ₹1000
Bottle = ₹1000

∴ cash in Hand = 0 & 1 Bottle of water

② Income = ₹1000
Bottle = ₹500

∴ cash in Hand = ₹500 & 1 Bottle of water

→ consumer can Buy 1 more Bottle of water.

b) Utility maximising Behaviour
(Refer: Theory of consumer Behaviour unit)

c) Arrival of New customers: Fall in price increases Demand from those customers who could Not afford it earlier

d) Different uses / Multiple uses
eg: Milk

i. Curd	vi. Lassi
ii. Drink	vii. Tea / Coffee
iii. Ghee / Butter	viii. Sweets
iv. Cheese	ix. Ice-cream
v. Paneer	x. Fresh cream

₹70/Ltr 2Ltr
↓
₹35/Ltr 4Ltr ↑ Multiple uses ✓

eg: Electricity.

1:☞ Exceptions to Law of Demand.

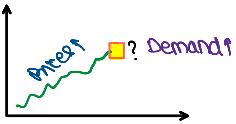
a) Conspicious Goods : Demanded By Rich people

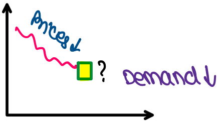
eg:
Neeraji : Rolls Royce
Ankiraji : LV.
Anandji : iphone
Swapnilji : BMW.

b) Conspicious Necessities: Due to their constant consumption / usage, even if prices go up their demand does not fall.
eg:
mobile
fridge
TV

c) Necessities of Life : Essential for living.
eg:
Food
Clothes
Shelter
medicine
Education

d)/e) Speculative Goods / Consumers expectations about price (other goods)
↓ eg: Share, Gold / Silver
↓ eg: Laptop





f) Incomplete Information : Having no / Half knowledge about market prices will lead to Demand at Higher price

g) Irrational Behaviour :

h) Giffen Goods : Sir Robert Giffen (Scotland)

Income = ₹100
Bread = ₹10 / slice
Slices = 6 slice = ₹60
Meat = ₹40

Bread price ↓
Same Qty of Bread can be purchased in less Amt

∴ workers preferred to have same Qty of Bread & Enjoy meat with Balance money.

∴ P_B↓ Q_B↓ or same
But Q_m↑

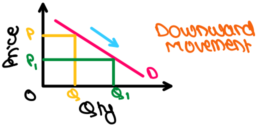
Bread price ↑
Now with more money they are able to purchase 6 slices of Breads
However, Balance money now left is insufficient to purchase meat.

∴ They will purchase more Bread as even though its prices are Rising it is still cheaper than meat.

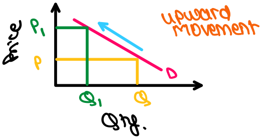
P_B↑ Q_B↑ & Q_m↓

Expansion & contraction of Demand

Expansion: when demand Rises due to fall in Price

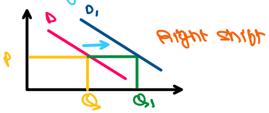


contraction: when demand falls due to Rise in price

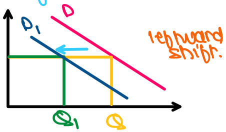


Increase & Decrease of Demand.

Increase: when demand Rises due to factors other than price eg: Taste, income ↑



Decrease: when demand falls due to factors other than price eg: Health conscious



Elasticity:

Responsiveness / sensitivity to change in Demand due to factors affecting Demand

a) Price Elasticity:

logic: Price k wajeh se Demand affect Hoti Hai.

Price is the Basis Affecting Demand.

Formula: $\frac{D}{P} \longrightarrow \frac{\Delta D}{\Delta P} \longrightarrow \boxed{\frac{\%\Delta D}{\%\Delta P}}$

$$\boxed{\frac{\frac{\text{New D} - \text{Old D}}{\text{Old D}} \times 100}{\frac{\text{New P} - \text{Old P}}{\text{Old P}} \times 100}}$$

Illustration:

①

P	Q
10	20
5	40

Soln

$$= \frac{\frac{40-20}{20} \times 100}{\frac{5-10}{10} \times 100}$$

$$= \frac{\frac{20}{20}}{\frac{-5}{10}} = \frac{1}{-0.5}$$

$$= -2$$

∴ Pe = 2

②

P	Q
40	20
45	15

Soln

$$= \frac{\frac{15-20}{20} \times 100}{\frac{45-40}{40} \times 100}$$

$$= \frac{\frac{-5}{20}}{\frac{5}{40}} = \frac{-0.25}{0.125}$$

$$= -2$$

∴ Pe = 2

③

P	Q
10	100
8	105

Soln

$$= \frac{\frac{105-100}{100} \times 100}{\frac{8-10}{10} \times 100}$$

$$= \frac{\frac{5}{100}}{\frac{-2}{10}} = \frac{0.05}{-0.20}$$

$$= -0.25$$

∴ Pe = 0.25

Points to be Noted

a) co-efficient of Pe is always -ve

b) ∴ for the sake of convenience we ignore -ve sign

c) Until & unless otherwise mentioned we will calculate only price Elasticity.

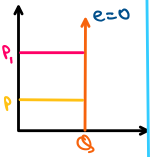
Interpretation

$e=0$

Perfectly inelastic.

$\% \Delta D = 0$

$\% \Delta P = ✓$

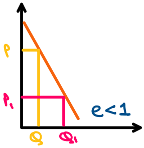


Parallel to Y axis

$e<1$

Relatively inelastic

$\% \Delta D < \% \Delta P$

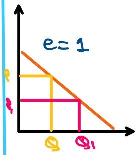


Closer to Y axis
Steeper

$e=1$

Unitary Elastic

$\% \Delta D = \% \Delta P$

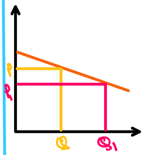


Straight line betn x & Y axis
Also called Rectangular - Hyperbola

$e>1$

Relatively Elastic

$\% \Delta D > \% \Delta P$



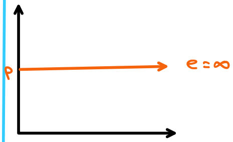
Away from Y axis
Flatter.

$e=\infty$

Perfectly Elastic

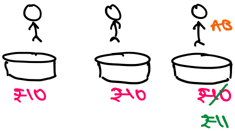
$\% \Delta D = \infty$

$\% \Delta P =$ slight



Parallel to x axis

SPPC



☞ Point Elasticity : when the change in price is too small

eg: car = ₹500,000
New price = ₹500,100 } $\Delta P = 100$

Formula:

$$\boxed{\dfrac{\dfrac{New\,D - Old\,D}{Old\,D} \times 100}{\dfrac{New\,P - Old\,P}{Old\,P} \times 100}}$$

☞ Mid- point Elasticity / Arc Elasticity : when change in price is too large

Illustration:

sitn 1

P	Q
10	100
30	50

soln

$$= \dfrac{\dfrac{50-100}{100} \times 100}{\dfrac{30-10}{10} \times 100}$$

$$= \dfrac{\dfrac{-50}{100}}{\dfrac{20}{10}}$$

$$= \dfrac{-0.5}{2}$$

$$= -0.25$$

$\therefore \boxed{Pe = 0.25}$

Relatively inelastic

sitn 2

P	Q
30	50
10	100

soln

$$= \dfrac{\dfrac{100-50}{50} \times 100}{\dfrac{10-30}{30} \times 100}$$

$$= \dfrac{\dfrac{50}{50}}{\dfrac{-20}{30}}$$

$$= \dfrac{1}{-0.6667}$$

$$= -1.5$$

$\therefore \boxed{Pe = 1.5}$

Relatively elastic.

Formula:

$$\boxed{\dfrac{\dfrac{New\,D - Old\,D}{\frac{New\,D + Old\,D}{2}} \times 100}{\dfrac{New\,P - Old\,P}{\frac{New\,P + Old\,P}{2}} \times 100}}$$

Illustration

P	Q
10	100
30	50

Soln

$$= \frac{\dfrac{50-100}{\frac{50+100}{2}} \times 100}{\dfrac{30-10}{\frac{30+10}{2}} \times 100}$$

$$= \frac{\frac{-50}{75}}{\frac{20}{20}}$$

$$= -0.667$$

$$\therefore \boxed{Pe = 0.667}$$

P	Q
30	50
10	100

Soln

$$= \frac{\dfrac{100-50}{\frac{100+50}{2}} \times 100}{\dfrac{10-30}{\frac{10+30}{2}} \times 100}$$

$$= \frac{\frac{50}{75}}{\frac{-20}{20}}$$

$$= -0.667$$

$$\therefore \boxed{Pe = 0.667}$$

☞ Total Outlay Method / Total Expenditure Method

Illustration1:

Situation	Price	Qty	Total outlay	Elasticity
A	5 4	20 30	100 120	e > 1 Relatively Elastic
B	5 4	20 25	100 100	e = 1 Unitary Elastic
C	5 4	20 22	100 88	e < 1 Relatively Inelastic

Illustration2:

Situation	Price	Qty	Total outlay	Elasticity
A	1 2	6 5	6 10	e < 1 Relatively inelastic
B	3 4	4 3	12 12	e = 1 unitary elastic
C	5 6	2 1	10 6	e > 1 Relatively Elastic.

Summary

i. Based on Analysis of Expenditure pattern
ii This Method has No formula
iii P↑ E↓ R↓ / P↓ E↑ R↑ } e > 1
iv. P↑ E↑ R↑ / P↓ E↓ R↓ } e < 1
v. P↑ / P↓ – Exp is same – Rev same } e = 1

→ Determinants of Price Elasticity of Demand

a) Substitutes
✓ e > 1 ✗ e < 1

i. Close substitutes → e > 1
ii. Perfect substitutes → e = ∞
iii. Totally unrelated → e = 0
iv. Product (car)

Based on Brands
Tata – Maruti – Mahindra
↓
e > 1

Single group
↓
e < 1

b) Position of commodity in consumers Budget

- less: e<1
- More: e>1

c) Nature of Need that commodity satisfies

- Neccessity: e<1
- comfort
- luxury
- comfort, luxury: e>1

d) Number of uses

- Single use: e<1
- Multiple use: e>1

e) Time Period

- Short Run: e<1
- Long Run: e>1

f) Consumer Habits
Habitual e<1

g) Tied Demand : complimentary goods e<1

h) Price Range

- Cheap: e<1
- Medium: e>1
- Expensive: e<1

i) Minor complimentory e<1

Cross Elasticity.

logic: Price of Related Goods k wajeh se Demand of Original commodity change Hoti Hai

→ Price of Related Goods is the Basis affecting demand of original goods

formula: $\frac{D_o}{P_R} \rightarrow \frac{\Delta D_o}{\Delta P_R} \rightarrow \boxed{\frac{\%\Delta D_o}{\%\Delta P_R}}$

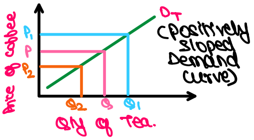
$$\boxed{\frac{\frac{NewD_o - OldD_o}{OldD_o} \times 100}{\frac{NewP_R - OldP_R}{OldP_R} \times 100}}$$

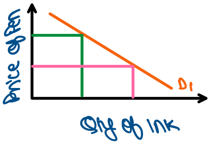
Substitutes

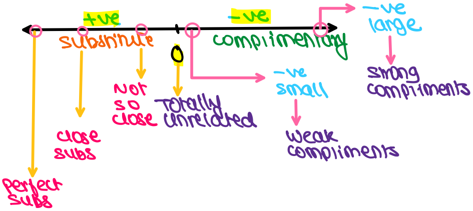
$$\frac{\frac{NewD_o - OldD_o}{OldD_o} \times 100}{\frac{NewP_s - OldP_s}{OldP_s} \times 100}$$

complimentary.

$$\frac{\frac{NewD_o - OldD_o}{OldD_o} \times 100}{\frac{NewP_c - OldP_c}{OldP_c} \times 100}$$







☞ Income Elasticity.

logic : Income k wajeh se demand affect Hoti Hai

Income is the **Baais** affecting **demand.**

Formula : $\frac{D}{I} \rightarrow \frac{\Delta D}{\Delta I} \rightarrow \boxed{\frac{\% \Delta D}{\% \Delta Inc}}$

$$\boxed{\frac{\frac{New D - Old D}{Old D} \times 100}{\frac{New I - Old I}{Old I} \times 100}}$$

☞ Advertise Expenditure Elasticity

logic: AE k wajeh se demand affect Hoti Hai.

AE is the Baais affecting demand.

Formula:

$$\boxed{\frac{\frac{New D - Old D}{Old D} \times 100}{\frac{New AE - Old AE}{Old AE} \times 100}}$$