

19/09/2023

## ECONOMICS & FINANCE FOR ENGINEERS:

→ Demand is the quantity bought by individuals at a given point of time at a given price.

- ↳ Individual demand
- ↳ Market demand.

### \* Evolution of Economics:

→ Wealth, Welfare, Scarcity, Modern Growth.

### \* Micro Economics: Studying anything narrowly.

Eg: Population in Telangana, Male population in world etc.

### \* Macro Economics: Studying anything broadly

Eg: Population of world etc.

### \* Scarcity: Availability is less than the requirement

### \* Managerial Economics: Practical application

Economic Theories to solve the problems of business organisations.

→ Falls in micro economics.

## Scope of Managerial Economics:

- Demand analysis & forecasting
- Profit maximization
- Cost & production analysis
- Pricing policies & practices.
- Long term investment decisions.

23/09/2023

## \* Demand determinants:

- 1) Price of the product.
- 2) Price of the substitute products.
- 3) Distribution of income & wealth.
- 4) General tastes & preferences.
- 5) Advertisement effect.
- 6) Expectations about future prices.
- 7) population growth.
- 8) No. of buyers.
- 9) Climatic conditions.
- 10) Customs & tradition.
- 11) Invention & innovation.
- 12) Spending habits.
- 13) Tax structure.
- 14) Age and Gender.

## (15) Fashion / Trend

\* Law of Demand says that as price increases ; quantity decreases and vice versa when all other factors except price remains constant.

### \* Law of Demand Schedule:

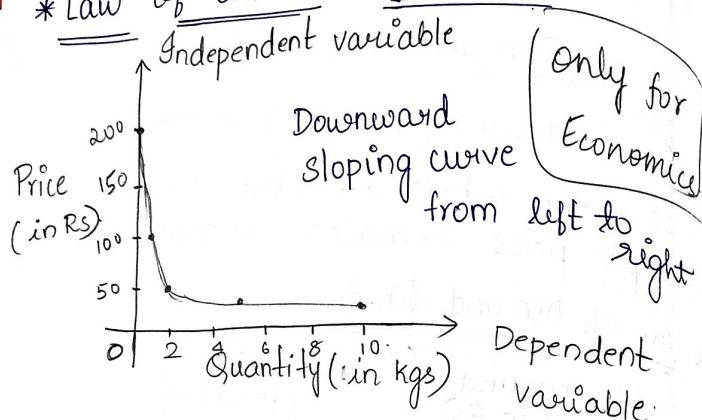
S.No	Price per unit (in Rs)	Quantity (in units)
1	₹ 20	5
2	₹ 10	10
3	₹ 40	2
4	₹ 100	0
5	₹ 50	1

Vegetables

S.No	Price Per unit (Rs)	Quantity (in units)(in kg)
1	₹ 10	10 kg
2	₹ 20	5 kg
3	₹ 50	2 kg
4	₹ 100	1 kg
5	₹ 200	0 kg

→ We shouldn't mention units in the table rows.

### \* Law of demand diagrams



### \* Assumptions of Law of Demand:

- 1) Quantity and price are inversely related.
- 2) Price → independent variable and  
Quantity → dependent variable.
- 3) Price is changing / varying variable  
but all other 14 demand determinants  
are constant.

### \* Exceptions to law of demand : 26/09/2023

- Price ↑ses; Quantity ↑ses or remains same.
- Price ↓ses; Quantity ↓ses or remains same.
  - Basic needs follow this rule.
  - Branded clothes (or) items.
  - Speculative commodities.

① Basic Needs

② Habituation goods.

③ Speculative goods - Ex: Gold, Share, Land.

④ Impulse buying (Buying in exhibition)

⑤ Wrong perception of the people.

⑥ Veblen Goods.

⑦ Giffen Case.

⑧ Fear of Scarcity.

→ P↑, Q↓ses : gives only direction.

→ We also shd know the degree to get an efficient decision.

\* Price elasticity of demand is responsiveness of the demand for a given change in the price. ~~Perfectly elastic demand~~

→ Proportionate change in quantity demanded  
Proportionate change in price of the product

### \* Types of elasticity

$$\text{Point Elasticity} = e_p = \frac{Q_2 - Q_1}{Q_1} \cdot \frac{P_2 - P_1}{P_1}$$

$$\text{Arc Elasticity} = e_p = \frac{(Q_2 - Q_1)}{(P_2 - P_1)} \cdot \frac{P_1 + P_2}{Q_1 + Q_2}$$

1) Perfectly elastic demand:  $e_p = \infty$

2) Perfectly inelastic demand:  $e_p = 0$

30/09/2023

→ Unitary Elasticity:

$$e_p = 1/-1$$

⇒ Full formula:

Proportionate change in  
quantity demanded

Proportionate change in  
price of the product

Point Elasticity:

$$e_p = \frac{Q_2 - Q_1}{Q_1} \cdot \frac{P_2 - P_1}{P_1}$$

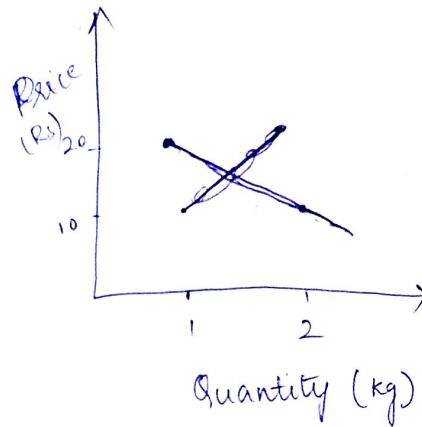
$$e_p = \frac{\left( \frac{Q_2 - Q_1}{Q_1} \right)}{\left( \frac{P_2 - P_1}{P_1} \right)}$$

$$\frac{Q_2 - Q_1}{Q_1} = \frac{P_2 - P_1}{P_1}$$

$$\frac{20 - 10}{20 + 10} = \frac{1}{3} > 1$$

Schedule

Price (in ₹)	Quantity (in kg)
20	1
10	2



→ Relatively Elastic/more elastic demand  
 $e_p > 1$

\* Proportionate change in quantity demanded

Proportionate change in price of the product

\* Point Elasticity:

$$ep = \frac{\frac{Q_2 - Q_1}{Q_1}}{\frac{P_2 - P_1}{P_1}}$$

\* Arc Elasticity:

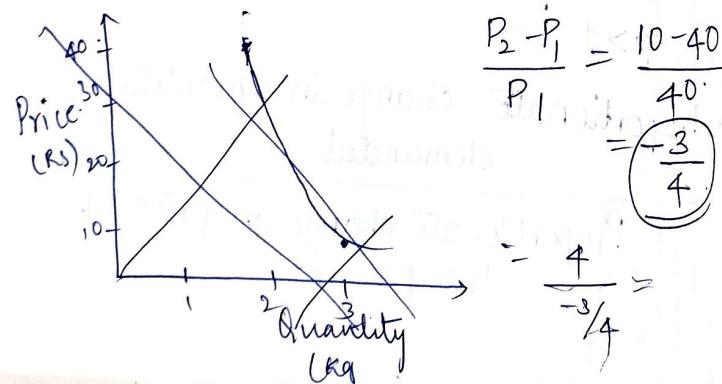
$$ep = \frac{\frac{Q_2 - Q_1}{Q_2 + Q_1}}{\frac{P_2 - P_1}{P_2 + P_1}}$$

Schedule:

Price(Rs)	Quantity(kg)
40	20
10	80

$$\frac{Q_2 - Q_1}{Q_1} > \frac{P_2 - P_1}{P_1}$$

$$\frac{30 - 10}{10} = 3 > 1 \quad \text{less elastic demand}$$



$$\frac{Q_2 - Q_1}{Q_2 + Q_1} = \frac{-80}{120} = -\frac{2}{3} \Rightarrow \frac{10}{9}$$

$$\frac{P_2 - P_1}{P_2 + P_1} = \frac{-30}{50} = -\frac{3}{5}$$

→ Relatively inelastic / less elastic demand

$$ep < 1$$

\* Proportionate change in quantity demanded

Proportionate change in price of quantity

\* Point elasticity: { Arc Elasticity:

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

$$ep = \frac{\left(\frac{Q_2 - Q_1}{Q_2 + Q_1}\right)}{\left(\frac{P_2 - P_1}{P_2 + P_1}\right)}$$

Price (Rs)	Quantity(kg)
10	80
40	20

$$ep = \frac{-60/100}{\frac{30}{10}} = -\frac{3}{5} = -\frac{3}{15}$$

17/10/2023 Statement of Cost

→ Cost Sheet of a Manufacturing company for the period ending 31-10-1977

Particulars	Amount (RS)	Amount (RS)
Opening stock of Raw Material = 30,000		
Add: Purchase of Raw material = 1,20,000.	1,50,000	
Less:		
Closing stock of Raw Material 35,000	1,15,000	
Raw material consumed.	90,000	
Productive wages		205,000
Prime cost.		
<u>Add:</u>		
<u>Factory Expenses:</u>		
Indirect Wages 9720		
Factory Rent & Rates 7830		
Plant repair 3420		
Depreciation on Plant 8360		
Factory Lighting 7380		
Factory overhead	36710	
	241710	

<u>Add:</u> Opening stock of work in progress	15000
	256710
<u>Less:</u> Closing stock of work in progress	20000
	236710
Factory Cost	
<u>Add:</u> Office Expenses:	
Office Salaries 15030	
General Expenses 13500	
Office Rent 2000	
	30530
Cost of Production	
<u>Add:</u> Opening stock of finished goods	267240
	43700
<u>Less:</u> Closing stock of finished goods	310940
cost of goods sold.	54000
	256940
<u>Add:</u> Selling & distribution expenses	
Rent of Show room 1200	
Salesmen's Salaries 7650	
Cost of Sales 8850	
	265790

Add: Selling | Distribution

Expenses

Rent of warehouse	300
Depreciation on delivery van	200
Bad debts	100
Advertising	300
Sales Dept. Salaries	1500
Upkeep of delivery vans.	700
Commission on sales	1500
	<u>4600</u>
	<u>117300</u>

\* Cost Sheet of Ajanta Company.

for the period ending on 31-12-1976

Particulars	Amount (Rs)	Amount (Rs)
Opening Stock of Raw materials	48000	
Add: Raw Materials Purchased	185000	
Less:		
Closing Stock of Raw materials	62,800	
Add: carriage Inwards	7150	
Add: Productive Wages	1,26,000	
Prime Cost		3,03,3
Add: <u>Factory   Work Expenses</u>		
Repairs of plant, machinery & tools	4450	
Rent, Rates, Taxes & Insurance	8500	
Gas & Water	1200	

→ Productive Wages } → Prime Cost  
 Carriage Inwards }  
 Carriage Outwards → Selling distribution.

Manager's Factory Salary	7500		Gas & water	400.
Depreciation of Plant & Machinery	6500.		Traveller's Salaries & Commission	7700
Factory Cost.		£8150 331500	Manager's Office Salary	2500.
<u>Add: Office Expenses:</u>			General Expenses.	3400.
Drawing office Salaries	6500		Cost of goods sold.	43500
Counting house salaries	12,600.			<u>375000</u>
<del>Bad debts written off</del>	<del>500</del>		<u>Add: Selling / Distribution</u>	
Rent, Rates, Taxes & Insurance.	2000.		Bad debts	6500.
Travelling Expenses	2100.		Carriage outwards	4300.
Depreciation written off on office furniture	300		Cost of Sales	10800
Director's fee	6000.		Sales	4,61,100