BCA

Elasticity of Demand and Supply for Tourism product

- Law of Demand says **inverse relationship** between **price** of a commodity and it's **quantity demanded**, other things being equal.
- Similarly, Law of supply says **positive relationship** between **price** of a commodity and it's **quantity supplied**, other things being equal.
- In both concept, **it says direction change** in demand and supply, **but does not say degree of relationship**.
- But in the study of Elasticity, It explains how much or to what extent quantity demanded/supplied for a commodity change as a result of change in a determinant of demand or supply (i.e**. Price, related goods price , income of consumer and advertisement expenditure**)
- The Elasticity of Demand and supply explain not only direction of change in price and quantity demanded and supplied but also degree of relationship between them

Concept of Elasticity of Demand

- This concept of Elasticity of demand was first introduced by classical Economists **A. A. Cournot and J. S. Mills later developed by neoclassical economists Alfred Marshall** scientifically in his book "**Principle of Economics".**
- **Meaning of Elasticities of Demand:**
- A measure of responsiveness of quantity demand due to change in its determinants.
- Elasticity of demand is the ratio of the percentage change in the demand to the percentage change to one of its determinants, other things being equal.

Ed= % change in Demand / % change in any one quantitative determinant of demand

Ed=% Δdemand/% Δ any one determinant

Ed= % change in Demand/ % change in Price

Meaning of Elasticity of Demand:

- “The elasticity of demand in a market is great or small according as the amount demanded increases much or little for a given fall in price and diminishes much or little for a given rise in price” Prof. Alfred Marshall
- “Elasticity of demand may be defined as the ratio of percentage change in demand to the percentage change in price” -Prof. R.G. Lipsey.
- Thus the elasticity of demand refers to the responsiveness of change in demand to the change in factors determining demand or determinants of demand.

Meaning of Elasticities of Demand

- The elasticity of demand refers to **the degree to which demand responds to a change in an economic factor/ determinants**.
- Price is the most common economic factor used when determining elasticity.
- Other factors include income level and substitute availability.
- Elasticity measures how demand shifts when economic factors change.

Types of Elasticity of Demand:

1. Price elasticity of Demand
2. Income Elasticity of Demand
3. Cross Elasticity of Demand
4. Advertisement elasticity of Demand
5. Price Elasticity of Demand: Other things being equal , price elasticity of demand shows a degree of responsiveness in demand of a commodity due to change in price of same commodity.

Ep= % change in demand Quantity/ % change in Price

Ep= % Δ in demand Quantity/% Δin price

Price elasticity of Demand

- “Price elasticity is the proportionate change in the demand divided by the proportionate change in Price”:Ferguson.
- It is the ratio of the percentage change in the demand of a commodity with the percentage change in the price of the same commodity, other things being equal.

Methods of Measuring Price Elasticity of Demand

1. Percentage Method: *Percentage method is also called proportionate method. This method measures price elasticity of demand by dividing the percentage change in the quantity demanded for a commodity by the percentage change in its price.*

2. Total Outlay Method: *Total outlay method is also called total expenditure method. It was developed by the famous classical economist* ***Prof. Dr. Alfred Marshall****. In this method, the direction of change in total expenditure determines the value of price elasticity of demand. In other words, price elasticity of demand is measured by comparing total expenditure made by the consumer before and after the change in price of the commodity.*

3. Point Method: *Point method is also called geometrical method of measuring price elasticity of demand. This method is useful to measure elasticity of demand when there is very small change in price and quantity demanded. It measures elasticity of demand at a particular point on a*

Price elasticity of Demand

$$PE_d = \frac{\%\ Change\ in\ Qty}{\%\ Change\ in\ Price}$$

Price elasticity measurement

- In terms of Percentage
- Ep=-%change in demand / % change in Price
- Or , Ep=-%change in demand / % change in Price.

$$PE_d = \frac{\%\ Change\ in\ Qty}{\%\ Change\ in\ Price}$$

- Ep= (New demand- initial demand)/Initial Demand*100/ (New price- initial price)/Initial Price*100

Elasticity measurement

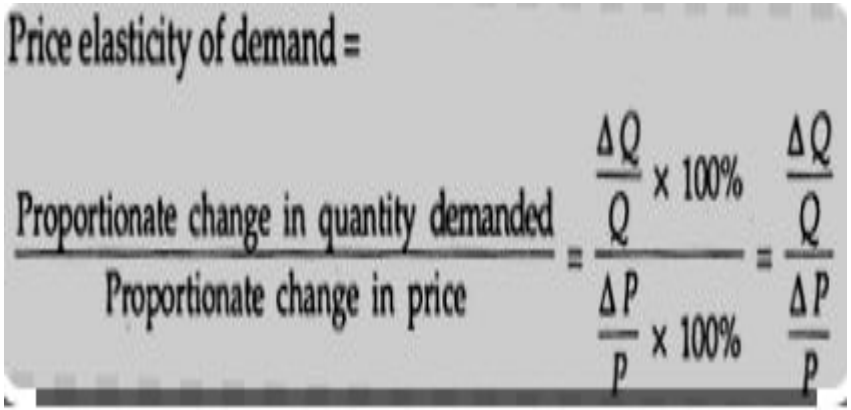
$$\text{Price Elasticity Of Demand} = \frac{\text{Percentage Change In Quantity Demanded}}{\text{Percentage Change In Price}}$$

$$\text{PED} = \frac{\%\text{ change in quantity demanded}}{\%\text{ change in price}} = \frac{\frac{Q2 - Q1}{Q1} \times 100}{\frac{P2 - P1}{P1} \times 100}$$

$$e_P = -\frac{\textit{Percentage change in quantity demanded}}{\textit{Percentage change in price}} = -\frac{\%\Delta\ Qd}{\%\Delta\ P} = -\frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Where,

e_P = Price elasticity of demand
Q = Original quantity demanded
ΔQ= Change in quantity demanded (Q_1 -Q)
P = Original price
ΔP = Change in price (P_1 -P)



Elasticity measurement

- In terms of Proportionate
- Ep= -Change in Demand/ initial demand/ Change in price/ Initial price

$$\boxed{Ed = \frac{\text{Proportionate change in Demand}}{\text{Proportionate change in Price}}}$$

$$Ed = \frac{\Delta q}{q} / \frac{\Delta p}{p} = \frac{\Delta q}{q} \div \frac{\Delta p}{p}$$

$$Ed = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Elasticity measurement

- In terms of Arc elasticity: Price elasticity of demand is the average between two points on a demand curve. (It used in two time intervals)
- Ep=-Change In demand/(initial demand + New demand)/2 / change in Price/(initial Price + New price)/2

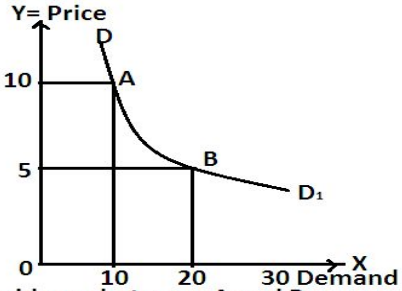
$$E = \frac{\frac{(q2 - q1)}{(q1 + q2)/2}}{\frac{(p2 - p1)}{(p1 + p2)/2}}$$

Price Elasticity of Demand Formula

- Use the midpoint formula
- Ensures consistent results

$$E_d = \frac{\text{Change in quantity}}{\text{Sum of quantities/2}} \div \frac{\text{Change in price}}{\text{Sum of prices/2}}$$

Example of Arc method



At mid way between A and B,

$$Ep = -\frac{(20-10) \times (10+5)}{(5-10) \times (10+20)}$$

or, $$Ep = -\frac{10}{-5} \frac{15}{30} = 1$$

Similarly, at midway between B and A,

$$ep = -\frac{(10-20) \times (5+10)}{(10-5) \times (20+10)} = 1$$

Arc method gives consistent results

Consider the following demand schedule

Points:	A	B	C	D	E
Px:	40	30	20	10	0
Qdx:	0	20	40	60	80

In terms of percentage,
at movement from B to D

$$ep = -\frac{(60-20)/20*100}{(10-30)/30*100} = -\frac{200\%}{(-66.67\%)} = 3 > 1$$

At movement from D to B,

$$ep = -\frac{(20-60)/60X100}{(30-10)/10X100} = -\frac{(-66.67\%)}{200\%} = \frac{1}{3} < 1$$

In terms of Proportion,
At movement from B to D,

$$ep = \frac{-(60-20)/20}{(10-30)/30} = -\frac{2}{(-2/3)} = 3 > 1$$

At movement from D to B,

$$ep = -\frac{(20-60)/60}{(30-10)/10} = -\frac{(-2/3)}{2} = \frac{1}{3} < 1$$

Arc Elasticity,
At movement between B & D

$$ep = -\frac{(60-20)}{(10-30)} \cdot \frac{30+10}{20+60} = \frac{40}{(-20)} \cdot \frac{40}{80} = 1$$

At movement between D & B

$$ep = -\frac{(20-60)}{(30-10)} \frac{10+30}{60+20} = -\frac{-40}{20} \cdot \frac{40}{80} = 1$$

Hence, Arc method gives consistent result than percentage and proportionate method

Type of Price Elasticity of Demand

5 types of Price Elasticity of Demand:

1. Perfectly Inelastic Demand (ep=0)
2. Relatively Inelastic Demand (ep<1)
3. Unitary Elastic Demand(ep=1)
4. Relatively Elastic Demand (ep>1)
5. Perfectly Elastic Demand (ep=œ)

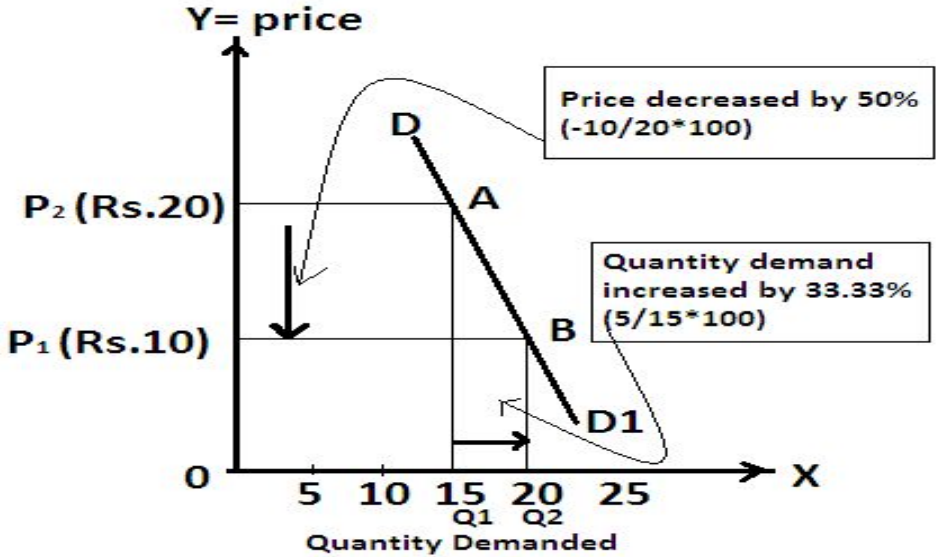
1. Perfectly Inelastic Demand (ep=0):

If there is no response in the demand due to change in in price, it is said to be perfectly inelastic demand. Eg: salt, matchbox etc.

2. Relatively Inelastic Demand(ep<1):

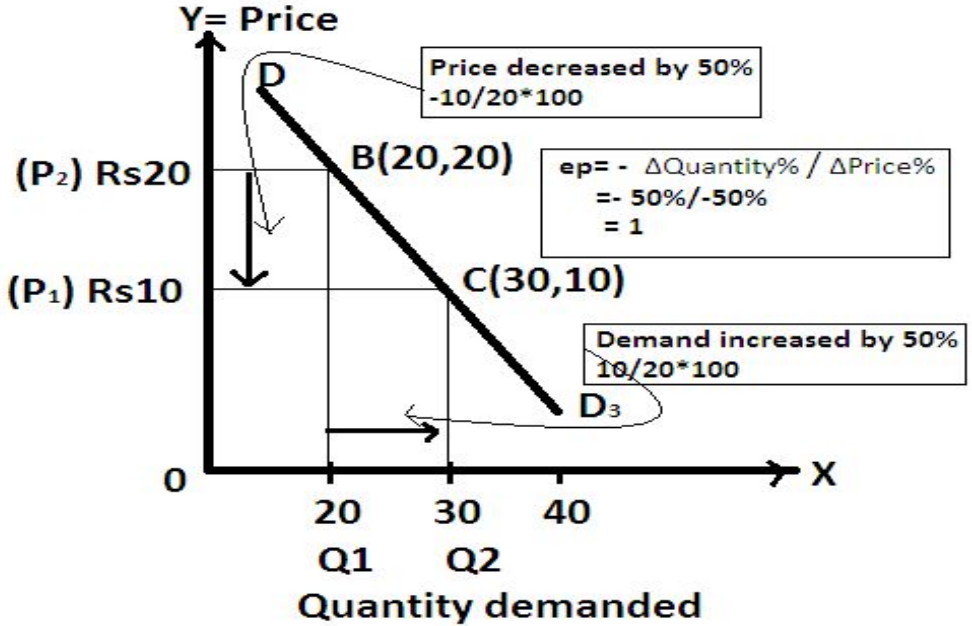
- If the percentage or proportionate change in demand is less than percentage change in price, it is called a relatively inelastic demand. Eg: daily consumption goods or necessities.

- Figure
- Ep=-33.33%/-50%
- ep= 0.67<1



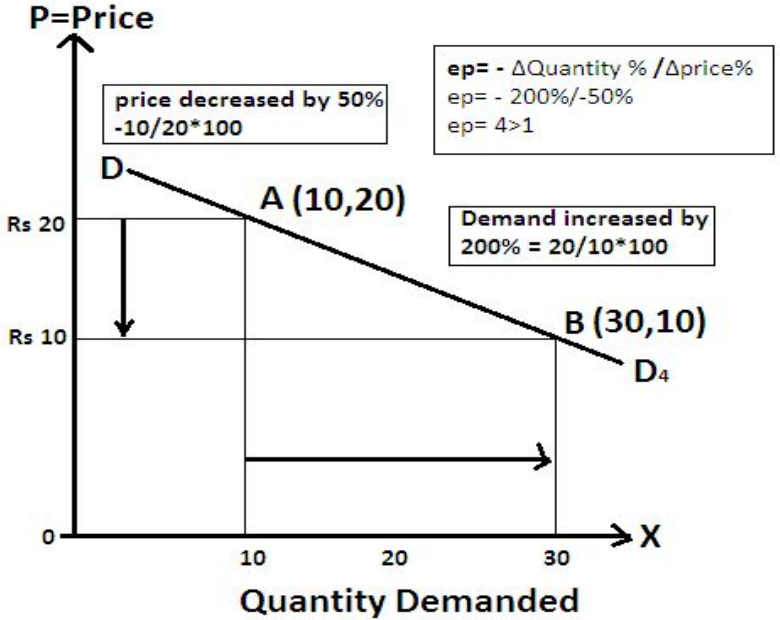
3 Unitary Elastic Demand (ep=1)

- If the percentage change in demand is equal to percentage change in price; it is called unitary Elastic Demand.



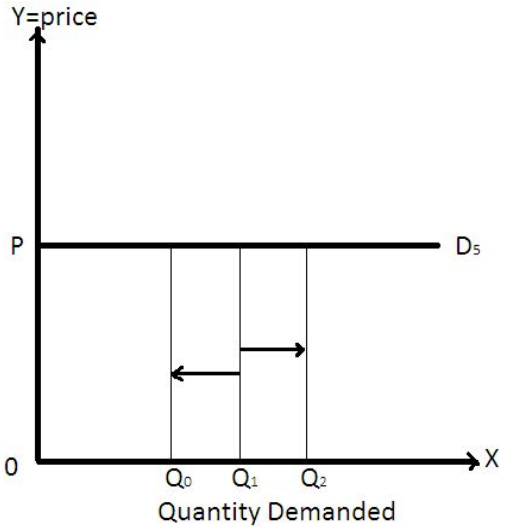
4. Relatively Elastic Demand (ep>1)

- If the percentage or proportionate change in demand is more than percentage change in price, it is called a relatively elastic demand.
  Eg: Luxury goods



5. Perfectly Elastic Demand (ep=œ)

If a small change in price leads to infinity in demand, it is called a perfectly elastic Demand. It is hypothetical concept.



In short, price elastic type:

- Type:

$\frac{\%\text{ change in quantity}}{\%\text{ change in price}} = \infty$	Perfectly elasti
$\frac{\%\text{ change in quantity}}{\%\text{ change in price}} > 1$	Elastic
$\frac{\%\text{ change in quantity}}{\%\text{ change in price}} = 1$	Unitary
$\frac{\%\text{ change in quantity}}{\%\text{ change in price}} < 1$	Inelastic
$\frac{\%\text{ change in quantity}}{\%\text{ change in price}} = 0$	Perfectly inelastic

Measurement of Price elasticity of Demand by Total Outlay Method

- Total outlay=Total Expenditure= Price X Quantity
- In this method, Price elasticity evaluation is made on the basis of Price and total expenditure relationship.
- 3 type of Price elasticity:

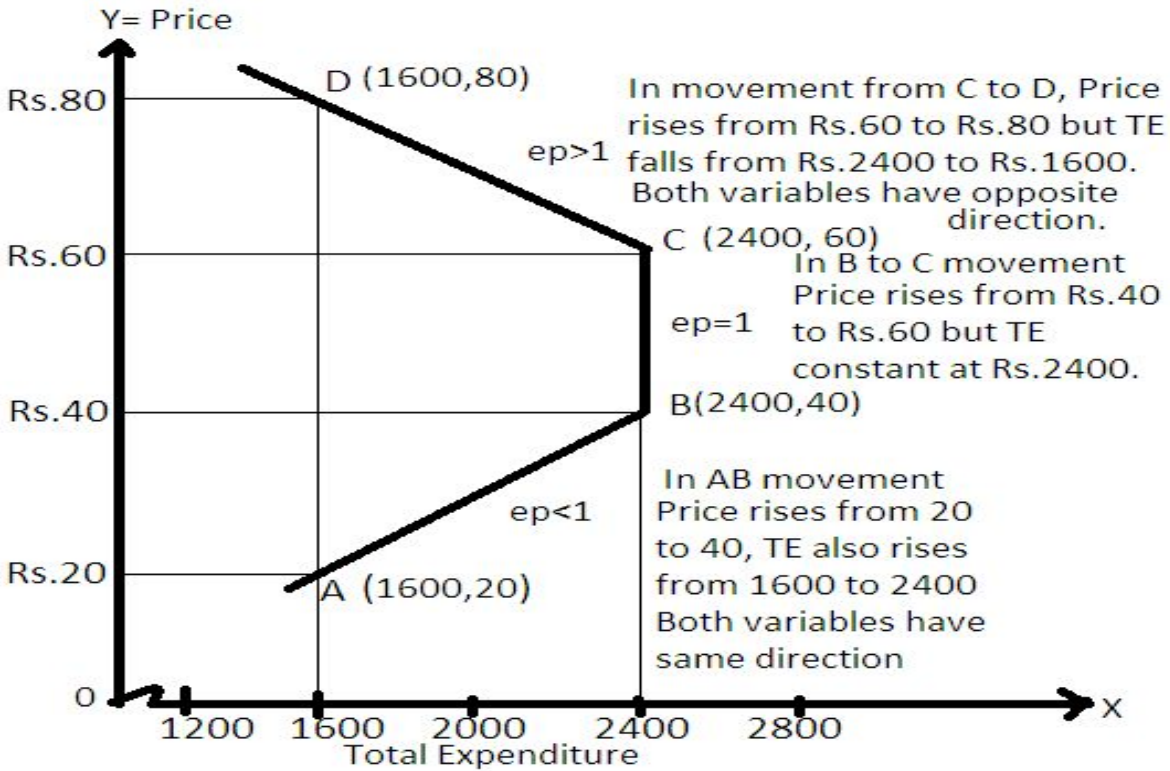
1. Less than Unity (ep<1): If total expenditure varies positively with price , price elasticity of a commodity will be Less than Unity. In other word when price falls leads total expenditure on the same commodity also decrease/falls; it is the condition of relatively inelastic demand (less than 1).
2. Equal to Unity(ep=1): Total outlay remain constant or unchanged due to change in price, it is called Unitary Price Elastic Demand.
3. Greater than Unity(ep>1):If total outlay varies Inversely/negatively with

Table example

Point	Price (Rs.)	Demand Quantity (Kg)	Total outlay (TE) = Price X demand Quantity	Degree of PEd
A	20	80	20X80=1600	----------
B	40	60	40X60=2400	A to B , P ↑ TE ↑ ep<1
C	60	40	60X40=2400	B to C, P ↑ TE constant, ep=1
D	80	20	80X20=1600	C to D, P ↑ TE ↓ ep>1

Figure explanation of Total outlay method

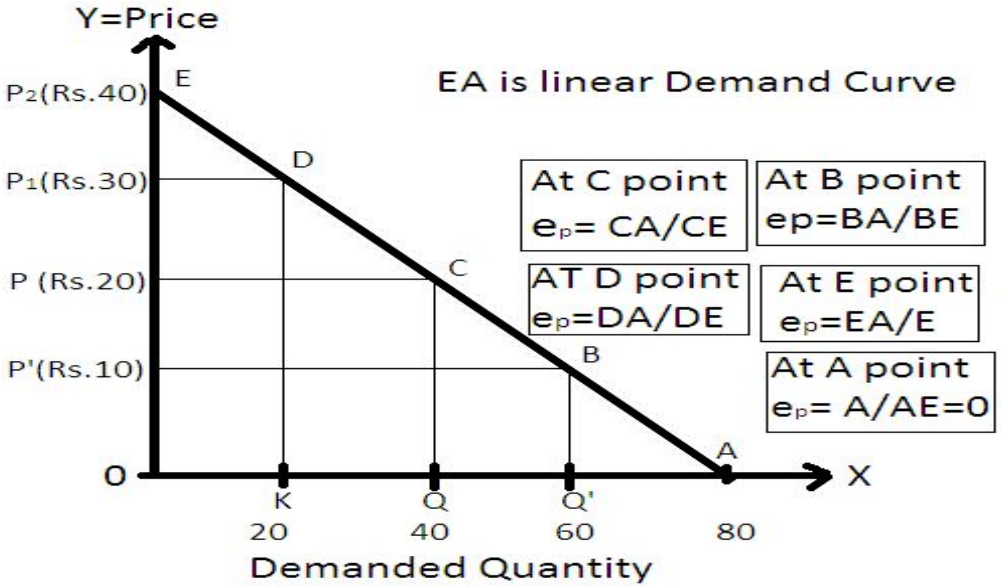
- Movement AB, BC and CD



Total outlay method

- Thus, according to this approach, the price elasticity of demand can be **calculated by comparing** the **total expenditure on the commodity before and after the price adjustment.**
- If total expenditure rises with a decrease in price and decreases with a rise in price, the value of the PED is greater than 1.

- According to the point method, Price Elasticity of Demand is the ratio between lower segment and upper segment in a particular point of price demand curve.
- **ep= Lower segment/Upper segment**



Measurement of Price Elasticity of Demand by Point Price Elasticity Method

- Linear Demand Curve :

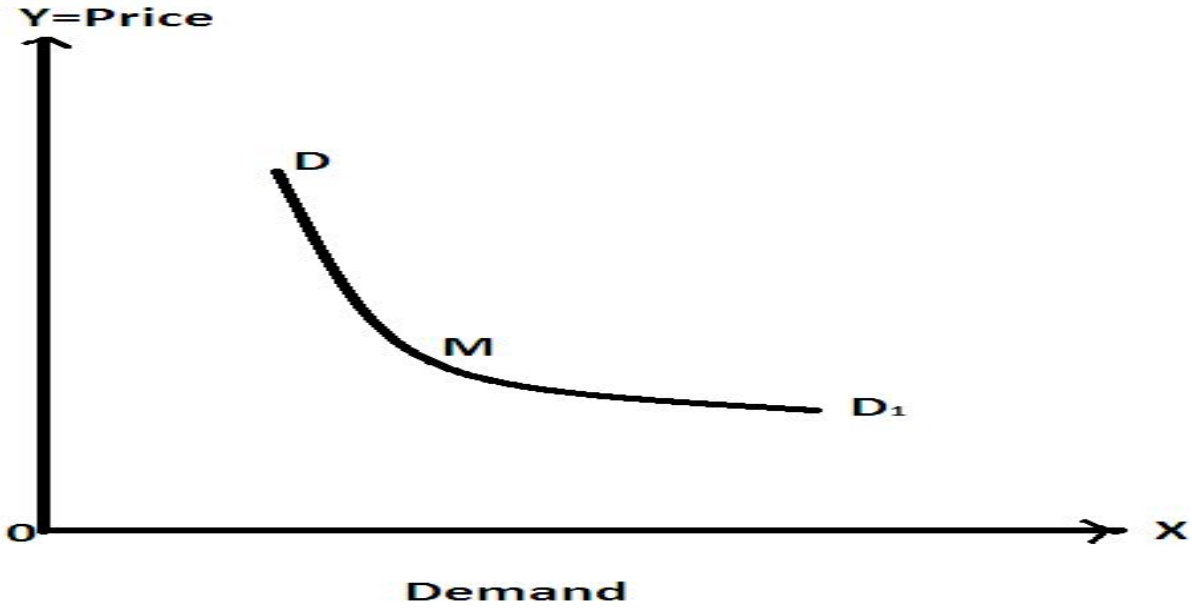
1. At mid point of a linear demand curve, ep=1
2. At any point lying between midpoint and y-intercept, point elasticity is greater than Unity (ep>1).
3. At any point lying between midpoint and X-intercept, point elasticity is less than Unity (ep<1).
4. At X-intercept, ep=0, while at Y-intercept, ep=œ

Measurement of Price Elasticity of Demand by Point Price Elasticity Method

- Non-linear Demand Curve:
- If the price demand curve be non-linear, then the price elasticity of demand at a point on it can be measured by drawing a tangent line to the point and then apply the price elasticity formula:
- $ep = \Delta q/\Delta p \cdot p1/q1$

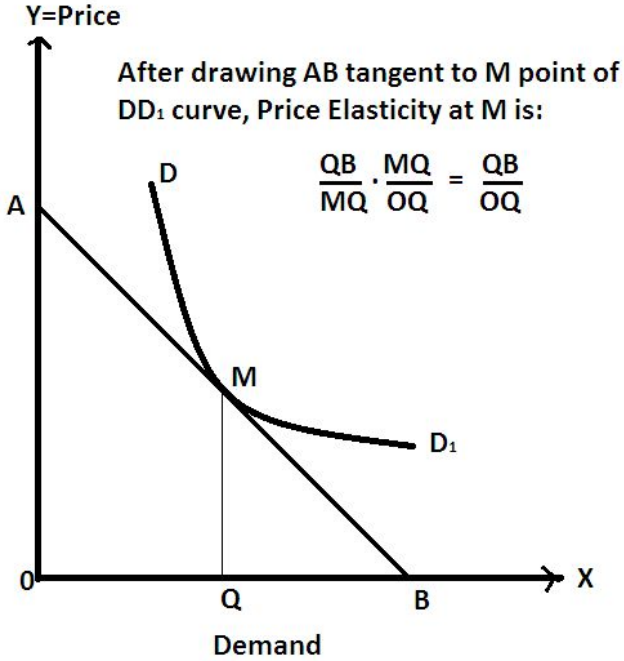
Non-Linear Demand Curve

- Non linear curve



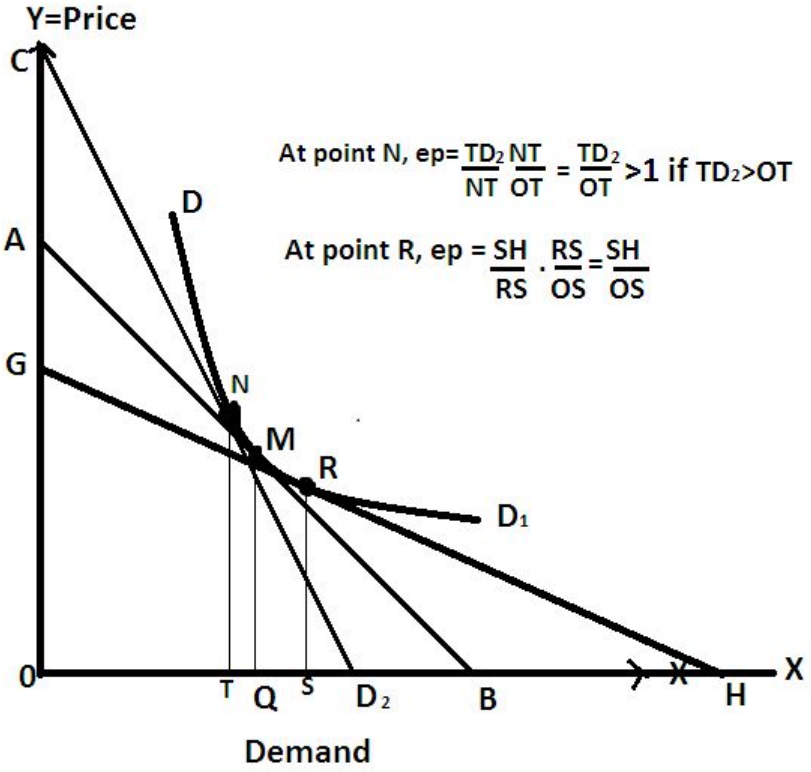
Price elasticity in Non-linear Demand curve

- Non-linear demand curve and price Elasticity measurement



Non-linear demand curve and price elasticity measurement

- Price elasticity



Determinants of Price Elasticity of Demand

1. Availabilities of Substitute: available substitute: more elastic. (Coke and Pepsi)
2. Time Period: Long run: Elastic, short run: less elastic
3. Nature of Goods: necessities: inelastic, Luxury: elastic
4. Proportion of Income Spent: Greater proportion spent on a commodity: more elastic.
5. Number of Uses of a Commodity: Multiple used goods have more price elastic.

Use of Price Elasticity of Demand in Business Decision Making

1. Product Pricing
2. Pricing of Input
3. Pricing of Joint Products
4. Demand Forecasting
5. To trade Unionists: to bargain on wage

Income Elasticity of Demand (ey)

- Other things being equal, Income elasticity of demand measures the degree of responsiveness of demand for a commodity due to change in income
- It is the ratio of percentage change in demand of a good with the percentage change in income.

Income elasticity of demand

Income elasticity of demand:

Formula in term of Percentage:

$$ey = \frac{\text{Percentage change in Demand}}{\text{Percentage change in income of consumer}}$$

$$e_Y = \frac{\frac{\text{New demand-Initial demand}}{\text{Initial demand}} X100}{\frac{\text{New Income- Initial income}}{\text{Initial income}} X100}$$

$$e_y = \frac{\frac{q2-q1}{q1} X100}{\frac{y2-y1}{y1} X100}$$

Income elasticity of demand

- Income elasticity of demand

In terms of Proportion:

$$e_y = \frac{\text{Change in Demand}}{\text{Initial Demand}} \Big/ \frac{\text{Change in income}}{\text{Initial income}}$$

$$e_y = \frac{\frac{\Delta q}{q_1}}{\frac{\Delta y}{y_1}} \quad \text{or,} \quad \frac{\Delta q}{\Delta y} \times \frac{y_1}{q_1}$$

Income elasticity of demand by Arc method

- It is average between two points on a income-demand curve.

In terms of Arc Elasticity

$$e_y = \frac{\dfrac{\text{Change in Demand}}{\text{Initial Demand + New Demand}}{2}}{\dfrac{\text{Change in income}}{\text{Initial income + New income}}{2}}$$

$$e_y = \frac{\dfrac{\Delta q}{\dfrac{q_1+q_2}{2}}}{\dfrac{\Delta y}{\dfrac{y_1+y_2}{2}}}$$

Or, $e_y = \dfrac{\Delta q}{\Delta y} \times \dfrac{y_1+y_2}{q_1+q_2}$

Or, $e_y = \dfrac{q_2-q_1}{y_2-y_1} \times \dfrac{y_1+y_2}{q_1+q_2}$

q_1=Initial demand q_2=New demand

y_1=Initial income y_2=New income

Numerical example of Income elasticity of demand

Consider the following demand schedule

points	A	B	C	D
Income(Rs.)	20000	40000	60000	80000
Demand(units)	100	200	300	400

In terms of percentage,

At movement from B to D

$$e_y=\frac{[(400-200)/200]\times 100}{[(80000-40000)/40000]\times 100}=\frac{100\%}{100\%}=1$$

At movement from D to B

$$e_y=\frac{[(200-400)/400]\times 100}{[(40000-80000)/80000]\times 100}=\frac{-50\%}{-50\%}=1$$

In terms of Proportion,

At movement from B to D

$$e_y=\frac{(400-200)/200}{(80000-40000)/40000}=\frac{200/200}{40000/40000}=1$$

At movement from D to B

$$e_y=\frac{(200-400)/400}{(40000-80000)/80000}=\frac{-1/2}{-1/2}=1$$

Arc Elasticity,At midway between B and D

$$e_y=\frac{400-200}{80000-40000}\times\frac{40000+80000}{400+200}=\frac{200}{40000}\times\frac{120000}{600}=1$$

At midway between D and B,

$$e_y=\frac{200-400}{40000-80000}\times\frac{80000+40000}{400+200}=\frac{-200}{-40000}\times\frac{12000}{600}=1$$

Type of Income Elasticity of Demand

1. Positive Income Elasticity of Demand(ey=+ve)
    1. Greater than Unity(ey>1)
    2. Equal to Unity (ey=1)
    3. Less than Unity (ey<1)
2. Negative Income Elasticity of Demand(ey=-ve)
3. Zero Income Elasticity of Demand(ey=0)

Positive Income Elasticity of Demand(e_y=+ve):

- If demand of a commodity is positively varies with income, income elasticity is positive. It is connected with **Normal goods**. It has three types:
    1. Greater than Unity(ey>1)(Superior Goods/Luxury Goods)
    2. Equal to Unity (ey=1) comfort goods
    3. Less than Unity (ey<1)(Necessary Goods/Necessity Goods.

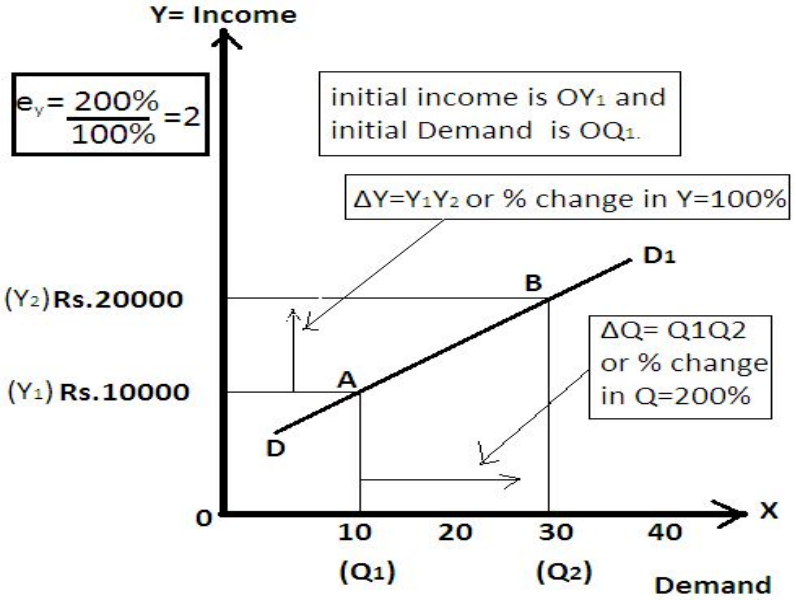
Positive income Elasticity of Demand

1. Greater than Unity (ey>1)

- If the percentage or proportionate change in demand for a commodity is greater than the percentage or proportionate change in Income, income elasticity is greater than one or unity.
- It has flatter slope than line with 45 degree from the origin generally.
- a luxury good is **a good for which demand increases more than proportionally as income rises**. Luxury goods are said to have high income elasticity of demand.

Positive income Elasticity of Demand

1. Greater than Unity (ey>1)



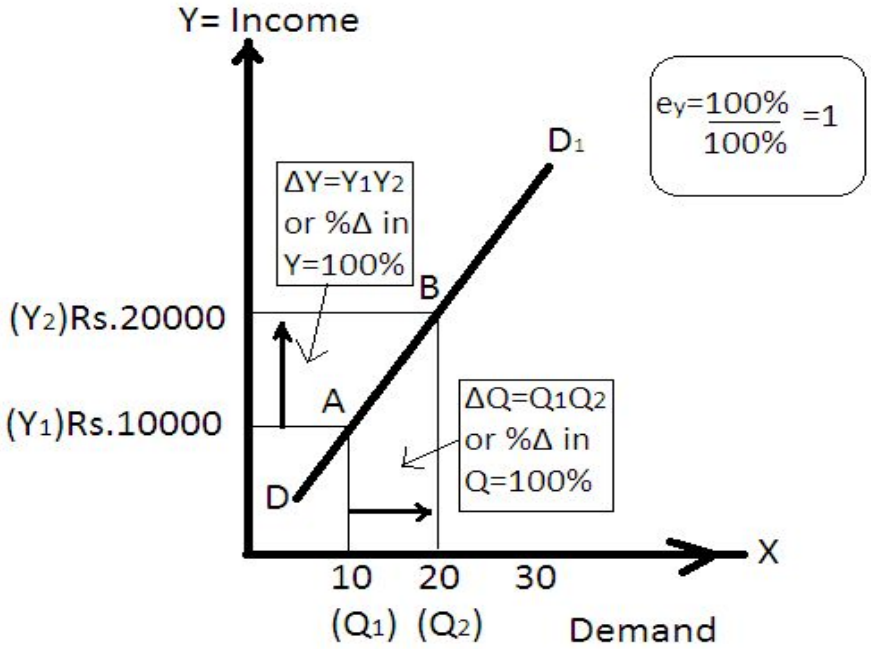
Positive income Elasticity of Demand

2. Equal to Unity (ey=1)

- If the percentage or proportionate change in demand for a commodity is equal to the percentage or proportionate change in Income, income elasticity is equal to one or unity.
- It has the same slope as line with 45 degree from the origin generally.

Positive income Elasticity of Demand

2. Equal to Unity (ey=1)



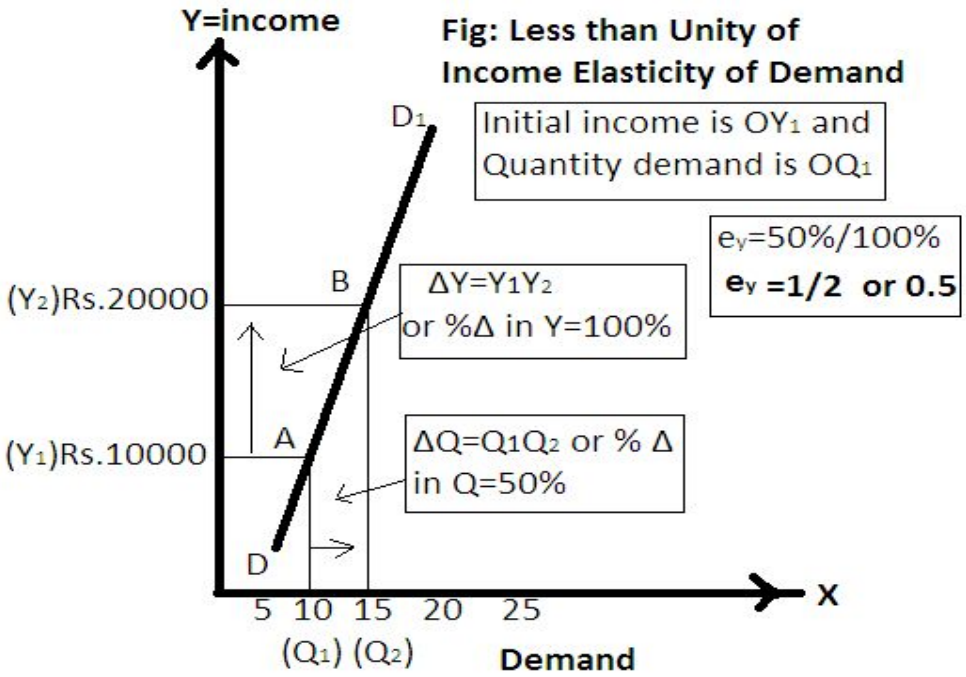
Positive income Elasticity of Demand

3. Less than Unity(ey<1)

- If the percentage or proportionate change in demand for a commodity is less than the percentage or proportionate change in Income, income elasticity is less than one or unity.
- It has steeper slope than line with 45 degree from the origin generally.
- The Necessary Goods/Necessity Goods have less than Unity.
- Demand increased proportionally less than income are called Necessary Goods.

Positive income Elasticity of Demand

3. Less than Unity(ey<1): Necessary goods



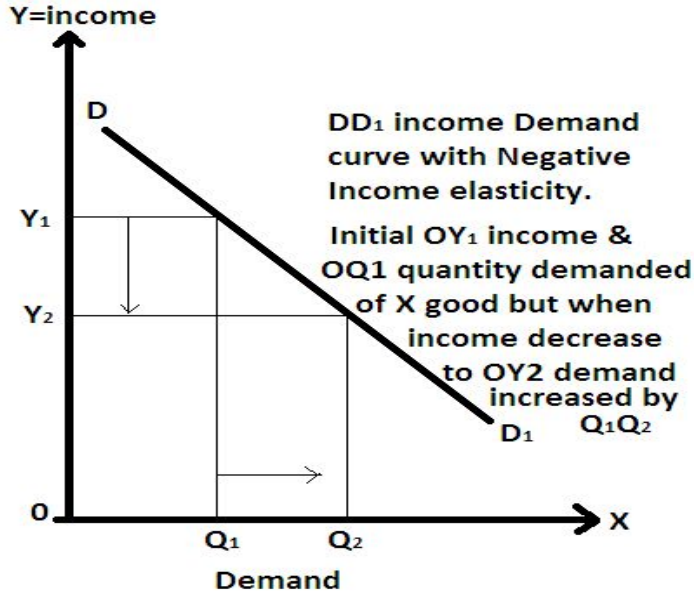
2. Negative income Elasticity of Demand

- If the demand for a commodity varies inversely with income, income elasticity is negative. It is connected with inferior goods.

Negative Relationship

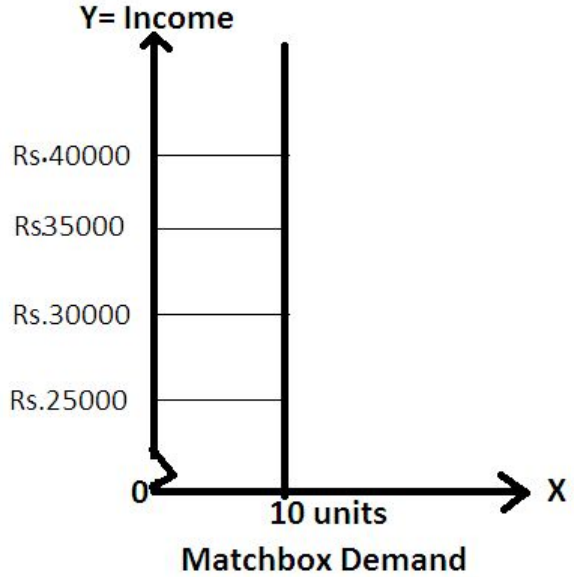
between

Income and demand



3. Zero Income Elasticity of Demand

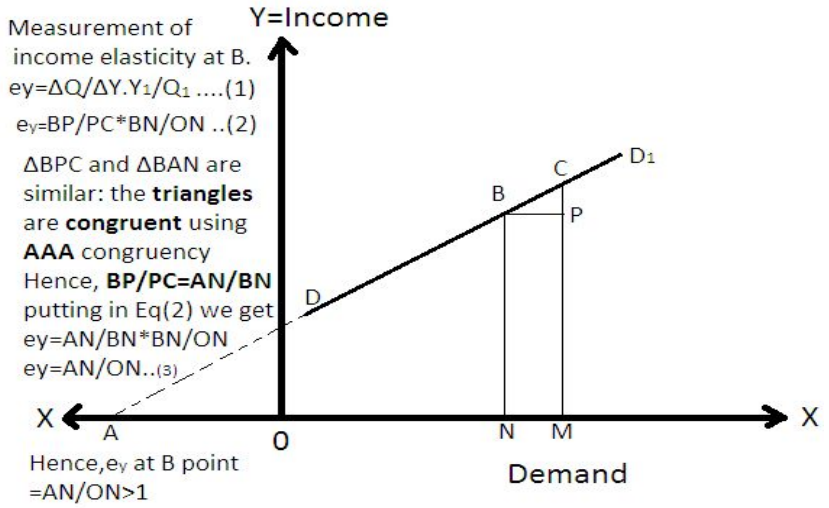
- If there is no any response in demand due to change in income, income elasticity is zero. It is connected with very low priced items Example: Salt, matchbox.



Measuring Income elasticity of Demand at a point on a Linear Demand Curve.

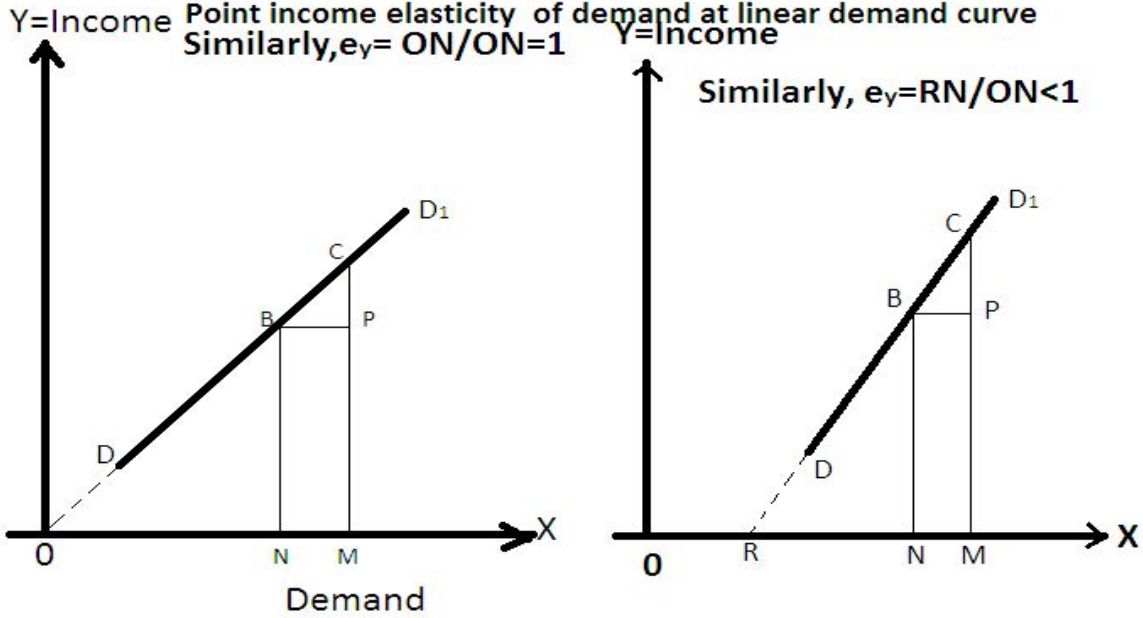
- Income demand curve is a locus representing various level of demand at different level of income.
- Normal good case income demand curve has positive slope show positive relationship between income and demand of a normal commodities.
- Inferior good case income demand curve has negative slope to the right show inverse relationship between income and demand of an inferior commodities.

Measuring Income elasticity of Demand at a point on a Linear Demand Curve.

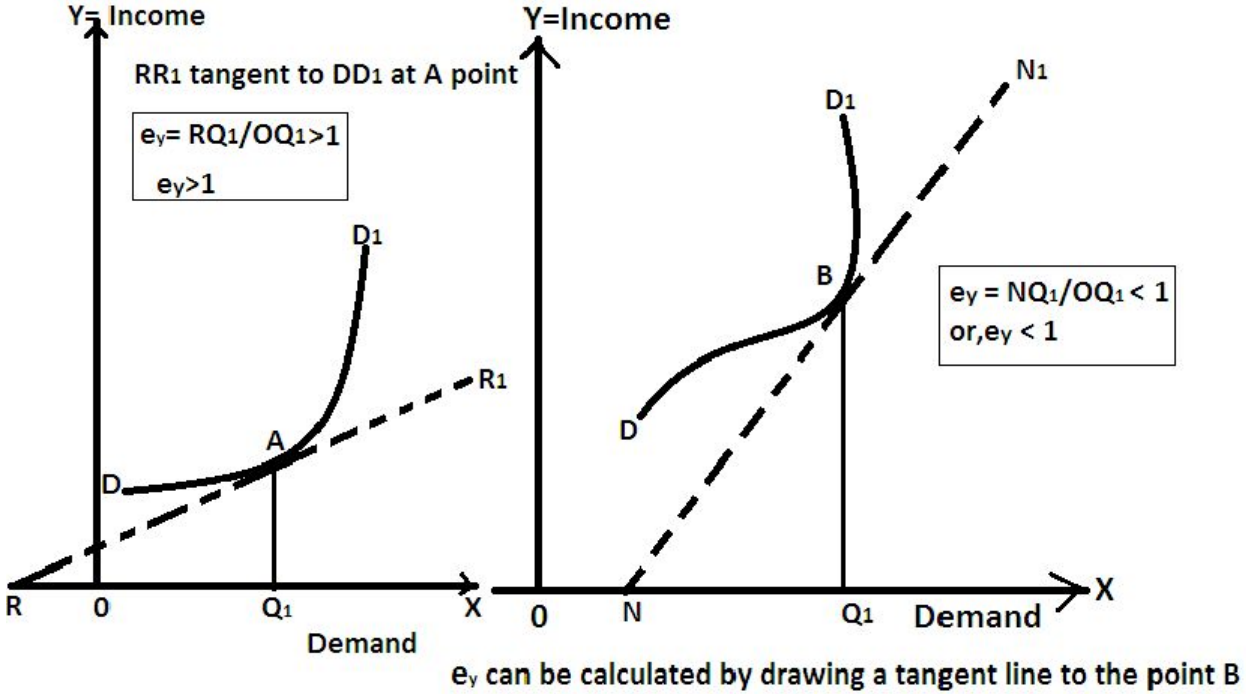


Conclusion: If extended demand curve meets x-axis to the left of the point of origin, income elasticity of demand will greater than 1 (ey>1).

Measuring Income elasticity of Demand at a point on a Linear Demand Curve..



Measuring Income elasticity of Demand at non- Linear demand curve.



Determinants of Income Elasticity

- Nature of Goods: Necessary (food) luxury and inferior goods
- Proportion of Income: Proportion increase=more than 1 income elasticity, Proportion decrease=less than 1 income elasticity, Proportion constant= equal to 1 income elasticity.
- Level of Income: People with high income level may falls under necessary goods category but the same good, for low income level… falls under luxury goods.
- Time Period: Adjustment process in consumption is possible with time lag(in the long run)….. Income elasticity is more elastic. But in short time… inelastic.
- Income Elasticities is significantly greater for areas/countries with higher incomes.

Use of Income Elasticity of Demand

1. In Business Decision Making
   a) Long term business planning : luxury good,
   b) Market strategy development:
   c) Housing development strategies: on the basis of ey, housing requirement can be predicted and can construct housing.
2. Classification of Goods
   I. when ey is positive: commodity is Normal
   II. When ey is positive and greater than 1(ey >1): commodity is Luxury. TV
   III. When ey is positive and Less than 1(ey <1): commodity is Necessary or essential or necessitates.
   IV. when ey is Negative: commodity is inferior (cereal:millet)
   V. when coefficient of ey is Zero (ey =1): : commodity is Neutral. Eg: salt, matchbox.

Cross Elasticity of Demand

- Cross elasticity of demand measures the degree of responsiveness of the demand for x good to the change the price of Y good, other thing being equal.
- It is the ratio of percentage change in the demand for one commodity (say X) with percentage change in the price of another commodity (say Y good).
- It is connected with substitutes and compliments.
- exy is the notation for cross elasticity of demand.

Cross elasticity formula

- formula

In terms of Percentage:

$$e_{xy} = \frac{\text{\% change in demand for X good}}{\text{\% change in Price of Y good}}$$

or,

$$e_{xy} = \frac{\dfrac{\text{New quantity demand for X good-Initial demand for X good}}{\text{Initial demand for X good}}}{\dfrac{\text{New Price of Y good- Initial Price of Y good}}{\text{Initial Price of X good}}}$$

in symbolic term,

$$e_{xy} = \frac{\dfrac{Qx_2 - Qx_1}{Qx_1} \times 100}{\dfrac{Py_2 - Py_1}{Py_1} \times 100}$$

$$e_{xy} = \frac{\dfrac{\text{Change in demand for X good}}{\text{Initial demand for X good}}}{\dfrac{\text{Change in Price of Y good}}{\text{Initial price of Y good}}}$$

$$e_{xy} = \frac{\Delta Qx/Qx_1}{\Delta Py/Py_1}$$

Cross Elasticity Formula

$$e_{xy} = \frac{\frac{\Delta Qx}{Qx1}}{\frac{\Delta Py}{Py1}}$$

or, $$e_{xy} = \frac{\Delta Qx}{\Delta Py} \times \frac{Py_1}{Qx_1} = \frac{dQx}{dPy} \times \frac{Py_1}{Qx_1}$$

exy= -/+ (Negative coefficient means complementary goods)/ (Positive means Substitute goods)

In terms of Arc Elasticity,

$$e_{xy} = \frac{\frac{\text{Change in demand for X Good}}{\frac{\text{Initial demand for X Good + New demand for X Good}}{2}}}{\frac{\text{Change in Price for Y Good}}{\frac{\text{Initial Price of Y Good + New Price of Y Good}}{2}}} = \frac{\frac{\Delta qx}{\frac{qx_1+qx_2}{2}}}{\frac{\Delta Py}{\frac{Py_1+Py_2}{2}}}$$

$$e_{xy} = \frac{\Delta qx}{qx_1+qx_2} \cdot \frac{Py_1+Py_2}{\Delta Py} = \frac{\Delta qx}{\Delta Py} \cdot \frac{Py_1+Py_2}{qx_1+qx_2} = \frac{qx_2-qx_1}{Py_2-Py_1} \cdot \frac{Py_1+Py_2}{qx_1+qx_2}$$

qx_1= Initial demand for X good, qx_2= New demand for X good,
Py_1 = Initial Price of Y Good, Py_2= New price of Y Good.

Types of Cross Elasticity of Demand

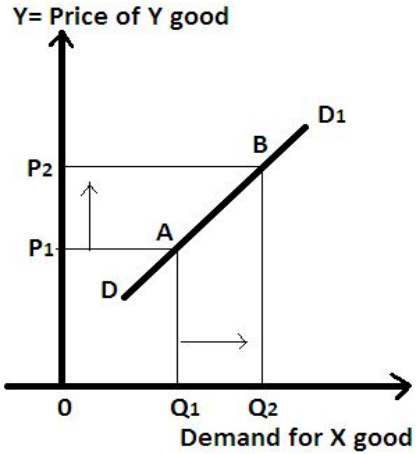
1. Positive cross elasticity of demand (exy=+ive):
    1. Substitutes' goods have positive cross elasticity of demand.
2. Negative cross elasticity of demand (exy=-ive)
    1. Complementary goods have Negative cross elasticity of demand.
3. Zero cross elasticity of demand (exy=0)
    1. Non-related (Neutral) goods have zero cross elasticity of demand

1. Positive cross elasticity of demand (e_{xy}=+ive)

- If demand for one commodity (say x good) varies positively with the price of another commodity (say Y good) cross elasticity will be positive. if Price of Mayos increases leads to demand of Wai-Wai increases
- It is connected

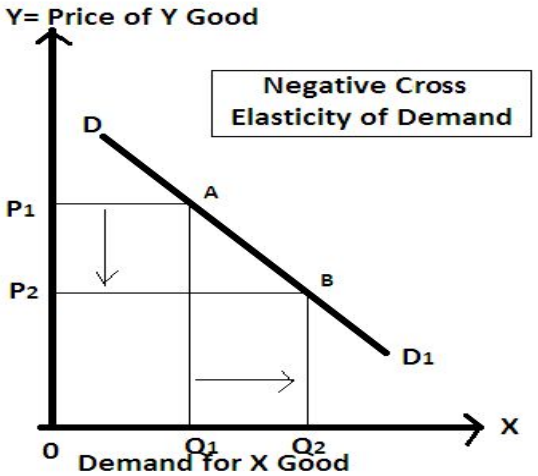
with substitutes

goods.



2. Negative cross elasticity of demand (e_{xy}=-ive)

- If demand for one commodity (say x good) varies inversely with the price of another commodity (say Y good), cross elasticity will be negative.
- It is connected with complements.



3. Zero cross elasticity of demand ($e_{xy}=0$)

- If there is no any response in demand for one commodity (say x good) due to change in price of another commodity (say Y good), cross elasticity will be zero.
- It is connected with non-related goods(neutral).

QD3 is parallel to

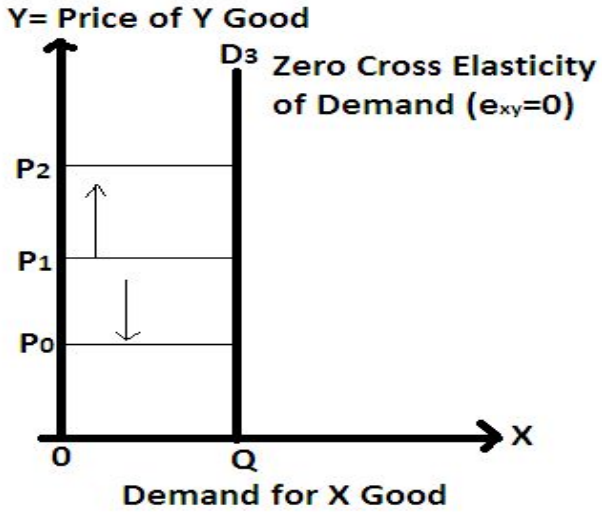
Y- axis shows zero

Cross Elasticity that is

No change in Demand

For X good as price of Y

Good change.



Use of Cross Elasticity of Demand:

1. To formulate Business policy [Ghee price ↑ edible oil Demand ↑]

   [Similarly Sugar & Gud (raw)] and [Raincoat & umbrella]

1. To classify Goods and Markets [+ive exy =close substitute][-ive exy =complementary good]
2. Pricing strategies(pricing of product having substitutes and complementary goods)
   - Substitutes goods case: if exy>1, no price increase but reduce in price is beneficial.
   - Complementary goods case: reducing price is helpful to maintaining the demand if the price of complementary good rising.
   - Firm can forecast demand for its product and take necessary action against fluctuating price of complements and substitutes.

Price Elasticity of Supply

- Other things being equal, Price elasticity of supply is a measure of relative change in quantity supplied of a commodity in response to relative change in its price.
- Or, it is the degree of change in quantity supplied of a commodity due to change in its price.
- Or, It is the ratio of the percentage change in quantity supplied with the percentage change in price, other things being equal.

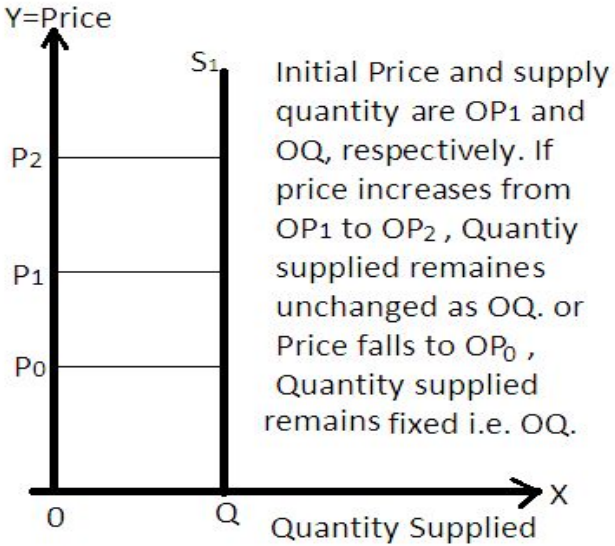
Type of Price Elasticity of Supply

- There are 5 types of Price elasticity of Supply.

1. Perfectly Inelastic Supply (es=0)
2. Relatively Inelastic Supply (es<1)
3. Unitary Elastic Supply (es=1)
4. Relatively elastic Supply (es>1)
5. Perfectly elastic Supply (es=œ)

1. Perfectly Inelastic Supply (e_s=0)

- If the quantity supplied of a commodity remains unchanged with the change in price, it is said to be perfectly inelastic supply.
- No change in Quantity supply.

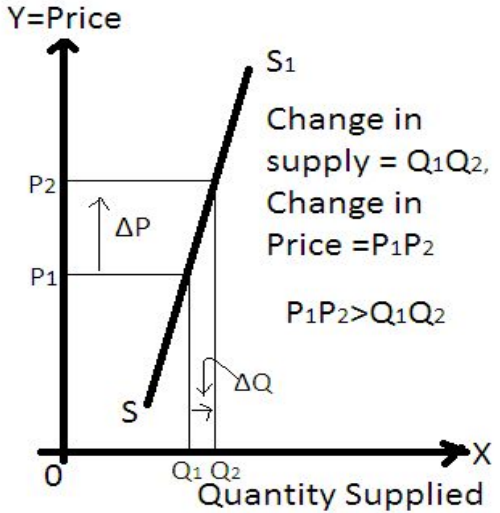


2. Relatively Inelastic Supply ($e_s<1$)

- If the percentage or Proportionate change in quantity supply is less than percentage or proportionate change in Price, it is said to be relatively inelastic supply.

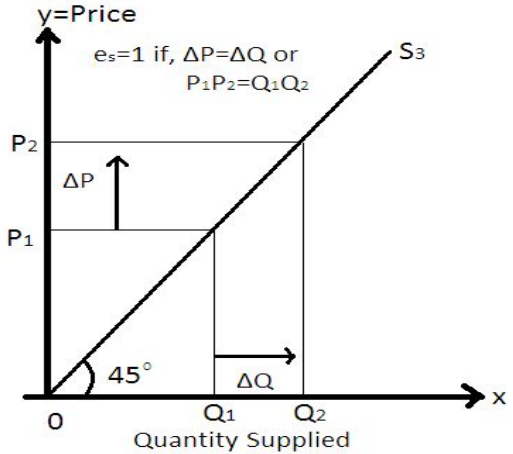
SS1 has steeper slope, which implies relatively

Inelastic Supply Curve.



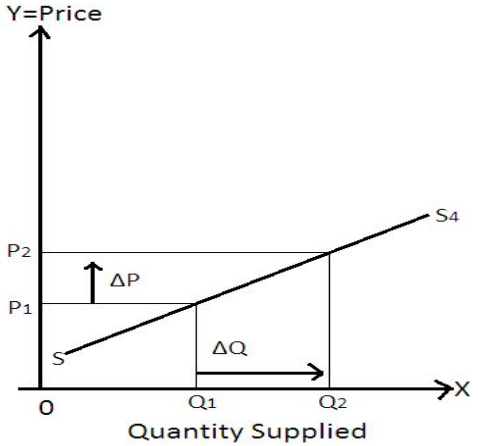
3. Unitary Elastic Supply (e_s=1)

- If the percentage or Proportionate change in quantity supply is equal to the percentage or proportionate change in Price, it is said to be Unitary elastic supply.



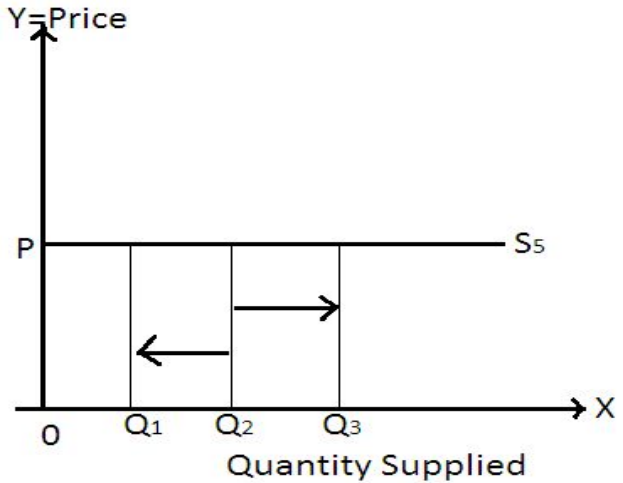
4. Relatively Elastic Supply (es>1)

- If the percentage or Proportionate change in quantity supply is greater than the percentage or proportionate change in Price, it is said to be relatively elastic supply.
- Q1Q2> P1P2
- $\Delta Q > \Delta P$



5. Perfectly Elastic Supply(es=œ)

- If the Small change in Price leads to infinity in quantity supplied it is called to be perfectly elastic supply.



Measurement of Point Price Elasticity of Supply:

In linear supply curve, we can extend the supply curve downward to the x-axis at A point. Take an any initial point on Supply curve (as B in figure) initial price And supply Quantity are BN, and ON respectively

- Take a new point again

(C in Fig) and new price is

CM and new Supply is OM.

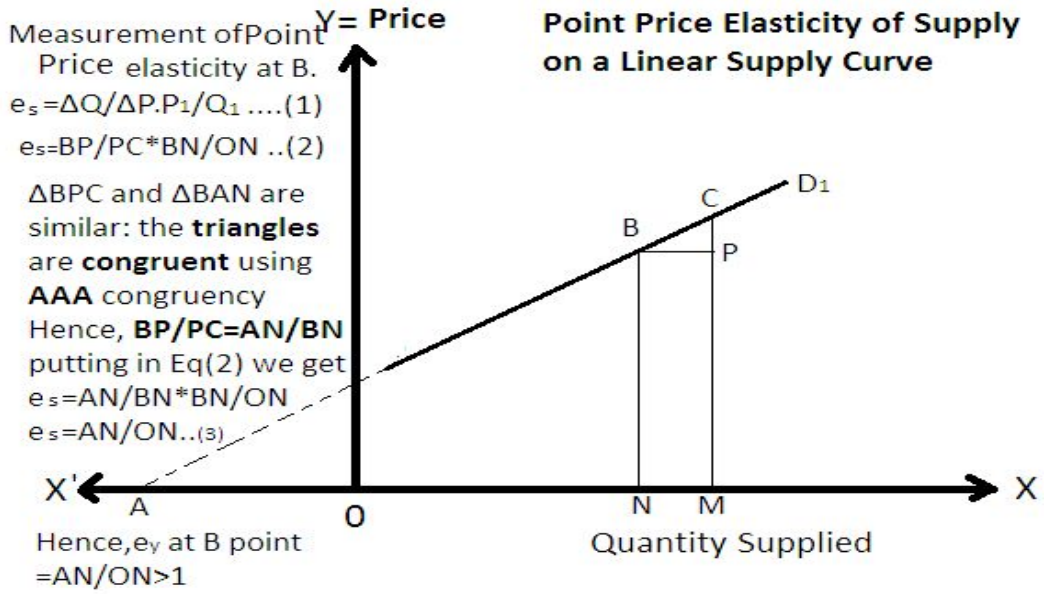
So ΔP=PC andΔQ=NM(BP)

And assume Point Price

Elasticity

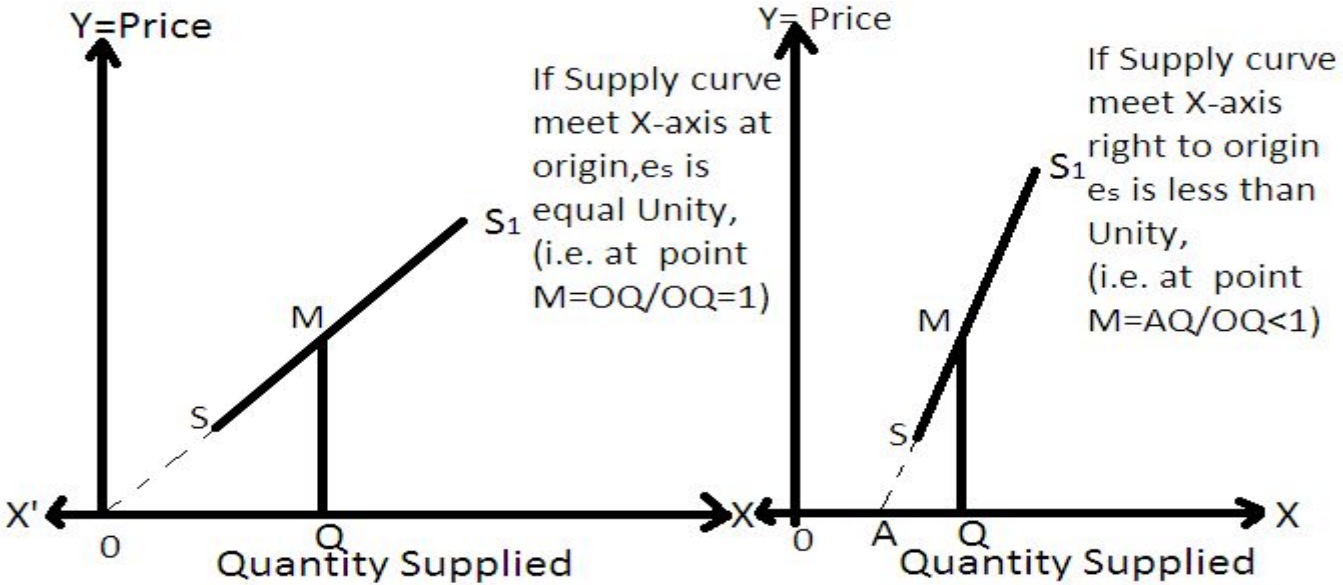
Of supply at B point

es= Δq/Δp.p1/q1



Point Price elasticity of Supply

- es at linear supply curves:



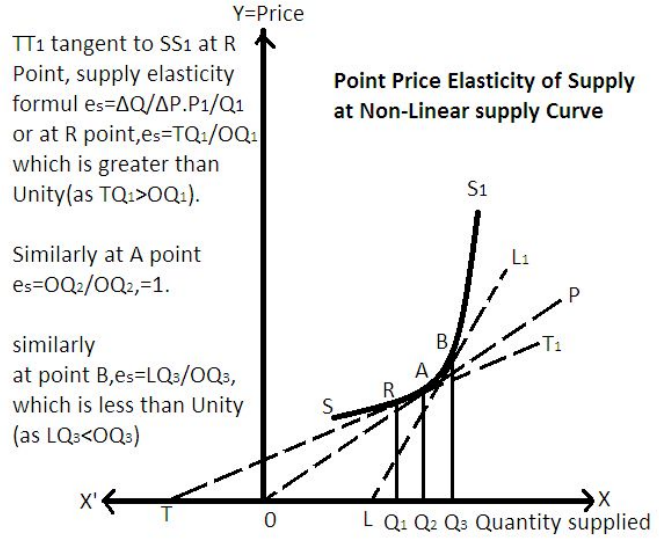
Point Price Elasticity of Supply at Non-linear Supply Curve:

- If Supply curve is Non Linear Price elasticity of supply can be computed by drawing a tangent line to that point and

Apply the supply

Elasticity formula

Es= ΔQ/ Δ P.P1/Q1



Determinants of Elasticity of Supply

1. Change in the cost of Production
2. Time Factor
3. Nature of Commodity
4. Availability of Facilities for expanding Output.

We have known the following concept:

- Explain the concept of price elasticity of demand and its calculation.
- Explain what it means for demand to be price inelastic, unit price elastic, price elastic, perfectly price inelastic, and perfectly price elastic.
- Explain how and why the value of the price elasticity of demand changes along a linear demand curve.
- Understand the relationship between total revenue and price elasticity of demand.
- Discuss the determinants of price elasticity of demand.