Demand

Market:

A place of interaction among buyers and sellers. In case of tourism management, interaction among tourists and service providers.

What is Demand ?

The desire, willingness and ability to purchase goods and services.

Relationship of Demand and Price or Law of Demand:

Ceteris Paribus, When the price increases then quantity demanded decreases and vice versa.

Demand Function

- Establishes a functional relationship between price for a commodity (independent variable) and quantity demanded (dependent variable) for the same commodity.
- Also, affected by determinants such as income, price of related goods and so on.

Types of Demand Function

1. **Single variable and multi variable demand function**
   - Single variable demand function shows mathematical relation between quantity demanded and price.

$$Q_x = f(P_x)$$

Where,

Q_x- Quantity Demanded for x good

P_x- Price of x good

f= function of the consumer

   - Multiple variable demand function establishes functional relationship between all determinants of demand and demand for commodity.

$$Q_x = f(P_x, Y, P_y, A, T, C, W, S_p, T_r, E_p)$$

Demand

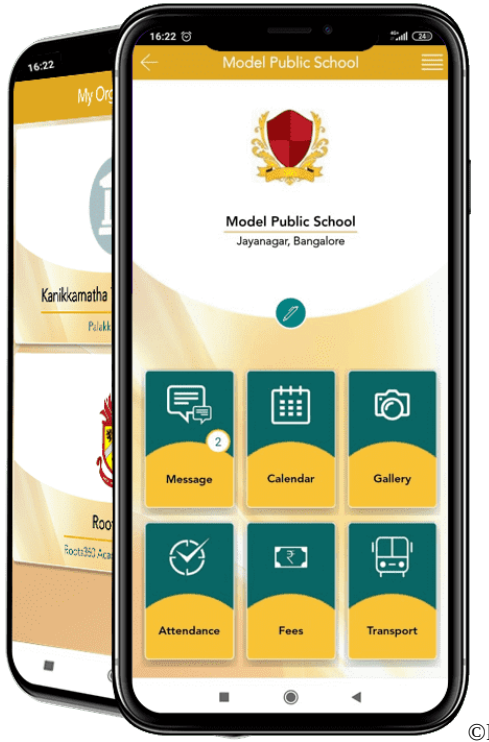
Assumptions

- The disposable income of consumer remains same.
- Price of other goods remains same.
- There is no change is quality of the good.
- Fashion and tastes of the consumer does not change.
- Advertising remains unchanged
- Opportunities for consumption remains same
- There is no change in population
- Other factors- terrorism and natural disasters have not happened.

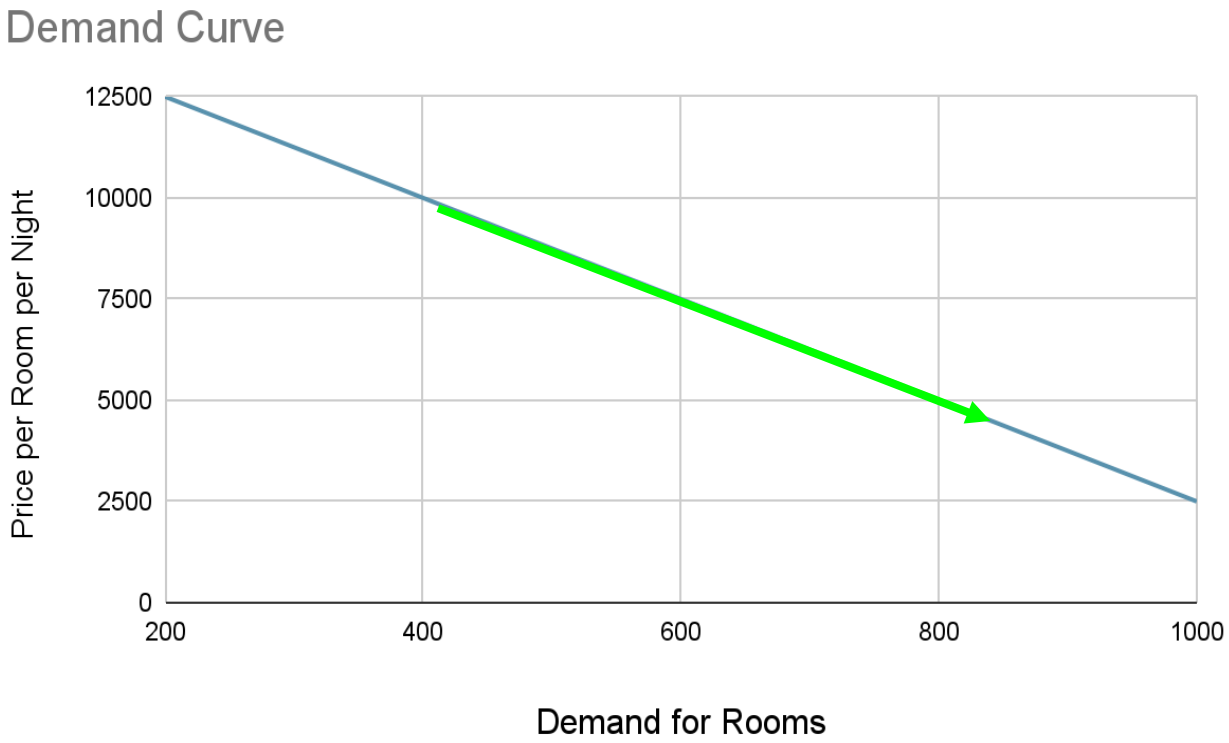
Demand Schedule

School App

Price	App Subscribed
125000	200
100000	400
75000	600
50000	800
25000	1000



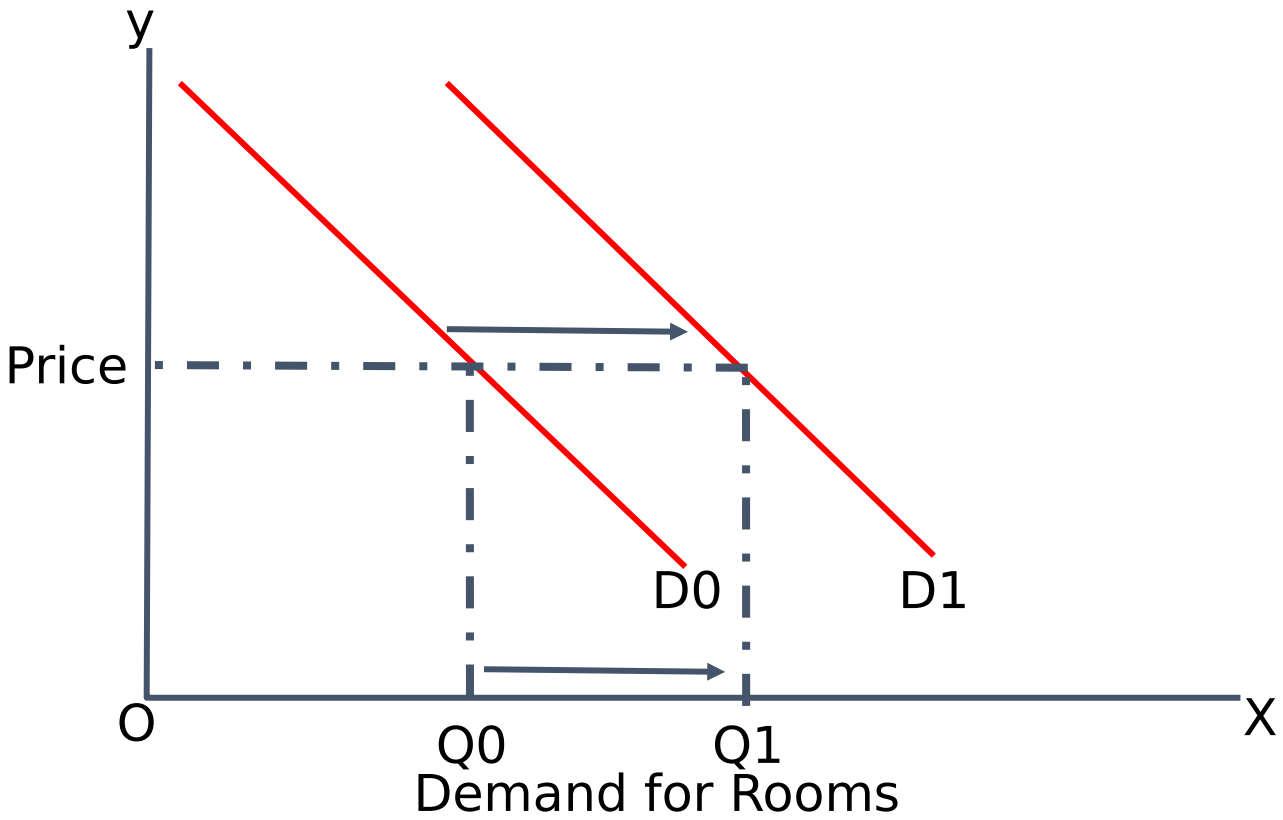
Demand Graph



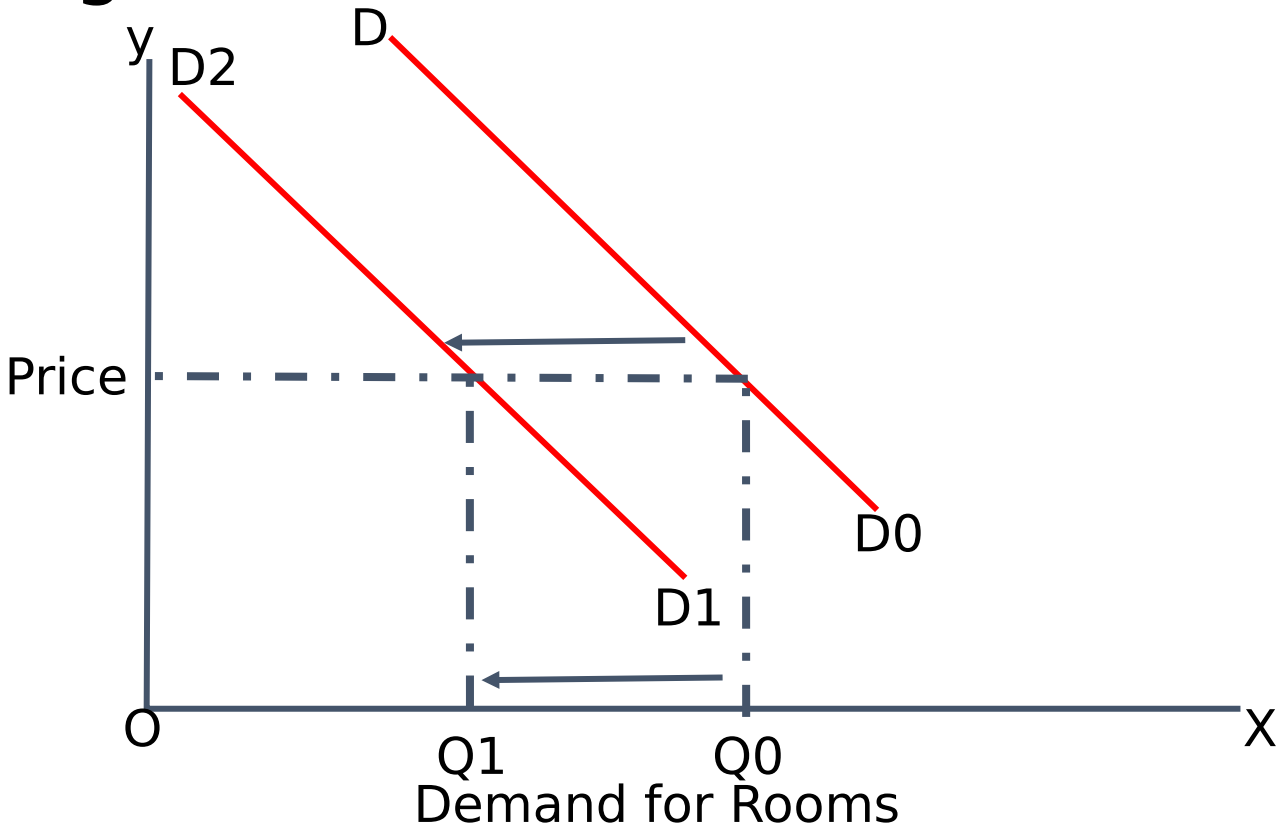
Factors Affecting Demand

- Disposable income.
- Price of other goods
- Quality of the good
- Fashion and tastes
- Advertisement
- Opportunities for consumption
- Change in population
- Other factors- terrorism and natural disasters.

Positive Effect/Shift in Demand Curve



Negative Effect/Shift in Demand Curve



Supply

What is Supply ?

The quantity/amount of goods and services that the producer is willing to offer.

Relationship of Supply and Price or Law of Supply:

*Ceteris Paribus, w*hen the price increases then quantity supplied increases and when the price decreases then quantity supplied decreases.

Supply

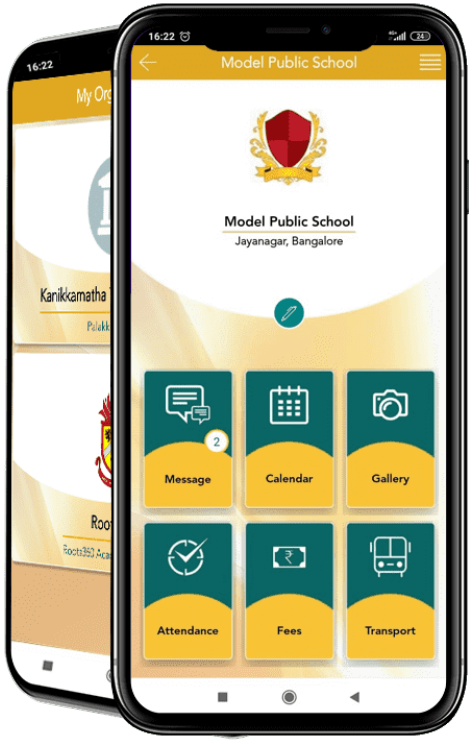
ASSUMPTIONS:

- The price of other goods and services remains the same.
- There is no change in production costs.
- There is no technical improvement in quality of goods and service.
- No change in tax and subsidies.
- Other factors- strikes, wars, pandemic are absent.

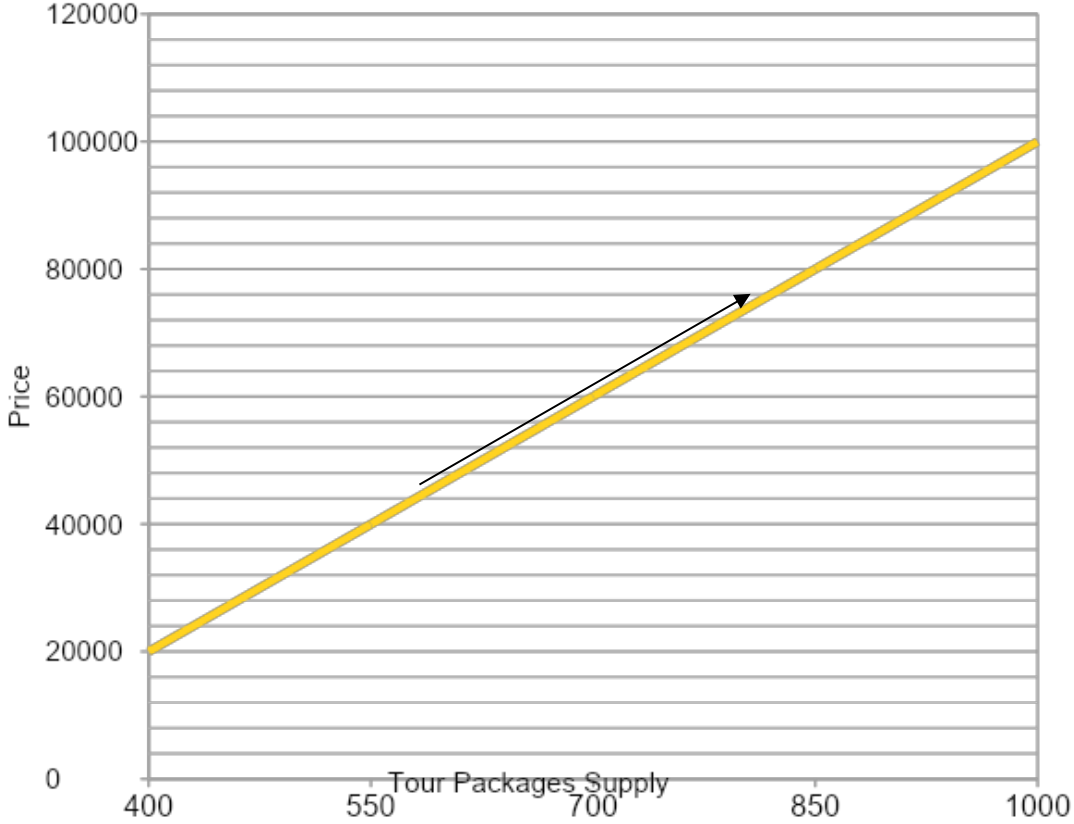
Supply Schedule

School App Development

Price of Package	Package Supplied
1,00,000	1000
80,000	850
60,000	700
40,000	550
20, 000	400



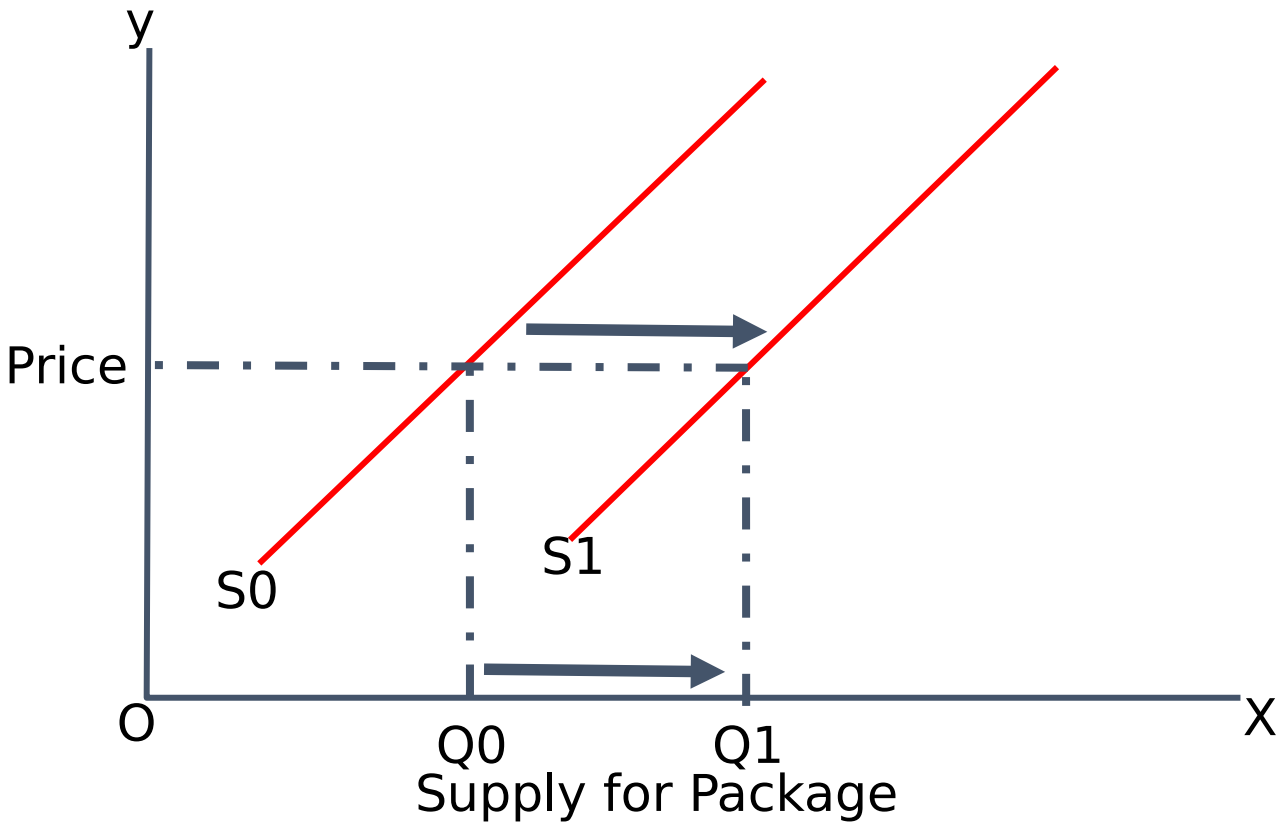
Supply Curve



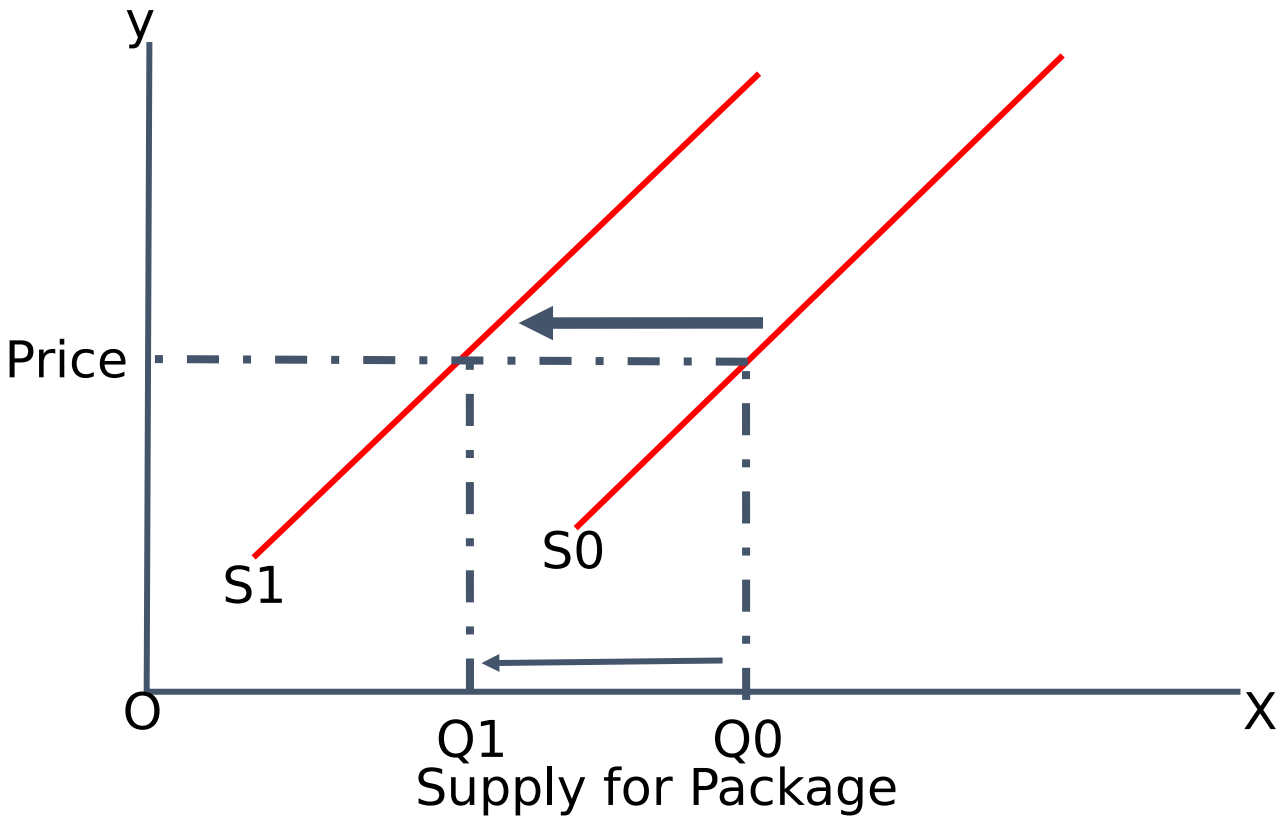
Factors Affecting Supply

- Factors of production.
- The price of other goods and services.
- Technical changes in quality of goods and service.
- Change in tax and subsidies.
- Other factors- strikes, wars, pandemic.

Positive Effect/Shift in Supply Curve



Negative Effect/Shift in Supply Curve



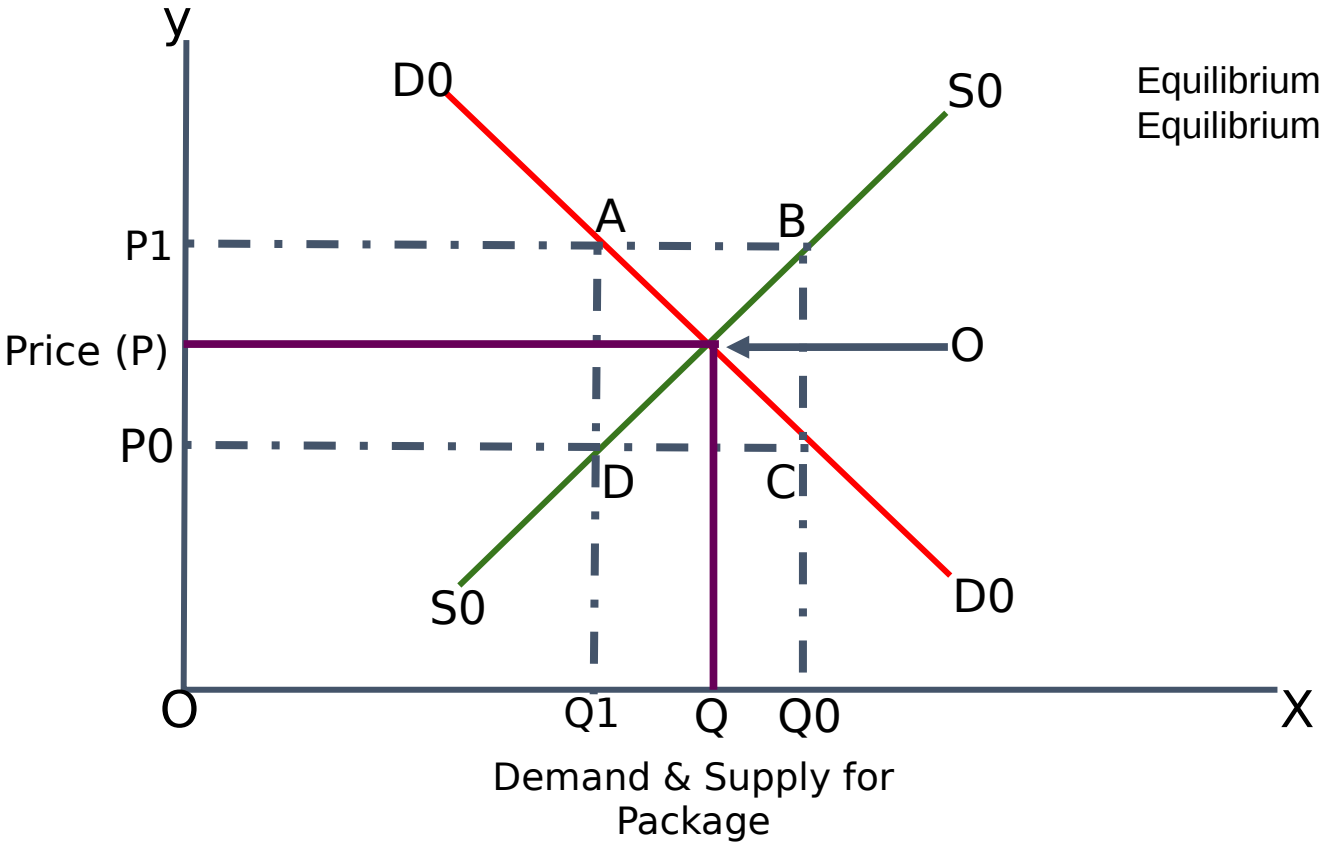
Equilibrium Price

In market, when quantity demanded is equal to the quantity supplied at a certain price level then the
Market is said to be in equilibrium.

App Development

Price of Package	Package Demand	Package Supplied
1,00,000	400	1000
80,000	550	850
60,000	700	700
40,000	850	550
20, 000	1000	400

Equilibrium Price – in Figure



Equilibrium Qty. (Q) = 700
Equilibrium Price (P) = 60,000

Concept of Elasticity of Demand

Elasticity:

- Ability to stretch.
- It is response by dependent variable due to the change in independent variable while holding relevant variables constant.

Elasticity of Demand:

- The measure of responsiveness of quantity demanded (dependent variable) to the change in one of the determinants (independent variables).
- It states how much buyers will increase or decrease their consumption on a percentage basis due to the change in price of respective goods and service.
- Elasticity is important as it answers question of by how much the demand will change when its determinants change.

Types of Elasticity of Demand

1. **Price Elasticity of Demand**
2. **Income Elasticity of Demand**
3. **Cross Elasticity of Demand**

- **Price Elasticity of Demand:**
  - Defined as percentage change in quantity (Q) demanded to a percentage change in price (P) when other determinants remain constant.

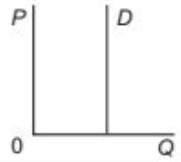
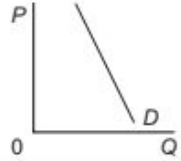
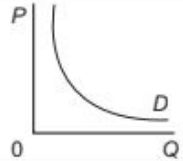
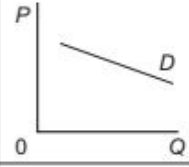
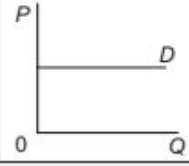
$$E_P = \frac{Percentage\ Change\ in\ Quantity\ Demanded}{Percentage\ Change\ in\ Price}$$

$$E_P = \frac{\frac{Change\ in\ Quantity\ Demanded}{Original\ Quantity\ demanded}}{\frac{Change\ in\ Price}{Original\ Price}}$$

$$E_P = \frac{\frac{\Delta Q}{Q} \times 100}{\frac{\Delta P}{P} \times 100}$$

Here, $\Delta Q = Q_2 - Q$,
$\Delta P = P_2 - P_1$,
and Δ = change

Degrees/Types of Elasticity of Demand

Numerical value	Graph	Explanation	Term
0		Demand is unresponsive to a change in price	Perfectly inelastic
> 0 < 1		Demand changes by a smaller proportion than price	Inelastic
1		Demand changes by the same proportion as price	Unit elasticity
> 1 < ∞		Demand changes by a larger proportion than price	Elastic
∞		Any increase in price causes demand to fall to zero	Perfectly elastic

Types of Price Elasticity of Demand:

Click link below for detail notes on Price elasticity (Also refer to your book)

https://nios.ac.in/media/documents/SrSec318NEW/318_Economics_Eng/318_Economics_Eng_Lesson16.pdf

Methods of Measurement of Price Elasticity of Demand

1. **Percentage Method**
2. **Total Outlay/ Expenditure Method**
3. **Point Method**
4. **Arc Method**

1. Percentage Method

- Most commonly used method.

$$Price\ Elasticity = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Methods of Measurement of Price Elasticity of Demand

2. Total Outlay/ Expenditure Method

- Developed by Alfred Marshall.
- Measure by observing the change in price, the resulting change in total quantity purchased and the amount of total expenditure made on the purchase.
- To find the extent of elasticity, comparison is made on the total expenditures before and after change in the price of good.
- To find price elasticity using expenditure method we use H.H. Liebhafsky's formula:

$$E_P = 1 - \frac{\Delta Exp}{Q \, x \, \Delta P}$$

Expenditure Method Example

Price per subscription	Subscription Demanded	Total Expenditure	Price Elasticity	Direction of Price	Direction of Expenditure
60	1	60 x 1 = 60	Ep >1		
50	2	50 x 2 = 100			
40	3	120	Ep = 1		Constant
30	4	120			
20	5	100	Ep <1		
10	6	60			

Conclusion from Price Elasticity by Expenditure Method

i. If P ↓ and TE ↑ or P ↑ and TE ↓	Ep >1 (Elastic)
ii. If P ↓ and TE ↓ or P ↑ and TE ↑	Ep <1 (Inelastic)
iii. If P ↓ or P ↑ but TE remains constant	Ep = 1 (Unitary Elastic)

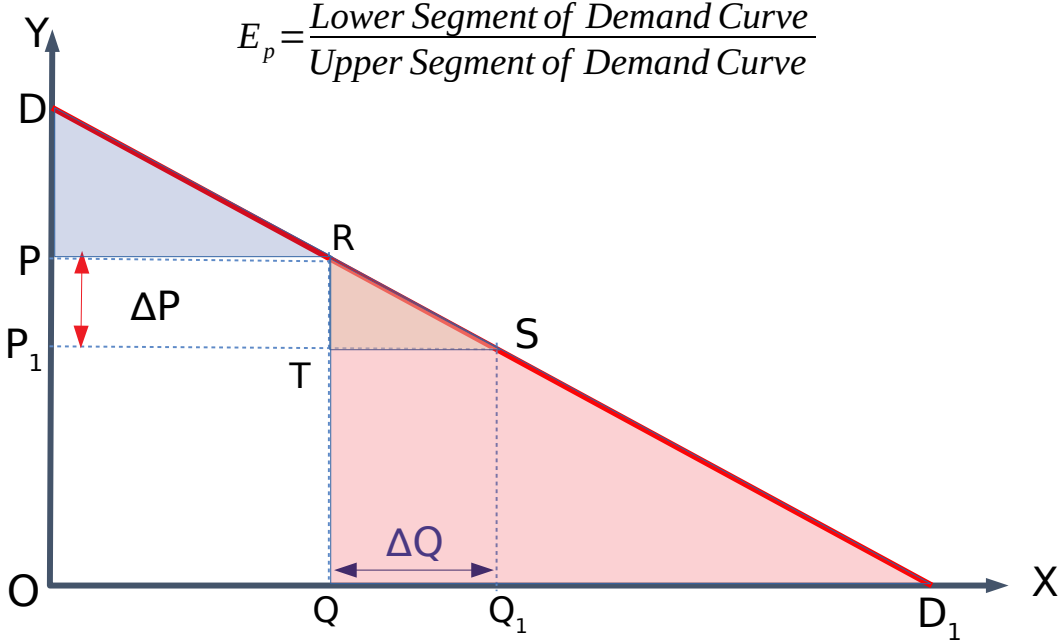
Thus it can be concluded that:

- If the direction of the price and expenditure are opposite, then the demand is elastic.
- If the direction of the price and expenditure are same, then the demand is inelastic.
- If the expenditure remains constant, then the demand is unitary elastic.

Price Elasticity of Demand by Point Method

- **Definition:**
  - Also known as geometrical method.
  - Estimates elasticity of demand at particular point in demand curve.
  - Ep is calculated by taking two segments from a particular point in demand curve.
  - The formula to obtain price elasticity E_p using this method is:

$$E_p = \frac{Lower\ Segment\ of\ Demand\ Curve}{Upper\ Segment\ of\ Demand\ Curve}$$



Use of Price Elasticity in Business Decision Making

- Firms or Businesses need to the effect of changes in price on the demand for both product and input in the market. Some of the application of price elasticity in business decisions are:

1. **Product Pricing:**
   - Price cutting or price rising strategies to maximize profit.
   - If demand is highly elastic, price cut would lead to increase in sales.
   - If demand is inelastic, price rise would not lead to loss of sales.

2. **Price Discrimination:**
   - Monopolist can differentiate market.
   - Charges low price in highly elastic market while high price in inelastic market.

3. **Pricing of Input:**
   - If demand for input is elastic, producers are prepared to offer low price.
   - If demand for input is inelastic, producers are prepared to offer high price.

4. **Pricing of Joint Products:**
   - More than two product produced from the same plant. Example: web design and mobile apps.
   - In such case, pricing is based on price elasticity of demand.
   - Higher price for less elastic and lower price for elastic products.

Use of Price Elasticity in Business Decision Making

5. **Demand Forecasting:**
   - Demand can be estimated based price fluctuations and trend analysis in the past to find out the estimate value of demand in the future.

6. **To Trade Unions:**
   - Demand for product is elastic, union leaders will bargain for higher wages.
     ➔ Suggest producers to cut prices and increase sales.
   - For inelastic product, cannot bargain much.

7. **Discount Decision:**
   - If product demand is elastic, discount decision is effective.
   - If product demand is inelastic, discount decision is ineffective.

Income Elasticity of Demand

Demand and Income are positively related. So, the slope of quantity demanded and income will be positive.

- ✔ Demand and Income are positively related. So, the slope of quantity demanded and income will be positive.
- ✔ This also means that quantity demanded increases with increase in income and decreases with decrease in income.
- ✔ Income elasticity of demand measures the degree to which consumers respond to a change in their incomes by buying more or less of a particular good when other things remaining same.

Methods of Calculating Income Elasticity of Demand:

- Percentage Method
- Point Method
- Arc Method

Methods of Measurement of Income Elasticity of Demand

1. Percentage Method

- Most commonly used method.

$$\rightarrow E_y = \frac{Percentage\,change\,inn\,quantity\,demanded\,for\,a\,good}{Percentage\,change\,inn\,Income\,of\,the\,buyer}$$

$$\rightarrow E_y = \frac{\%\Delta Q}{\%\Delta Y}$$

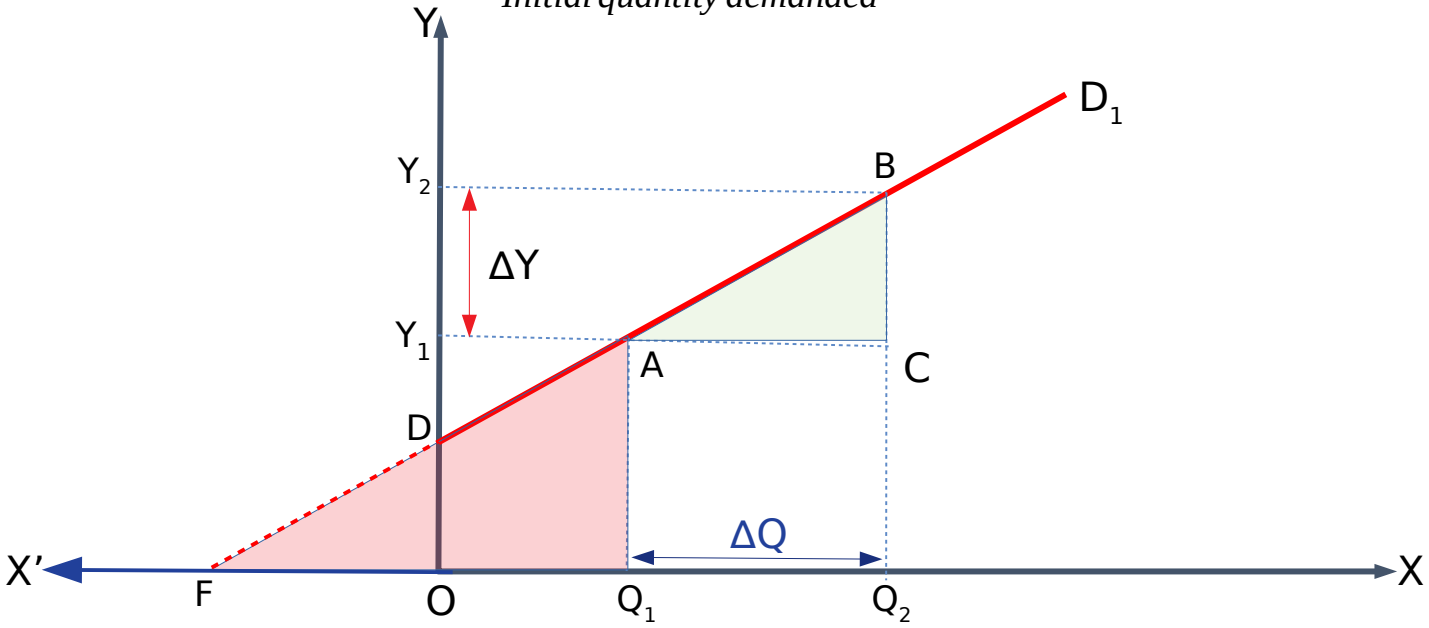
$$\rightarrow E_y = \frac{\frac{\Delta Q}{Q} x\,100}{\frac{\Delta Y}{Y} x\,100}$$

$$\rightarrow E_y = \frac{\Delta Q}{\Delta Y} x \frac{Y}{Q}$$

Income Elasticity of Demand by Point Method

- **Definition:**
  - Also known as geometrical method.
  - Estimates elasticity of demand at particular point in income and demand curve.
  - The formula to obtain price elasticity E_p using this method is:

$$E_y = \frac{Intercept\ on\ X-axis}{Initial\ quantity\ demanded}$$



Use of Income Elasticity in Business Decision Making

1. Long Term Business Planning:

Income elasticity helps in predicting demand for comfort and luxury goods in the long run.

Enables firms to plan for future growth in sales accordingly.

2. Market Strategy:

Utilizing income elasticity to develop effective market strategies tailored to consumer income levels.

Housing Development Strategies:

Predicting housing development requirements based on income elasticity for effective construction planning.

3. Classification of Goods:

Normal Goods:

Positive income elasticity (ey).

Demand increases with income.

Luxury Goods:

Positive and ey > 1.

Demand highly responsive to income changes (e.g., TV sets).

Essential Goods:

Positive and ey < 1.

Demand relatively stable with income changes (e.g., food grains).

Inferior Goods:

Negative income elasticity (ey).

Demand decreases as income rises (e.g., certain cereals like millet).

Cross Elasticity of Demand

Demand of a good is related depending upon price of other goods as per their nature: substitute goods or complementary goods. So, the slope of quantity demanded can be both positive or negative.

- For substitute goods, if price of a good rises then demand of goods increases. So, slope is positive.
- For complementary goods, if price of a good rises then demand of another good falls. So, slope is negative.

✔ Cross elasticity of demand measures the change in **quantity of demand of one good** to which consumers respond to a **change in price of another good** when other things remaining same.

Methods of Calculating Income Elasticity of Demand:

- Percentage Method
- Point Method
- Arc Method

Methods of Measurement of Cross Elasticity of Demand

1. Percentage Method

- Most commonly used method.

$$\rightarrow E_A = \frac{Percentage\ change\ \text{in}\ quantity\ demanded\ for\ good\ A}{Percentage\ change\ \text{in}\ Price\ of\ Good\ B}$$

$$\rightarrow E_A = \frac{\%\Delta Q_A}{\%\Delta P_B}$$

$$\rightarrow E_A = \frac{\frac{\Delta Q_A}{Q_{A_1}} x\ 100}{\frac{\Delta P_B}{P_{B_1}} x\ 100}$$

$$\rightarrow E_A = \frac{\Delta Q_A}{\Delta P_B} x \frac{P_{B_1}}{Q_{A_1}}$$

Use of Cross Elasticity in Business Decision Making

1 **To formulate business policy policies:**
- Help businessmen to mould their business policies.
- For instance, IT software producers may find the demand for their application to be increased when price of mobile and laptops fall.

2 **To classify goods and markets:**
- Cross elasticity of demand is supposed to be import classify the nature of goods and markets.
- Higher the negative value, the more degree of complementarity and higher the positive value the more degree of substitute.

3 **Pricing strategies:**
- The concept of cross elasticity is significant in charging price of products having substitutes and complementary goods. If cross elasticity in response to the price substitutes is greater than one, then it is beneficial to reduce price.
- In case of complementary goods reducing price may be help maintaining the demand if the price of the complementary goods is rising.

Concept of Elasticity of Supply

Elasticity:

- Ability to stretch.
- It is response by dependent variable due to the change in independent variable while holding relevant variables constant.

Elasticity of Supply:

- The measure of responsiveness of quantity supplied (dependent variable) to the change in one of the determinants (independent variables).
- It states how much buyers will increase or decrease their production on a percentage basis due to the change in price of respective goods and service.
- Elasticity is important as it answers question of by how much the supply will change when its determinants change.

Degrees/Types of Elasticity of Supply

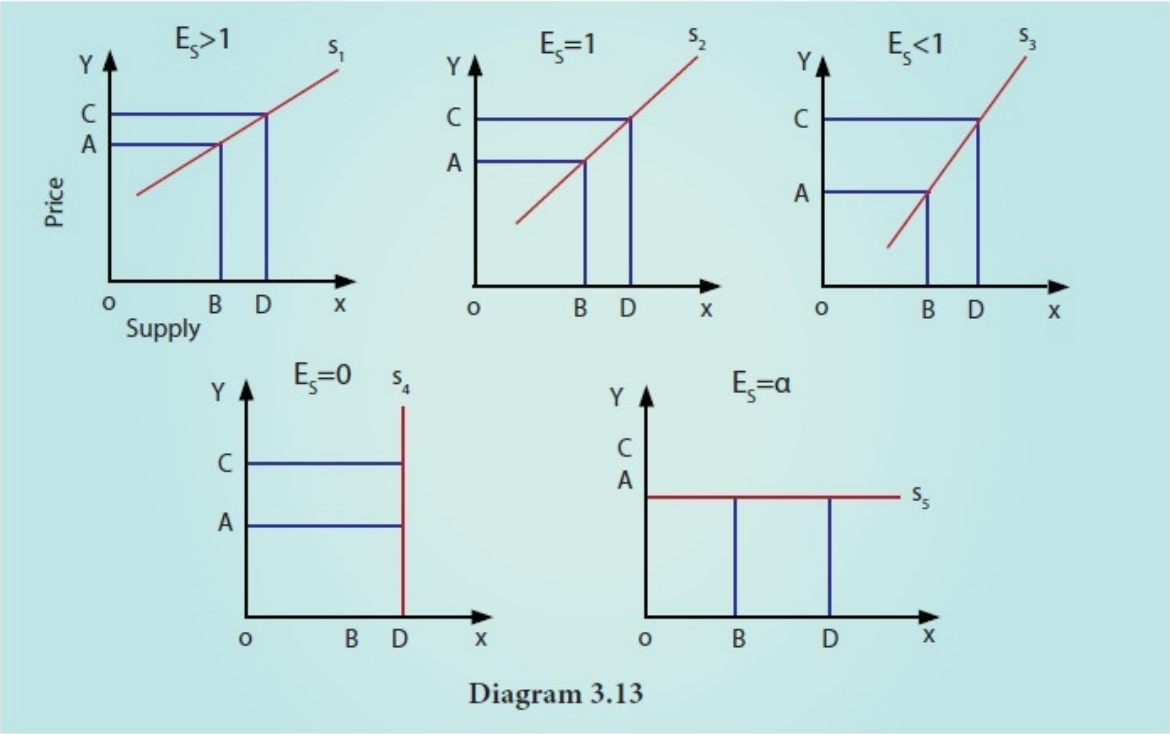


Diagram 3.13

Types of Price Elasticity of Supply:

Click link below for detail notes on Price elasticity
(Also refer to your book)

PDF of price elasticity of Supply

Methods of Measurement of Price Elasticity of Supply

1. **Percentage Method**
2. **Point Method**
3. **Arc Method**

1. Percentage Method

- Most commonly used method.

$$Price\ Elasticity = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Methods of Measurement of Price Elasticity of Demand

2. Total Outlay/ Expenditure Method

- Developed by Alfred Marshall.
- Measure by observing the change in price, the resulting change in total quantity purchased and the amount of total expenditure made on the purchase.
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