PRICE, INCOME AND CROSS ELASTICITY

Dr. Soma Saha
Associate Professor
Netaji Nagar College for Women

ELASTICITY – THE CONCEPT

- The responsiveness of one variable to changes in another
- Elasticity measures the extent to which demand will change

ELASTICITY – THE CONCEPT

- If price rises by 10% - what happens to demand?
- We know demand will fall
- By more than 10%?
- By less than 10%?
- **Elasticity measures the <u>extent</u> to which demand will change**

ELASTICITY

3 types of Elasticity:

- Price elasticity of demand
- Income elasticity of demand
- Cross Price elasticity of demand

ELASTICITY

- Price Elasticity of Demand
  - The responsiveness of demand to changes in price
  - Where % change in demand is greater than % change in price – **Elastic Demand**
  - Where % change in demand is less than % change in price - **Inelastic Demand**

ELASTICITY

The Formula:

$$= \frac{\text{\% Change in Quantity Demanded}}{\text{\% Change in Price}}$$

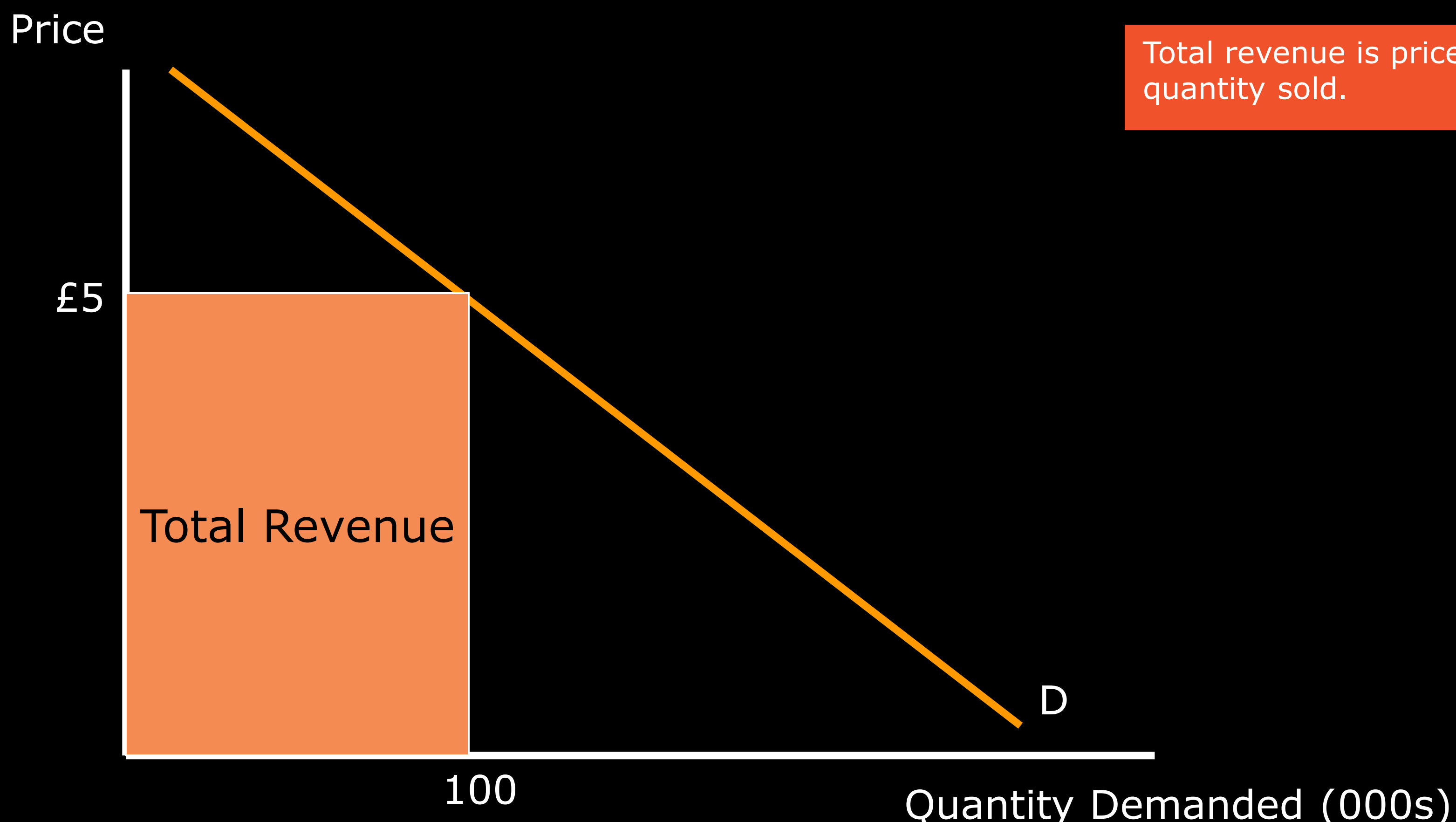
If answer is between 0 and -1: the relationship is inelastic

If the answer is between -1 and infinity: the relationship is elastic

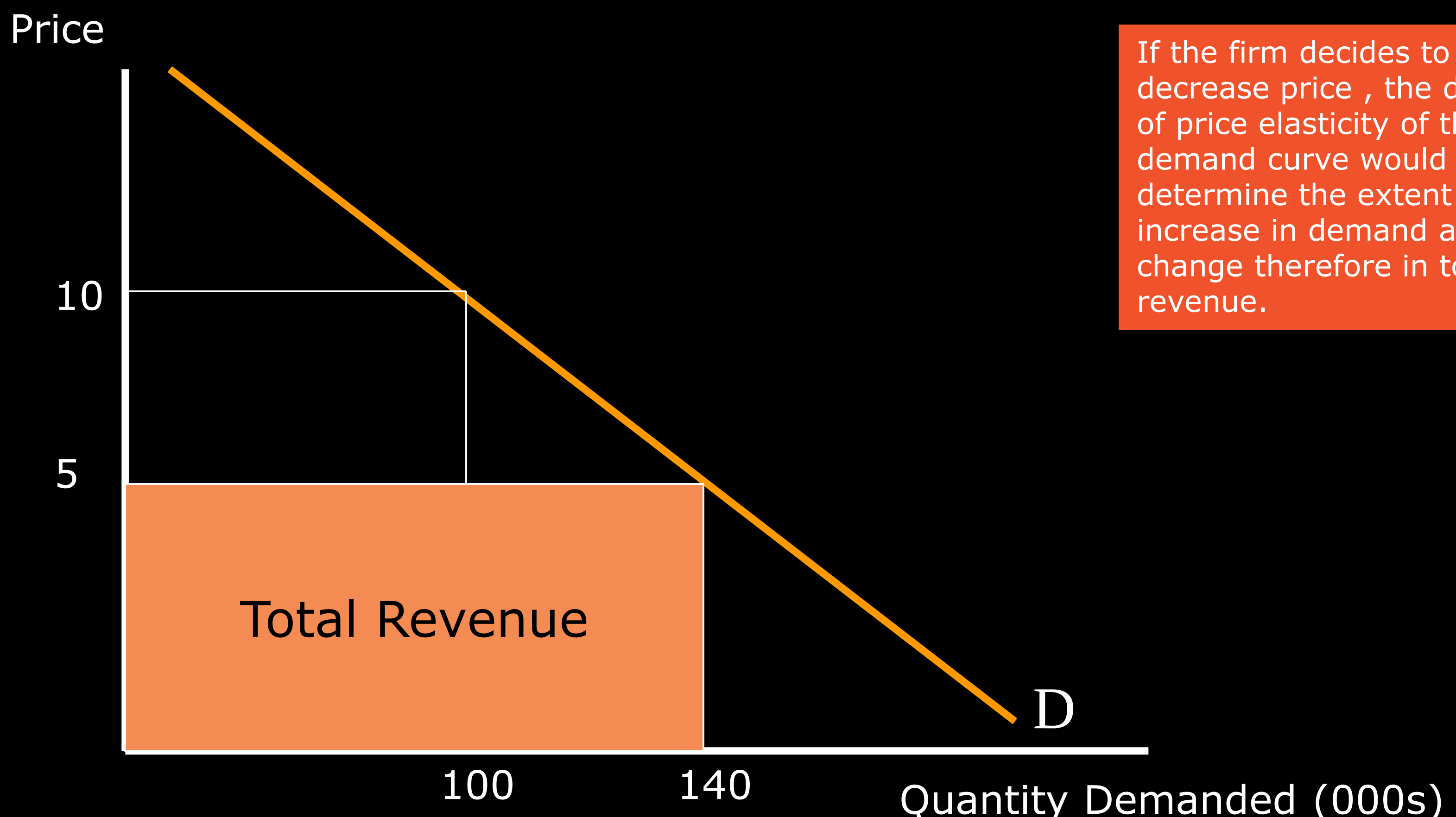
Note: has – sign in front of it; because as price rises demand falls and vice-versa (inverse relationship between price and demand)

ELASTICITY

Total revenue is price x quantity sold.

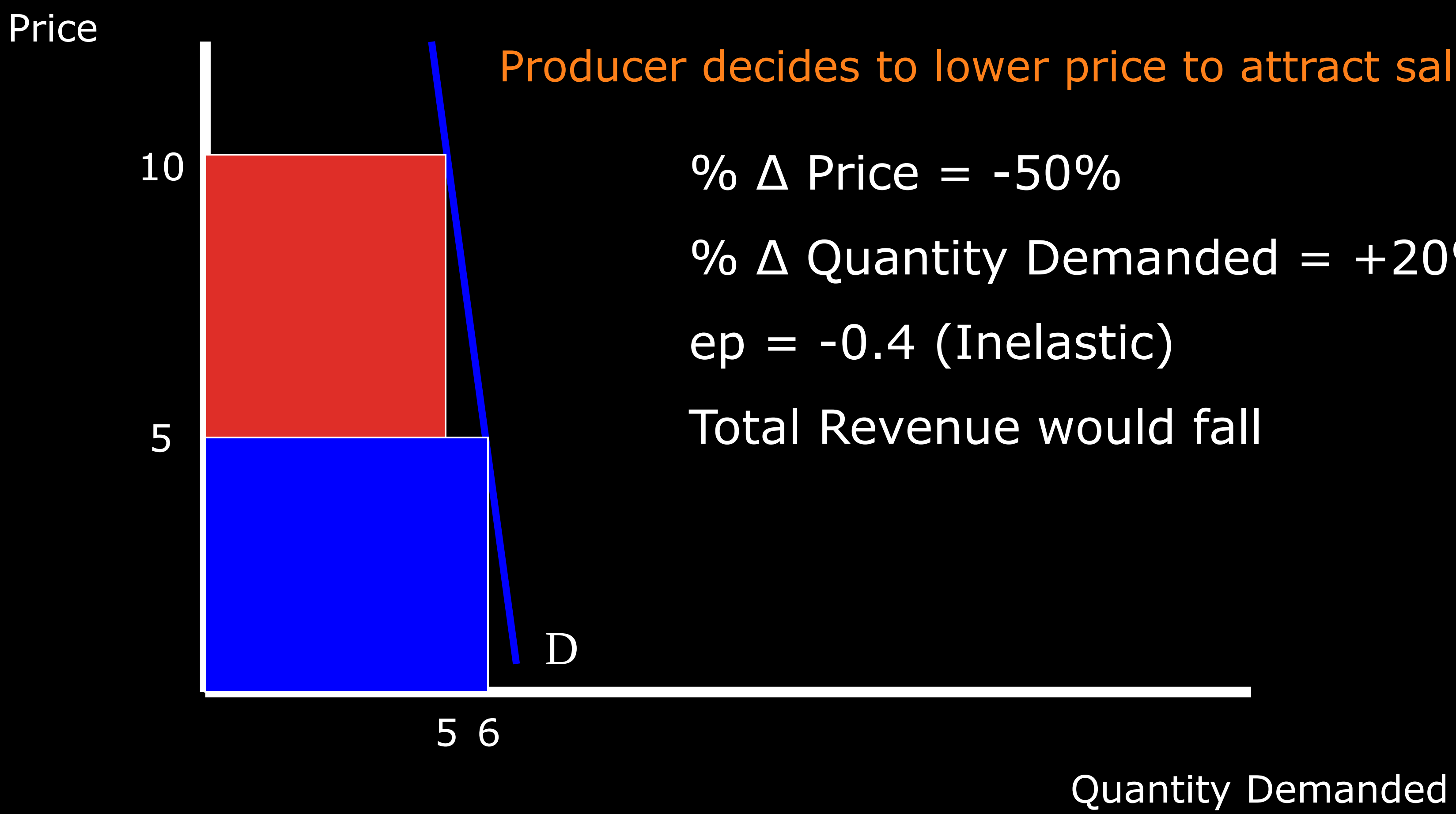


Elasticity



If the firm decides to decrease price , the degree of price elasticity of the demand curve would determine the extent of the increase in demand and the change therefore in total revenue.

ELASTICITY



Producer decides to lower price to attract sales

% Δ Price = -50%

% Δ Quantity Demanded = +20%

ep = -0.4 (Inelastic)

Total Revenue would fall

ELASTICITY

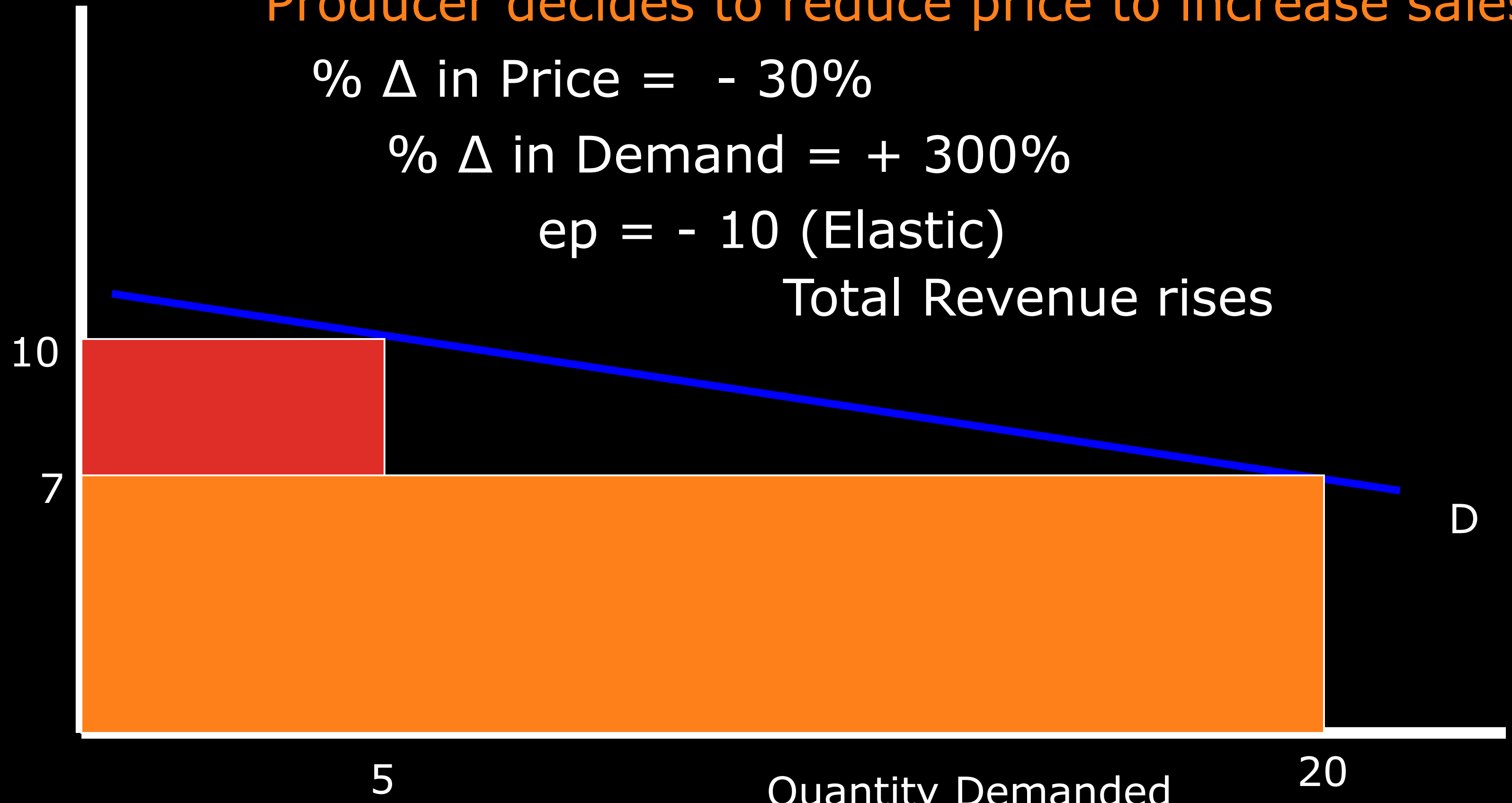
Producer decides to reduce price to increase sales

% Δ in Price = - 30%

% Δ in Demand = + 300%

ep = - 10 (Elastic)

Total Revenue rises



ELASTICITY

- If demand is price elastic:
- Increasing price would reduce TR (%Δ Qd > % Δ P)
- Reducing price would increase TR

  (%Δ Qd > % Δ P)

- **If demand is price inelastic:**
- Increasing price would **increase** TR

  (%Δ Qd < % Δ P)

- Reducing price would **reduce** TR (%Δ Qd < % Δ P)

ELASTICITY

- **Income Elasticity of Demand:**
  - The responsiveness of demand to changes in incomes
- **Normal Good** – demand rises as income rises and vice versa
- **Inferior Good** – demand falls as income rises and vice versa

ELASTICITY

- **Income Elasticity of Demand**:

- A positive sign denotes a <u>normal good</u>
- A negative sign denotes an <u>inferior good</u>

ELASTICITY

- **Cross Elasticity:**
- The responsiveness of demand of one good to changes in the price of a related good – either a substitute or a complement

$$Xed = \frac{\%\ \Delta\ \text{Qd of good t}}{\%\ \Delta\ \text{Price of good y}}$$

ELASTICITY

- **Goods which are complements**:
  - Cross Elasticity will have negative sign (inverse relationship between the two)
- **Goods which are substitutes**:
  - Cross Elasticity will have a positive sign (positive relationship between the two)

ELASTICITY

- **Price Elasticity of Supply:**
  - The responsiveness of supply to changes in price
  - If Pes is **inelastic** - it will be difficult for suppliers to react swiftly to changes in price
  - If Pes is **elastic** – supply can react quickly to changes in price

$$\text{Pes} = \frac{\%\ \Delta\ \text{Quantity Supplied}}{\%\ \Delta\ \text{Price}}$$

DETERMINANTS OF ELASTICITY

- **Time period** – the longer the time under consideration the more elastic a good is likely to be
- **Number and closeness of substitutes** – the greater the number of substitutes, the more elastic
- **The proportion of income taken up by the product** – the smaller the proportion the more inelastic
- **Luxury or Necessity** - for example, addictive drugs