

# What Causes Demand to be Inelastic?

- 1 Necessity
- 2 Smaller the number of close substitute
- 3 Date of purchasing the good cannot be rescheduled
- 4 Less proportion of income is spent on the good

# What Causes Demand to be Elastic?

- 1 Luxury
- 2 Larger the number of close substitute
- 3 Date of purchasing can be rescheduled
- 4 Larger proportion of income is spent on the good

# Income Elasticity of Demand

The income elasticity of demand is the percentage change in quantity demanded, resulting from a 1% change in income. It is measured by:

$$\begin{aligned} e_I &= \frac{\Delta Q/Q}{\Delta I/I} \\ &= \frac{I}{Q} \frac{\Delta Q}{\Delta I} \\ &= \frac{\text{Percentage Change in Quantity Demand}}{\text{Percentage Change in Income}} \end{aligned}$$

# Income Elasticity of Demand

- ① If  $e_I < 0$  holds; we have *inferior* good. E.g., Public bus ride
- ② If  $e_I > 0$  holds; we have *normal* good. E.g., Goods which are essential; Salt, Medicines
  - *Essential goods* tend to have a *smaller income elasticity* (typically,  $e_I < 1$ ).  
E.g., Food Grains
  - *Luxury goods* tend to have a *higher income elasticity*; (typically,  $e_I > 1$ ).  
E.g., Demand for SUVs
- ③ If  $e_I = 0$  holds; then the demand for the good is *income inelastic*.

# Cross-Price Elasticity of Demand

The demand for some goods is also affected by the prices of other goods. For example, because tea and coffee can easily be substituted for each other, the demand for each depends on the price of the other.

A **cross-price elasticity of demand** refers to the percentage change in the quantity demanded for a good that results from a 1% increase in the price of another good.

$$\begin{aligned}e_{Q_j P_i} &= \frac{\Delta Q_j / Q_j}{\Delta P_i / P_i} \\&= \frac{P_i}{Q_j} \frac{\Delta Q_j}{\Delta P_i} \\&= \frac{\text{Percentage Change in Quantity Demand of Good } j}{\text{Percentage Change in Price of Good } i}\end{aligned}$$

# Cross-Price Elasticity of Demand

- 1 When the goods are complements,  $e_{Q_j P_i} < 0$ .

E.g., Petrol and Motor oil are complements. If the price of petrol increases then the quantity demanded of petrol falls as people would drive less vehicles. As people drive less the demand for motor oil too falls. Thus, the cross-price elasticity of petrol with respect to motor oil is negative.

- 2 When the goods are substitutes;  $e_{Q_j P_i} > 0$ .

E.g., A rise in the price of tea, which makes coffee cheaper relative to tea, leads to an increase in the quantity of coffee demanded.

- 3 When goods are unrelated;  $e_{Q_j P_i} = 0$

E.g., Quantity demand of mobile phones and price of gold.