

MGT 104

Microeconomics

Price Elasticity of Demand

Definition: the effect of change in price on the quantity of demand.

$$\text{PED} = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}}$$



1. Perfectly Inelastic Demand ($PED = 0$)

Definition: Quantity demanded does not change regardless of changes in price.

Illustration:

- Price increases from Tk. 100 to Tk. 150.
- Quantity demanded remains 50 units.

Price (Tk.)	Quantity Demanded
100	50
150	50

Example: Life-saving medicines such as insulin for diabetic patients.

2. Relatively Inelastic Demand ($PED < 1$)

Definition: Percentage change in quantity demanded is less than the percentage change in price.

Illustration:

- Price increases by 20%.
- Quantity demanded decreases by only 5%.

Price (Tk.)	Quantity Demanded
100	100
120	95

Example: Salt, electricity, basic food items.

Interpretation: Consumers continue purchasing despite price increases.

3. Unit Elastic Demand ($PED = 1$)

Definition: Percentage change in quantity demanded equals the percentage change in price.

Illustration:

- Price decreases by 10%.
- Quantity demanded increases by 10%.

Price (Tk.)	Quantity Demanded
100	100
90	110

Example: A hypothetical product where consumers respond proportionately to price changes.

Interpretation: Total revenue remains unchanged.

4. Relatively Elastic Demand ($PED > 1$)

Definition: Percentage change in quantity demanded is greater than the percentage change in price.

Illustration:

- Price decreases by 10%.
- Quantity demanded increases by 25%.

Price (Tk.)	Quantity Demanded
100	100
90	125

Example: Restaurant meals, branded clothing, consumer electronics.

Interpretation: Consumers are highly responsive to price changes.

5. Perfectly Elastic Demand ($PED = \infty$)

Definition: Consumers are willing to buy any quantity at a particular price, but none at a slightly higher price.

Illustration:

- At Tk. 100, consumers buy unlimited quantities.
- At Tk. 101, demand falls to zero.

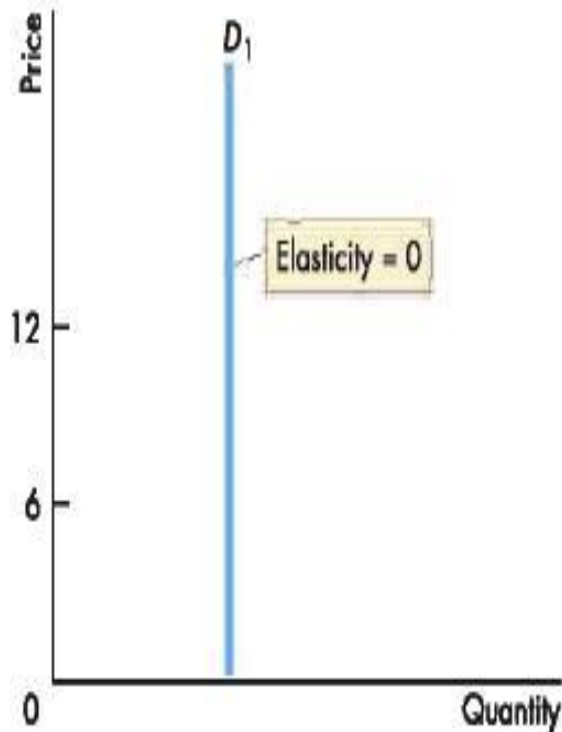
Price (Tk.)	Quantity Demanded
100	Unlimited
101	0

Example: Products in a perfectly competitive market where identical substitutes are available.

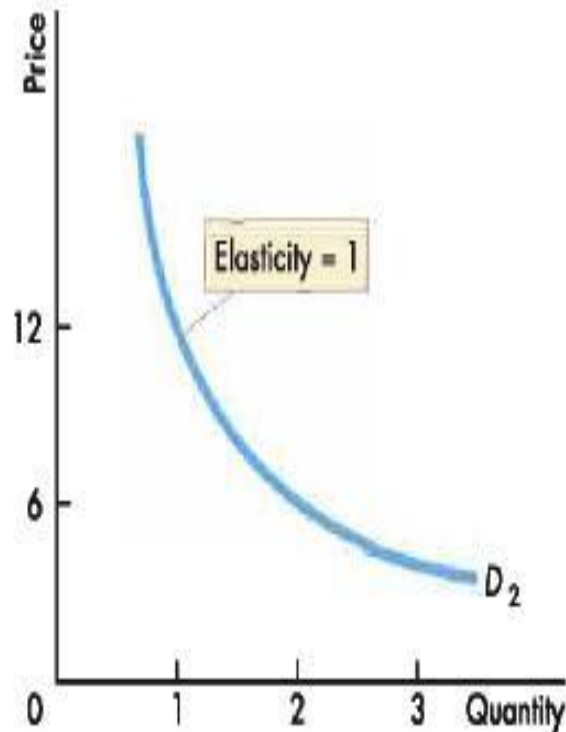
Graphical Shape: Horizontal demand curve.

Type of Elasticity	PED Value	Nature of Demand	Example
Perfectly Inelastic	0	No response to price change	Life-saving drugs
Relatively Inelastic	Less than 1	Small response	Salt, electricity
Unit Elastic	1	Proportional response	Theoretical case
Relatively Elastic	Greater than 1	Large response	Clothing, electronics
Perfectly Elastic	Infinity	Extremely responsive	Perfect competition products

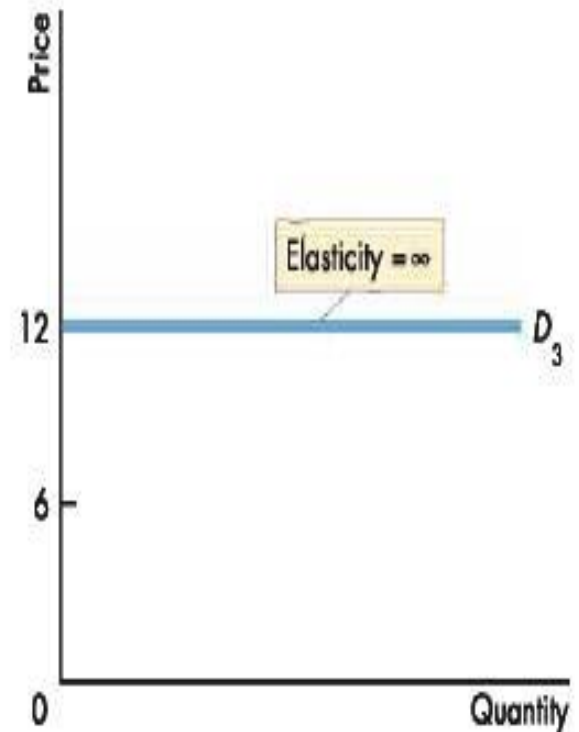
Elasticity of Demand



(a) Perfectly inelastic demand



(b) Unit elastic demand



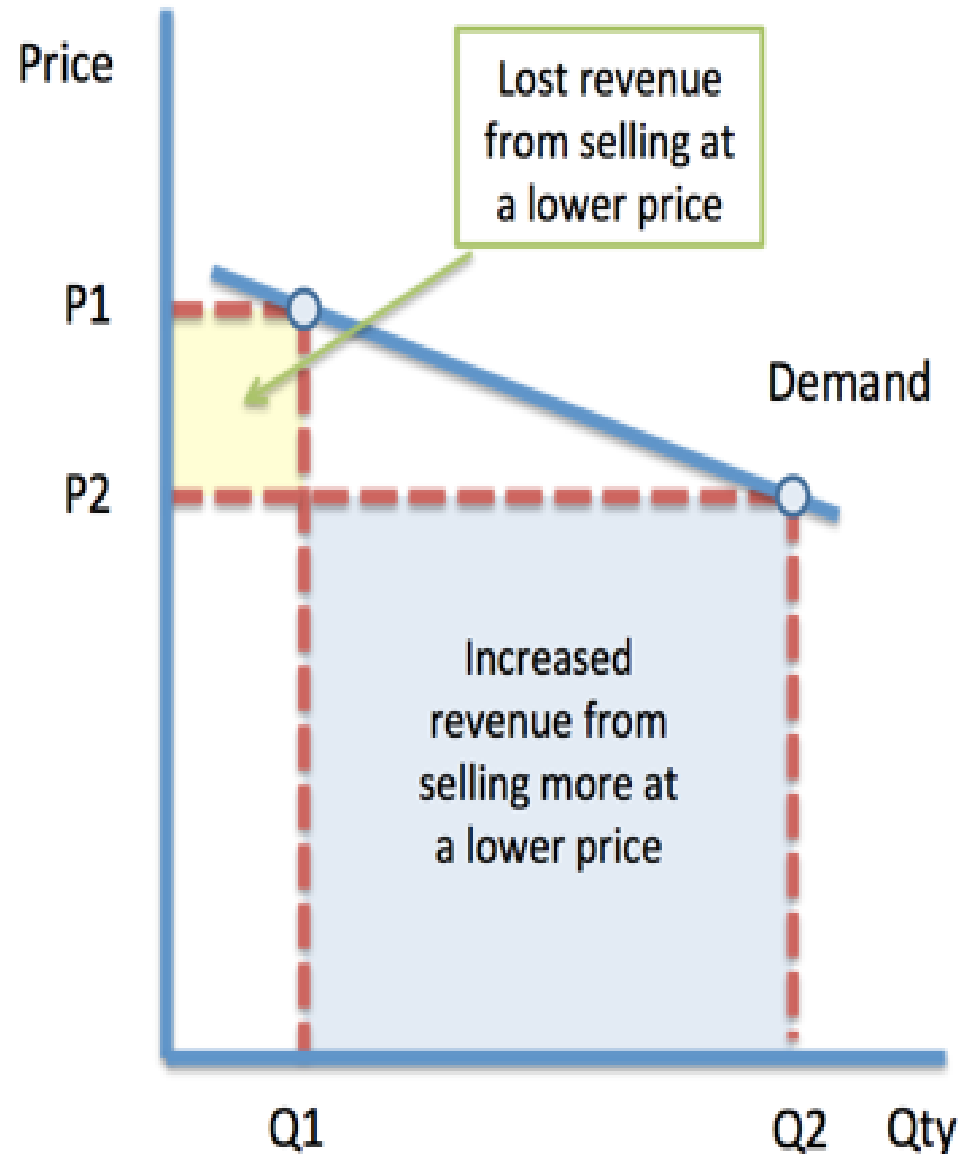
(c) Perfectly elastic demand

Each demand illustrated here has a constant elasticity. The demand curve in part (a) illustrates the demand for a good that has a zero elasticity of demand. The demand curve in part (b)

illustrates the demand for a good with a unit elasticity of demand. And the demand curve in part (c) illustrates the demand for a good with an infinite elasticity of demand.

Income Elasticity of Demand

- If demand for a product is price elastic, a supplier stands to gain extra revenue if they reduce their prices.
- The change in quantity demanded will be proportionately higher than the reduction in price. This is shown in the diagram opposite.



Income Elasticity of Demand

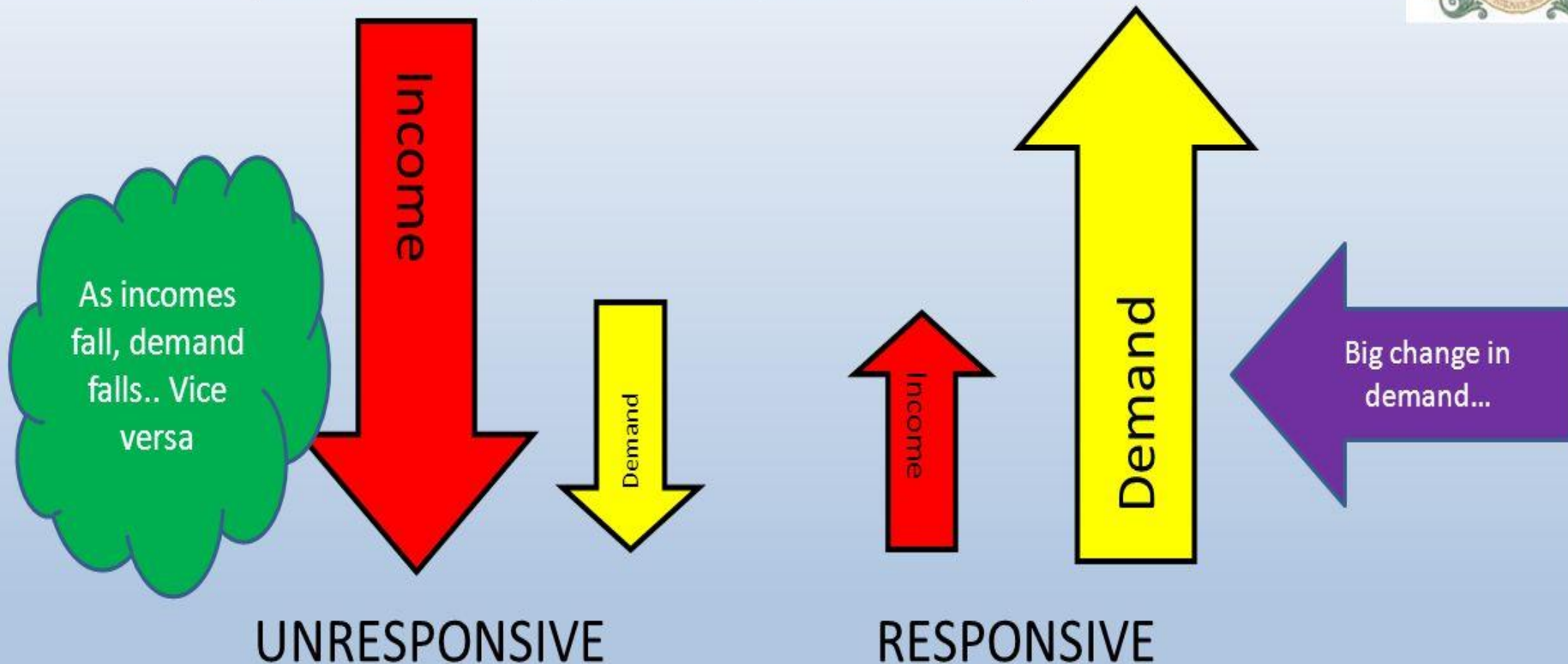
Economics Section: Income elasticity

Further Reading c.9

Keywords – Income elastic, income inelastic, normal good, inferior good, discretionary.



YED is mostly positively correlated.



Price and Income Elasticity of Demand

Elasticity measures the responsiveness of a variable to a change in another variable.

Price Elasticity of Demand (PED)

The responsiveness of the quantity demanded of a good or service to a change in the price.

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

$$0 \geq PED > -1$$

Inelastic Demand

Percentage change in demand is less than percentage change in price.

$$-1 > PED \geq -\infty$$

Elastic Demand

Percentage change in demand is more than percentage change in price.

Product
Differentiation

Availability of
Substitutes

Customer
Loyalty

Income Elasticity of Demand (YED)

The responsiveness of the quantity demanded of a good or service to a change in income.

$$YED = \frac{\Delta\% \text{ in Quantity Demanded}}{\Delta\% \text{ in Income}}$$

Inferior Good

$$YED < 0$$

Income
Demand



Normal Good

$$0 < YED$$

Income
Demand



Luxury Good

$$YED > 1$$

Income
Demand



Why is it so important to know the Income Elasticity of Demand (YED) from a firm's perspective?