Lecture 5:
Elasticity

- Price Elasticity of Demand
- Cross Elasticity of Demand
- Income Elasticity of Demand
- Supply Elasticity of Demand

Ref:

1. Economics (8e), Roger A. Arnold

baki.eco@gmail.com

Price Elasticity of Demand

-A measure of the responsiveness of quantity demanded to changes in price

$$E_d = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}} = \frac{\%\Delta Q_d}{\%\Delta P}$$

$$E_d = \frac{\frac{\Delta Q_d}{Q_{d\ Average}}}{\frac{\Delta P}{P_{Average}}}$$

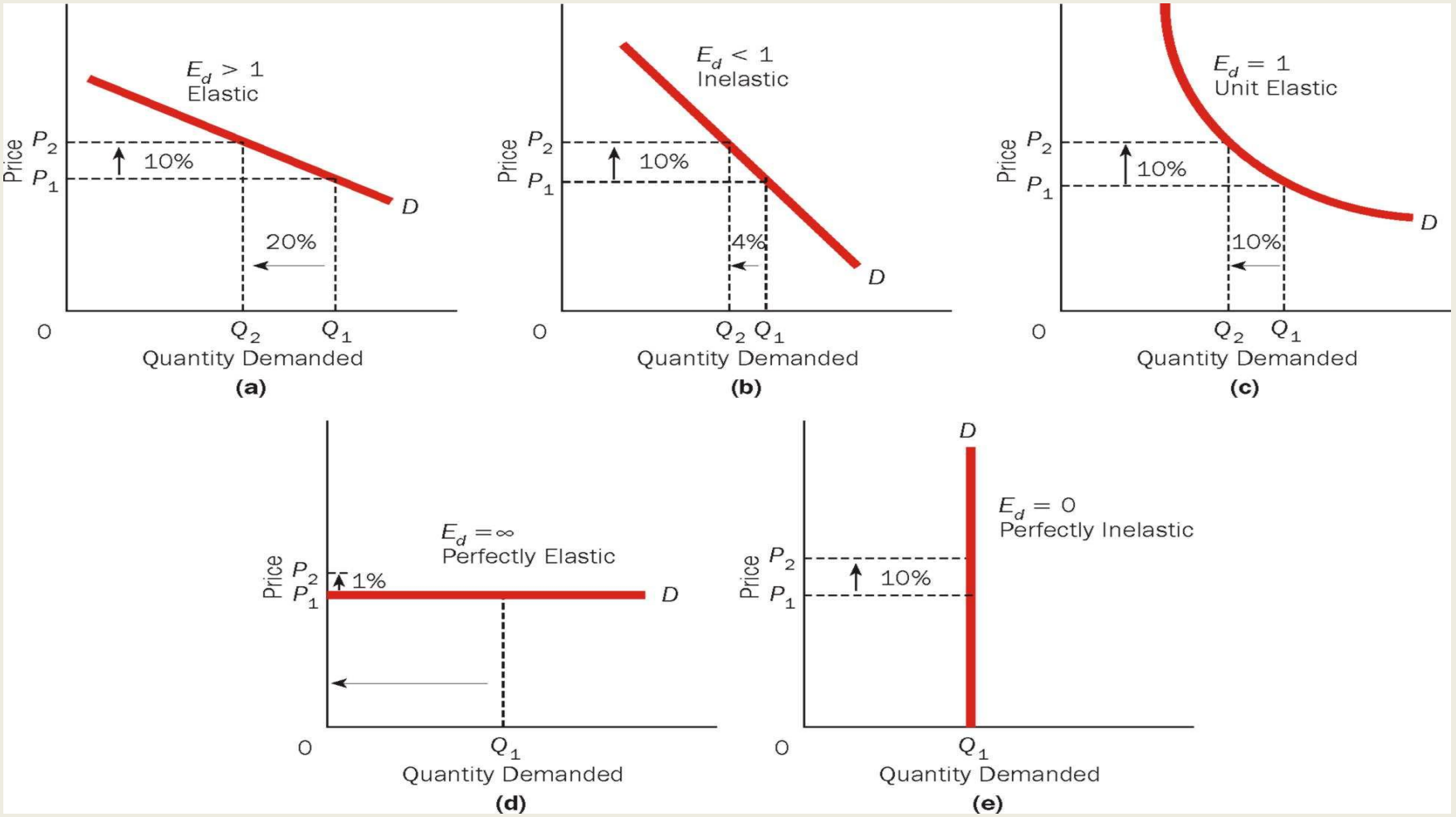
E_d = Elasticity coefficient
Q_d = Quantity Demand
% = Percentage
Δ = Stands for change in

* Elasticity Coefficient (E_d) of Price Elasticity of Demand is a absolute value

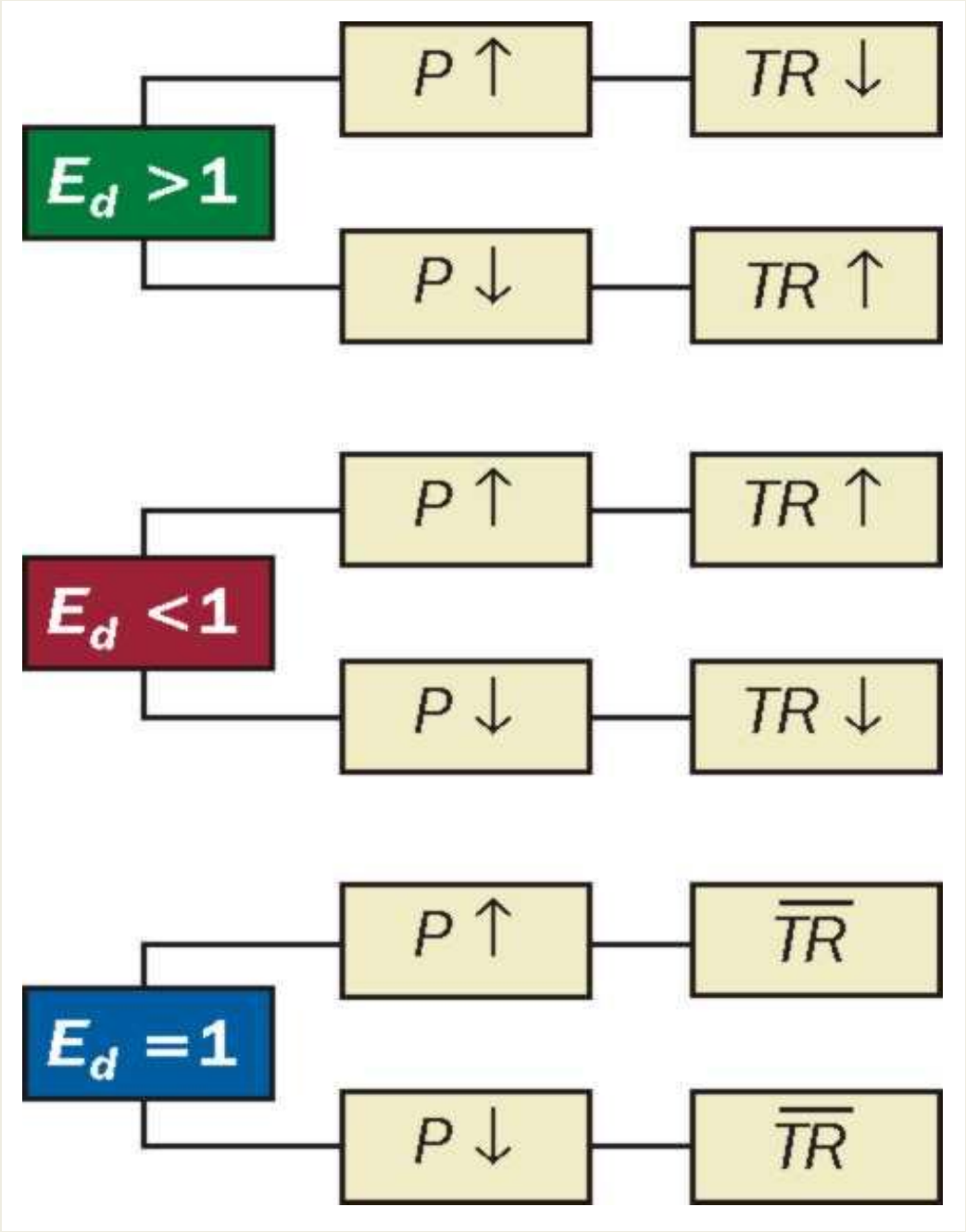
Price Elasticity of Demand

Elasticity Coefficient	Responsiveness of Quantity Demanded to a Change in Price	Terminology
$E_d > 1$	Quantity demanded changes proportionately more than price changes: $\%\Delta Q_d > \%\Delta P$.	Elastic
$E_d < 1$	Quantity demanded changes proportionately less than price changes: $\%\Delta Q_d < \%\Delta P$.	Inelastic
$E_d = 1$	Quantity demanded changes proportionately to price change: $\%\Delta Q_d = \%\Delta P$.	Unit elastic
$E_d = \infty$	Quantity demanded is extremely responsive to even very small changes in price.	Perfectly elastic
$E_d = 0$	Quantity demanded does not change as price changes.	Perfectly inelastic

Price Elasticity of Demand



Elasticities, Price Changes, and Total Revenue



Determinants of Price Elasticity on Demand

1. Number of Substitutes:

The more substitutes for a good, the higher the price elasticity of demand; the fewer substitutes for a good, the lower the price elasticity of demand.

2. Necessities Versus Luxuries:

The more that a good is considered a luxury (a good that we can do without) rather than a necessity (a good that we can't do without), the higher the price elasticity of demand.

Determinants of Price Elasticity on Demand

Percentage of One's Budget Spent on the Good:

The greater the percentage of one's budget that goes to purchase a good, the higher the price elasticity of demand; the smaller the percentage of one's budget that goes to purchase a good, the lower the elasticity of demand.

Time:

The more time that passes, the higher the price elasticity of demand for the good; the less time that passes, the lower the price elasticity of demand for the good.

Cross Elasticity of Demand

-Measures the responsiveness in quantity demanded of one good to changes in the price o another good.

$$E_c = \frac{\text{Percentage change in quantity demanded of one good}}{\text{Percentage change in price of another good}}$$

$E_c > 0 \rightarrow$ Goods are substitutes

$E_c < 0 \rightarrow$ Goods are complements

Income Elasticity of Demand

-Measures the responsiveness of quantity demanded to changes in income.

$$E_y = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$

$E_y > 0 \longrightarrow$ Normal good

$E_y < 0 \longrightarrow$ Inferior good

Price Elasticity of Supply

- Measures the responsiveness of quantity supplied to changes in price.

$$E_s = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$

Coefficient	Responsiveness	Terminology
$E_s > 1$	$\Delta \% Q_d > \% \Delta P$	Elastic
$E_s < 1$	$\Delta \% Q_d < \% \Delta P$	Inelastic
$E_s = 1$	$\Delta \% Q_d = \% \Delta P$	Unit Elastic
$E_s = \infty$	Extreme $\Delta\% Q_d$, as Small $\% \Delta P$	Perfectly Elastic
$E_s = 0$	No $\Delta\% Q_d$, as $\% \Delta P$	Perfectly Inelastic

Price Elasticity of Supply