ECO101: Introduction to Microeconomics

Lecture-8

Cross Elasticity of Demand (XED)

- XED measures the responsiveness of the **demand** for a good for a change in the **price** of its substitute or complement good

- XED = Percentage change in quantity demand
  Percentage change in Price of substitute/ complement

- If value of XED is positive → Substitute good
  If value of XED is negative → Complement good
  If value is ZERO then two goods are unrelated to each other

XED Example

- Suppose a price of coffee is 150tk and John sells 9 teas everyday
  Suddenly price of coffee rises to 250tk and now John sells 11 teas everyday
- Can you calculate the XED and find the relationship between coffee and tea?

Income Elasticity of Demand

- Do you not ask ourselves, as income increases what happens to a demand of a good you like?
- Income Elasticity of demand measures the responsiveness of the demand for a good or service to a change in income.

$$\text{Income Elasticity of Demand} = \frac{\%\text{ change in Quantity demanded}}{\%\text{ change in Income}}$$

- Again, Income Elasticity of Demand can be Positive or Negative

  If **Positive** and value greater than 1 then **Normal Good**, Income Elastic

  If **Positive** and value lower than 1 then **Normal Good**, Income Inelastic

  If Negative then Inferior good

Example- Income Elasticity of Demand

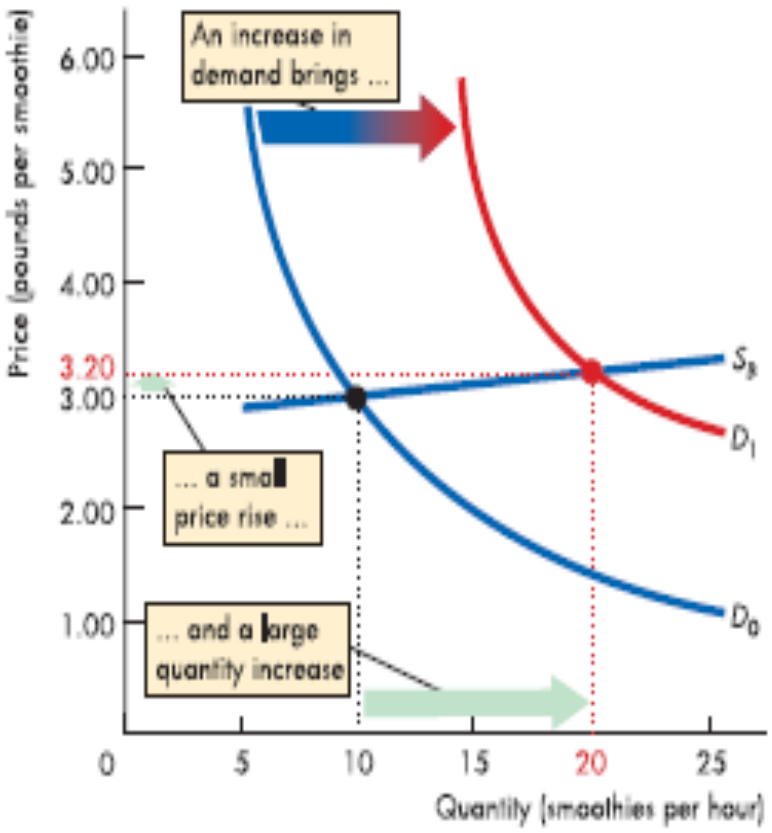
- Suppose, country's income per month increased from 50k to 60k and so change in quantity demanded of coffee increases from 9 to 11

  Therefore can you find out the Income elasticity demand of coffee?

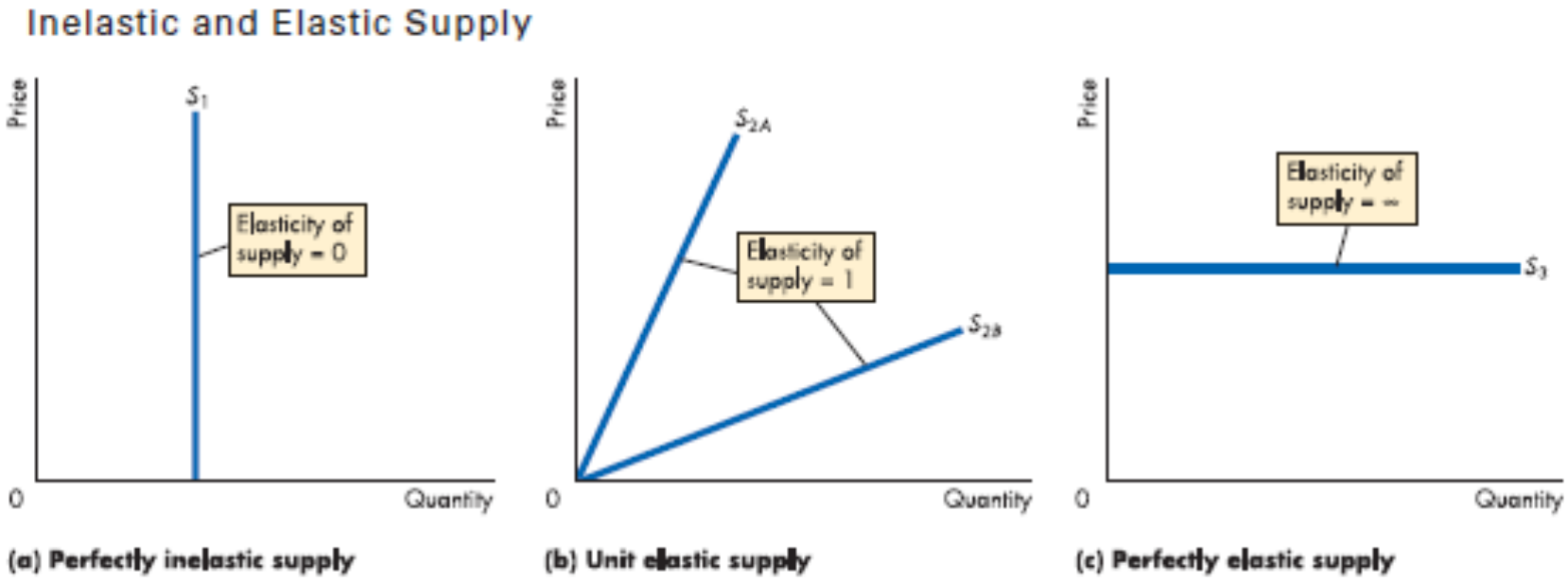
- -When demand is Income Elastic, as income increases the percentage of income spent on that good increases
  -When demand is Income Inelastic as income increases percentage of income spent on that good decreases
  -When Income Elasticity of Demand is negative=inferior good then demand for that good falls as income rises

Price Elasticity of Supply (PES)

- The Price Elasticity of Supply (PES) measures the responsiveness of quantity supplied to change in price
- PES = $\frac{\%\ \text{Change in Qs}}{\%\ \text{Change in Price}}$



Inelastic and Elastic Supply



(a) PES=0, quantity supplied is fixed regardless of the price

(b) PES=1, % change is supply equals % change in price. Every time the linear supply line passes through the origin then supply is Unit Elastic

(c) PES>1, the price where supplier is willing to offer any quantity

Factors that Affects PES

- Resource substitution possibilities:
  1.Some goods can be produced only by using rare or unique resources- these goods have an Inelastic or even Perfectly Inelastic Supply
  2. Some goods can be produced by using common available resources and they have Elastic or even Perfectly Elastic Supply
- Time frame for supply decisions:
  1. Momentary supply- this supply curve shows the response of the quantity supplied immediately after a price change. It is either Perfectly Inelastic or Elastic
  2. Long-run supply - In the long-run supply will be more ELASTIC as capital could be varied
  3. Short-run - In the short-run supply is more INELASTIC, as factory cannot immediately increase its capacity for more production

The Entire Elasticity Summed Up!!!

Table 4.1

A Compact Glossary of Elasticities of Demand

A relationship is described as	When its magnitude is	Which means that
Price Elasticity of Demand		
Perfectly elastic or infinitely elastic	Infinity	The smallest possible increase in price causes an infinitely elastic large decrease in the quantity demanded*
Elastic	Less than infinity but greater than 1	The percentage decrease in the quantity demanded exceeds the percentage increase in price
Unit elastic	1	The percentage decrease in the quantity demanded equals the percentage increase in price
Inelastic	Greater than zero but less than 1	The percentage decrease in the quantity demanded is less than the percentage increase in price
Perfectly inelastic or completely inelastic	Zero	The quantity demanded is the same at all prices
Cross Elasticity of Demand		
Perfect substitutes	Infinity	The smallest possible increase in the price of one good causes an infinitely large increase in the quantity demanded of the other good
Substitutes	Positive, less than infinity	If the price of one good increases the quantity demanded of the other good also increases
Independent	Zero	The quantity demanded of one good remains constant regardless of the price of the other good
Complements	Less than zero	The quantity demanded of one good decreases when the price of the other good increases
Income Elasticity of Demand		
Income elastic (normal good)	Greater than 1	The percentage increase in the quantity demanded is greater than the percentage increase in income
Income inelastic (normal good)	Less than 1 but greater than zero	The percentage increase in the quantity demanded is less than the percentage increase in income
Negative income elastic (inferior good)	Less than zero	When income increases, quantity demanded decreases
Price Elasticity of Supply		
Perfectly elastic	Infinity	The smallest possible increase in price causes an infinitely large increase in the quantity supplied
Elastic	Less than infinity but greater than 1	The percentage increase in the quantity supplied exceeds the percentage increase in the price
Inelastic	Greater than zero but less than 1	The percentage increase in the quantity supplied is less than the percentage increase in the price
Perfectly inelastic	Zero	The quantity supplied is the same at all prices

* In each description, the directions of change may be reversed. For example, in this case: the smallest possible *decrease* in the price causes an infinitely large *increase* in the quantity demanded.

Essential Readings for Today!

Economics. Parkin, Powell, Matthews. 8th Edition

Chapter-4 pages: 91 to 97