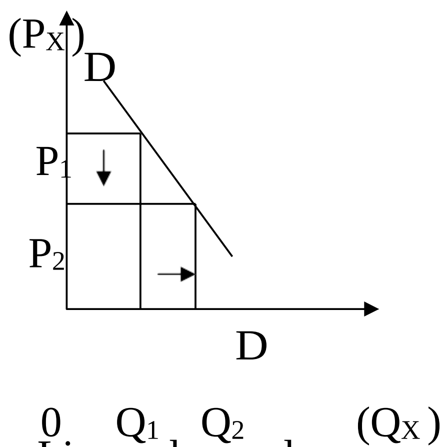
3.3

## 3.4 The Theory of Production

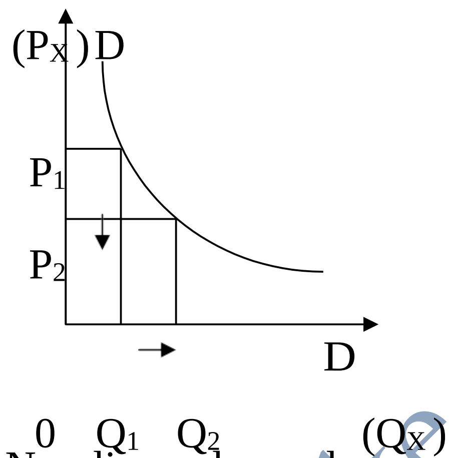
- Factors of pruoduction
- Demand and supply of factors of production
- Production function analysis
- Short run analysis
- Total product, average and marginal products
- Stages of production and the law of variable proportions: long run analysis returns to scale, isoquants
- Technological change
- Measurement and estimation of production functions
- Production under conditions of perfect competition, monopolistic competition, monopoly, and oligopoly.

### 3.3.1 The theory of cost

- Short run cost analysis and size of the firm: total cost, fixed cost, average cost, variable cost and marginal cost
- Long run cost analysis and economies of scale
- Least cost factor combination and expansion curve



Linear demand curve



Non-linear demand curve

To illustrate arc elasticity of demand

## Cross Elasticity Of Demand (Ex)

Cross elasticity of demand refers to the degree of responsiveness of the quantity demanded of a commodity (for example A) to changes in the price of a related commodity (e.g. B).

It is measured using the following general formula:

Commodity Z:

| PZ | QZ | Income (Y) |
|---|---|---|
| 12 | 20 | 10000 |
| 12 | 18 | 12000 |

An increase in income from 10000 to 12000 at constant price of 12 leads to a fall in demand from (20 to 18) units. It therefore follows that the demand for commodity Z is a decreasing function of income, implying that Z is an inferior good; an inferior good is that good whose demand is a decreasing function of consumer's income i.e. whose purchases is due to the consumer's present inability to afford close substitutes.

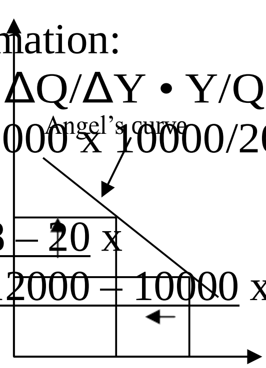
The income elasticity of demand for inferior goods is negative.

Confirmation:

Yed = ΔQ/ΔY • Y/Q

= (-2/2000 x 10000/20) = -½

OR (18 – 20 x 100)/(12000 – 10000 x 100)




Commodity W:

| PW | QW | Income (Y) |
|---|---|---|
| 10 | 20 | 10000 |
| 10 | 18 | 12000 |

Again, commodity W is an inferior good but of a giffen nature since when price increases from 10 to 12 at constant income of 12000, the quantity demanded is also increasing from (18 to 21) units.

Yed = ΔQ/ΔY • Y/Q

= (-2/2000 x 10000/20) = -½

The income elasticity of demand (Yed) is -ve

20 10000

=-½

Yed is indeed –ve and therefore Z is an inferior good.

Income (Y)