Stability of Equilibrium

Semester I
Unit I
ECONOMICS MAJOR
Lecture by:
Dr. Jayanti Bhattacharjee
Associate Professor in Economics

EQUILIBRIUM

- Equilibrium refers to a position of rest or balance. An equilibrium is said to be stable if a small deviation from it tends to create forces of demand and supply that bring actual price back to the equilibrium level and unstable if a deviation from equilibrium price is not followed by an immediate return to it. There are two approaches to market stability analysis:
- i) WALRASIAN
- ii) MARSHALLIAN

WALRASIAN APPROACH

- The market is stable in the Walrasian sense if price rise leads to a fall in excess demand for output.

Let the market demand function be p=D(q)

And market supply function be p=S(q).

The market demand curve is always assumed to be downward sloping. Walrasian stability can be analysed under various assumptions about market supply curve.

Case 1: Market Supply curve is upward sloping

Fig.1

- If the market price is OP1, there is excess demand of AB. This excess demand(ED) will induce sellers to raise price and price will continue to rise until ED is wiped out and market is at equilibrium at point E. So, market eqbm is stable according to Walrasian approach

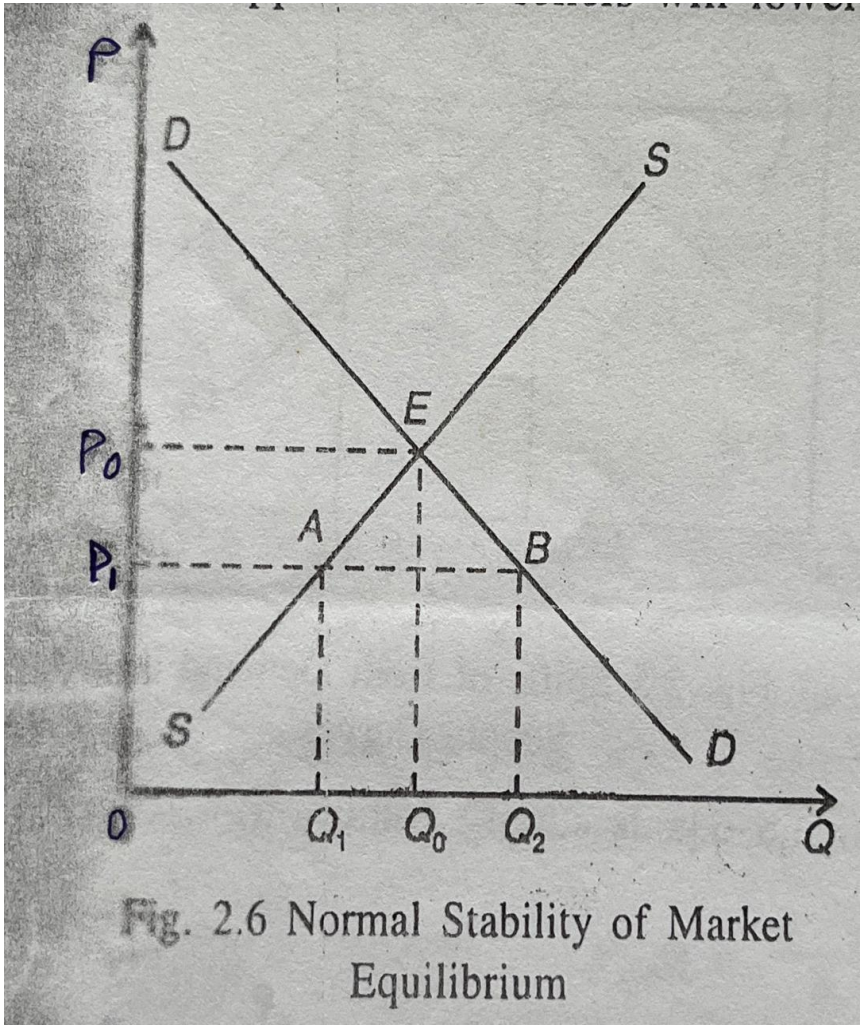


Fig. 2.6 Normal Stability of Market Equilibrium

Case II: Decreasing cost industry(DCS)

- In DCS, the supply curve is downward sloping.

  In this case two situations may arise:

  a) The market supply curve is steeper than the market demand curve

  b) The market demand curve is steeper than the market supply curve

(DCS: A decreasing cost industry is one where product prices will tend to fall because of falling costs of production due to the economies of scale which leads to LRS curve being downward sloping. Ex:Mining industry, automobile industry)

Decreasing cost industry

- If the current price is OP1, AB excess demand for output. This ED will push prices up until ED is wiped out and market is at equilibrium at point E. So, equilibrium is stable in Walrasian sense.

Fig a

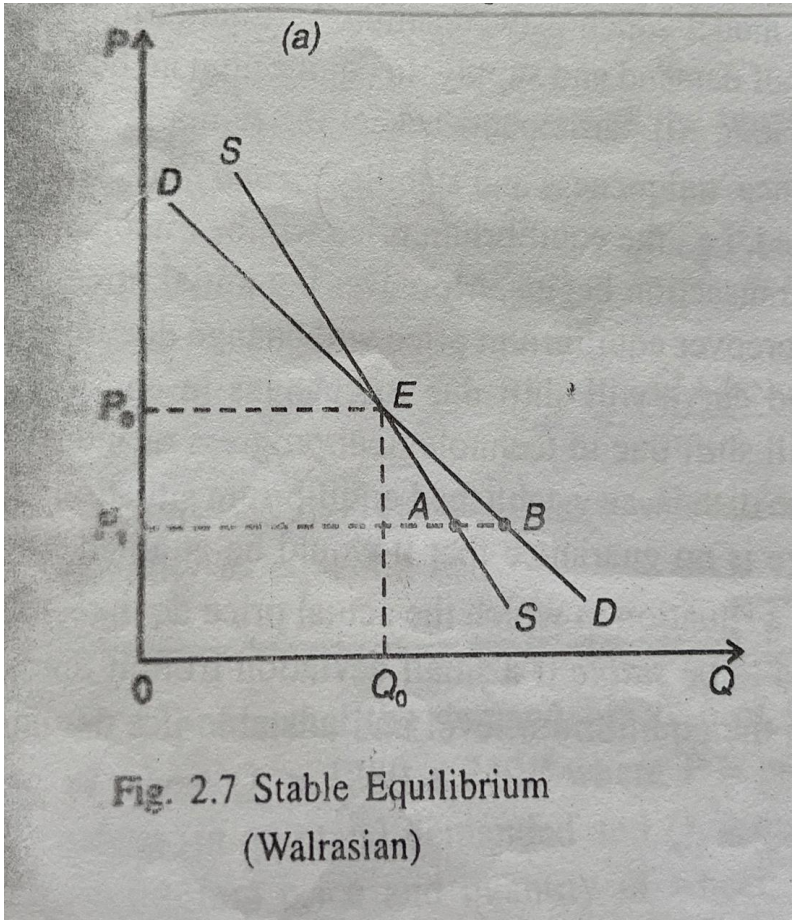


Fig. 2.7 Stable Equilibrium (Walrasian)

- In fig.b, market demand curve is steeper than market supply curve. At current price OP1, there is excess supply AB, which reflects overproduction. So, the producers will decrease price to sell the excess production. So, the eqbm is unstable in Walrasian sense

Fig b

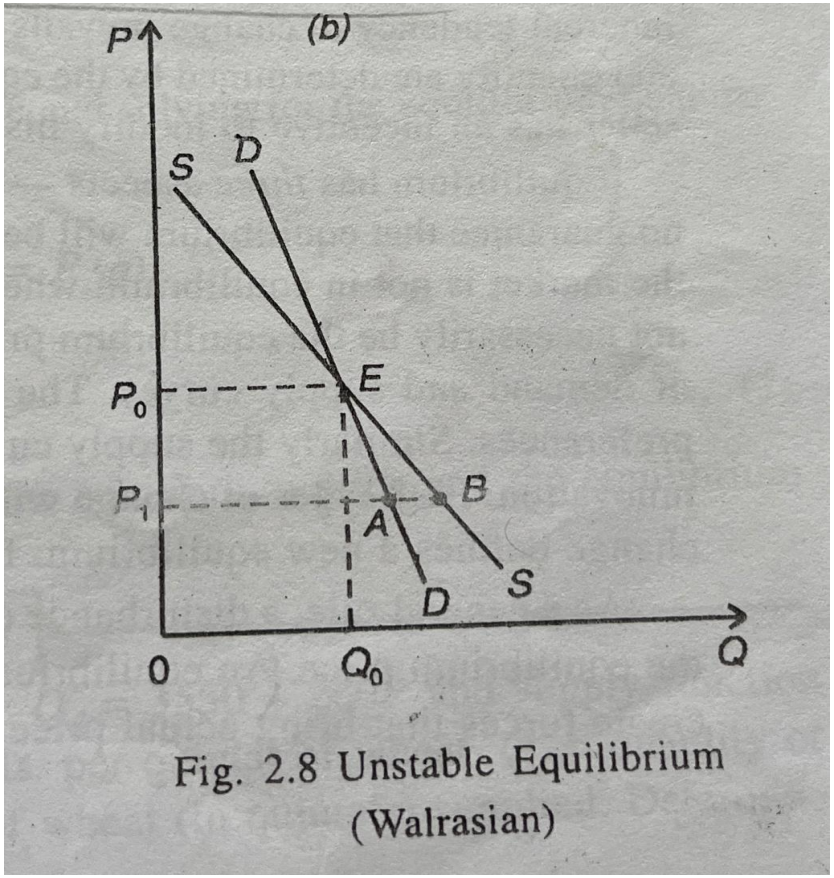


Fig. 2.8 Unstable Equilibrium (Walrasian)

Marshallian approach

- It stresses quantity adjustment to ensure eqbm. The Marshallian approach is based on the behavioural asssmption that sellers will increase the qty of O/T in response to excess SS price.
- The dd price refers to the maximum price that the buyers are willing to pay for a given O/T and supply price shows the minimum unit price that must be paid for a given qty of O/T.
- Eqbm is stable in the Marshallian sense if the increase in O/T in response to ED price decreases the magnitude of ED.

Case 1: Stable equilibrium

- We assume mkt dd curve is downward sloping and mkt SS curve is upward sloping.
- Let OQ1 be the qty of O/T offered for sale. At this qty, dd price is Pd and SS price is Ps. Since Pd>Ps there is ED price. In response to ED price, sellers will increase the qty of

Fig 1

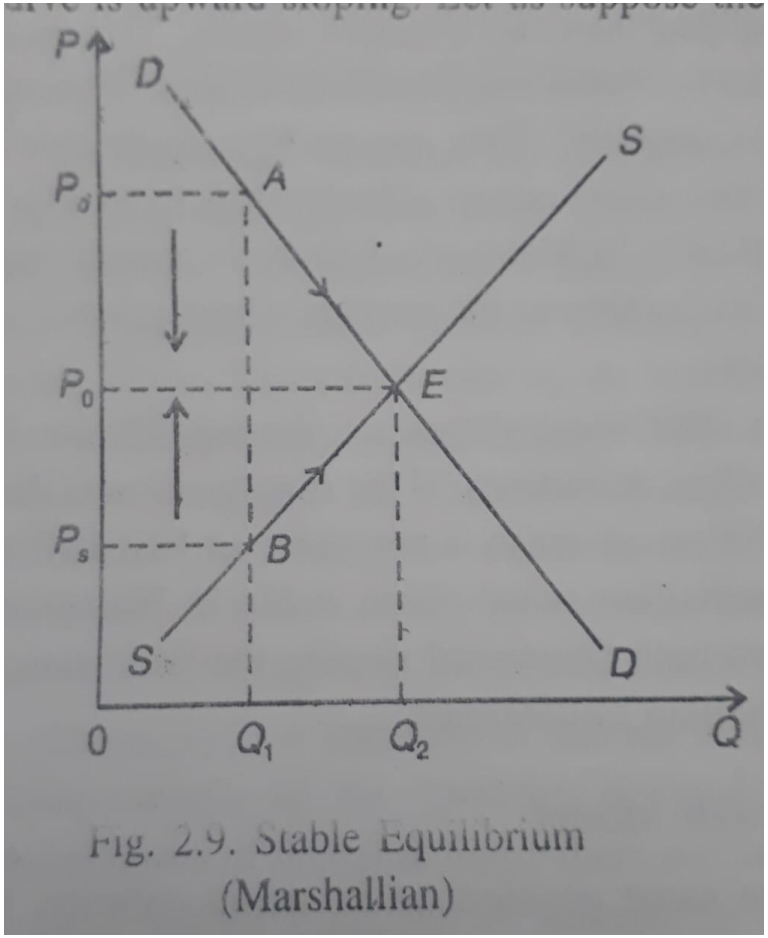


Fig. 2.9. Stable Equilibrium (Marshallian)

Contd.

- As O/T increases, dd price falls from Pd to Po and SS price increases from Ps to Po along BE segment of SS curve and mkt eqbm is stable in Marshallian sense as increase in O/T in response to ED price decreases the magnitude of ED.

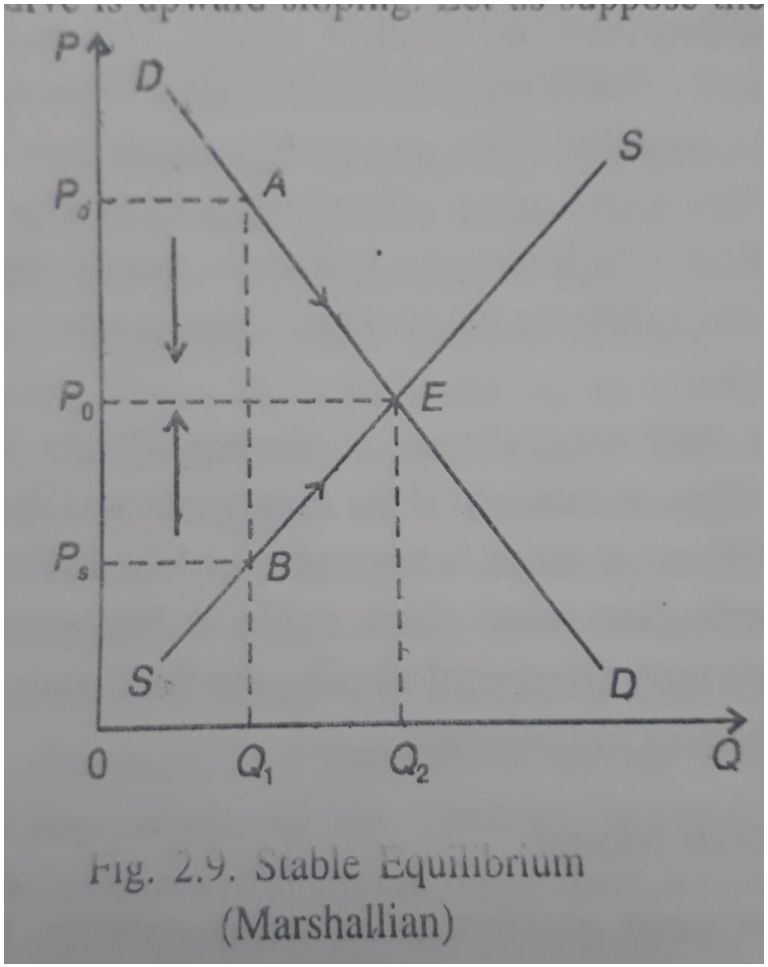
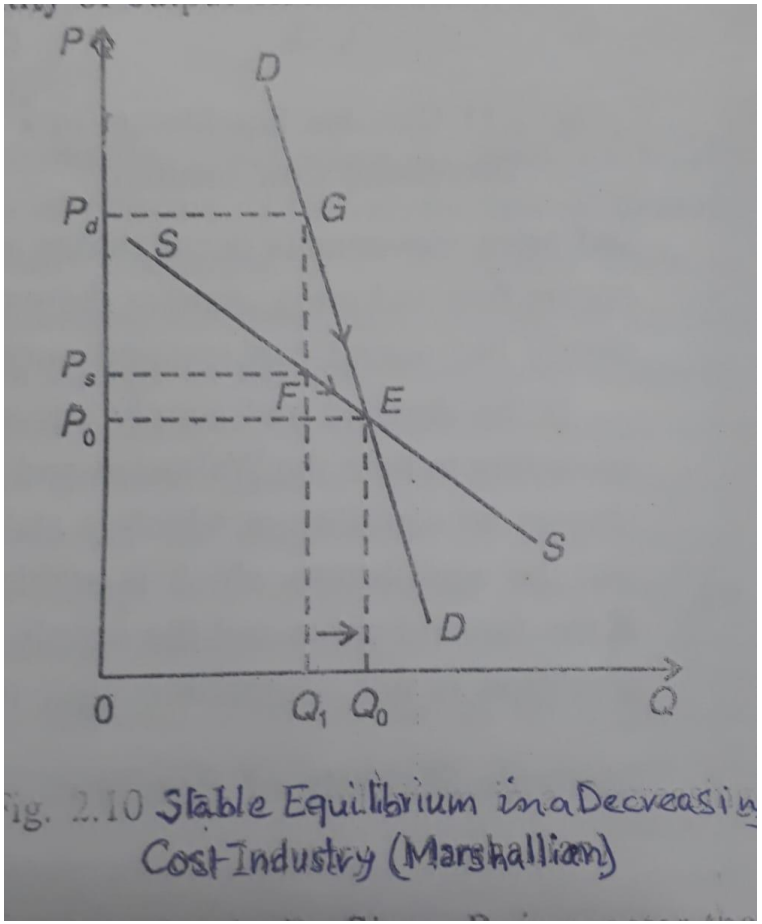


Fig. 2.9. Stable Equilibrium (Marshallian)

Case II: Both stable and unstable eqbm arises in a DCS

- a) In fig 2, mkt dd curve is steeper than the mkt SS curve. If qty of O/T offered for sale is OQ1, mkt dd price is Pd and mkt SS price is Ps & Pd>Ps.
- This implies producers will respond to ED price by increasing their O/T. As the qty supplied rises, the mkt converges to eqbm E and mkt is stable.

Fig2



ig. 2.10 Stable Equilibrium in a Decreasing Cost Industry (Marshallian)

b)The mkt SS curve is steeper than mkt DD curve as in Fig 3. If the qty of O/T offered for sale is OQ1, at this Pd>Ps. In response to ED price, sellers will increase their O/T above OQ1. As O/T mkt deviates further away from eqbm and hence eqbm is unstable in Marshallian sense.

Fig3

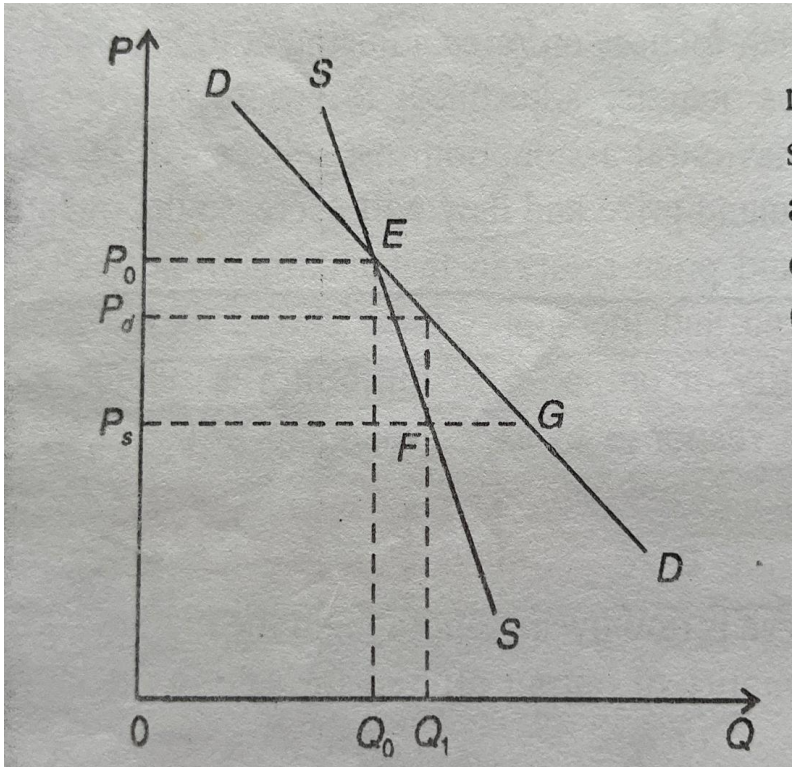


Fig. 2.11 Unstable Equilibrium in a Decreasing Cost Industry

Comparison

Walrasian approach

- Price adjustment occurs first then qty changes
- Relevant for sectors where O/T adjustment is relatively difficult & price movements occur rather automatically
- If SS curve is downward sloping an eqbm which is stable in Walrasian sense is unstable in Marshallian sense

Marshallian approach

- O/T movement occurs first then price changes
- Relevant for sectors where price adjustment is slow & O/T movements occur rather quickly
- If SS curve is downward sloping an eqbm which is stable in Marshallian sense is unstable in Walrasian sense

THANK YOU