Production

Least-Cost Combination of Factor

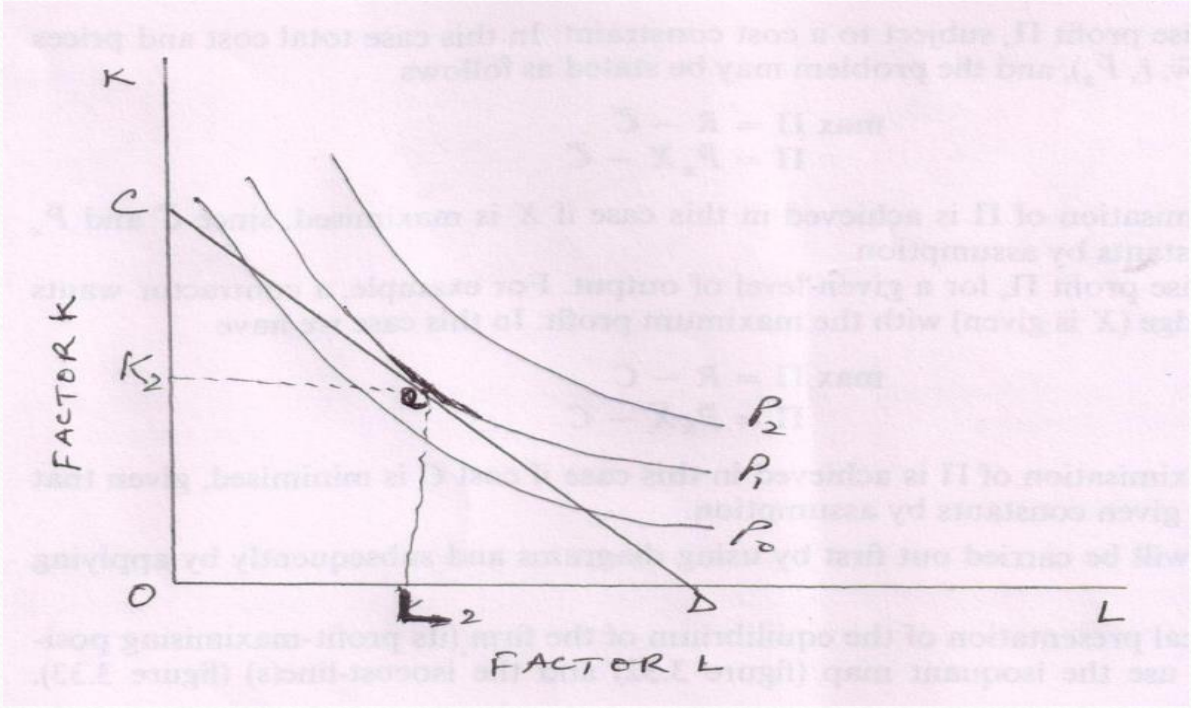
(Producer's Equilibrium in Regard to Choice of Inputs)

Producer's Equilibrium in Regard to Choice of Inputs

- **Case II: Maximisation of output subject to cost constraint (Financial Constraint)**
- The firm is in equilibrium when it maximizes its output given its total cost outlay and prices of factors of production. In following figure we see that maximum output P_2 can be produced with given cost constraint determined by the condition that the iso-cost line is tangent to the highest isoquant.

Producer's Equilibrium in Regard to Choice of Inputs

- Figure: Firm's equilibrium subject to cost constraint

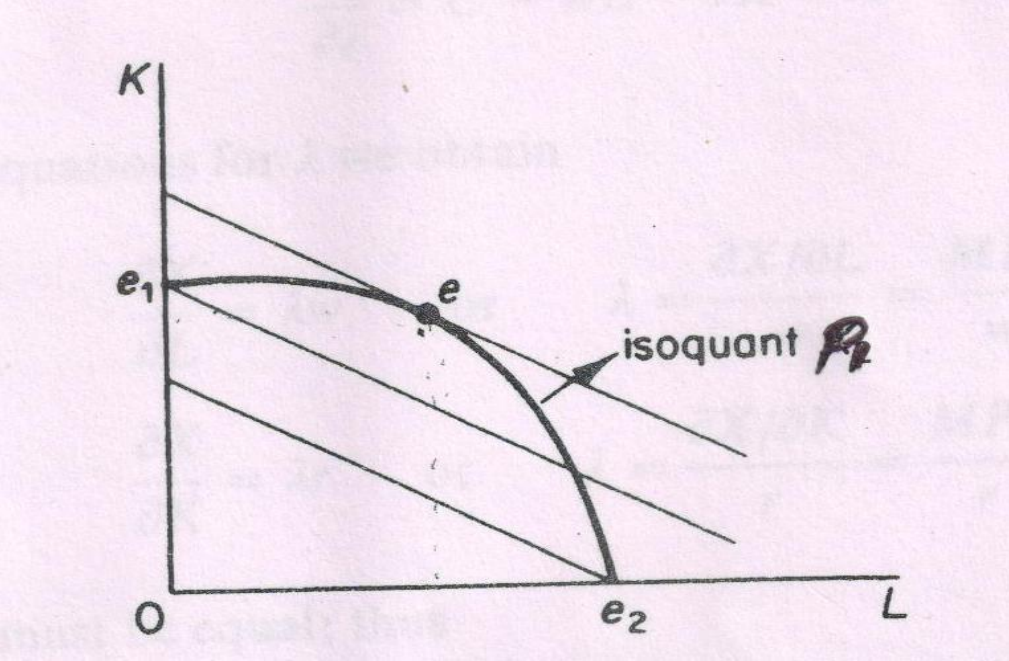


Producer's Equilibrium in Regard to Choice of Inputs

- In the above diagram, the equilibrium conditions are fulfilled at point 'e' determining the optimal combination of K_2 and L_2 amount of capital and labour for prices w and r. Higher level of output is desirable but not achievable due to the cost constraint. Other points on CD or below it lie on lower isoquant than P_1. Hence, P_1 is maximum output possible under the above assumptions.
- At the point of tangency (e) the slope of iso-cost line (w/r) is equal to slope of isoquant (MP_L/MP_K). This constitutes the first condition.

Producer's Equilibrium in Regard to Choice of Inputs

- Figure: Firms equilibrium with concave isoquant



Producer's Equilibrium in Regard to Choice of Inputs

- The second condition is that the isoquant be convex to the origin. In last figure output P_1 (depicted by concave isoquant) can be produced with lower cost than e. (With concave isoquant we have a corner solution).
- In the case of linear isoquant (Perfect substitute factors), the equilibrium will not be unique. There will be infinite number of equilibrium point i.e. as many number of optimum factor combinations as are the number of points on the isoquant.