

**J.S (P.G) COLLEGE SIKANDRABA**  
**M.COM 4<sup>TH</sup> – SEMESTER**

**SUBJECT- MANAGERIAL ECONOMICS**

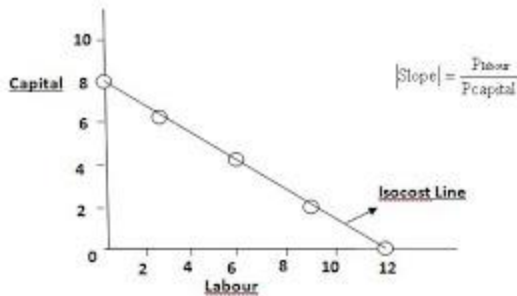
**TOPIC: ISOCOST**

**The Isocost Line**

The Isocost line is an important component when analysing producer's behaviour. The Isocost line illustrates all the possible combinations of two factors that can be used at given costs and for a given producer's budget. In simple words, an Isocost line represents a combination of inputs which all cost the same amount.

Now suppose that a producer has a total budget of Rs 120 and for producing a certain level of output, he has to spend this amount on 2 factors A and B. Price of factors A and B are Rs 15 and Rs. 10 respectively.

Combinations	Units of Capital	Units of Labour	Total expenditure
	Price = 150Rs	Price = 100 Rs	( in Rupees)
A	8	0	120
B	6	3	120
C	4	6	120
D	2	9	120
E	0	12	120



The Isocost line shows all the possible combinations of two factors Labour and capital.

## Isocost curves:

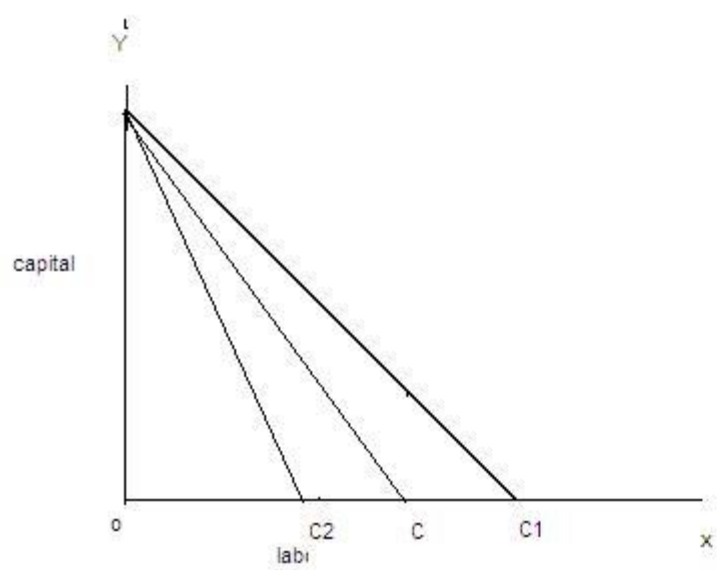
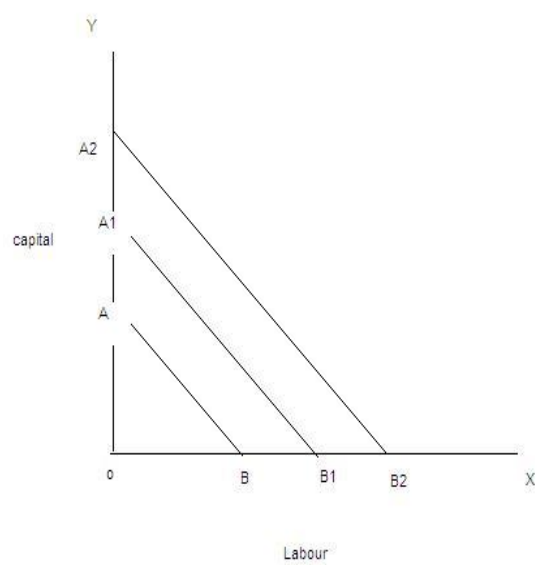
Isocost curve is the locus traced out by various combinations of L and K, each of which costs the producer the same amount of money (C ) Differentiating equation with respect to L, we have  $dK/dL = -w/r$  This gives the

slope of the producer's budget line (Isocost curve). Isocost line shows various combinations of labour and capital that the firm can buy for a given factor prices. The slope of Isocost line =  $PL/Pk$ . In this equation,  $PL$  is the price of labour and  $Pk$  is the price of capital. The slope of Isocost line indicates the ratio of the factor prices. A set of Isocost lines can be drawn for different levels of factor prices, or different sums of money. The Isocost line will shift to the right when money spent on factors increases or firm could buy more as the factor prices are given.

## **Slope of Isocost line**

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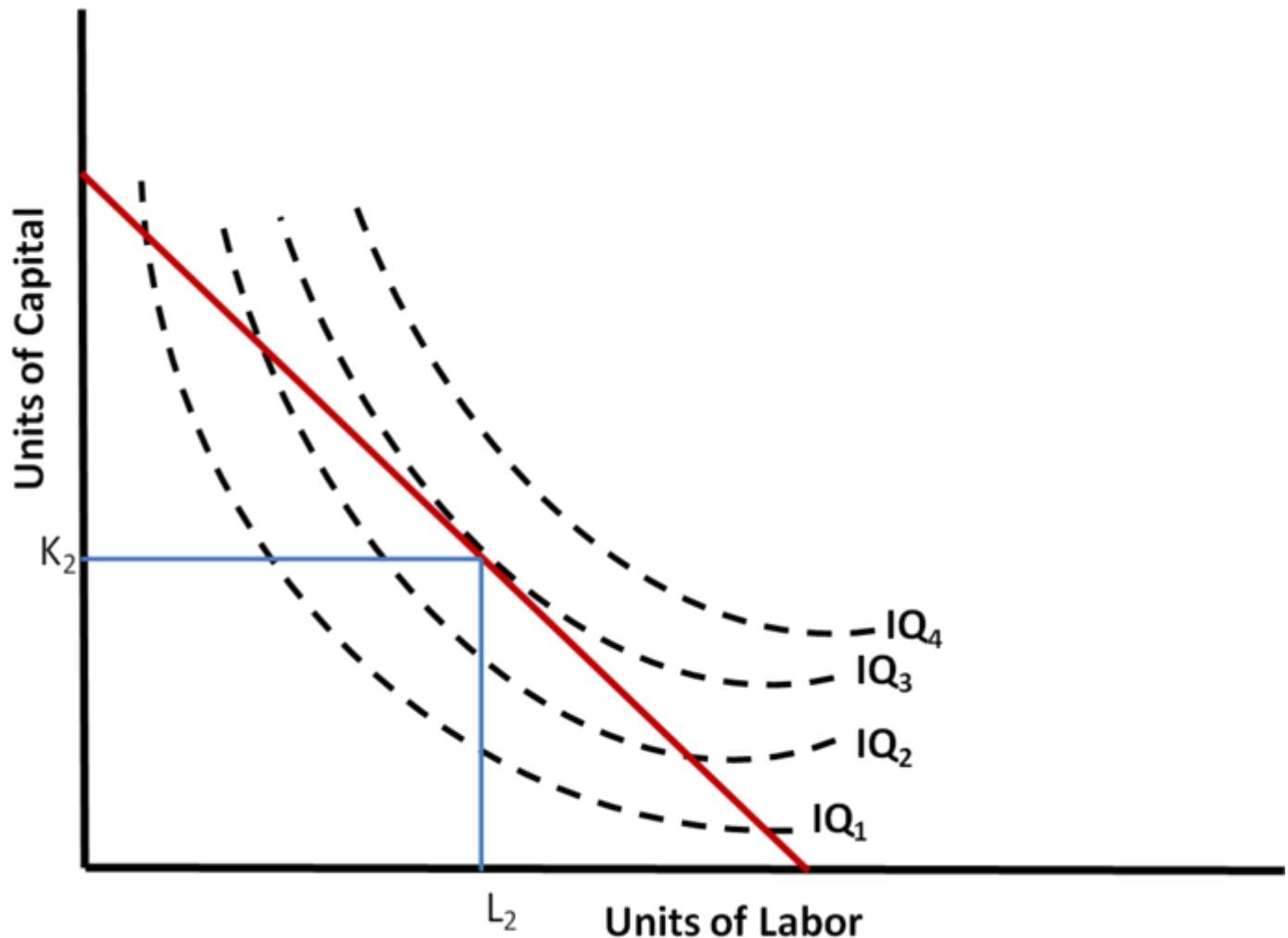
With the change in the factor prices the slope of iso cost line will change. If the price of labour falls the firm could buy more of labour and the line will shift away from the origin. The slope depends on the prices of factors of production and the amount of money which the firm spends on the factors. When the amount of money spent by the firm changes, the Isocost line may shift but its slope remains the same. A change in factor price makes changes in the slope of Isocost lines as shown in the figure.



## **Least Cost Factor Combination or Producer's Equilibrium or Optimal Combination of Inputs**

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The firm can achieve maximum profits by choosing that combination of factors which will cost it the least. The choice is based on the prices of factors of production at a particular time. The firm can maximize its profits either by maximizing the level of output for a given cost or by minimizing the cost of producing a given output. In both cases the factors will have to be employed in optimal combination at which the cost of production will be minimum. The least cost factor combination can be determined by imposing the isoquant map on isocost line. The point of tangency between the isocost and an isoquant is an important but not a necessary condition for producer's equilibrium. The essential condition is that the slope of the isocost line must equal the slope of the isoquant. Thus at a point of equilibrium marginal physical productivities of the two factors must be equal the ratio of their prices. The marginal physical product per rupee of one factor must be equal to that of the other factor. And isoquant must be convex to the origin. The marginal rate of technical substitution of labour for capital must be diminishing at the point of equilibrium.



## The Economic region of production

The firm would not operate on the positively sloped portion of an isoquant because it could produce the same level of quantity with less capital and labour. Economic region of Production:

Ridge lines: separate the relevant (i.e. negatively sloped) from the irrelevant (or the positively sloped) portion of the isoquant.

Ridge lines joins points on the various isoquants where the isoquants have zero slope (and thus zero  $MRTS_{lk}$ ).