

Class B.Com-1.

Subject- Business Economics &
Environment.

Paper : 1

Unit : III

Topic : ISO-Product Curve

Lecture

Sequence No : 3

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ISO - Product Curve.

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[What is meant by Iso-product curve? Explain the Assumption and its characteristics?]

Meaning:-

The term 'Isoquant' is composed of two terms 'iso' and 'quant'. Iso is a Greek word which means equal and quant is a Latin word which means quantity. Therefore, these words together refer to equal quantity or equal product.

Assumptions of Iso-quant Curve:-

The concept of isoquant is based on the following assumption:-

- ① Only two inputs (Labour and capital) are employed to produce a good.
- ② There is technical possibility of substituting one input for another. It implies that the production function of variable proportion type.
- ③ Labour and capital are divisible.
- ④ The producer must be rational i.e. trying to maximize his profit.
- ⑤ State of technology is given and unchanged.
- ⑥ Marginal rate of technical substitution diminishes in production process.

your writing partner

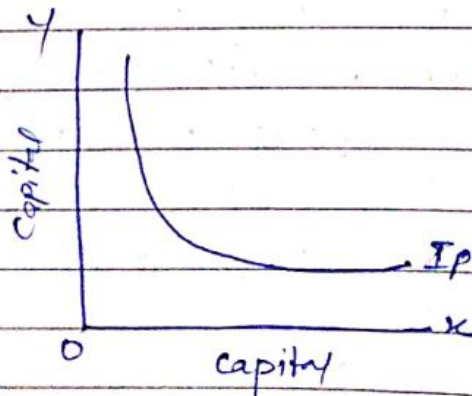
Properties of ISO-product Curve:-

- ① Iso product is convex to the origin
- ② Iso product is negatively sloped i.e. its slopes downward from left to right.
- ③ Higher iso product represents higher production
- ④ Two iso product never intersect each other.
- ⑤ Iso-product curve never touches axis.

① Iso product is convex to the Origin:

The Iso-product is convex to the origin because the marginal rate of technical substitution (MRTS) between the inputs is diminishing. As shown in the tabular example of MRTS the ratio by which the input units of capital is substituted by labour units diminishes with more and more substitution of labour for capital. Thus, the iso-product curve is convex to the origin.

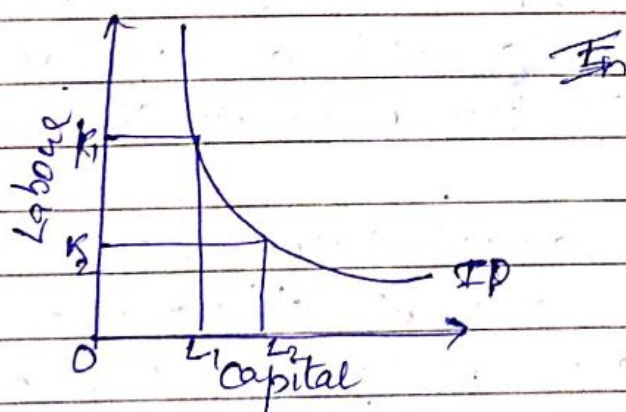
If the isoproduct curve has been concave to origin, it would imply that the MRTS increases as more and more of labour is substituted for capital. And this would be against the assumption that the iso-product curve is based on.



2. **Iso-product is negatively sloped, slope downward sloping left to right :-**

The Iso-product curve is neither upward sloping nor horizontal but always slopes downward from left to right. It is because the producer will have to give up some of the input units of capital to increase the input of labour when keeping the production amount unchanged.

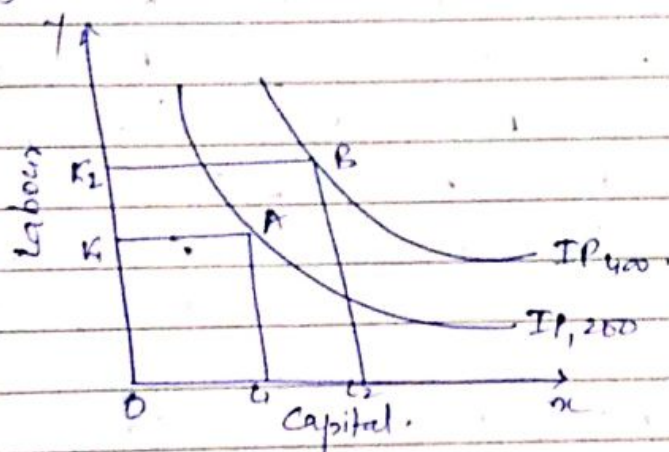
Increasing input units of either of the factors without deducing the input of the other factor will result in increased production and it is beyond the principle of iso-product curve.



In the figure when OK_1 units of Labour were employed OL_1 units of capital were employed too. When the input units of labour was increased to OK_2 the input of ~~labours~~ capital was increased to OL_2 . The input units of labour was reduced to OK_1 . Therefore, the curve is downward sloping from left to right. And slope of any downward sloping curve is always negative.

3. Higher isoquant represent higher production:

The isoquant which is in higher stage has higher units of labour and capital combination. Greater combination of labour and capital makes large scale of production. So higher the isoquant curve greater will be the production level.

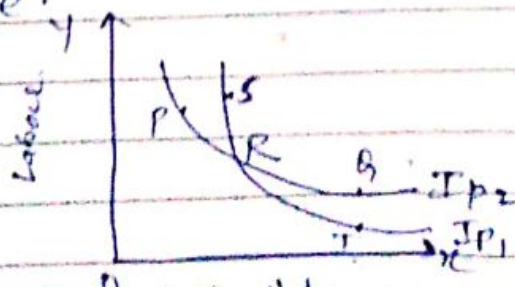


In the figure, we can see that there are two isoquant curve (IP_1 and IP_2). We can also see that the combination A lies on IP_1 and combination B lies on IP_2 .

Combination A consists of OL_1 units of ~~labour~~^{capital} and OK_1 units of labour and OL_2 units of labour at point B . So we can say that product level at IP_2 is higher than the production level at IP_1 .

4. Two isoquants never intersect each other

Each isoquant curve is a representative of particular or a level of production. The level of production or output of a production process is same throughout the curve.



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In the above figure IP_1 and IP_2 are two iso-product curves and R is the point where both the curves intersect.

According to the principle of isoquant curve
production level at point S = production level at point R = production level at point T

Also production level at point P = production level at point Q
level at point R = production level at point Q

But production level at point S and point T = production level at point Q

Therefore, two isoquant curves cannot intersect. Yet two isoquant curves need not be parallel to each other.

The parallelism of isoquant curves depend upon the MRTS. The isoquant curves can be parallel only when the MRTS of both the curves are equal.

5. Iso-product curve never touches axis:

If an Iso-product curve touches X axis it would mean that the product is being produced with the help of X factor alone without using factor Y. This is a logical absurdity that a single factor cannot produce anything. Therefore, IP_1 and IP_2 cannot be Iso-product curves as shown in fig.

