

Production

Properties of Iso-Product Curve

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❖ Following are the important properties of equal product curves:

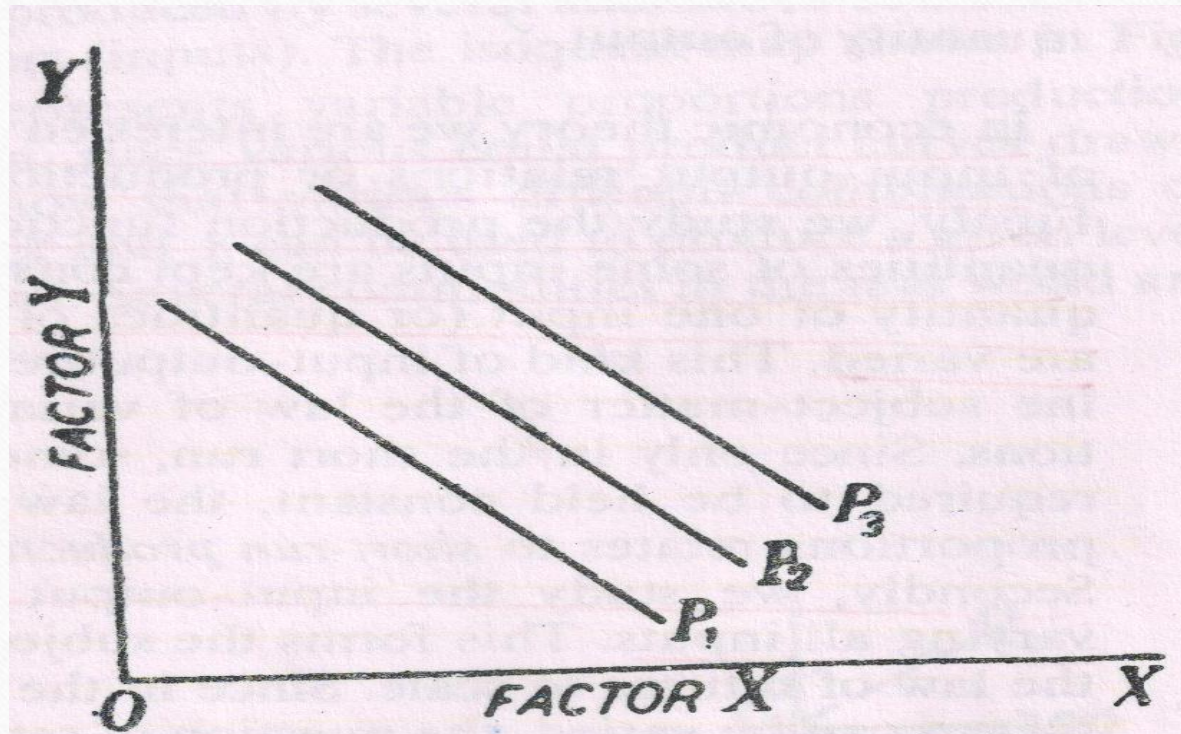
1. Isoquants, like indifference curves slope down-ward from left to right (i.e. they have a negative slope). This is so because when the quantity of factor X is increased, the quantity of factor Y must be reduced so as to keep output constant. This is because of the assumption that law of diminishing returns to variable proportion.
2. No two equal product curves can intersect each other. If the two equal – product curves, one corresponding to 20 units of output and the other 30 units of output intersect each other, there will then be a common factor combination corresponding to the point of intersection producing different levels of output. But this is quite absurd in case when we assume same technology for the same isoquant map.

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3. Isoquants, like indifference curves, are convex to the origin. The convexity of equal product curves means that as we move down on the curve less and less of factor Y is required to be substituted by a given increment of factor X so as to keep the level of output unchanged. Thus, the convexity of equal product curves is due to the diminishing marginal rate of technical substitution. The greater the rate at which *MRTS* falls, the greater the convexity of equal product curve and vice versa.
 - When the two factors are perfect substitutes of each other, the marginal rate of technical substitution between them remains constant and the iso product curve will be downward sloping straight line as shown in figure shown in next slide.

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- [Figure - Iso-product Map when Factors are Perfect Substitute](#)



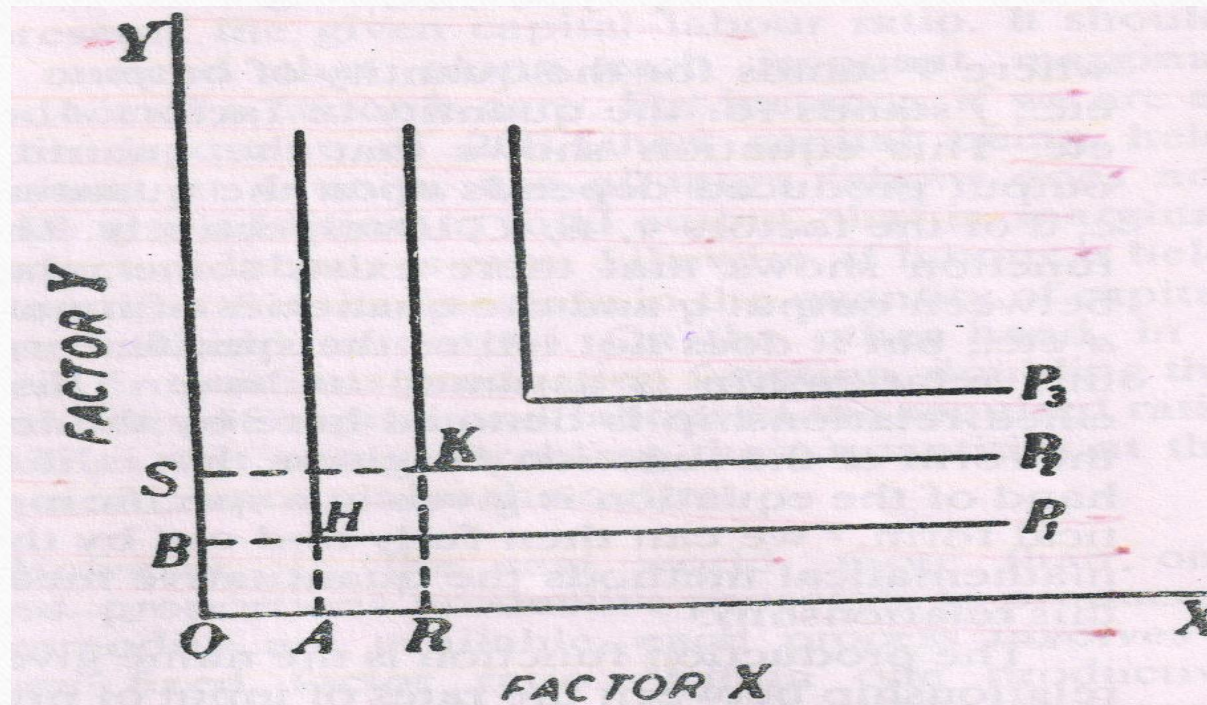
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■ Input-output isoquant: When factors are Perfect Complementary

- Factors which are **perfect complement** of each other and for which substitution is zero, In such case, the equal product curves are right angled as shown in figure in next slide.
- The perfect complementary factors are those which are jointly used for the production in a fixed proportion.
- Such isoquant is called input-output isoquant.

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- Figure; Iso-quants when factors are Perfect Complements



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4. Higher isoquants represent higher level of output and vice versa. This is based on the assumption of operation of second stage of production., where marginal productivity of both the factors are positive.