

Indifference Curve and its Properties

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What is an indifference curve?

- ▶ Indifference curve has abandoned the concept of cardinal utility and replaced it by ordinal utility theory
- ▶ Hicks presented a comprehensive version in his ***Value and Capital*** in 1939 and its major revision in his *A Revision of Demand Theory* in 1956
- ▶ Indifference curve analysis on demand is based upon the weak-ordering form of preference hypothesis

What is an indifference curve?

- ▶ An indifference curve is the **locus of points-particular combinations or bundles of goods** which yields the **same** utility or level of **satisfaction** to the consumer
- ▶ All combinations of the goods lying on a consumer's indifference curve are equally desirable to or equally preferred by him

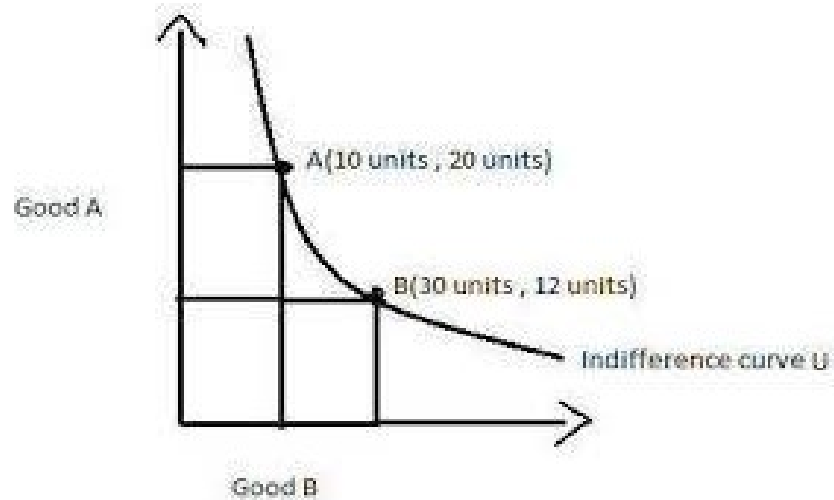
Indifference Schedule

- ▶ Indifference schedule shows the various **combinations of the two commodities** such that the consumer is indifferent to those combinations.
- ▶ Take the case of two goods, Good X and Good Y and demonstrate an indifference schedule
- ▶ The amount of goods X and Y in each combination are so arranged that the consumer is indifferent among the combinations

Indifference Schedule

Combination	Good X	Good Y
A	1	18
B	2	13
C	3	9
D	4	6
E	5	4
F	6	3

Indifference Curve



Assumptions

- ▶ Rationality (Maximisation of his utility given his income and market prices)
- ▶ Utility is ordinal (The consumer can rank his preferences)
- ▶ Diminishing Marginal Rate of Substitution
- ▶ Consistency and transitivity of choices (Consumer is consistent in his choices)

Marginal Rate of Substitution (MRS)

- ▶ MRS of X for Y (MRS_{xy}) represents the amount of Y which the consumer has to give up for the gain of one additional unit of x so that his level of satisfaction remains the same
- ▶ The negative slope of an indifference curve at any point is called the MRS_{xy}
 - ▶ [Slope of Indifference Curve] = $-\frac{\Delta Y}{\Delta X} = MRS_{xy}$

Marginal Rate of Substitution (MRS)

Combination	Good X	Good Y	MRS_{xy}
A	1	12	—
B	2	8	4 : 1
C	3	5	3 : 1
D	4	3	2 : 1
E	5	2	1 : 1

Marginal Rate of Substitution (MRS)

- ▶ If the MRS_{xy} is diminishing, the indifference curve must be **convex** to the origin
- ▶ If the MRS_{xy} is constant, the indifference curve will be a **straight** line sloping **downwards** to the right
- ▶ If the MRS_{xy} is increasing, the indifference curve will be **concave** to the origin
- ▶ In the case of perfect complementary the MRS_{xy} is zero and the indifference curve will be **L shaped**

Different shape of Marginal Rate of Substitution (MRS)

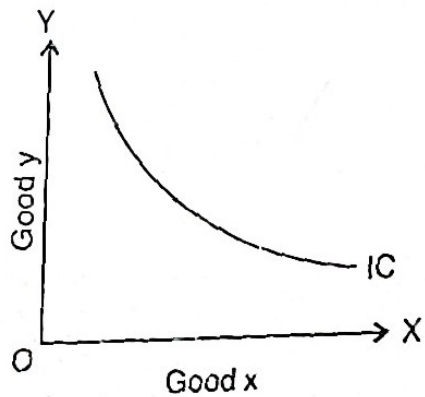


Fig. Convex indifference curve

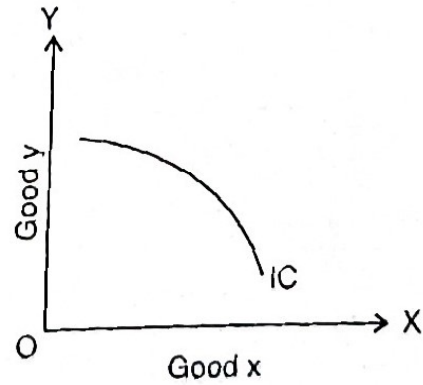


Fig. Concave indifferent curve

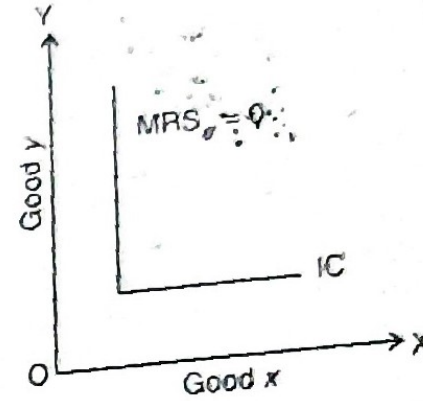


Fig. L-shaped indifference curve

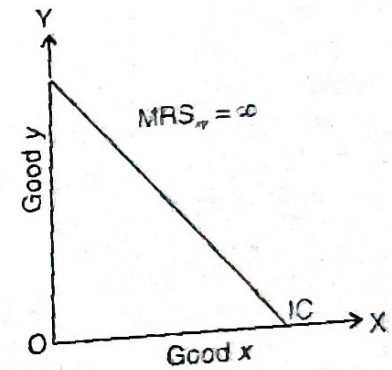


Fig. Straight line indifference curve

Properties of Indifference Curve

- ▶ Indifference curves slopes downward to the right
- ▶ Indifference curves are convex to the origin
- ▶ Indifference curves can neither intersect nor touch each other
- ▶ Higher indifference curves give higher level of satisfaction
(Indifference map)
- ▶ An indifferent curve can not touch either axis