(1) Breaking of Price effect into income and Substitution effect.

J. R. Hicks and R.G.D Allen advocated the Ordinal measurement of utility and put forward the indifference curve approach. According to this new approach, utility being a psychological concept. can not be measured in quantitative terms and advocated that utility consumer can simply compare different levels of satisfaction.

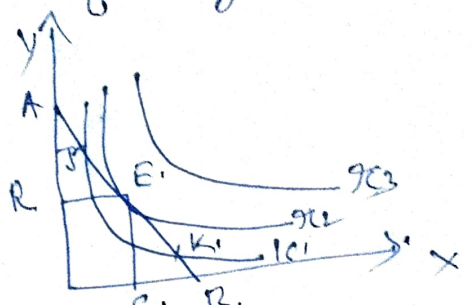
Indifference curve refers to the all those combinations of two goods which give equal level of satisfaction to the consumer or he is indifferent between various combinations. All combinations of goods along the indifference curve is equally preferred by him.

Assumptions: The indifference curve analysis is based on different assumptions like — rationality of the consumer, transitivity, consistency, weak ordering & diminishing Marginal Rate of Substitution.

We know that a consumer attains equilibrium under indifference curve analysis where the budget line or price line is tangent to the highest possible indifference curve. The conditions are that at the point of eqn the slope of IC is equal to the slope of budget line.

(2) $MRS_{xy} = \frac{P_x}{P_y}$. That means the Marginal rate of substitution of goods x for y is equal to price ratio. Further at point of equ. the IC is convex to the original i.e. the MRS_{xy} is falling at this point.

OY - measures good - y
OX - measures good x
AB - budget line
E - equilibrium where budget line is tangent to indifference curve (IC_2)



Here the $MRS_{xy} = \frac{P_x}{P_y}$.

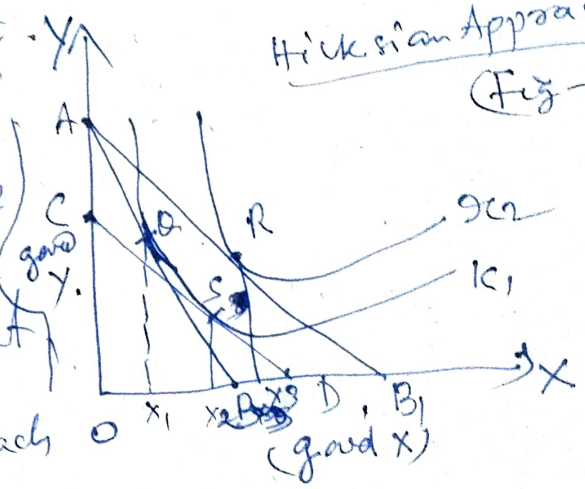
Breaking of price effect into Income and Substitution effect

There are two approaches for dividing or breaking Price effect into income and substitution effect

① Hicksian Approach
② Slutsky approach

The Hicksian approach is based on compensating variation in income and the Slutsky approach is based on cost difference.

Hicksian Approach (Fig-I)



① Hicksian Approach. (Fig-I)

As the price of the goods (say x) falls, the budget line will shift from AB to AB_1. The consumer will now move from equilibrium position Q on IC_1 to R on IC_2.

(3) Q - is the point on the budget line AB where the indifference curve IC_1 is tangent to budget line.

R. is the new equilibrium where the new budget line is tangent to the indifference curve IC_2. (AB_1)

So the movement of the consumer from Q to R is the price effect.

The purchase of the consumer also increases from OX_1 to OX_2. due the fall in the price of goods X. & increase in real income.

But if the consumer wishes to remain in the old level of satisfaction IC_1 then the money is to be deducted by way of compensating variation variation in come So that the consumer can remain in the original IC_1. For this we have draw a budget line parrell to budget line AB_1 i.e. CD. So that it can tangent to the IC_1 at point S.

But due to the fall in the price of X the consumer will try to maximise his satisfaction in the new price-income situation. As the price of goods X has been relatively cheaper the consumer will substitute X for Y real income remaining constant. So the movement of the consumer from R to S is called substitution effect & the purchase of consumer will rise from OX_1 to OX_2.

of the money income which was taken away from him earlier, is now given back to consumer then he would move from

(4) S on an indifference curve IC1 to R on the indifference curve IC2 which is higher due to income effect.

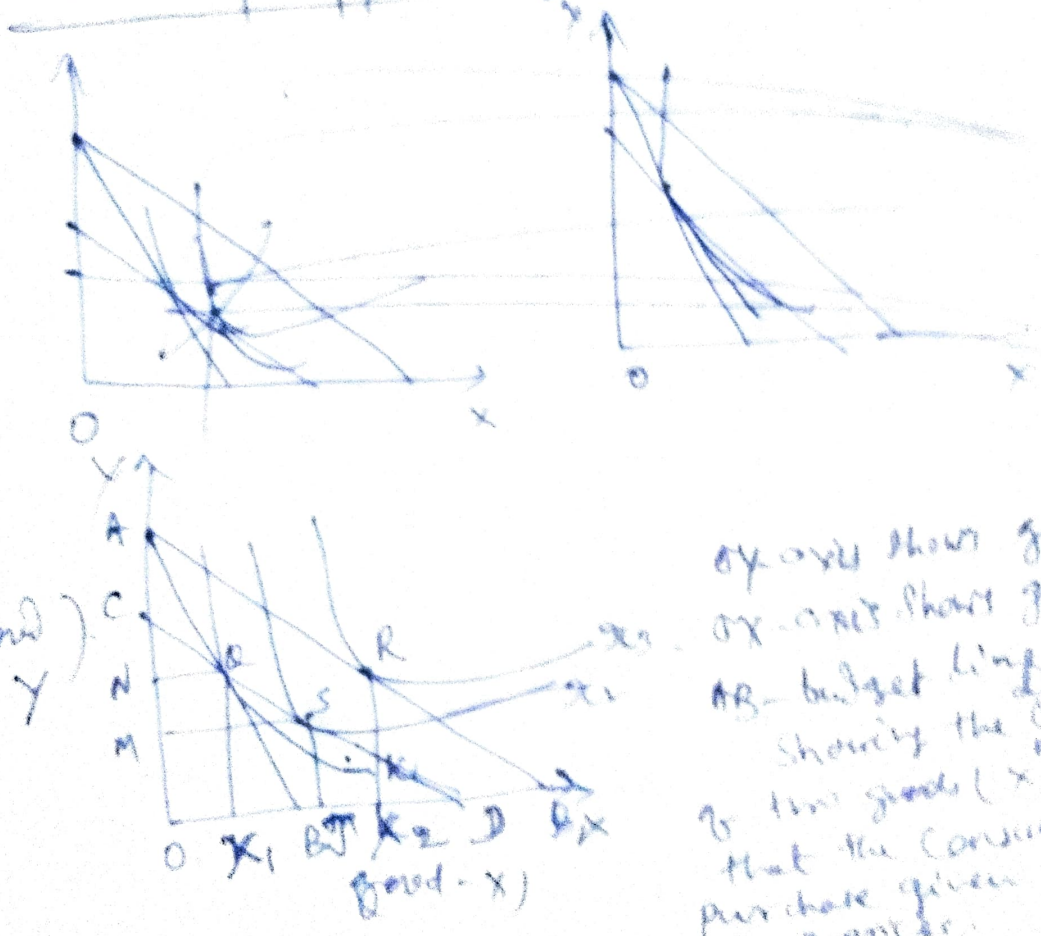
So the movement from S to R is price effect the movement from R to S is substitution effect & the movement from S to R is income effect.

Price effect = $x_1 x_2$

Substitution effect = $x_1 x_2$

Income effect = $x_2 x_3$.

(5) Slutsky Approach of cost difference.



OY - will show good Y

OX - will show good X

AB - budget line different showing the combination of two goods (X & Y) that the consumer can purchase given his income & prices.

IC - is the indifference curve that shows the different combinations of two goods (X & Y) which the same level of satisfaction to the consumer.

(5) A point of equilibrium where the budget line AB is tangent to the indifference curve IC1

But due to the fall in price of good X the real income of the ~~consumer~~ Consumer ~~with~~ or his purchasing power will rise

If the consumer wishes to remain on the old budget line income is to be reduced by way of cash difference to compensate the rise in real income.

Due to the fall in the price of X, the budget line shift from AB to AB1.

R - is the new equ. position where the budget line AB, is tangent to the IC2.

So the movement of the consumer from E to R is called the price effect.

Here in Slutsky approach the money income is to be reduced by cash difference & a new budget line CD is drawn parallel to the budget line AB1

So the price line budget line CD is ∥ to budget line AB1. So money income AC in terms of Y and DB1 in terms of good X is taken away from the consumer so that he can buy the old combination. if he so desires. As the price of X has been cheaper the Consumer will rearrange his purchase & substitute X for Y He will not move along the same IC1 but as the new price line ~~is tangent~~ CD is tangent to IC2 at S.

(6) So the consumer will be at new equilibrium at S on budget line CD at a higher indifference curve IC_2.

So the movement from Q to S is substitution effect of Slutsky where the consumer is at a higher indifference curve IC_2

If the money income which was taken away from the consumer earlier is returned back then the consumer will move from point S to R. which indicates the income effect.

So Price effect = mov. from Q to R (X1X2)

~~Income effect~~

Income effect = mov. from S to R (SX2)

Substitution effect = mov. from Q to S. (X1S)