Economics of Health and HealthCare
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Lecture – 04
Indifference Curve

So, this utility can be mapped in an indifference curve, the level of utility can be mapped in an indifference curve.

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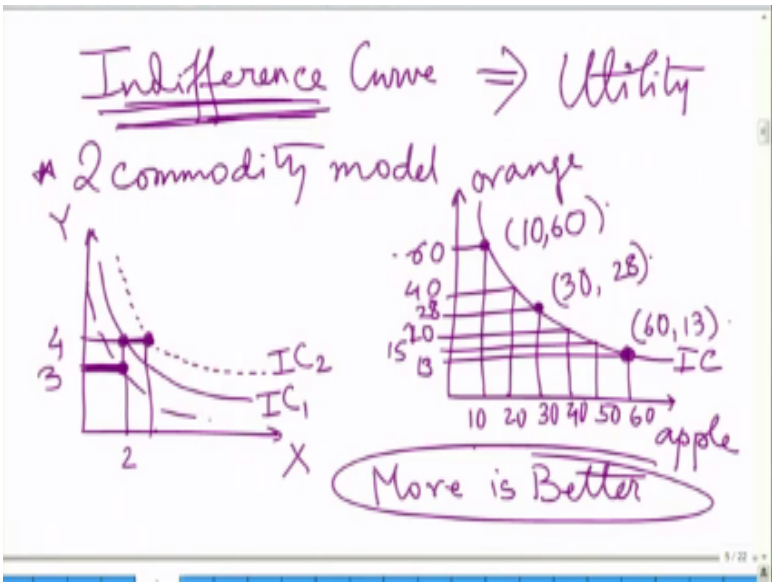

Now, this word again, when I generally follow this the; when I do not remember a particular definition of a particular concept, I try to get some idea from its name you know, say the indifference curve, Shakespeare can say what is in a name but in research, if a topic is not or a theory is not given a name by the scientist name or the researchers name, it always have some logic, yeah.

So, say indifference curve; indifference curve says there is no difference, indifference, there is no difference but between what; in terms of when we are looking at indifference curve, in terms of utility or satisfaction, indifference curve shows that particular curve where on each point of that curve, there is no difference in terms of satisfaction, so the satisfaction level stays same in all the points of that indifference curve, yeah.

So, in an indifference curve it is generally, a 2 commodity model that means, I always have 2 commodities in an indifference curve and these 2 commodities, now say apple and orange yeah

and if you want health economics, I will say; say, Crocin or a paracetamol and pan 40 or a kind of antacid yeah, so 2 medicines, it can be anything. So, if okay, I will keep it apple and orange otherwise, it can be 2 any commodities which are generally; generally related to each other yeah or in the same group.

So, well this indifference curve; IC indifference curves you can note it like that indifference curve, so as I said that all the; all the points of this indifference curve they will show you an equally preferred bundles, they will show you equally preferred bundles that is no high preference, no low preference the satisfaction level remains same, so all these points, so you say this is 10, 20, 30, 40, 50 and 60.

In all of these points, you will get a combination of oranges, right with these apples; 10 apples, 20 apples, 30 apples, 40 apples, 50 apples, 60 apples, you will get a combination of oranges say, this this; this is your 13 apples and then 15 apples and then 20 apples maybe your 28 apples or 40 apples, 60 apples and so on. So, when you are taking 60 oranges and 10 apples and 13 oranges and 60 apples, you get the same satisfaction.

Here, you have 60, 13 that means, 60 apples and 30 oranges at this point, you have 10, 60 that means 10 apples and 60 oranges and on this point, you have 28 apples and I mean, 20 apples and 28 oranges, oh no, 30 apples and 28 oranges, so all are primarily giving you the similar kind of satisfaction whatever combination you are taking, so these are known as commodity bundles and these bundles are equally preferred.

So, an indifference curve will give you equally preferred community bundles on which your satisfaction level is always same, now we will always say that more is better (FL), you know in which I do not remember which advertises they say that is (FL) and then when we go to a; go to get something from the shop we generally, see okay it has 20% extra in the same cost 10% extra or have some freebies you know with a; with a toothpaste, they will give a toothbrush in the same price.

That means, I am getting more and that has is you know, increasing my satisfaction, so whenever I have more, my satisfaction level increases. Just take an example say on this, I have 2 commodities X and Y, I have 2 commodities X and Y, maybe at this point I have 2 of X and maybe 4 of Y at this particular point, if I want to get 3X with 4 why I am here, 3X and 4Y that means, I am outside the indifference curve.

So, any point not upon a particular indifference curve, say IC1 is not giving me the same satisfaction, so I will draw another indifference curve over here, IC2; indifference curve 2 and

eventually, when I am getting 3X with 4Y's, you can see I am lying on a higher indifference curve, so higher indifference curve gives me higher satisfaction, so more is better, a higher indifference curve will give me a higher satisfaction.

A lower indifference curve, if now I am having with 2X's, I have I am having 3Y's; Y is 3 with this X and I am at this point now, I am lower at a point which is lower than the or in the left hand side of the IC1 and my satisfaction is lower here, I can call it IC3, where my satisfaction is lower as compared to IC1 because I am having lesser number of Y with the same quantity of X, clear.

Therefore, higher the indifference curve, higher is the satisfaction, lower the indifference curve lowers the satisfaction, higher the number of commodities either for both the commodities or one of the commodities keeping the number of the other commodities same, so higher the number of one commodity, consumption of one community keeping the consumption level of the other commodities same, I will be on a higher indifference curve.

If the consumption of one commodity is decreasing, keeping the other commodities consumption at the same level, I am on the lower indifference curve. An indifference curve is always downward sloping, we will learn about that why an indifference curve is always downward sloping and an indifference curve; 2 indifference curves will not intersect each other, let us see why they cannot intersect each other.

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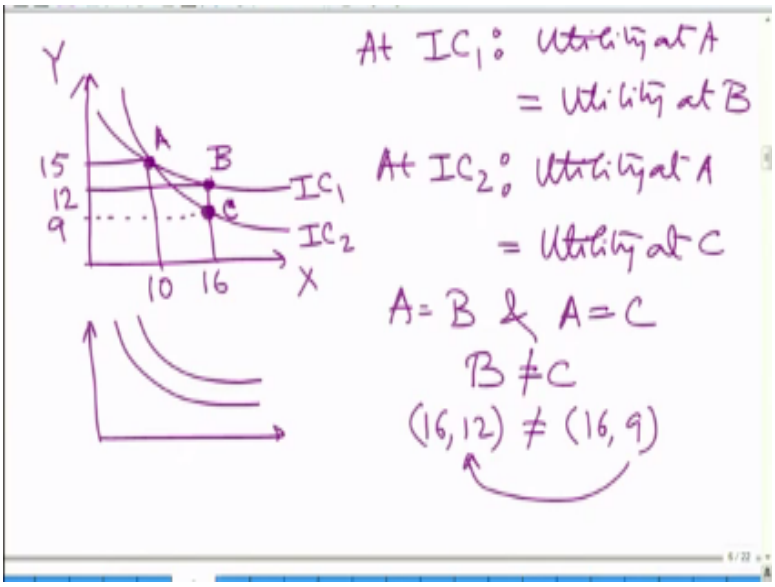

I have 2 indifference curves, let us call it IC1 and I will call it IC2, this is X and this is Y, 2 indifference curves are intersecting, very good. What I do here is that on this particular point A and this particular point B, I am on IC1 and in this indifference curve, my satisfaction level is

similar, on IC1 my satisfaction level is similar. Say for an example I have on A 10X and 15Y while at B, I have 16 of X and 12 of Y something like that.

Similarly, so when at IC1, when at IC1, utility at A = utility at B because they are on the same indifference curve, at the same time when at IC2, we can say that if this point is my point C and now, we can see that both A and C are on the same indifference curve, so at IC2, I can say utility at A = utility at C, very good. So, we can say when A = B and A = C, we can say B = C but can B = C, can the satisfaction level at B = satisfaction level at C.

In C or on C, we have 16 of X along with say, 9 of Y; 16 of X with 9 of Y in B, I have 16X and 12Y in B, I have 16X and 9Y, is it logical, I have said more is better and I am having 3 units of Y more on B as compared to on C, therefore my satisfaction level on B must be higher than my satisfaction level at C, yes and that is how B can never be equals to C and as B can never be equal to C, an indifference curve; will only indifference curves will only be parallel to each other, they cannot intersect, yes.

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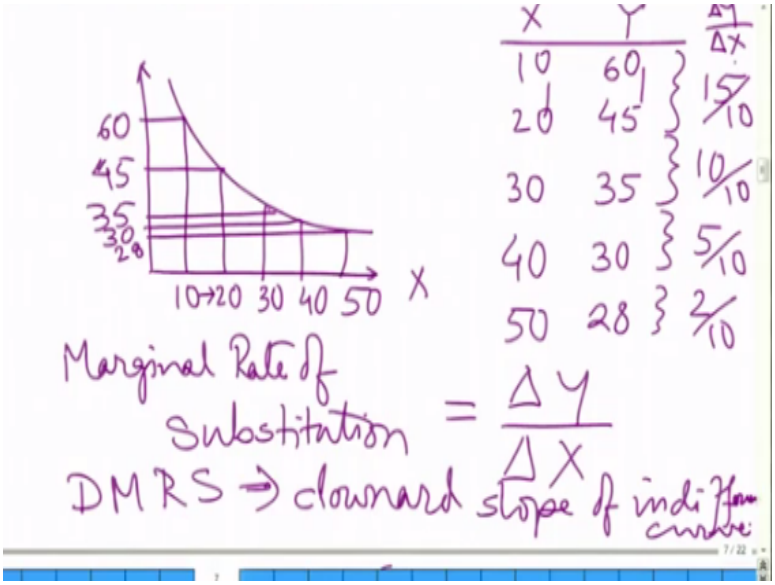

Now, we will learn why an indifference curve is downward sloping always, let us take this example this is 10, 20, 30, 40, 50 and of X and of Y, we can say that this is 60, this is 45, this is this is 35, this is 30 and 28, so when I move from 10 to 20, when I move from 10 to 20, while consuming X, I am sacrificing my Y by 15 units yes, when I am moving from 20 to 30, I am sacrificing the consumption of Y by 10 units.

When I am moving from 30 to 40, I am sacrificing the consumption of Y by 5 units, when I am moving from 40 to 50 by 2 units yes, this is known as marginal rate of substitution. Now, we can think of a doctor and a nurse, we can think of 2 medicines, we can think of apple versus a

protein supplement, something like that. This shows, now this 15 is basically delta Y/ delta X is not it, with a change in X, how much Y is changing?

And we can divide it by 10, by 10, by 10 and by 10 because delta X in all these cases is 10 units and how much Y is being sacrificed. So, when I am; I do not have much of X, and I have plenty of Y, I do not mind sacrificing Y by a larger extent to get some more X because I am desperate of X because I do not have any much of X. When I have gained 20 units of X, my; I have; I want 45 units of Y to remain on the same satisfaction level.

Keeping my satisfaction level same, I wanted some more X, I moved from 20 to 30 and because more is better and I cannot keep my Y similar then, I will move to the other; higher indifference curve because I am gaining more X, so I need to sacrifice some amount of Y. Here, I sacrifice from; while I move from 20 units of X to 30 units of X, I sacrificed 10 units of Y that means, previously when I was getting 10 units to 20 units of X, I sacrificed 15 units of Y.

Now, I am sacrificing 10 units of Y for the same amount of additional X, when I ask for 40 units of X moving from 30 units of X, I am sacrificing only 5 units of Y that is primarily my number of Y is now decreasing and I am having a higher number of X maybe than more than what I required, yeah or what gives me the best satisfaction, so with the consumption of more and more, my satisfaction goes down for that particular commodity.

So, when my satisfaction goes down for that particular commodity, I may ask for some other commodity or what is happening here when my X demand for X is increasing and increasing my wish to or willingness to sacrifice Y is going down because now, Y is being scarce for me, I do not want to live anymore Y, it is keeping; kind of keeping a balance between the number of bowlers and number of batsmans in a particular cricket team.

So, when you cannot have too many of bowlers, then you do not want to let go one bats man because you have already too many bowlers or you do not want to have too many of batsman, if you do not require bowler, so and you know we have for different formats, we have different mix of batsman, bowlers or all-rounders in taste maybe, we can go for with 4 bowlers specialized bowlers but in one day, we would like to have 6 or 7 bowlers with you know, the all-rounders and all.

So, this variation, how much I will be willing to sacrifice, why with increase of you know, a consumption of X will differ from person to person from scenario to scenario, from disease to disease, from group of medicines to group of medicines therefore, this marginal rate of

substitution says how much amount of a particular commodity I would or one would like to sacrifice, one they are asking for one additional unit of X.

Because they have to stay on the same indifference curve now, if I am; I have a high fondness on X, I will have 50 units of X, 28 units of Y no problem, if somebody has a high fondness of Y, they will have 60 units of Y, 10 units of X, no problem but for a particular individual, the balance should be based on their satisfaction from a particular commodity and how much they will sacrifice again for one commodity, sacrifice one community to get another extra unit of other commodity they are demanding for.

And then, this diminishing marginal rate of satisfaction or substitution; diminishing marginal rate of substitution will show you the lower curve or downward sloping indifference curve, so the diminishing marginal rate of substitution determines the downward slope of indifference curve, yes, thank you.