Good morning students. I”m Miss P.S.Devi, Assistant Professor from S.V.’s Sridora Caculo College. And I will be covering the module on Indifference Curve Analysis from micro economics.

In this module we will be covering the meaning of indifference curves, the assumptions of the analysis, the indifference schedule, the indifference curve, the indifference map, and finally the properties of indifference curves.

At the end of this module, it is expected that the student will understand the concept of indifference curves and will be in a position to list out the features of indifference curves.

We begin with the meaning of indifference curve analysis. As human beings, we have a lot of wants and desires, and in order to satisfy these wants, we have to consume products and services. So when a product or service gives us satisfaction or utility, then we are able to express our satisfaction with that particular commodity. For example, if we are hungry, we have many options before us. We can consume a sandwich and a cup of tea, or we can have a samosa and a cup of coffee. This will give us satisfaction because it satisfies our hunger, which means that these food items have utility because they have the capacity to satisfy our wants.

Now we have to remember that it is not possible to quantify satisfaction. For example, if I ask you to give me a numerical value for the satisfaction that you got from consuming a samosa and a cup of coffee, can you give it a numerical value? No.

So for the indifference curve analysis, an important assumption is that while satisfaction cannot be measured quantitatively, we are able to rank our preferences on a scale. That means when you are hungry, what do you prefer to eat? You can give that on a scale. You can order your preferences, okay. So the indifference curve is the locus of points which show the different combinations of two commodities between which a consumer is indifferent. What this means is that we are talking about any two commodities, and we're talking about different combinations of these two commodities.

For example, one unit of A and three units of B or two units of A and four units of B. Between these combinations, the consumer is indifferent. So if you plot these points, you get an indifference curve, which shows the different combinations of the two commodities between which the consumer is indifferent.

There are certain assumptions to this analysis.
The first assumption is that the consumer is rational. A rational consumer will always aim at maximizing his satisfaction. We know that the more we consume, the more satisfaction we will derive. But we have to keep in mind that how much we consume is a function of income or purchasing power. So income is a constraint, and given the constraint of income, a consumer will be rational when he aims to maximize his satisfaction.
Secondly, we assume that at a given point of time, there are only two commodities in the consumption basket. This assumption is made for the sake of simplicity, because we know that we have many different

needs and we have to consume many different commodities. But for the sake of simplicity to understand this analysis, we assume that there are only two commodities in the consumption basket.
Thirdly, it is possible for the consumer to rank his preferences on a scale. As I mentioned earlier, it is not possible to give a quantitative value to our satisfaction levels, but we are able to look at it from an ordinal point of view. An ordinal point of view means we are ordering our preferences on a scale, that we prefer this compared to another combination of goods and services.
A very important assumption is that the consumer is never totally satisfied. That means the consumer is always trying to consume more and more goods and services in an effort to maximize his satisfaction. But at no point in time will the consumer be fully satisfied. That is because the nature of human beings is such that human wants are unlimited.

Then we say that the preferences of the consumer are consistent. What this means is, suppose you prefer commodity to commodity B. And you prefer commodity B to commodity C. Then it definitely means that you prefer commodity A to commodity C. That means there is transitivity or consistent choices. And finally, we assume that the two goods that we're talking about can easily be divided into smaller units.

Next we look at what is the indifference curve. The indifference curve is a curve which joins all combinations of two goods that give equal satisfaction to the consumer. Since these combinations give equal satisfaction to the consumer, he is indifferent as to which combination he gets. For example, we talk about two commodities X & Y. So if we have two units of X and three units of Y, or if we have 3 units of X, and one unit of Y what it means is that both these combinations give us equal satisfaction, and because these combinations give us equal satisfaction, we are indifferent between these two combinations. That means we are satisfied equally with combination 1 and combination 2. So it doesn't matter to us whether we opt for combination 1 or for combination 2.

This can be better understood with an indifferent schedule. An indifferent schedule is a table which shows the different combinations of the two commodities. In the first column you have the combinations and there are five combinations listed out: A, B, C, D & E. In the second column you have commodity X and as you can see the numbers there as we proceed from combination A to combination E, we are consuming an additional unit of commodity X. So we progress from 1 to 2 to 3 to 4 to 5. And lastly, we have commodity Y. If you look at the units of commodity Y that we are consuming, in the first combination A, we are consuming 15 units of Y and then subsequently the consumption of Y comes down from 15 to 10 to 6 to 3 to 1. So what it means is that combination A gives us 1 unit of X and 15 units of Y. B gives us 2 units of X and 10 units of Y. Combination C gives us 3 units of X and six units of Y, and so on and so forth. But all these five different combinations give the same level of satisfaction to the consumer, and so the consumer is indifferent between these five combinations. He may be on A or he may be on C, or he may be on E. It doesn't matter to him because the level of satisfaction that he derives from the consumption of these different units of X & Y gives him the same level of satisfaction.

This is the indifference curve. What we have done here is we have plotted the points. For example, combination A was one unit of X and 15 units of Y. Combination B was two units of X and 10 units of Y. Combination C was three units of X and six units of Y, and so on and so forth. So we plot these points on

the graph. When we join these points, it will give us the indifference curve. So the indifference curve is a curve that joins all the combinations of the two commodities that provide equal satisfaction to the consumer. Since the satisfaction derived is the same from different combinations, the consumer is indifferent as to which combination he gets.

Next we try to understand what is in indifference map. An indifference map is made up of many indifference curves. Any combination on a higher indifference curve is preferred to any combination on a lower indifference curve. This is because a higher indifference curve denotes a higher quantity, and the consumer will always prefer a higher quantity to a lower quantity. This graph shows the indifference map. You can see that there are three curves here. IC_1, IC_2, and IC_3. IC_1 is the lowest indifference curve. As we move to IC_2, the consumer is supposed to have a greater level of satisfaction because he consumes more of the two commodities and IC_3 will give the maximum satisfaction to the consumer because here the quantities consumed by the consumer will be more. It has to be remembered here that in the case of a higher indifference curve, the quantities consumed of both the commodities may not increase, but at least the quantity consumed of 1 commodity will definitely be higher than that on a lower indifference curve. So a rational consumer will always prefer a higher indifference curve to a lower indifference curve because it implies greater satisfaction or utility.

Finally we come to the properties or features of indifference curve. The first feature is that indifference curves have a negative slope. Now, what is the meaning of a negative slope? It means that if you want more of 1 commodity, you have to sacrifice some quantity of the other commodity. That means if the consumer wants more of X, he has to give up the consumption of commodity Y. We saw in the schedule that the consumption of commodity X increases from 1 to 2 to 3 to 4 to 5. On the other hand, the consumption of Y is consistently decreasing from 15 to 10 to 6 to 3 to 1. So what it means is that if we want to increase our consumption of X, this will be possible only if we are willing to sacrifice our consumption of Y to a certain extent.

This is illustrated on this graph. You have commodity X on the X axis, and you have commodity Y on the Y axis. This curve has a negative slope, indicating that the more you have of commodity X, the less you will have of commodity Y.

The second feature is that a higher indifference curve represents higher utility. This is because on a higher indifference curve, the consumer will get more of at least one commodity, which will bring him higher satisfaction. Again, you have this indifference curves IC_1, IC_2, an IC_3. And as a consumer progresses from IC_1 to IC_2 to IC_3, his consumption of the commodities will increase. While the consumption of both the commodities may not increase, the quantity of at least one commodity will be more than what he consumed on a lower indifference curve.

Then we say that indifference curves are convex to the origin. We have already seen that when a consumer wants more of one commodity, he has to sacrifice the other commodity. But what is very interesting to note is that as we want more and more of one commodity, our willingness to sacrifice some quantity of the other commodity reduces. That is because of the law of diminishing marginal rate of substitution. That means initially we were ready or willing to sacrifice the consumption of Y from 15 to 10. We are willing to sacrifice 5 units. Then from 5 units, we are willing to sacrifice only four units from ten to

six. From six to three, we are now willing to sacrifice only three units and from 3 to 1, we are willing to sacrifice 2 units. That means we will we will be willing to consume more of the other commodity by sacrificing lesser of the other commodity. This is illustrated in this graph.

And finally, we see that indifference curves can never intersect. This is because at the point of intersection, as you see in this graph, point B is common to IC_1 and IC_2. But we have already seen that a higher indifference curve should give us more satisfaction. Point B would denote that the level of satisfaction at IC_1 and IC_2 are the same. So this violates the earlier assumption. And if you see the green part of IC_2 from Point B, which falls below IC_1, that is also a violation of the previous assumptions. That means we say that a higher indifference curve has to give us greater utility or greater satisfaction. A lower indifference curve has to give us lesser satisfaction when the two curves intersect. This assumption is violated, and so we say that indifference curves can never intersect.

To learn more about this topic you can refer to these books. Thank you.