Conservation Economics
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Module 11
Practical issues in Economics and Conservation
Lecture 1
Consumer choice

Namaste! Today we begin a new module which is practical issues in Economics and Conservation. This module will have 3 lectures: consumer choice, asymmetric information and behavioural economics and valuation of natural resources. So, let us begin with Consumer Choice.

Some of you may have observed this mark on some of the products that you are purchasing. This is an eco mark and this mark designates or certifies that the product that has this mark has been made with the least impact on the ecosystem which means that whenever you see this mark on a product, it means that it has been made in a sustainable manner without putting a very great amount of stress on the environment.

Similarly, if you observe a mark such as this one; this is the mark of India organic. This is telling that the product that has this mark has been made using organic techniques, organic agriculture without the use of things such as pesticides. Now this is important because we have observed that pesticides are back bio accumulative toxins that also magnify when they move up the food chain. And so, when you purchase something that is labeled as organic; it is not just good for your body, it is also good for the ecosystem.

Similarly, we have marks such as these; this is the FSC mark of the Forest Stewardship Council. Now when you have a label like this, it states that 100 percent products are containing the material from FSC certified forest that meet the environmental and social standards of FSC.

100 percent of the material that is having this mark of FSC and when it says 100 percent, it means that the product is containing materials that are from FSC certified qualities that are meeting environmental and social standards. When we say that it is meeting an environmental standard it means that it is being taken out in a sustainable manner. There is no excessive use of chemicals in such a forest. It has been harvested in such a manner that the biodiversity is protected and it also meets the social criteria which means that the benefits are being shared with the community. It is not taken from a forest that is being worked through exploitation of labor.

Similarly if you have this FSC mark with mix it states that it has products with material from FSC certified forest recycled materials or other controlled sources. Here again this label is certifying that the product that is being bought is from a sustainably managed resource. So, it is good for the environment. We have FSC recycled label products containing post consumer

material and may include some amount of pre consumer material.
We have labels like these. When we say that we have this 100 percent label, it means that it is only from FSC certified forest. If you have a mixed label, then it is from if this is certified forest FSC controlled wood or reclaimed material that is the recycled material. And when we say recycled, it is from reclaimed materials.
If there is a product that has this label, then it means that it is good for the environment. Similarly, we have the labels of rainforest alliance. Now the rainforest alliance again says that the product has been extracted or manufactured in such a manner that it protects the biodiversity of the rainforest or we can have a label like this ISO 14000 family.
Now, ISO 14000 label means that it is a label for environmental management and there are a number of companies that are highlighting their sustainability. Brands such as Apple making without taking sounds impossible, but it is our goal and it says that 100 percent of our offices, retail locations and data centers have run on 100 percent renewable energy. And if you download this report you will find what all steps are being taken by this company for maintaining and enhancing the level of sustainability. Here for the environment.
If we look at the website of Tetrapak, it says it has this FSC label. So, it says that all our paperboard comes from wood from forest certified to FSC standards and other control sources. You know tetra pak is highlighting the fact that when it is making the products and its products contain paper and good materials.
In that case it is only taking those materials that are being extracted in a sustainable manner. So, it is caring for the environment. So, brands such as Apple and Tetrapak are emphasizing that they are caring for the environment. Or Maruti Suzuki, it says the future begins now with BS6. So, BS6 is Bharath Standard 6 which is an enhanced level of standardization for petrol and diesel vehicles and their fuels that ensures that the amount of pollutants that are released are less.
When Maruti Suzuki highlights it on its home page it means that it wants to highlight that it is a company that is caring for the environment. The question is if we have such standards and when we have companies that are highlighting these standards, is it sufficient?
By that what we mean is it sufficient to have standards and certain companies that show that or highlight that they are following these standards or is there something else that is also involved. After all, in a market economy the prices and the process of buying and selling are the things that give signals to the buyers and the sellers.
Now, on the one hand, there are certain companies that are showcasing that they are environmentally friendly, but then being environmentally friendly will also come at a cost. Because if you say shift from a certified forest, certification takes effort, certification takes cost and also there are certain other sources of unsustainably managed forests from which the wood can be had more cheaply.
Because they are not sustainably managed they are not being managed for a long term perspective. In the short term, they can prove cheaper. Similarly when we talk about things such as BS6 compliance, we also have this news. Last chance to buy BS4 discounted cars TATA Nexon, Renault Kwid selling for less money.
This is an article that is telling people that okay the world is shifting towards BS6, but then we

still have stocks of BS4 and this is a golden opportunity for you to buy the BS4 cars because they are cheaper. Especially because of the more stringent norms after a while, it will be impossible to sell the BS4 cars and so, now, these are available at a greater discount.

Now mind you if somebody buys a BS4 car and is using that car, for the next say 5, 10-15 years; this is one vehicle that will be giving out pollution at a level that is greater than that of the BS6 standard. Now as a consumer how do you decide whether you should go for a BS4 car or a BS6 car?

Because overall if we have the standards and if we have the companies that are highlighting that yes, they are caring for the environment. But when there are certain other companies that probably are not following the higher standards and if people flock to those companies or even in the case of those companies that are following the standards; if there are unsold stocks and people only want to go for those unsold stocks.

In that case will it be possible for the companies to have stricter norms to follow the stricter norms or is the market telling a very different picture? Similarly, this article BS4 Hyundai cars discounts of up to rupees 2.5 lakhs on center and so, many other models. The question for the consumer is whether he or she should go for cost or sustainability.

And this is a very important question when we talk about conservation because if we want to go for conservation; if you want to manage things in such a manner that we are able to extract the resources for a very long period of time. Sustainability just means that we will not just use the resource right now, but we will use it in such a manner that we can extract the resource for many years to come or providing many generations to come

Ultimately if somebody is going for a sustainably produced material, then they are doing something that is best in the long term interest. But then if the unsustainably managed product is available at a lower cost, how does the consumer react?

If the consumer reacts in a manner that would say that no, we only care about the cost; we do not care about the sustainability. In that case probably sustainability will be a lost cause which is why it is important to understand how consumers make decisions.

How does consumer choice work? Now, a consumer is always acting in a budget constraint. A budget constraint is defined as the limit on the consumption bundles that a consumer can afford. Essentially we had begun this course by saying that economics is the science of decision making because our wants are unlimited, but the resources to fulfill those bonds are limited and which is why we need to choose; we need to make decisions.

The limitation of our resources is depicted by the budget constraint because not everybody has all the money that they would need or that they would want. So, there is a limitation on the budget of every person and budget constraint is the limit, then limit on the consumption bundles that a consumer can afford.

Probably a consumer wants to have a consumption bundle that says that let me have the best house, let me also have the best car, let me also have the best clothes, but then probably the consumer is unable to afford this consumer this consumption bundle. So, the consumer will have to make a choice whether he or she wants to go for better clothes at the cost of a better vehicle.

Probably the consumer might say that okay, let me go for a second best vehicle and the money

that I save is going to be used for better clothes or the consumer might say that no I am saving for a house for my retirement and I am going to cut cost in the vehicle as well as on the clothes that I am using.

The consumption bundles can be indefinite, but there is a limit on these consumption bundles that is being put by the budget constraint. The amount of money that a person has and it is determined by how much the consumer can afford.

If the consumer gets more money, then probably the consumer will shift to a very different consumption bundle than what he or she is choosing right away. When we talk about budget constraints, let us look at an example. Let us say that a person has a budget constraint of 100 rupees, it means that this person only has 100 rupees available with them and there are two items in the market. We have samosas and we have lassi. Now samosa is available at 5 rupees per samosa and lassi is available at 10 rupees per glass.

Now, suppose the consumer buys 20 samosas now, in that case the consumer has already spent 100 rupees on samosas. So, this is spending on samosa. So, 20 into 5 is 100 rupees and if the consumer has spent 100 rupees on some users, he or she will have 0 rupees left for lassi because the total spending can only be 100 rupees; it cannot exceed 100 rupees.

Now, if the consumer wants to have one glass of lassi, this glass of lassi will cost him 10 rupees. And if it is costing him 10 rupees, then it means that 90 rupees are available to purchase samosas and in 90 rupees, this person can get 18 samosas. So, this is another consumption bundle. So, the first consumption bundle was 20 and 0, that is , the consumer could have 20 samosas and 0 lassi.

Another consumption bundle is 18 and 1. So, he or she can have 18 samosas and 10 lassis or we can have another consumption bundle which is 16 and 2 and so on till we reach to this point of 0 and 10. Now, at this point the consumer is spending money on 10 glasses of lassi which is 10 into 10 in 100 rupees is being spent on lassis, 0 rupees is being spent on samosas.

And so, the consumer is getting 0 samosas. Now these are all different consumption bundles that are available to the consumer. They can also be a number of other consumption bundles. So, such as in this case the consumer can get 10 of samosas and 5 of lassis, but the consumer can also say that no I do not want so many so, I will only have say 5 samosas and 2 lassis.

Now this can also be a consumption bundle, but then this is a consumption bundle that is less than the budget constraint. Here the budget constraint is 100 rupees and if the consumer is only buying 5 samosas, that is 25 rupees and 2o lassi is 20 rupees. So, in this case the consumer is only spending 25 and 20 rupees. So, the consumer is spending only 45 rupees whereas, the consumer could have spent 100 rupees.

So, we can have any number of consumption bundles. There are some consumption bundles that are within the budget constraint and there are certain others that are outside of the budget constraint. So, probably the consumer might say that no I do not want 5 and 2. I probably want, say, 50 and 20.

Now for 50 samosas the cost will be 250 rupees and for 20 lassis, the cost will be 200 rupees. In this case the consumer would want to have an amount of 450 rupees. But this amount is not available with the consumer; the consumer only has 100 rupees.

I we plot these consumption bundles, we will find that here on the y axis it is the number of

lassis, on the x axis we have the number of samosas and there are a number of points that are right there on the budget constraint things like 10 lassi and 0, samosas or things like 20 samosas with 0 lassi. But you also have certain points that are here and these points represent those consumption bundles that the consumer may have.

But when the consumer has those consumption bundles, then he or she will be saving some amount of money that is they are not using the money to the fullest. At the same time there are certain points that are here which represent those consumption bundles that the consumer cannot afford because they are outside the budget constraint. So, they will require a sum of money that is greater than the budget that they have currently. This is the concept of budget constraint.

The next question is when we have this budget constraint, what determines whether the consumer will go for this point or this point or say ah this point inside? Of course, the consumer cannot have a point outside. This is not permitted, but the points that are inside are permitted and the points on the line are permitted. What determines which point is actually chosen?

This brings us to the concept of indifference curves preferences. Indifference curve is a curve that shows consumption bundles that give the consumer the same level of satisfaction. So, indifference curves are curves that show those consumption bundles that give the consumer the same level of satisfaction.

Basically what we are asking here is that suppose you are very much fond of sweet things, so you are much fond of lassi and you do not like samosas that much. Now suppose you were given the option of having say 5 lassis and then you are given another option.

What we are asking here is that you are very fond of lassis and the money that you have can buy you 5 lassis, but then when you buy 5 lassis the number of samosas that you will have is 0. The question is if you reduce your lassi consumption by 1 so, if you have 4 lassis, what is the number of samosas that you will have that will give you the same level of satisfaction as having 5 lassis and 0 samosas? And that will give you an indifference curve.

I'll probably even say that no, I am more fond of lassi. If the lassi is reduced by 1 ok in that case, I will need three samosas. If I have these 3 samosas then and 4 lassis, then that will give me the same level of satisfaction as 5 lassis and 0 samosas. Now when we have these combinations of 5 and 0 or 4 and 3 and so on and when we plot these, we will get to an indifference curve. So, indifference curve is a curve that shows the consumption bundles that give the consumer the same level of satisfaction.

Here we are talking about the consumption bundles and these are the consumption bundles 5 and 0, 4 and 3 and so on. So, this is an indifference curve. And this is what an indifference curve looks like. So, the red line is showing the budget constraint and the blue line is showing the indifference curve. So, in this case, what we are saying is that if the consumer is at this point; then the consumer gets 2 samosas and 9 lassi and at this point the consumer gets 7 samosas and 3 lassis.

If both of these are on the same indifference curve then both of these consumption bundles will give the consumer the same level of satisfaction. So, whether the consumer has uh 2 samosas and 9 lassis or 7 samosas and 3 lassis, the amount of satisfaction or the amount of subtlety that the consumer will have is the same. So, that is an indifference curve. And when we talk about an

indifference curve, we can also have a look at the marginal rate of substitution.
The rate at which a consumer is willing to trade one good for another. That is we are asking the question here if you want to give up 1 lassi, so, here the difference is minus 1. What has to be added to the number of samosas? In this case, it is plus 3. Now the ratio of these is giving us that for each lassi 3 samosas need to be had. So, that is giving us the rate of substitution. The marginal rate of substitution is the rate at which a consumer is willing to trade one good for another and it is given by the slope at any point.
What we are saying here is that if you look at this indifference curve, then the slope at this point which will be given by this line, this slope. At this point is given by this line and the slope at this point is given by this line. So, these 3 lines or these 3 slopes are giving us the marginal rate of substitution. And here we can observe that here the slope is very high, here it is medium and here the slope is very less now.
What will that show? At this point when we have this slope, then this much amount of the good here needs to be had for this much amount of the good here. So, what we are saying here is that for a lesser number of samosas, we need to have more lassis. So, what we are saying here is that so many lassis are equivalent to such a small number of samosas or that the person can give up so many lassis just to have a few more samosas at this point.
This is expected because at this point the consumer is already having a very large number of lassis and a very less number of samosas. Now we have a concept that is known as the law of diminishing marginal returns which means that suppose you do not have any food and suppose the food that you are having is rotis.
So, currently you have 0 rotis now and you are very hungry. When you shift from 0 rotis to 1 roti, you get a certain amount of satisfaction because your hunger is getting filled up. Now after the first roti, you have the second roti, then you have the third roti and probably now you have had 5 rotis. Now when you move from 5 rotis to 6 rotis will the amount of satisfaction that you had here - because here you were adding just 1 roti and here also you are adding just 1 roti.
The amount of satisfaction that you get in this process is much greater than the amount of satisfaction that you are getting in this process because by the time you have had 5 rupees you are not that hungry and so, the amount of satisfaction that you are gaining with each additional roti is going down. So, you are getting a diminishing marginal return with each new roti. And probably after a while you will have a negative marginal return which means that you are now so full that when you are given one more roti, then you just hate to eat.
So, the roti is the same when you are hungry, you are having a very high value for it. As your hunger goes down, your value for the roti goes down and at a level of too many rupees, now you are having a negative feeling for any additional roti that is force fed. This is exactly what we are observing at this point. So, the consumer is having a very large number of lassis. So, now, probably the consumer is not putting that higher value on the lassi, but the consumer has had very less samosas.
So, the amount of satisfaction that the consumer will have with each additional unit of samosa will probably be much greater than the amount of satisfaction that they will have with each additional unit of lassi. And which is why the consumer at this stage you get a very small number

of samosas can give up a large number of lassis which is what we are seeing in the case of the slope as well. So, this is the marginal rate of substitution.

When we have reached this point then the consumer has had so many samosas that now the consumer is ready to give up so many samosas just to have a few units of lassi. This will give a slope like this; a very low slope. And at a point in between the consumer has had a middle number of samosas and an average number of lassis. And so, the consumer is practically ambivalent about whether he or she gets an additional samosa or an additional lassi. So, this is the marginal rate of substitution which is given by the slope of the indifference curve.

Now, indifference curves have certain specific properties. One: a higher indifference curve is preferred to a lower one since the consumer prefers to consume more of both the products. Now, this is an assumption that we are making for a large number of cases. This assumption is also true. What we are saying is that if there are 2 indifference curves, the one that is higher.

In this case, this curve is preferred over this curve. So, the consumer will also always want to have this higher curve and not the lower curve because at the higher curve the consumer is having more of both the things. Indifference curves are downward sloping since if one word is consumed less the other should be consumed more for the same level of satisfaction.

What we are saying here is that remember that in the case of an indifference curve, we are looking at the points that give the same level of satisfaction. Now for the same level of satisfaction if one good is reduced, then the quantity of the second good should be increased. When you have this situation that when one reduces, the other increases you will have a downward sloping curve.

Another property is that indifference curves do not cross, since it would create a situation where more of both goods gives the same level of satisfaction as less of both goods which cannot be there. What we are saying here is that if there are 2 indifference curves and if these curves were able to cut each other, intersect each other at this point, what would that mean? A and B are on the same indifference curve. Basically A and B have the same level of satisfaction; A and B give the same satisfaction B, B and C are on the same indifference of this curve. So, they also give the same satisfaction.

If A and B give the same satisfaction, B and C give the same satisfaction, then it would mean that A and C give the same satisfaction. But now if you look at point A and C, then in the case of C we have more of good 2 and we also have more of good 1 which means that the point C where good 1 is more and good 2 is also more is giving the same level of satisfaction as point A. We began with the assumption that the consumer is getting satisfaction from the consumption of these goods. So, more the amount of goods that is consumed more should be the satisfaction, but in this case we are observing that more of having both the goods is giving the same level of satisfaction as less of both the goods which cannot be true which means that these curves should not be able to intersect each other. So, indifference curves do not cross.

Another property is that the indifference curves are bowed inwards since consumers have more willingness to give up a good that they already have a lot of which is what we saw here that at this point when the consumer has a large number of lassis, then the consumer is ready to give up large quantities of lassis to have a few quantities of samosas. Whereas, at this point the consumer

is ready to give up a large number of samosas to have a small amount of lassi.
Now when we have such a situation that you have a higher sloping ah MRS here, a lower sloping MRS here and at a middle level of MRS here, then this in total will give a curve that is bent inwards that is towards the origin. So, the indifference curves are always having this shape - they are bent.
In this context, we can talk about two specific indifference curves. One is the indifference curve for perfect substitutes two goods with straight line indifference curves. Now substitutes are defined as goods with the same indifference curve. A very good example is whether you have money in the form of rupees or coins.
If somebody gave you a 10 rupee note will you gain more satisfaction than if this was then if you were offered a 10 rupee coin. Well in a majority of cases, you will find I mean we are not talking about an exception where your valid is so full that you are finding it difficult to hold any more coins.
But in a normal circumstance, you will find that the amount of satisfaction that you get from a 10 rupee note is the same as the amount of satisfaction that you will get from a 10 rupee coin because both are giving you the same power to purchase.
Similarly, a 5 rupee note or a 5 rupee coin will mean the same and this is what we are showing here. On the y axis, we have rupee notes; on the x axis, we have the rupee coins now 10 versus 10. It is a straight line. So, any combination, if you reduce the coins by a value of 1, you should increase the note by the value of 1. So, these are perfect substitutes, they will have straight line indifference curves.
Another specific indifference curve is perfect complements and complements are defined as goods with right angled indifference curves. A good example is shoes.
Now, on the y axis here, we have the right shoe; on the x axis we have the left shoe. Now if you were given this combination of this point 5 and 5. So, you are having 5 left shoes and 5 right shoes. Essentially you are having 5 pairs of shoes. Now suppose in place of this, you were given this combination. So, here you are having 6 left shoes and 5 right shoes.
In this case, what is happening is that here also you are having 5 pairs of shoes and an extra left shoe. Now here is well you get 5 pairs of shoes in an extra left shoe. So, the amount of satisfaction that you get will be the same as the amount of satisfaction when you are having the 5 pairs of shoes because you do not have an extra utility for an extra left shoe. Similarly if you had 7 left shoes and 5 right shoes, here also the number of working pairs is only 5 and you have an extra 2 left shoes which you do not have a use for.
Whether you get this combination 5 and 5 or this combination or this combination it is one and the same you get the same level of satisfaction because you only have 5 pairs of shoes in each case. Similarly if you look at this point, you have 5 left shoes and 6 right shoes here again you have 5 pairs of shoes and then extra right shoes. At this point you have 5 pairs of shoes and 2 extra right shoes.
Now these three points provide the same level of satisfaction. Because in all these three points the number of working pairs of shoes is only 5 and similarly all these give the same level of satisfaction. Combining both of these right - these two straight lines at 90 degrees they give the

indifference curve for perfect complements.
Perfect complements means that you cannot substitute one for the other, but you need both of them together. In the case of substitutes, you can replace one with another, but in the case of complements you need both of them for working things such as nuts and bolts. The number of nuts should be equal to the number of bolts. So, these are the indifference curves for perfect complements.
Once we have the indifference curves and the budget constraint, we can now start to talk about the consumer's optimum. Of all the points that are there on the budget constraint and of all the points that are there on an indifference curve which is the point that the consumer actually suggests actually opts for.
So, the consumer's optimum is given by the point on the budget constraint that lies on the highest indifference curve. It is the point on the budget constraint. So, in this red line is the budget constraint. The consumer's optimum is a point on this line, it is not a point above or below this line and this point should be the one that lies on the highest indifference curve because we have seen before that a higher indifference curve is preferred to a lower indifference curve because people want to have more consumption.
In this case the higher indifference curve is preferred and the point on the budget constraint line that is on the highest indifference curve gives the consumer's optimum. This is the point that the consumer would choose if he or she were doing rational thinking. Because this is the point that gives the maximum amount of satisfaction given the budget constraint because what is happening here is that for points above the budget constraint.
So, any point on this indifference curve is not selected because the consumer does not have sufficient budget. And if the consumer selected some point on this curve, then she is left with a certain amount of money which could be spent on having more of both the goods which would mean that the consumer would move towards these indifference curves.
For every curve that is to the left of the indifferent slide, the consumer tries to move towards the right, but for an indifference curve that is away from the budget constraint line then this becomes an impossible combination given the budget constraint. The optimal point is given by the point on the highest indifference curve that is touching the budget constraint.
Here we can talk about two kinds of goods, one is known as a normal good. A normal good is one for which an increase in income increases the quantity demanded. So, what we are talking about here is that if the consumer is having more money, what will the consumer do? If the income increases will the consumer have more of the good or will he or she have less of the good.
There are things that are known as the normal goods; normal goods are everyday used goods that we have a large value for. Now, if the consumer has more income then more is the quantity demanded for this particular budget. That is what we are saying is that the income is represented by the budget constraint.
If we move from this lower budget constraint to a higher budget constraint and if these are indifference curves for good 1 and good 2 so, here we are observing that at this lower budget constraint. This was the optimum point at a higher budget constraint, this is the optimum point

and at this point the consumer is having more of good 2 and the consumer is having more of good 1.

Both good 1 and good 2 are normal goods because with an increase in income with an increase in income, the quantity demanded has increased. If we draw these lines and if we say that this is point 1 and this is point 2. Then when the consumer is shifting from this lower income to the higher income, then the consumer is having more of good 2 and is also having more of good 1.

So, these goods are normal goods. There are certain other goods that are known as inferior goods: a good for which an increase in income reduces the quantity demanded - things such as bus rides. What is an inferior good? Suppose you have less income in that case, you will prefer to go by a bus, but when your income increases then probably you will think that no in place of going by a bus, I can afford much and so, I should take a taxi - I should take a cab. In that case your demand for bus rides will go down. So, even though you are having more income, you are asking for less of this good less of bus rides. So, bus ride is an inferior good because with an increase in income less is the quantity that is demanded.

We can represent it by these curves. These are the two budget constraints, the earlier low income budget constraint and now the higher income budget constraint. Now what is happening is that in the lower income budget constraint, the optimum point was this. This is the point on the highest indifference curve. For the high income budget constraint, the optimum is given by this point. Now if we move from this point 1 to this point 2 what we are observing is that now less of bus rides are wanted and more more number of taxi rides are wanted

In this case the taxi ride is a normal good because with an increase in income, more is the quantity demanded. But bus ride is an inferior good because with an increase in income less is the quantity that is demanded. So, this is an inferior good.

In this context we can talk about income and substitution effects. Income effect is the change in consumption that results when a price change moves the consumer to a higher or a lower independence curve. When we talk about these changes, these changes can occur in two ways. One is that you can have an increase in income.

In that case you will move from one budget constraint to another budget constraint, but there is also another option that one of the goods or all the goods become cheaper. Now whether you get double income or the price of everything is halved it means one and the same thing.

When we talk about the income effect it is the change in consumption that results when a price change moves the consumer to a higher or a lower in difference curve. In this case when you talk about the income effect, the income is not increasing. But there is a price change that is leading the consumer to a higher or a lower indifference curve. And we can also talk about the substitution effect which is the change in consumption that results when a price change moves the consumer along a given indifference curve to a point with a new marginal rate of substitution.

In the case of a substitution effect, we move along the same indifference curve to a point with a new marginal rate of substitution. What we are saying here is that when we look at the indifference curves, the marginal rate of substitution here is different; here it is different and here it is also different.

In the case of a substitution effect, the consumer moves along an indifference curve to a point with a different marginal rate of substitution. And within both of these cases it is a price change that is moving the consumer along a curve or to a different curve and we can look at it with the example of again our samosa industry.

Now, here the case is the price of samosa falls. There is a price change that is happening. Now this price change can lead to an income effect or a substitution effect. Let us understand how. Now the price of samosa has fallen and so, the effective income increases because with the same amount of money now you can have more of the good. The samosa rate has fallen and so, you can now have more of the samosas, but you can also have more of lassi.

Because suppose earlier you were having earlier say, you were having 10 samosas and 3 lassis. Now the price of samosas has become half. In this case you can have 20 samosas and 3 lassi. But you can also do one other thing; you can also say that ok the price of samosa has fallen, but I only want 10 samosas, I do not want 20 samosas.

In this case, I will have 10 samosas. And because the price has fallen so, now, I am able to have or afford more lassis. In place of having 3 lassis probably I will have 5 lassis. Now this is the impact that we are studying. If the price of one good has fallen, then the effective income has increased because the same income here has not changed. But with the same income, now you can have more of the samosas or you can have more of the lassis or you can have some other combination.

Let us say that you can also have 15 samosas and 4 lassis. With the same income, now your effective income has gone up. You can have more of good 1 or you can have more of good 2 or you can have more of both the goods that is an income effect. Because of the income effect the effective income increases and. The consumer can now buy more samosas or the consumer can buy more lassis. This is the income effect. In this case the consumer is moving to a different indifference curve.

In the case of a substitution effect, your thought process goes like this. The price of samosa has fallen and so, now, samosa is relatively cheaper. So, let me have more samosas, which is what we are showing here because the price of samosas has fallen. So, let me have more of the samosas.

Let me have 20 samosas. So, that is a substitution effect or your thought process can be that now lassi is relatively expensive and so, I should have less amount of lassi because here we are talking about samosa and lassi. If the price of samosa has fallen, effectively it means that now the lassi is more expensive as compared to the samosas.

Earlier if, say, the samosa was 5 rupees and lassi was 10 rupees so, in this case lassi was equivalent to 2 samosas. But now what has happened is that the price of samosa has fallen. So, now, samosa is available for 2 and a half rupees, but lassi is available for 10 rupees as before. So, now, lassi is worth 4 samosas now if your currency was that of samosas, so you will say that ok, now the lassi has become more expensive because in place of paying 2 samosas for a lassi, now I have to pay for 4 samosas. Now if lassi has become more expensive, what will be your ah action? Probably you will want to consume less of lassi because it has become more expensive and this is what we are showing here. Lassi is relatively expensive and so, the consumer now

buys less lassi whereas, in the case of substitution in the substitution effect the samosa has become relatively cheaper and so, the consumer buys more samosas. Now, what is the net result? The income effect says that more samosas should be bought. The substitution effect says more samosas should be bought and so, more samosas will probably be bought.

But in the case of lassi the income effect permits the consumer to have more lassi, the substitution effect says that the consumer should have less lassi and so, here the result will probably be ambiguous. So, the lassi bought may be more or less than normal. So, this is the income and substitution effect.

Because your one good has become cheaper, so, now you have shifted from this budget constraint to this budget constraint. So, now, you can have a situation where more or less of the goods can be had and with this, we can talk about the law of demand; reduction in price increases the quantity demanded.

This is what we had seen here. In the case of samosas, reduction in price leads to more samosas that are bought, that is, reduction in price increases the quantity demanded. We can represent it by these curves. This is the first budget constraint, this is the second budget constraint.

In the second budget constraint, the good 1 has become cheaper and so, now the consumer can have more on this budget. This is the earlier indifference curve and this is the optimum that was chosen, this is the new indifference and this is a higher indifference curve.

So, the consumer has moved from a lower indifference curve to a higher indifference curve and the optimum point has shifted from this point to this point. Now when the consumer moves from this point to this point, more of the good one is being demanded which means that we can observe the law of demand reduction in price increases the quantity that is demanded and we can explain it using the income and substitution effects.

But then this law of demand is not always followed. There are certain goods for which a reduction in price may also reduce the quantity demanded and good examples are Veblen goods and Giffen goods. Veblen goods are luxury goods whose demand increases with the price, for example luxury cars. Now luxury cars are an expression of the wealth of people. So, people want to have a luxury car to show off that they have a very huge amount of weight.

What will happen if the price of a luxury car goes down? When the price of a luxury car goes down, then it is no longer an expression of the wealth of the people. When it is no longer an expression of wealth, then people would want to have less of those luxury cars whose prices have fallen because they were buying a luxury car primarily because it was costing high, so that everybody came to know that ok this person is having this expensive car and so, this person must be having a great amount of money. But if the price has gone down, then it is not serving that purpose. So, these are Veblen goods, luxury goods whose demand increases with price or when the price reduces the demand also reduces another category is Giffen goods.

So, Veblen goods are luxury goods, Giffen goods are inferior goods whose demand increases with the price, for example potatoes. What we are saying here is that suppose we are looking at two items, potato and meat. Now potato is a relatively cheaper item, but potatoes also form the bulk of food requirements of people, meat is more expensive and meat is a source of protein.

But a person needs to have a certain amount of food to survive. Meat can be considered to be a

luxury, but potato or a starchy food. In this case it is a necessity. Now what happens when the price of potatoes increases? Now in this case we are showing an increase in price. So, the earlier budget curve, the earlier budget constraint curve was this the blue one. Now the price has increased and so, less number of potatoes can be had for the same income.

Earlier the person was able to buy these many potatoes, but now the price has increased and so, the person can only buy these many potatoes. This is showing an increase in the price of the potatoes. So, now, less number of particles can be had. Now earlier this indifference curve was chosen and this was the optimum point. Now this indifference curve is being chosen and this is the optical point.

What is happening here is that with an increase in price the effective income of people is going down with a fall in effective income and because everybody needs to satisfy their hunger, they will want to have more of the cheaper goods. And in this case the cheaper good between potato and meat is potato.

With less effective income people will want to have the cheaper goods to satisfy their hunger and so, now, people will demand more of the potatoes which is what we are observing here. Earlier this quantity of potatoes was being demanded so, the earlier demand was this the new demand is this. There is an increase in the demand for potatoes. So, this is a Giffen good.

So, the salient points in consumer choice is that it is the branch of microeconomics that analyzes how consumers maximize the desirability of their consumption and people are trying to maximize the desirability. And this desired variability is represented by the indifference curves and the consumption is limited by the budget constraint.

What does that tell us? One is that because people want to maximize the desirability of consumption. If we can make environmentally friendly options more desirable probably through education or awareness or advertisement, then we can shift people towards those options. So, we need to make environmentally friendly options more desirable.

But when we do that, then we have to ensure that even those environmentally friendly options are within the budget constraints because the consumption is always limited by the budget constraint. And so, if the cost increases too much then probably the consumers will not go for the environmentally friendly option.

So, these are two things that need to be kept in mind and when we talk about consumer choice we are making several assumptions. One is that operational behavior, the consumers are seeking to maximize their utility, preferences are complete, consumers fully understand his or her preferences, permitting unambiguous decisions.

Preferences are reflexive that is if good A and b are identical, then the consumer will be indifferent with regards to A or B, they are transitive it means that if A is preferred over B; B is preferred over C then A must be preferred over C. Preferences exhibit non satiation which means that more is always better.

Now, this is not true in a number of cases as we have observed that when you are already full, then if you are given an extra roti to consume then probably that is not better for you. Indifference curves exhibit diminishing marginal rates of substitution resulting in the bow in the indifference curves and that goods are available in all quantities including parts.

These curves are continuous curves so they can show even parts of things. So, this is 10.5 apples. These are all different things, but an important thing is that the first thing is that people exhibit rational behavior. So, this is a rational model to explain the consumer choice, but then the thing is humans are not always rational which will bring us to the concept of behavioral economics that we will analyze in the next lecture.

That is all for today. Thank you for your attention. Jai Hind!