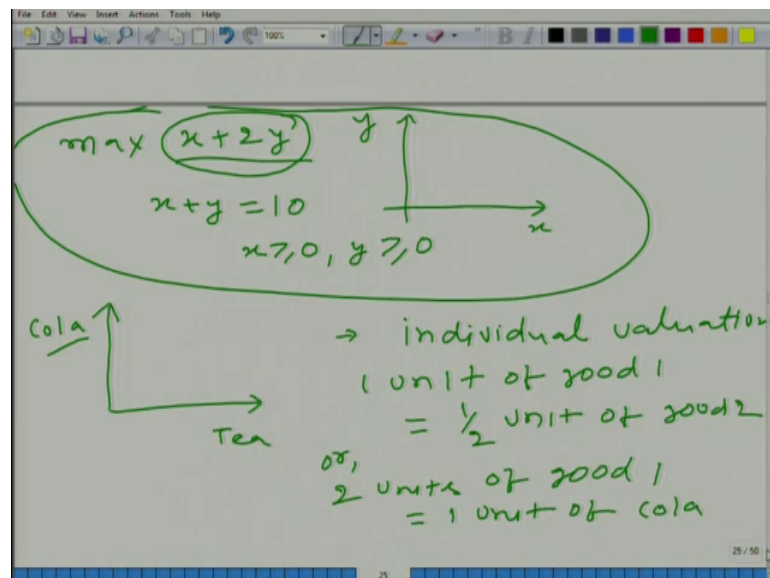


An Introduction to Microeconomics
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Lecture - 58
Example Revisited

So now let us begin with a problem, where we have utility function as x plus $2y$ ok.

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This is the utility function, what I am saying that this problem is from a 2-good world ok. So, on x axis the quantity of first good is given in x and quantity of second good in y ok. The idea is to maximise this utility, maximise this utility such that x plus y is equal to 10. So, this is the problem in the mathematical way let us go in the opposite direction and let us get the economic problem out of it ok

One way is to typically, what would happen that in life you get an economic problem and you will translate it into a mathematical problem, but here we are going in the opposite in the opposite directions. So, you would understand how it was done. And also, we should add that x is greater than or equal to 0 and y is greater than or equal to 0. We are going to solve this problem using 2 3 techniques.

But let say what does it mean; that a person lives in a 2-good world and good 1 can be let us say for example, good 1 can be tea does not matter what you take, and good 2 is cola.

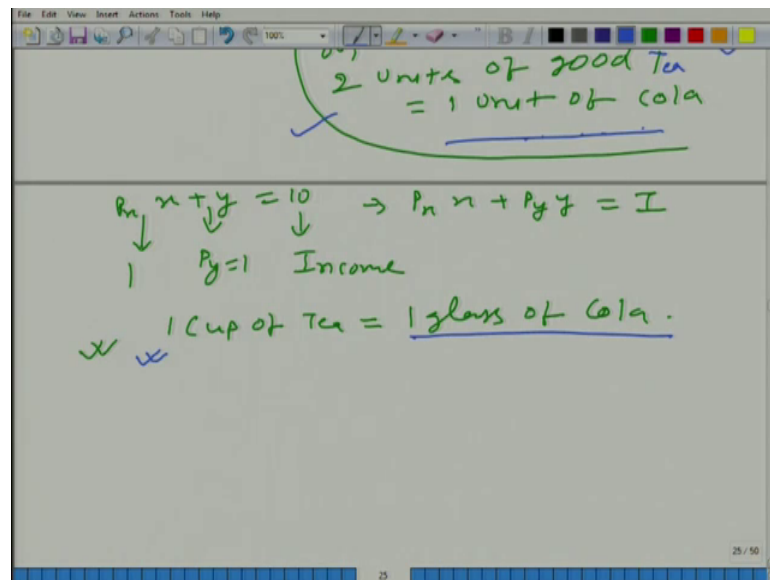
Amount of tea is given in given as x and amount of cola is given as y ok. And this person what he cares about is his consumption in in this particular fashion; that choice of cola plus tea. You can simply say that he is willing to exchange 1 unit of cola for 2 unit of tea or 2 units of tea for 1 unit of cola.

So, individual interest individual valuation is same at all the point. And what is this value? That 1 unit of good 1 is equivalent to half unit of good 2 ok, or you can say 2 units of good 1 that is of course, good 1 is tea and it is equivalent to 1 unit of cola. What it is saying that when you go to canteen or somewhere or you know one of your when you visit or what you want is either 2 cups of tea or 1 cola ok.

It can be 2 cups or 3 does not matter we are not talking in terms of cups, but i am just saying to understand; that you are in different between 2 cups of tea and 1 glass of cola. If we measure tea in cups and cola in glass ok; that is what we have here fine and this is your own exchange rate.

Now, let say that what we have from the market, market we have x plus y is equal to 10.

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So, what we are saying basically, typical our budget curve is $P_x x + P_y y$ is equal to I. So, in this sense 10 is nothing but income P_y is equal to 1 and P_x is equal to 1. So, in market basically you can exchange 1 cup of tea for 1 glass of cola, that is what you can do in the market fine.

But now let us look at your your own this is the markets valuation and this is your individual valuation. Now in market if you give up 1 cup of tea you will get 1 glass of cola in leave of that cup of tea. Now what is happening, what you have in your mind that 1 unit of cola is equivalent to 2 units of tea fine. So, 1 cup if we compare it with market in your mind valuation of cola is higher than the valuation of cola in the market. So, what you will do? You will consume more of cola rather than more of tea.

And you will continue doing that, but here let say earlier remember we talked about diminishing marginal rate of substitution, that is not true here it is not decreasing; again, i am going to come back and talk about marginal rate of substitution in little bit more detail, but this is not true here. The ratio for yourself is same at all the point and exchange rate for tea and cola is also the same in the market it is not changing. And your valuation in your own valuation you value more than cola in comparison to what market the market valuation of cola

So, what is the best idea for you? If if you have a bundle where you have tea and cola both you should give up tea and get more of cola, keep getting more of cola and till when you can do that till you have no tea left to exchange it for cola. So, in this case you will consume only cola no tea.

Now, let us look at it this is logically speaking let us look at it using a table ok. What we have here?

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① $P_y = 1$ Income $x + 2y$

x x 1 Cup of Tea = 1 glass of Cola.

Tea	Cola	Total Utility
0	10	20
1	9	19
2	8	18
3	7	17
⋮	⋮	⋮
10	0	10

(0,10)

Let say here we have tea here we have cola and here we have total utility. When we have 1 unit of tea how many cola we can have? 9; why, because 1 unit of tea is costing 1 unit 1 rupee we can say we can say everything is in rupee. So, it is costing 1 rupee. So, we have 9 rupees left and the price of cola 1 glass of cola is 1 rupee of course, this is all made up an imaginary it does not match it does not match with the market, but the idea here is to learn the concept.

So, 9 rupee you can afford 9 glasses of cola. So, here you have 9 and what will be your utility? It 9 multiplied by 2 because what we have utility is equal to x plus 2 y . So, 9 multiplied by 2, 18 and 1 19. Let us look at here if we have 0 units of tea; it means we have 10 rupees that we can spend on cola. So, how many cola we can get? 10 colas 10 and total utility is 20, why?

Because 0 plus 2 multiplied by amount of cola and that is 20. And similarly, we can do that let say we increase the amount of tea what would happen? Of course, we will have to decrease the amount of cola. And it is if we are increasing it by 1-unit cola is decreasing by 1 unit. If we increasing tea again by 1-unit cola is again decreasing by 1 unit why? Because market exchange rate is rate for tea and cola is fixed it is 1 1 is to 1. So, it will happen in this fashion.

And what is going to be the utility here 18. And let us do it for one more from 2 to 3 from 8 we will have to decrease it by again 1 unit and it is going to be 17. And if we keep on doing this let say now we have 10 units of tea then of course, we will have 0 units of cola and what we will get 10 units of utility. And we have we want here to maximise our utility ok. So, which bundle should be pick? 0 comma and 10; this is the bundle that we should be selecting, why because 0 comma 10 bundle leads to maximum possible utility.