An Introduction to Microeconomics
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Lecture – 35
Factors Affecting the Budget Line

So, factors affecting the budget line.

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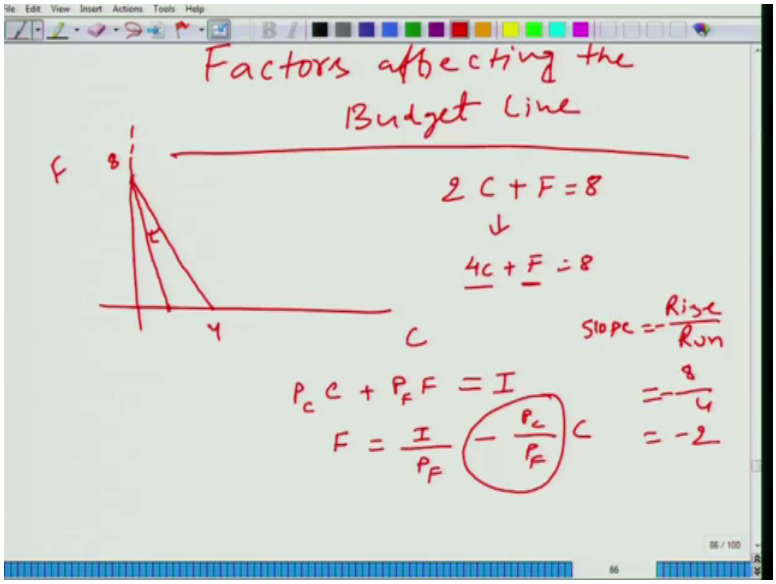

The example that I just gave you they are also budget line you know is combination of 2 straight lines, but its it is not always true that the budget line is a line, it can be a curve. So, in that case we call it a budget curve rather than budget line for example, the price of coconut is changing with each unit of coconut fine ok.

So, let us talk about what happens, this is the line that we have obtained 2 C plus F, 2 C plus F is equal to 8 and here we have C here we have F and it is like this, 8 to 4. Now, what happens if the price of coconut goes up or in this world what happens that it becomes difficult to gather coconut. Now, instead of devoting that instead of you need to devote 2 hours to get 1 unit of coconut now you need to devote 4 hours to get one unit of coconut, what will happen to the budget line, it will rotate?

Student: Anticlockwise clockwise.

Inward or outward, from where?

Student: Inward from 8.

From 8.

Student: It would be convex outside is. Convex outside.

So, right now what is happening from 2 C plus F, now we are talking about 4 C plus F , we are talking about 4 C plus F. So, of course, it will rotate right now how much maximum quantity of fish that you can catch still 8. So, this will not change, but how about the maximum amount of amount of coconut that you can get 2, just 2. So, here and it is going to rotate like this clockwise from 8.

It would become more clearer if you pay attention to this, let me write it in the abstract form, the 2 items are C and F and price of C or time that you need to gather 1 unit of C is p c, p c, C plus p f, F is equal to I denotes the income P c denotes the price of coconut either in terms of time or in terms of money does not matter, C is the amount of coconut p f is the price of fish and F is the amount of fish gathered.

So, if you can write it again earlier we wrote it you can write it what do you get or let me write it in terms of F because if is on y axis. So, F is equal to I divided by p f minus P c by P F C and what is this minus P c by P F is the slope, is the slope and what is slope.

Student: (Refer Time: 04:04).

Slope is typically.

Student: In account also.

Now, just mathematically, slope is rise divided by run that is the slope ok. So, when you move from this point to this run is 4 and how much is the rise in that case it is 8. So, how much is the slope 8 divided by.

Student: 4.

Four and its moving in the negative direction. So, negative minus 2.

But what does this minus 2 indicate, I just described it using economic concept, what does it indicate?

Student: That for 1 unit of coconut you have to substitute 2 units of fish you have to give away 2 units of fish.

Very true. So, let us write it mathematically, you want to let us say you want to increase your consumption of coconut from let us say right now you are consuming c comma F.

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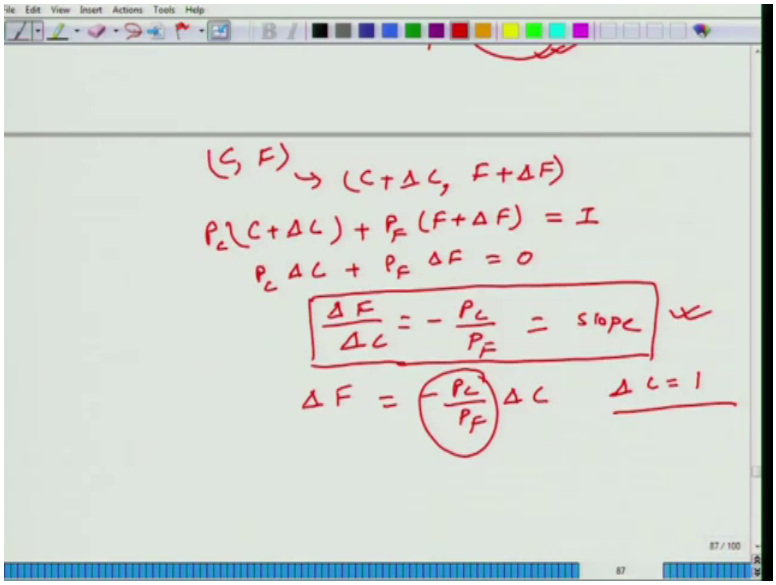

Right now you are consuming C comma F and you are changing from C comma F to C plus delta C and F plus delta F you are changing. Now, but you still want to satisfy the this constraint either the time constraint or the monetary constraint and you want to exhaust all your time or all your money whichever the resources you are using.

So, what do you get in that case P c C plus delta C P F plus delta F and this is again equal to I.

Student: I.

So, what do we get P c delta C plus P F delta F is equal to.

Student: 0.

0 why because from here we know P c multiplied by C plus P F multiplied by F is equal to I. So, in other word what we can write delta F by delta C is equal to.

Student: Minus P c by pf.

Minus P c by P F and is it the slope, delta a by delta C this is the slope why because delta F is the rise and delta C is the run.

Student: Run.

So, this is the slope and slope is equal to minus P c by P F that is what we got here and here we again get it using mathematics and what does it indicate.

Student: Mrs.

Right now we have not studied the mrs we will study later on. So, we will come back to the that this indicates slope this indicates also relative price of.

Student: Coconut with respect to fish.

Price of coconut with respect to fish and it also indicates the opportunity cost, why it indicates the opportunity cost because here you have only 2 options either you catch fish or gather coconut. So, this is the opportunity cost for 1 unit of.

Student: Fish, fish or coconut.

One unit of fish or one unit of coconut?

Student: Coconut.

Think about it again.

Student: The fish because is in the denominator.

Do not use mathematics, think logically you think about it.

Student: Opportunity cost of one unit of coconut.

1 unit of.

Student: Coconut.

Coconut in terms of fish.

Student: Fish.

Let us look at it, what you can do delta F is equal to minus P c by P F multiplied by delta C and put delta C is equal to 1, change in coconut is one what do you get.

Student: Delta F is equal to P c by P F.

Pc by P F and then can you say then, then can you say what is minus P c by P F.

Student: They (Refer Time: 08:28).

It is clear it should be clear that either it is opportunity costs of fish in terms of coconut or it is opportunity cost of coconut in terms of fish, but which one is this think about it, think about it ok. Do not get confused about it because if you are confused about it you will not be able to clear the next concept, the later concept that we will learn later fine.

Now, we have seen the effect of change in price ok.

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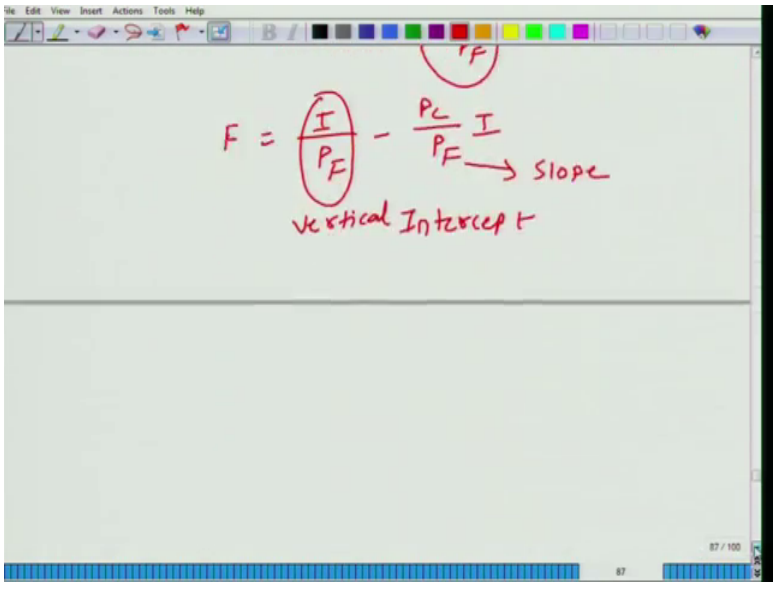

Let me write it again here F is equal to I by P F minus P c by P F multiplied by I and if price of fish changes what happens this is the vertical intercept and this is the slope. So, a price of fish changes what happens, your vertical intercept changes and as well as the slope changes.

Student: Slope changes.

And it is not clear from this equation, but in this case horizontal intercept remains the same.

Student: Same.

Just this is the vertical intercept and this is the horizontal intercept, fine. So, that we understand now the effect of change in price.

What happens when you have more resources at your disposal?

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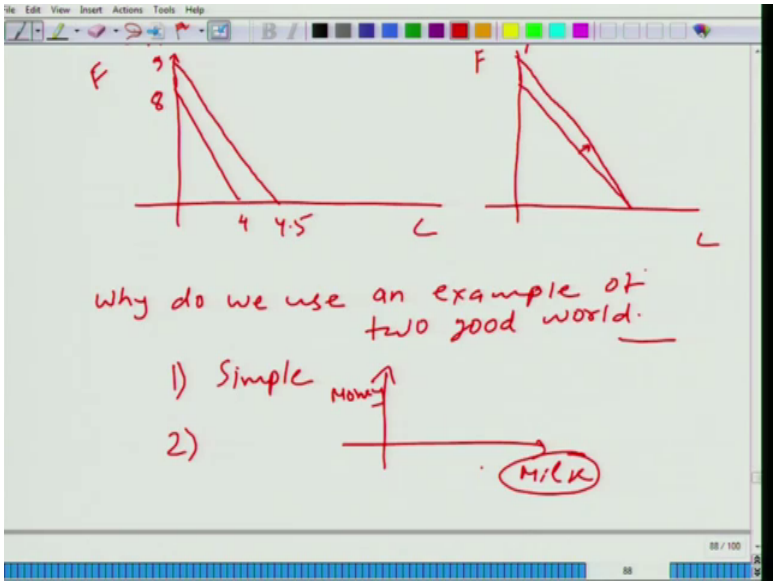

Effect of change in income or time from our the example case what happens in that case of course, when I am talking about this I am talking ceteris paribus.

Student: Paribus.

That the price of fish and price of coconut they are the same, they do not change from, a let us say now Robinson Crusoe can work for 9 hours.

Student: Shift outwards.

It will shift.

Student: Outwards.

Outwards and there will be a parallel shift.

Student: Hm.

Student: Yes sir.

Fine, it is clear nothing fancy, now think about it lets think here just for a moment whats happening to your budget set when the income is going up.

Student: Budget.

Set.

Student: Set is increasing.

Budget set is increasing in size the new budget set contains all the bundles available to you earlier, but also some more bundles. So, when this is the situation you cannot be made worse off probably you will be.

Student: Better off.

Better off or you will remain the same ok, because earlier the choice you had those choices are still available to you with some more options, new options and these all are affordable to you fine.

So, either you pick someone from the old budget set or the some new available set, if you are picking from the old budget set then you remain the same and if you are picking something new from the new the newly available bundles why you are picking it probably they are making you better off, that is why you are picking something from the new of available options ok. So, either you would remain the same or you will be made better off fine.

Similarly, here in the earlier case when the price of fish goes down, what happens when price of fish goes down?

Student: Vertical intercept rises.

Vertical intercept rises, there is clockwise shift pivoted at the maximum possible coconut, in this case also you will be made either better off or you will remain the same.

You cannot be worse off because of an increase in because of a decrease in price of fish fine.

Now, also let me tell you why do you we use an example of, example of 2 good world. Can you think of it why do we you we use the example of 2 good world why not 3, why not 4, 1 is trivial that I had shown you.

Student: So, mapping we.

Student: we can map 2 goods in a 3 d 3 d of.

1 1 is of course, it makes life simple ok, it is easier to deal with 2 good world 2 dimensions in 2 good you get 2 dimensional graph.

Student: Yes.

In 3 goods you get 3 dimensional graph and in 4 goods you get more than 3 dimensional graph that you cannot describe graphically up to 3 goods you can describe them graphically fine. But of course, 2 d diagram is lot easier than the 3 d diagram, but more important reason is that typically whenever you are making a decision. Right now most of the time, we talk about our decision about the particular good.

Like for example, we can talk about when we are thinking that our decision about buying milk or buying cloth then what we can do, what we are really worried about is that our expenditure on milk and all other item. So, what we can do we can club all other item in a in a composite good all. So, what we can do right.

Now, let us say if we are talking about our decision about buying milk, what we can do on x axis we can put milk and on y axis we can put a complex good, a made up good or just money, left over money ok.

Student: (Refer Time: 15:10).

So, that takes care of the problem see in economics we always try to make our simpler and here if decision is we are talking about only milk then is good enough for us fine and what do we say of course, what would be the price of a money one unit of money 1.

Student: 1.

So, that is why when we talk about milk and the complex good we say the price of 1 unit of complex good is equal to 1. That represent because the money here presents your buying capacity of all other good the complex good, fine.

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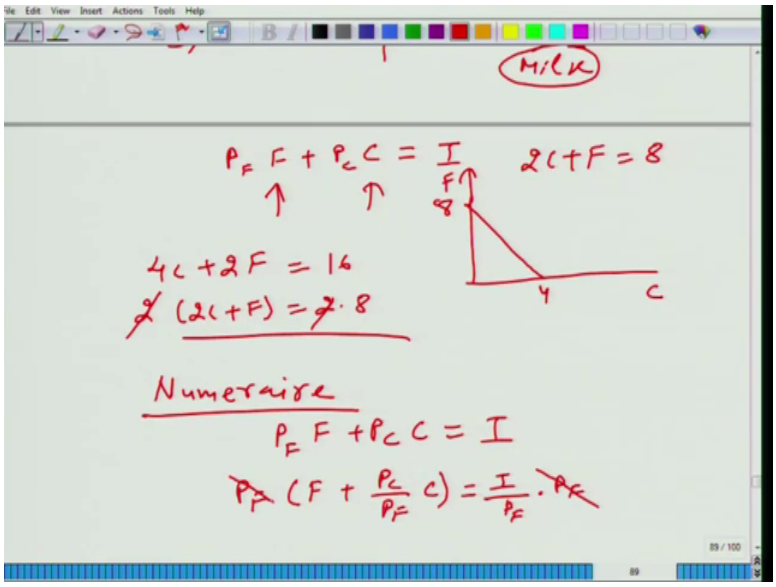

Also let me tell you let us look at this example px or not px P F fish and P c coconut is equal to I F and C you are controlling to certain extent as long as this equation is satisfied you are controlling. How about P F P c and I they are beyond you, they are the parameters you take them as given.

Student: Given.

Now, let us see what happens when all the parameters goes up by 100 all the parameters go up by 100 percent.

Student: Nothing will change.

Nothing will change, you still get in our earlier example 2 C plus F is equal to 8 and you get this line 8 here 4 and you have coconut here and here you have fish. Now, let us double everything what do we get.

Student: 4 c.

4 C 2 F.

Student: 16.

16, we can take 2 common 2 C plus F 2 multiplied by 8, 2 and 2 will get canceled, again we come back to 2 C plus F.

Student: Yes.

You understand. So, in this sense what we can do if we take this logic what we can say we can declare 1 good as a numeraire good and we express everything in the economy in terms of that good ok. The term is numeraire ok, we say that here money does not make sense, even when you have large number of goods.

Student: Hm.

We can still express that money in terms of a particular good.

So, what we are basically saying, let us say if fish is our numeraire good what we will say that we will take the price of fish as 1 and how we can do it because we can take P F common that is what we did here if we take P F common what do we get F P c by.

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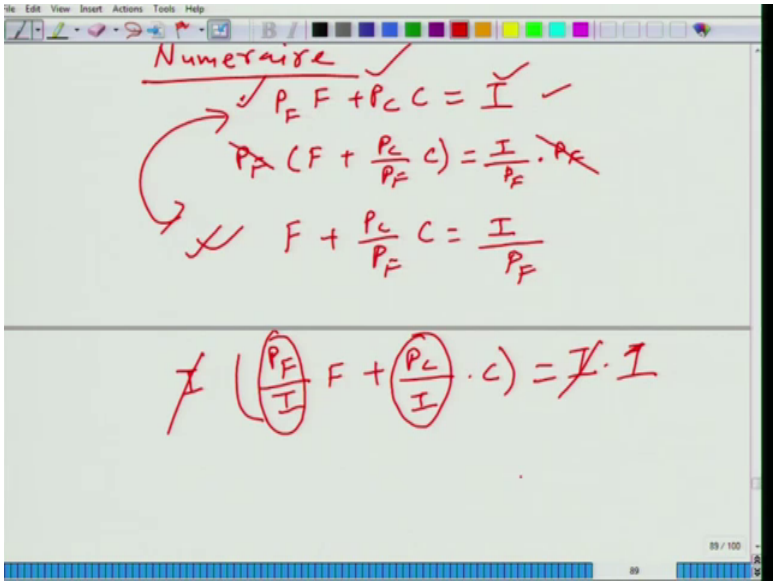

Student: Pf.

Pf C plus.

Student: I by.

Is equal to I by P F. So, the everything in the economy is expressed in terms of price of in terms of fish.

Student: Sir I by P F.

On multiplied by P F multiplied by P F and then P F P F will get cancelled. So, what do we get F P c by P F is equal to C is equal to I by P F this equation this equation is same as this equation these 2 equations are the same , but what is the difference, in the earlier example the price of fishes P F.

Student: P F.

Price of coconut is P c and the income is I , but when we take here the price of fish as one what is the price of coconut.

Student: P c by P F.

P c by P F. So, now, here you go what is the price of coconut in terms of fish P c by P F and what is the income in terms of fish I by P F understand. So, it is not necessary, that we make the first good as the numeraire good, you can do it with the second good also or you can do it with the money also. You can say that the money available to me is 1 and then how will it go, what we are doing P F by I we are taking I common.

Student: Hm.

Multiplied by F p c divided by I multiplied by C and I multiplied by 1, I and I will get cancelled the new equation that we get here the income of this person is equal to 1.

Student: 1.

So, here in this case we are you are making we are basing the economy in terms of money, here we are basing in terms of fish ok. It makes our life simpler how it makes our life simpler; remember here how many variables we have.

Student: 3.

How many no, how many parameters we have.

Student: 3.

Pf P c and i.

Student: 3.

Three parameters and how many parameters we have in this P F by I and P c by i.

Student: 2.

So, this problem is mathematically simpler than the earlier problem.

Student: Hm.

That is why we take a good as numeraire.