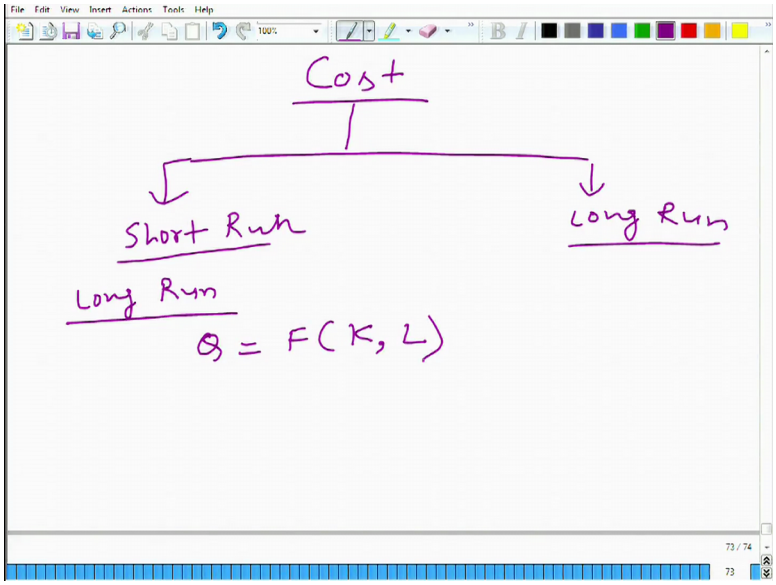
An Introduction to Microeconomics
Prof. Vimal Kumar
Department of Economic Sciences
Indian Institute of Technology, Kanpur

Lecture – 92
Cost in Long Run

So, cost of course, we can talk about cost in two different settings.

(Refer Slide Time: 00:16)



We have already learned about short run and long run what do we mean by short run?

Student: Plot changing at least one input is fine.

At least one input cannot be varied.

Student: Varied.

Cannot be changed and what do we mean by long run?

Student: All the input.

All the inputs can be;

Student: Varied.

Varied; so, let us talk about long run first ok. And we take the same production function that Q can be produced using capital and;

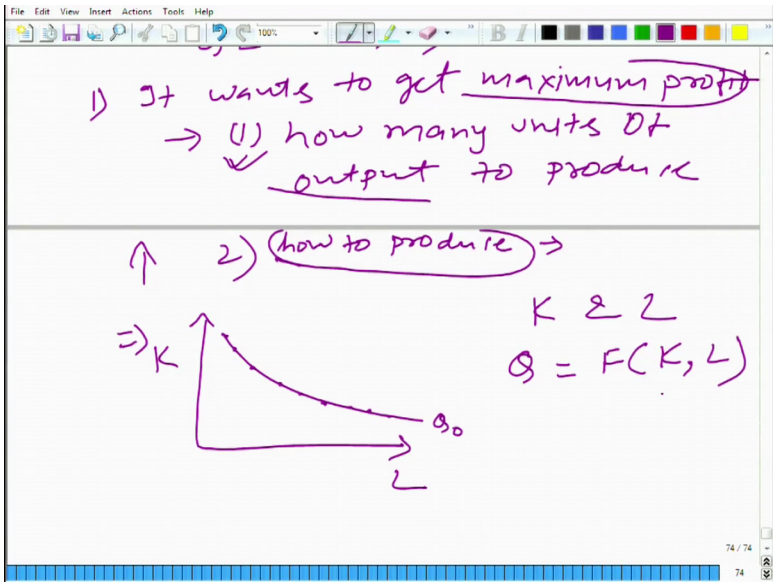
Student: Labour.

Labour we are talking about cost why are we talking about cost what is the aim?

Student: To get to determine and which cost we could supply.

[FL] fine, but let us think about a firm.

(Refer Slide Time: 01:18)



What does the form do of course, it produces certain output, but why does it do it?

Student: (Refer Time: 01:23).

The first thing that you can say that it.

Student: Profit.

Wants to;

Student: Generate profit.

Wants to not just generate;

Student: Maximize.

Maximize profit or it wants to get maximum profit from the venture fine and for that, it needs to decide two things. One how much to produce, how many units you if you want to say, how many units of output to produce.

Student: How to;

And second.

Student: How to produce.

How to produce in other words.

Student: What.

What combination because we know that same label of output can be produced by using different combinations of inputs.

Student: Inputs.

So, which particular combination of inputs input inputs it should;

Student: (Refer Time: 02:34).

Select to produce the amount of output decided in the first question fine ok. So, here of course, rather than talking about maximizing profit and rather than talking about how many units to produce, we are going in the backward direction and there is a reason to it, it will become clear to you later. That first we are talking about that which particular combination of inputs it should select to produce a party the pre decided amount of output. So, what we are saying is basically how would the company decide let us say this is the isoquant here we have labour here we have capital, which particular combination it should check it should take.

Student: Which cost minimum?

Which costs minimum is because the idea is to produce Q naught amount of output, but with different combination of inputs Q naught can be produced, but different combination would cost different. So, idea is to select a combination of inputs, which is least costly. So, what we are basically talking about it is, let us say if we have only two factors of production that is K and L this is our production function. Q is equal to F of K

comma L fine what will be the cost of production let us say we do not have any other factors of course, we are assuming its far from reality, but this is an assumption that we are making that we are using only capital and labour to produce. So, how much will it cost.

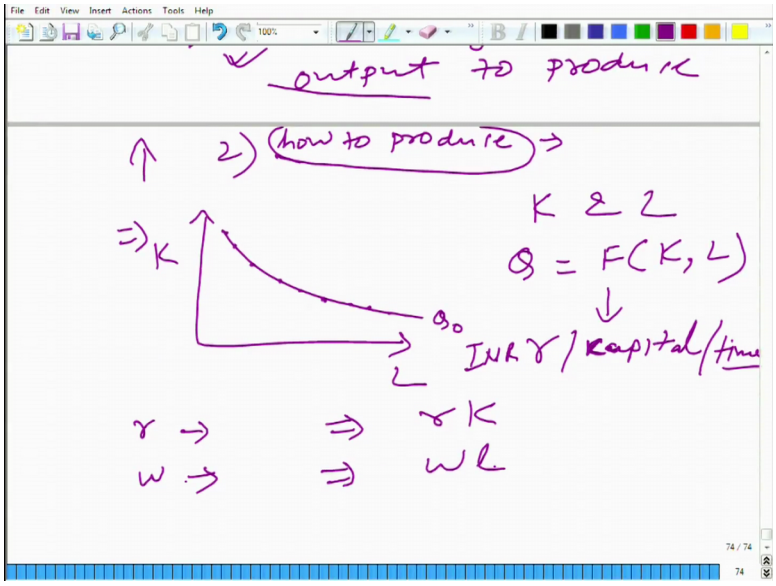
Student: Cost of wages to labour.

Cost of capital and wages to labour.

Student: Labour.

So, let us say cost to capital is per unit per unit capital for per unit time. Remember one thing because if we change the duration the cost will change. So, always remember that cost is here a flow variable cost is a flow variable, but we are talking about and we will not mention it again and again that the cost of capital when I say.

(Refer Slide Time: 04:56)



R what we are saying that r probably INR r per unit of capital.

Student: Per unit of time per unit of time.

Per unit of time that we will not mention again and again, but we will just say that r is the cost to one unit of capital. So, how much would be the cost of capital.

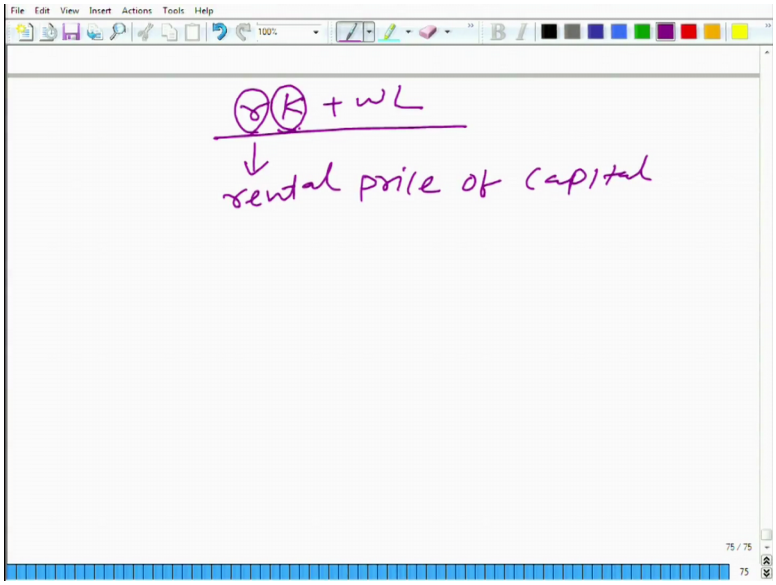
Student: R.

R k.

Student: K.

R multiplied by k and let us say L w is the wage paid to the worker again w we need to specify that w is per u it of worker, per unit of time probably per day per month depending on the how we are we have defined the problem. So, the cost is going to be w L.

(Refer Slide Time: 05:50)



Student: L.

And thus the total cost is going to be r k plus.

Student: w L.

W L now my question is what if a person owns some amount of capital? He does not need because one way to look at it r is the rental price of capital why you are paying to the workers? Because you are hiring workers from the market. So, in lieu of their work you need to pay them, but what about the possibility that capital you already own capital you already own.

Student: Sir so.

Then do we need to put here r k or we need to ignore r k.

Student: They were rented.

They were no I am saying if they are rented then you need to put it definitely r k, but what if they are not rented.

Student: It is the opportunity cost of the capital.

It is the what you could do that you can let us say you can use your machinery capital represents some sort of machinery, you can rent out those machineries in the market and you would earn some money the rent for that capital you are using it for your own purpose. So, remember in economics we always talk about the opportunity cost, and what is the second best you can do of course, you can say I will otherwise I would keep idle ok. If that is your if you are not going to put it in the market, then it is fine you can put it at 0 because that is the second best alternative available to you, but the businesses they are very concerned about cost and you know how they produce.

So, they frequently rent out capitals and rent take you know higher capitals from outside. So, it is very important that, they consider this cost and this is the second best they can do if they do not use it in for their own production they will rent it out and then they would earn r per capital per unit of time. So, that is why it is important for us to mention it here ok. So, the; what we have now the cost is r k plus w L.