Foundation Course in Managerial Economics
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Lecture - 15
Production and Cost

Hello and welcome back to the foundation course in managerial economics. We completed our discussion on demand and supply analysis in the previous lectures and today we are going to introduce the, we are going to discuss about costs of production and production, what are cost curves.

We are basically going to define a few technical concepts which we are going to use throughout the course, later part of the course and we are going to introduce the concept of cost, the concept of production output, marginal product etc. and the discussions that we are going to have this week is going to form the foundation of most of the discussions that we will have about market structures in the consecutive weeks and we are going to see that how producers make their decision in different kinds of market structure looking at the cost curves looking at the concept of analysing cost that we are going to do this week how the different producer how the producers in different types of market structures they use these concepts of cost and production to decide how much output to produce what price to charge etc. So let us start.

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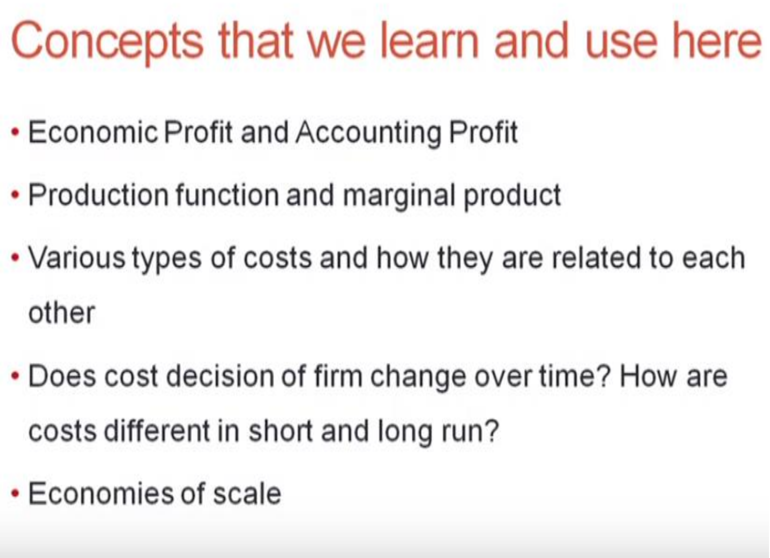

Concepts that we learn and use here

- Economic Profit and Accounting Profit
- Production function and marginal product
- Various types of costs and how they are related to each other
- Does cost decision of firm change over time? How are costs different in short and long run?
- Economies of scale

So the concepts that we learn and use here are we are going to talk about something called economic profit and accounting profit. Now profit as we know it is anyone if we ask what profit is it obviously determines the difference between the revenue that we get and the cost we incur to produce that or generate that revenue.

So but yet we are going to see that there is a difference between what we are going to call economic profit and what we call accounting profit and economic profit is something that we are going to consider during the entire course. So whenever we discuss any market structure we are going to whenever we say profit we mean economic profit and not accounting profit.

Then we are going to discuss about production function about marginal product because as we discussed in the very beginning of the course that people make decisions or choices at the margin. So we are going to so this kind of dreams about our use of the concept of marginal in every sphere of discussions that we are going to have henceforth and marginal product is one of them and we are going to see what it is.

Then we are going to discuss about various types of costs and how they are related to each other. Now does cost decision of firm change over time because as we know that a firm has to make some short run decisions like a a producer or a firm is deciding how much to produce in the within the say next month and the firm has to make certain long run choices long run decision.

Say for example a company needs to decide how much where does it see itself in say 2 years' time like is it going to produce the same amount of output that it is producing today or would it like to produce more or would it like to produce less so depending on the market depending on the kind of costs it faces it needs to make these choices so obviously that means that the cost is not exactly similar in the short run and in the long run and we are going to discuss what we mean by that short run cost long run cost and we are going to discuss about something called economies of scale.

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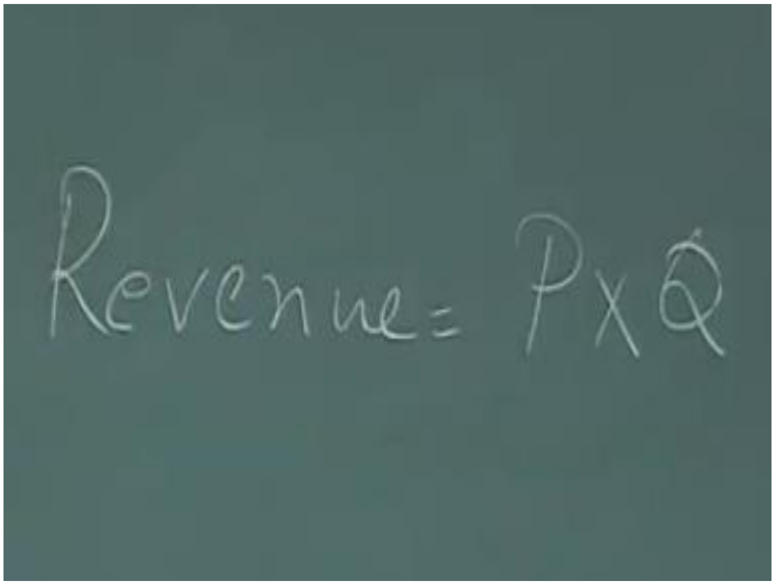

Revenue = P x Q

So let us define revenue, cost and profit. So revenue everyone knows revenue is basically price multiplied by the number of units we are able to sell. So revenue is basically price multiplied by Q where Q is the number of units of output and the price that it fetches in the market.

So in the discussion in this week's discussion we are not going to talk about P or where P comes from P is exogenously given and we are going to discuss we are going to try to understand that where does Q come from what does Q look like. For a producer he needs to understand what is his production choices would look like and what his costs would look like so we would like to we are going to talk more about this Q in this week.

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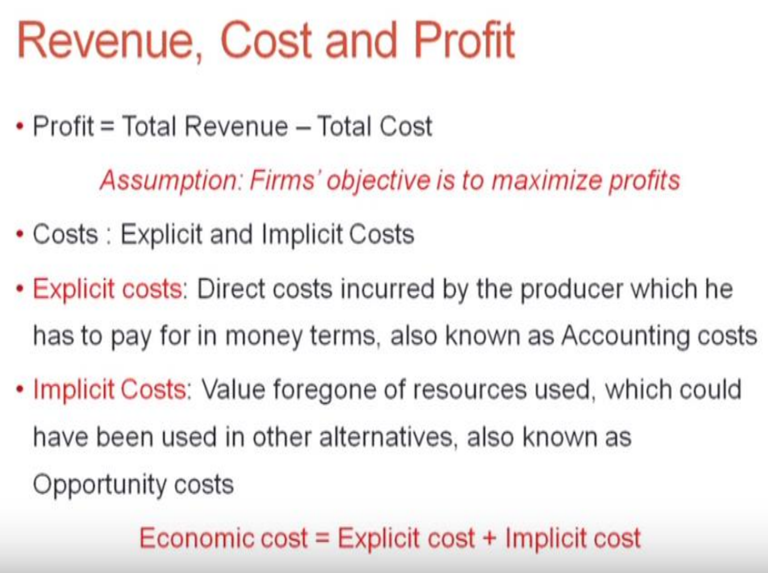

Revenue, Cost and Profit

- Profit = Total Revenue – Total Cost

  Assumption: Firms' objective is to maximize profits

- Costs : Explicit and Implicit Costs
- Explicit costs: Direct costs incurred by the producer which he has to pay for in money terms, also known as Accounting costs
- Implicit Costs: Value foregone of resources used, which could have been used in other alternatives, also known as Opportunity costs

Economic cost = Explicit cost + Implicit cost

Coming back to the slide so profit is total revenue minus total cost and the assumption that we will be making throughout this lecture is firms objective is to maximize profit so not only in this lecture in the entire course we are assuming that the firm's objective is to maximize profit.

There is no harm in assuming that the that a firm's objective is maximizing say revenue or say minimizing cost but for simplicity let us assume that the firm's objective is maximizing profit but that does not mean that the firm that a firm always maximizes profit. It could have some other kinds of objectives also depending its depending on its long term strategy etc. but we are not going to going into those details in this course. It is beyond the scope of this course.

Next we are going to introduce something called explicit cost and implicit cost. Now explicit cost is basically defined as direct costs incurred by the producer which he has to pay for in money terms, also known as accounting cost and implicit cost is the value foregone of resources used, which could have been used in other alternatives, also known as opportunity cost.

So let me let me explain with the help of an example. Now say for example there is a person who owns a small piece of land and this land if he decides to rent this land out in the market probably he will get say Rs 500 per week

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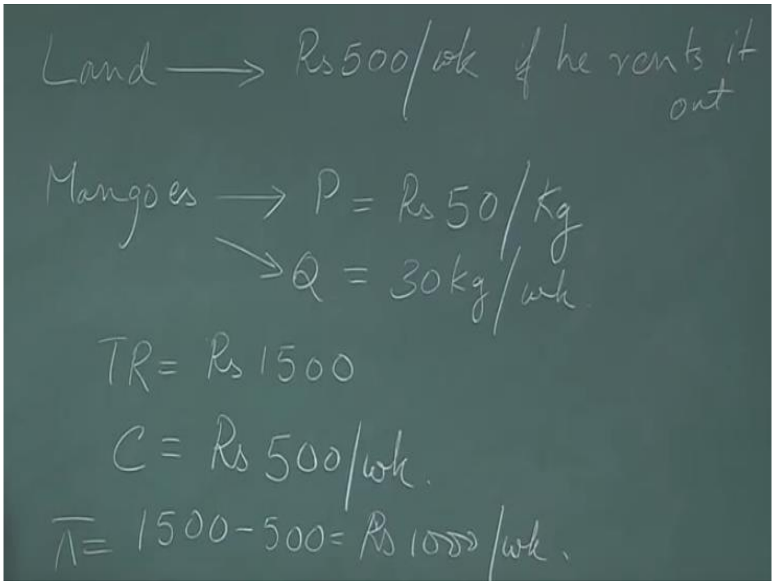

Land → Rs500/wk if he rents it out

Mangoes → $P = $ Rs $50/Kg$

→ $Q = 30kg/wk$

$TR = $ Rs 1500

$C = $ Rs $500/wk$.

$\pi = 1500 - 500 = $ Rs $1000/wk$.

So there is a piece of land and this person has to decide he has a piece of land and he can get land can fetch him Rs 500 per week if he rents it out but instead say the person decides that I am going to use this land to grow mangoes and I am going to sell the mangoes in the market. So for example if he uses this piece of land, the amount of mangoes he is able to produce is say he is producing mangoes and he is which fetches the price in the mango price of mango in the market is say Rs 50 per kg. He produces say 30 kgs per week. He sells in the market.

So what is his revenue? He is getting a revenue of Rs 1500. What are his costs? What are his cost? The cost that he is incurring for producing the mangoes? Say for example he has to purchase seeds in the market, some fertilizers, some pesticide etc. in the market which costs him say so his cost is Rs 500 per week. This is the amount that he has to spend per week or he has to pay per week to produce this amount of mango or to get so much amount of revenue in the market.

So in that case his profit would be total revenue minus total cost, we would think that the profit is 1500 - 500 = Rs 1000 per week. Now here what we are missing out is he is could have rented out this land in the market and would have earned a amount of rupees 500 per week and say for example now given this situation say for example now the person knows that there is a nearby shop who are hiring people and this shop is going to pay him Rs 100 per day if he decides to work over there. Now assume that he is when he works over there then the amount say he works and the shop is open for 6 days a week.

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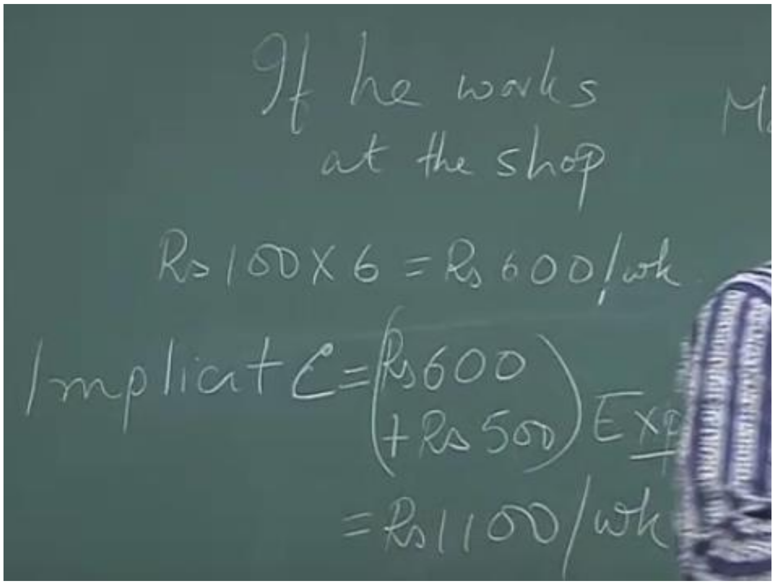

If he works at the shop

Rs 100 X 6 = Rs 600/wk

Implicit C = (Rs 600 + Rs 500) Exp

= Rs 1100/wk

So in that case he is able to if he if he works at the shop he is 6 days a week he is able to earn Rs 100 into 6 per week so is equal to Rs 600 per week. So this is what he is able to earn per per week. Now what so in this calculation if we say that his profit is Rs 1000 per week and this is what is called the accounting profit I am just coming to that before let me explain about the implicit and explicit cost.

Now if we calculate this the profit as I have done here then what we are leaving out is what is the opportunity that he is missing? What is the opportunity that he is missing by growing mangoes? What he is missing is he could have rented out the land and earned a amount of Rs 500 per week. He could have worked at the local shop additionally like additionally he could have rented earned some rent out of here and he could have earned Rs 600 per week from here. These both these earnings he is having to forego because he has decided to grow mangoes and sell mangoes in the market.

So what we say is his cost is his explicit cost is Rs 500 per week but his implicit cost his implicit cost he is having to incur a implicit cost also. So his implicit cost is equal to Rs 600 + Rs 500 per week = Rs 1100 per week. So this is my definition of explicit cost or accounting cost which is basically the cost for which I am having to pay by cash.

This is something which I have to use some money to get the product to do my to produce the output. But this is the cost for which I am not having to pay anything but this is something which I am foregoing. So this is the opportunity I am foregoing so this is called the implicit cost or the opportunity cost.

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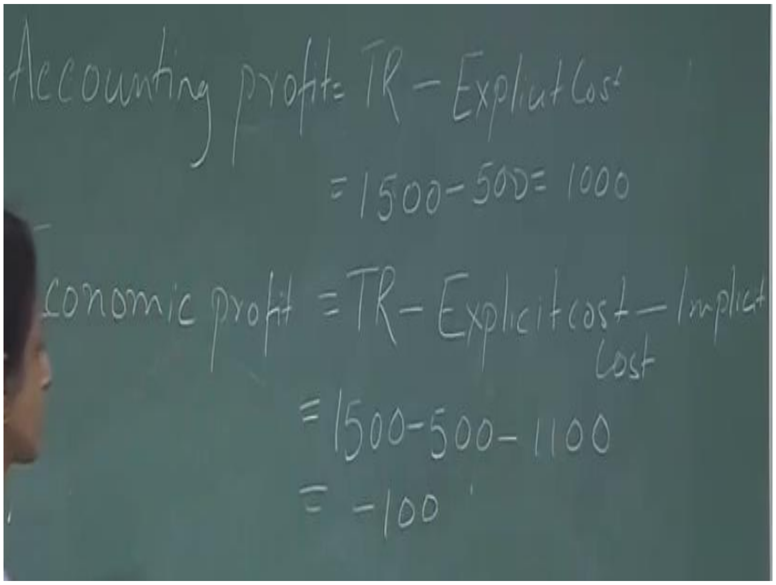

Accounting profit= TR – Explicit Cost

= 1500 – 500 = 1000

conomic profit = TR – Explicit cost – Implicit Cost

= 1500 – 500 – 1100

= –100

So this is my implicit cost or opportunity cost so accordingly I am going to define so accordingly I am going to define something called the accounting profit is equal to total revenue minus explicit cost which is equal to 1500 - 500 = 1000 in this case and I am going to define something called the economic profit which is equal to total revenue minus not only the explicit cost but also the implicit cost.

So this is equal to now 1500 - 500 - 1100 which makes my profit actually negative so this is -100. So basically this person is losing 100 rupees by choosing to grow mangoes instead of renting out his land and working in the nearby shop. So this is how we define cost in economics and this is how any producer to optimize his earning in the market that is maximize his profit this is how he should treat his costs and treat his profits.

So this is the this is the concept behind it and so explicit cost is coming back to the slide so the explicit cost is direct costs incurred by the producer which he has to pay for in money terms, also known as accounting cost and implicit cost is value foregone of resources used, which could have been used in other alternatives, also known as opportunity cost.

So implicit cost is also known as opportunity cost and opportunity cost is something which we are again going to use throughout the throughout economics. It is a very important concept in economics and I discussed about this even in the first lecture. So economic cost is equal to explicit cost plus implicit cost and accordingly we define economic profit.

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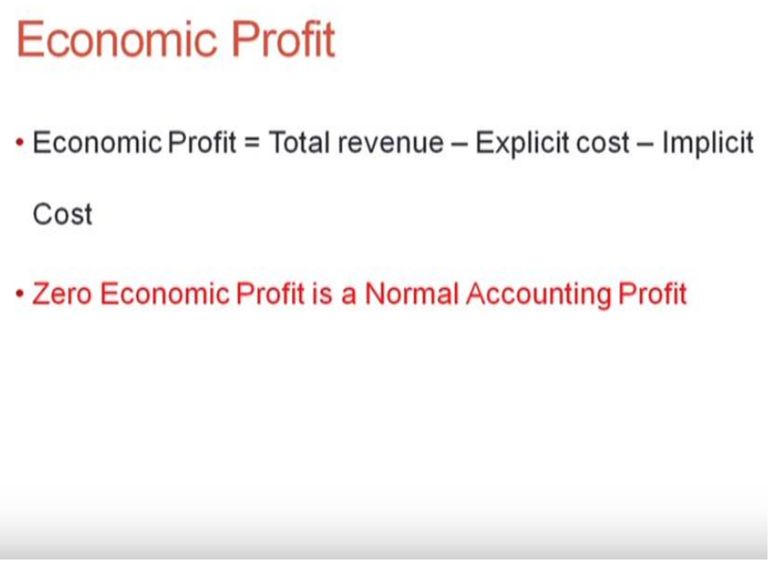

Economic Profit

- Economic Profit = Total revenue – Explicit cost – Implicit Cost
- Zero Economic Profit is a Normal Accounting Profit

So economic profit is equal to total revenue minus explicit cost minus implicit cost. Now what happens when economic profit is 0? So we are going to see that later when we discuss about perfect competition etc. we are going to see that in the long run all the producers earn a profit which is equal to 0. Basically we are going to see that in all our calculation ends up in total revenue being equal to total cost.

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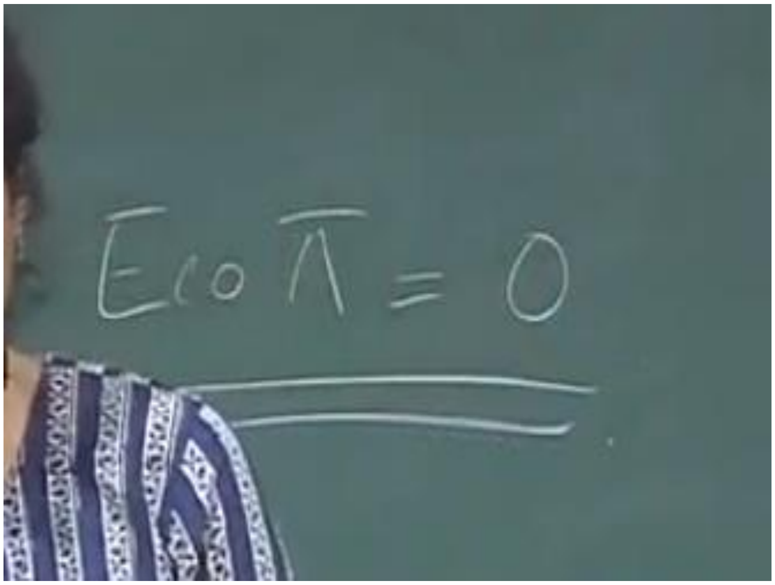

So what happens when economic profit now pi is a very common form of a common symbol for profit in economics and we are going to use pi for profit in most of our lectures. So economic profit equal to 0. What does this mean? Does this mean that the firm or the producers is running a loss? No. It does not mean it is running a loss because it is also including the implicit cost in its calculation.

Since it is including the implicit cost in the calculation that means that the firm or the person or the producer is at least earning the amount that he would have earned had he not pursued this production and had he done something else. So he is at least earning the amount that he would have earned from his next best alternative.

So zero economic profit is a normal accounting profit. So zero economic profit is a normal accounting profit and this is also something which we are going to use very frequently during our discussion on market structure so it would really help to remember that zero economic profit does not mean that the producer is not earning anything or he is running a loss.

So that ends our discussion of this module where we have introduced the concept of explicit cost, implicit cost. We have introduced the concept of economic profit, accounting profit and the reason for doing so is in the future lectures we when we discussed about cost curves always remember that we will be using both explicit we are using both explicit and implicit cost.

So when we are basically calculating the cost of any producer we are assuming it is the it is inclusive of both the explicit and implicit cost. So we will be talking about economic profit. We will be talking about both explicit and implicit cost of the producer and that is how we are going to try to understand what the production decision of the firm looks like what does the cost curves or what do the cost structures in the short run in the long run how do they look like. So I will end this module. Thank you.