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

Lecture - 123
Introduction to Monopoly

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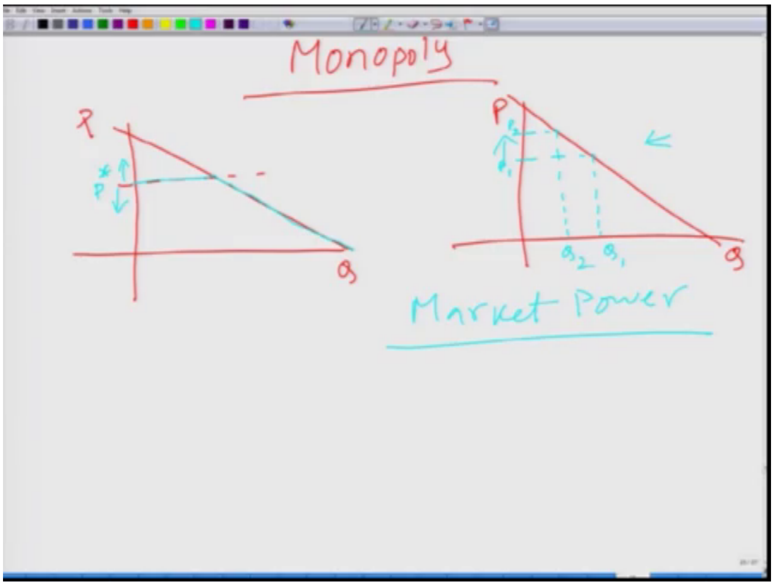

So now we are going to talk about monopoly, what do we mean by a monopoly? We have already talked about it when we discussed the different market environments and there we emphasized monopoly. Monopoly is a market in which only one firm does the supply. So, let us contrast it with perfectly competitive market environment, what happens? Let us say that and we will take 2 very similar case, because notice that supply side is independent of the demand side. So, let us say that in both the cases the demand is a, let us say it is given by a linear function. And so, here is a demand here is a demand, let us say both are the same.

Now, what happens in the perfectly competitive market, that even though this is the market demand, the demand curve seen by a or a faced by a firm is a horizontal curve, ok? Not extending we can say to be exact it is going to be something like this. What it means that if market price is P star, this firm is willing to supply any in any amount of output at P star.

If it increases the price, above P star, then it is it loses all the customers. And it cannot decrease the price below P star, because P star happens to be the marginal cost. So, if it decreases the price, it is not even able to get the marginal cost. So, the form would not produce. So, this is the story on the perfectly competitive environment side.

What happens on the monopoly side, that there is only one firm in the market? So, this demand, this market demand is scattered completely by this particular firm. So, in other word we can say the demand curve faced by the monopoly is same as the market demand. What it means that if a monopolist increases the price, let us say the price was earlier P star, or P 1 at it increases to P 2, what happens that earlier, it would have been supplying Q 1 amount of output and now it would supply Q 2 amount of output. So, of course, if it increases the price, the quantity supplied goes down in the market, but nevertheless it does not become 0 as it happens in the case of perfectly competitive market.

So, that is the huge that is the big difference. In other world, in perfectly competitive market, all the firms are price taker, ok. They see this is the price, if they are able to supply at that price, or then only they participate in the market. As opposed to price taking behaviour, the monopoly firm has some kind of market power. What do I mean by market power? And this is a very important term, that market power means, an ability to set the price of it is product above it is marginal cost. So, either we can say that the firm which has monopoly has market power or is behaved in a price setting manner.

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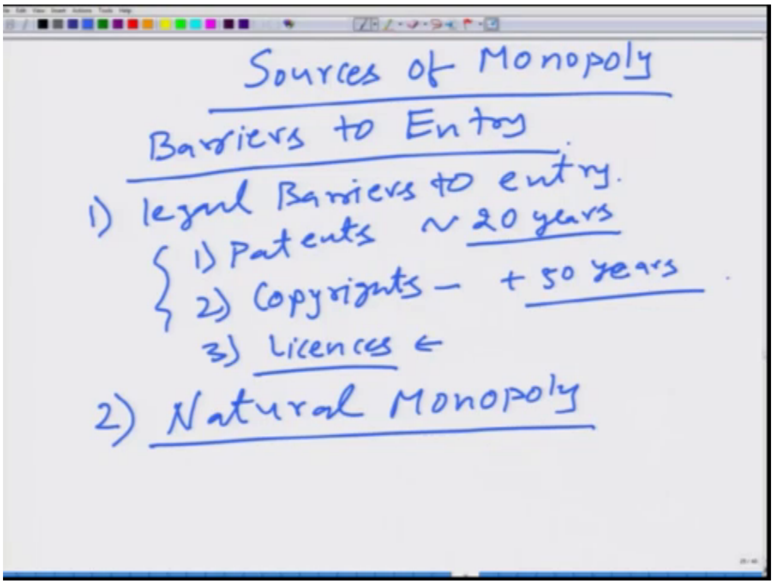

Let us look at the sources of monopoly.

We saw that in perfectly competitive environment, there are many firms; they compete against each other so intensely, that in the long run, their profit economic profit becomes 0. As opposed to perfectly competitive market in a monopoly environment, there is only one firm supplying the output, and that firm is called the monopolist. So, as opposed to a firm operating in a perfectly competitive market, a monopolist earns profit. Because monopolist is a price setter, and it sets price to maximize it is profit. So, a monopolist earns profit, then the question the natural question should be that why do not other firms enter in the market, as we saw in the perfectly competitive market that firms can freely enter or exit from the market.

So, the question is what stops other firms from entering the market, and if we answer this question we would get the sources of monopoly. So, basically there has to be some kind of barriers to entry barriers to entry, which stops other firms from entering the market, ok. And it is important for monopoly to persist, because if there are more than one firms in the market then market cannot be characterized by monopoly ok. So, the first barriers to entry that we should pay attention to is legal barriers to entry. And we are going to look at 3 different kind of legal barriers, one is patents the second is copyright, and third is some sort of licenses, what do we mean by a patent?

Patent is basically a temporary monopoly that government gives to the inventor, that as a sole right to produce and make profit from that particular product. One natural question should be that why does a government give patent. So, let us say let us take for example, that a drug a lifesaving drug that a pharmaceutical company comes up with. To come up with that drug the pharmaceutical company spends a lot of money in the research and development so that it has that particular drug.

Now once these pharmaceutical companies start selling this drug in the market, then what would happen? People other firm's other entrepreneur can copy that particular product and start selling they can imitate and produce same kind of product. And of course, if this happens then the firm which came up with this particular drug would not able to recuperate it is cost, and it means that that firm will make the loss.

So, the issue is very simple that if a firm knows that a patent would not be granted if they come up with a product, they would not take up the necessary R and D to innovate to invent the product. And that is why to ensure that innovation is rewarded, and you know with the cost that is incurred for the innovation is kind of the company is able to recover that the government grants.

Patent typically life of patent is sort of it depends like it is up to 20 years in most of the cases we can say, that is not important, but it has a certain length and after that patent expires. Similar to patents is a copyright, but here the invention is not taking place think about artists, architects they are come they have some kind or author they have some books that they write or artist comes up with an art piece. So, government gives the copyrights to it is again a monopoly right and a right so that the creator can benefit from using that P is in the market.

So, copyright is typically given for the lifetime, and plus roughly say 50 years after the death of the artist, and this is of a kind of a monopoly. So, even though let us for example, like we have the tune that happy birthday to you. So, it is patented it has a copy is not patented, it has the creator had a copyright. So, if someone uses that jingle it means that the person who is using will using it will have to pay a royalty to the creator or whoever holds the copyright.

The issue with patent and copyright one should understand that maybe the original innovator or the original creator of the art piece, they can sell the patent right or the copyright in the market, and whoever holds that patent and the copyright would have the monopoly. And similar to patent and copyright there is another legal barrier which is licenses, if government says that only this particular firm can operate in the market in this particular area. So, before let us say 1991 pre-liberalisation days, in India we had licensed Kotaraj. So, government to you if you want to produce something for most of the items you had to obtain a license, and if you are the sole holder of the licence in that particular area then automatically you would have a monopoly.

So, this is the legal barrier which tip legal by legal means it stops other firms and other entrepreneurs to enter in the market. So, let us look at the different kind of barrier, and that can be called natural monopoly. What do we mean by natural monopoly? Let us look at it mathematically first and then we will try to explain what does it mean.

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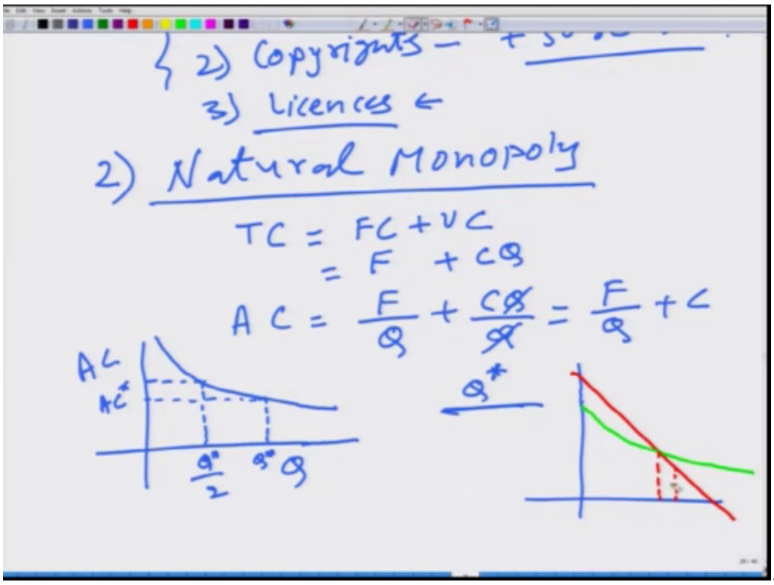

So, let us look at let us say the firm has a total cost, which can be written as fixed cost plus variable cost. And let us say that the variable cost is such that it is c multiplied by Q and here is the fixed cost.

So, what is happening to the average cost? Average cost is fixed cost divided by Q plus CQ divided by Q. So, this Q, Q gets cancelled and F by Q plus C. So, if we try to plot it, how does it look like? On x axis we had Q, and on y axis we have C so, in a way that average cost is always declining.

What it means? That let us say that market has Q star the demand Q star, let us say at what would be the average cost at which Q star can be produced so, this is the AC star, ok. So, one firm, if produces all the units required in the market, then the per unit average cost is going to be AC star. Let us say in place of one firm 2 firms are producing, what happens to the average cost? For both the firm average cost becomes higher. What it means that for the whole economy, it is efficient that output is supplied by only one firm rather than more than one firm, ok.

So, basically what we are talking about? That here what is happening? Average cost is always decreasing, it means that cost curve exhibits economy of scale, and this is precisely why it is happening? Because that production is production and technology has some kind of increasing returns to scale and long run average cost is always downward sloping. So, we can see here, let us say that this is the demand, and then let us say this is the marginal cost curve, ok.

Which is slightly wrong, what we should do is, and then the new point would be here, and not here. So, let me show you in another graph exactly the same thing, what we have here on the x axis.

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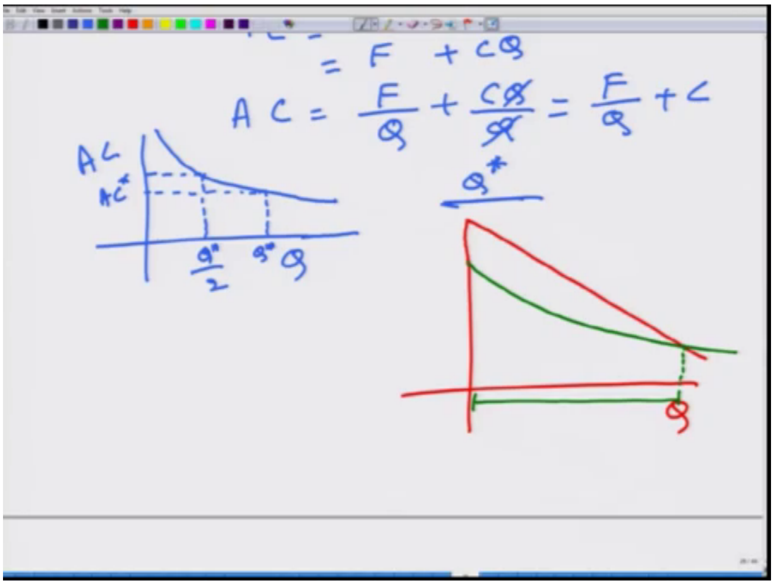

On the x axis we have quantity, and let us say that demand curve is a downward sloping curve, and the let us say that average cost curve is always downward sloping, and what happens that these many inputs can be provided in the market ok.

So, this is natural monopoly, and the pertinent example would be, let us look at the transmission the cost the transmission in electricity market. So, almost all everyone agrees that transmission has natural monopoly. Because think about it because if only one firm is supplying then there is a one line one metering system and so on and so forth. Let us say if there are 2 firms doing supplying the electricity then there would be 2 lines, same electricity would be supplied, but the cost is going to be twice as much as the earlier case, ok.

So, it makes sense that transmission is in the economy is provided by only one firm. Other example would be now when we had basic telephony. Now this is an age, when everyone is using mobile. So, that is a different thing there can be many firms they can compete against each other, but think about the era when we had the basic telephone line and telephones were connected through wire.

So, of course, when it was wire based then one could have said that telephony it was a natural monopoly. And not just in telephony or in electricity, one can think in terms of a rail lines also, that you know it makes sense that there is only one firm operating the rail lines. I am not saying the whole entire railway is monopoly. Because carrying passenger you know it is not the same as having the rail lines. I am talking about that if one unbundled the railway services into having the lines providing the seats, cleaning and so on so, I am emphasizing only on the lines rail lines if we think about rail lines, it has natural monopoly, ok.

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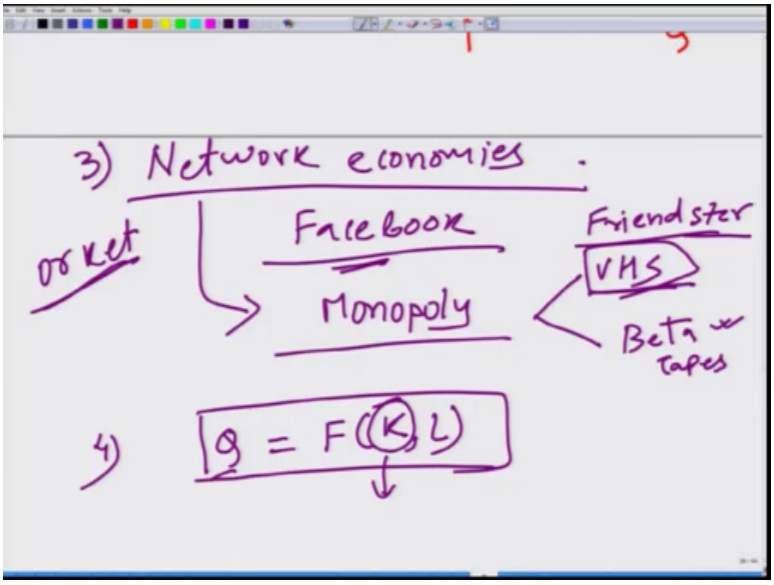

Now, let us look at the third example, the third barriers to entry the third barriers to entry would be something called network economics, work economies. What do we mean by network economies? When the gain to a consumer depends on how many people are using that particular product. So, if more people use that particular product, the gain to all individual consumer go up.

What would be the example? One can think of Facebook. Know more and more friend or more and more friends are on the Facebook, every individuals utility or happiness or satisfaction from Facebook would go up. Now think about a scenario when you have a Facebook and what we use to have earlier it was something called Friendster or Orkut.

Let us say your some of your friends are on Orkut, some of your friends are on Facebook, and some of your friends are on Friendster of course, the utility or the label of happiness would go down for each of these individuals, ok. So, when there is a network economics, what happens that because it is beneficial for everyone; it is beneficial for everyone, if everyone uses the same kind of product.

And in that case, we get network economics and this network economies implies monopoly. Earlier, there were you know the 2 earlier when we had the video tapes. So, there were 2 types of tapes one was called VHS and second was called something beta beta tapes. As people now say, that the second one was better than the first one in the in quality, but still the VHS became popular, because it got benefit from this network economies, ok. And this is of course, a cause of monopoly.

Let us look at one more reasons for barriers to entry. Let us look at how the production takes place. Q is equal to F K comma L. And of course, this is not the production technology for all the production; this is just a representative how production takes place. Let us say that this is a factor of production and a firm has a control the production, let us for production of Q K NL both are essential just say for an example and a firm has a total control over K.

Of course, it means that no other firm can get access to K, and the first firm will have a monopoly. Like for example, earlier in the diamond industry de beers had a kind of monopoly, they had access to almost all diamond mines. So, they maintained a monopoly in the retail diamond industry.

Ah, but there in Canada, Russia and I think also in Brazil some diamond firm's mines were found. So, then now de beers markets here came down heavily and it no longer has a monopoly. So, that is one way to say that if a firm has a control over an input crucial input then that firm would get an monopoly. Other way also is related to this although; here we write K and L explicitly the third thing that is written here is technology.

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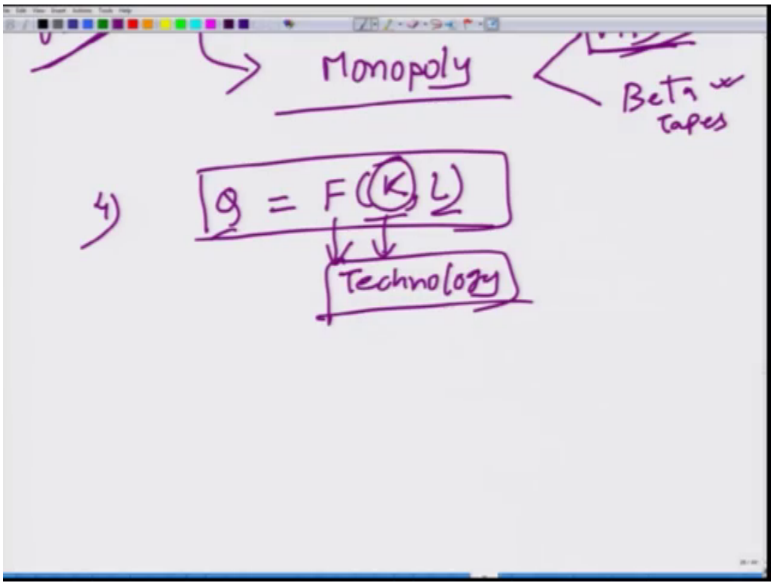

If firm has a better technology, then of course, it will have a cost advantage over firms and it will be able to supply it is output at lower prices, and it would undercut all the firms in the market and this form will have monopoly. So, these are the basic sources of monopoly.

Thank you.