Foundation Course in Managerial Economics
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Lecture - 25
Monopoly

Hello and welcome back to the foundation course in managerial economics. Till the last week we discussed about we started our discussion on different kinds of market structures and we discussed in details about the perfect competition. We understand that perfect competition has certain assumptions.

We went through the assumptions of perfect competition that it has large number of buyers, the products are homogenous so basically they so the products are highly substitutable across different sellers and that leads to almost zero market power of all the sellers as a result of which all the sellers and buyers in the market are price takers.

So and then we went on to when we looked at the profit maximizing condition and where the perfectly competitive firm chooses its output. We saw that the final market outcome or the market equilibrium that is reached in a competitive market that is highly efficient. We saw that there was productive efficiency that is the products were getting produced at the minimum cost across all firms; the most efficient of the firms produces first and we also saw that there is allocative efficiency that is the willingness to pay for the marginal unit is equal to the cost of producing that marginal unit.

So that was our discussion of perfect competition and since the market outcome is efficient it is the most desirable outcome for the economy but does perfectly competitive market perfect competition does it exist in reality although it is desirable but do we find enough perfectly competitive markets in the real world and what we are going to when we look around we see that the assumptions of perfect competition are far from fulfilled in any of the markets that we see around.

So we are going to see that in most of the markets most of the markets for different kinds of products that we see around us the markets have few number of sellers or very few number of sellers. The products are highly differentiated and because of and so they are not perfectly substitutable products as a result of which the sellers have some amount of market power. That is

they have some control over the price that they can charge and the most extreme case of this situation is the monopoly.

As we discussed when we discussed about the different market structures we already discussed this that the other extreme of perfect competition is monopoly where we have one single seller. So in this week we are going to discuss about what happens in a how does a firm become a monopoly and what happens what does the market equilibrium look like. What is the final market outcome and is it efficient. These are the kinds of questions that we are going to ask this week and let us see.

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We ask the following questions:

- How does a firm become a monopoly?
- What is the relation between marginal revenue and price for a monopoly?
- How do price and quantity produced get determined in a monopoly market?
- How efficient is the monopoly market outcome?
- What role can the government play in a monopoly market?
- What is price discrimination?

So we ask the following questions. How does a firm become a monopoly? What is the relation between marginal revenue and price for a monopoly? How do price and quantity produced get determined in a monopoly market? How efficient is the monopoly market outcome? What role can the government play in a monopoly market? So since perfectly competitive market outcome we found out that it was efficient so if we see some kind of inefficiency in a monopoly market outcome can the government have some role to play there to correct it. That is the question that we are going to ask and finally we are going to ask what is price discrimination. Since we say that the monopoly seller has is a price maker, has some control over price can he price discriminate that is can he charge different prices to different of its buyers. So these are the questions that we are going to ask this week.

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Monopoly

- Single seller
- Very high barrier to entry
- Substitutes not available
- Price determined by the seller – price maker

To quickly a quick recap of the what a monopoly basically what we mean by monopoly? So monopoly we have a single seller. Very high barrier to entry. Very high barrier to entry and that is the reason that we have a single seller because others are not being able to enter the market and the monopoly seller knows that. Substitutes are not available and so price is determined by the seller and hence the seller is kind of a price maker. He is not a price taker but he is a price maker.

So the question that next comes to mind is how does a firm become a monopoly. How does it happen that one firm emerges as a monopoly player. How does it happen that if the barrier to entry is so high one firm is there in the market others are not being able to enter. So what how does a firm basically become a monopoly and we are going to see that there are very broadly there are 3 reasons because of which a firm can end up becoming a monopoly.

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How does a firm become a monopoly?

- The firm is major holder of a key resource
- Monopoly by law – patents, copyright laws and public sector monopolies
- Natural monopoly - It makes sense for a single firm to produce for the entire market to utilize economies of scale and bring down price for the buyer

The first is the firm is major holder of a key resource. The firm is a major holder of key resource. So it often happens that let us take the example of the biggest diamond raw diamond company which is De Beers Company. They have owned most of the diamond mines all over the world mostly in Africa since the 19th century and they have been the single largest seller of raw diamond during this entire period from late 19th century to almost the beginning of 21st century.

So and they have held their position as the largest owner of most of the raw diamonds across the world through various of their business strategies and that is how they ended up being the single largest seller or the kind of they were able to attain a monopoly status in the market for raw diamonds. So that is how they became they emerged as the as a monopoly player in the market and another example is although this is not a natural resource that I am talking about but I would also take the example of Microsoft.

So when Microsoft came up with a extremely user friendly operating system during a time when there were not too many user friendly operating system existing in the market. So as a result they were the major holder of this key resource although this is not a natural resource like diamonds but this is a key holder of a resource which everyone was looking for.

There were it is not that operating system did not have major substitutes in the market, obviously Linux and all were there, but not everyone could use these operating system as easily as the Windows. So basically having come up with something like the Windows was something which made the Microsoft a monopoly player in the market for operating systems.

Now the second way by which a firm can emerge as a monopoly player is monopoly by law. That is the law gives the firm a status to be the single seller in the market. So how can that happen? That can happen through say patents through copyright laws and the example of public monopoly. So let me give examples.

I discussed in the previous when in the earlier weeks when I was discussing about sunk cost. I had taken the example of pharmaceutical companies. I had said that pharmaceutical companies have immense sunk cost in the sense that they are they are investing a lot of money on research to come up with come up with new drugs new formulas new compositions. So they a spending a whole lot of money for it and the end result may or may not bring any returns to them.

So there is a huge sunk cost for the pharmaceutical companies. So what happens if fearing this kind of sunk cost the pharmaceutical companies stop spending on research and development. So that is not something very desirable and hence we have the patent laws which kind of gives a protection against protection to the pharmaceutical companies that if they come up with something really useful they will have the sole right to sell that composition for some period of time.

So that is by law the law is giving the power to that firm to be the single seller in the market or giving the monopoly status to the firm. So that is the patent and copyright laws and on the other hand we have public sector companies public sector monopolies like the Indian Railways in India.

So Indian Railways although it although the railway network as I discussed again in the during when I was discussing about cost I said that certain businesses have very high fixed costs and railway setting up railway networks etc. obviously it has huge fixed cost and which has been basically borne by the government and we have the single Indian Railways but it is not that many countries actually have private railways also running in the in the country.

So basically the status of the monopoly status to the railways or to the postal service has been given the monopoly status has been given by the law by the government by the law of the land that it says that the postal service is completely it is a monopoly player.

Another kind of monopoly is the natural monopoly. Natural monopoly is why do we call it natural monopoly because it makes sense for a single firm to produce for the entire market to utilize economies of scale and bring down price for the buyer. So natural monopoly basically means that the market is such or the nature of the product is such and the production process and

costs are such that it makes sense for one single large firm to produce the output for the entire economy for all the consumers because in that case when the amount of output is very high the firm is able to get economies of scale as a result of which prices will also come down for all the consumers. So this is called a natural monopoly. A example is an example of natural monopoly is say setting up a power generation plant.

So in case of power generation plant the initial cost of setting up the plant the fixed cost is enormously high say for example it is a coal fired thermal power plant. So the initial fixed cost of setting up the power generation unit is extremely high and not only the generation unit the distribution, the network, the towers, the lines the electric lines that have to be set up to distribute the powers to reach the power to the final consumers the entire setup is extremely costly.

So the initial fixed cost of such a unit is extremely high and in comparison the variable cost is low. So the variable cost for generating power is what it is primarily the say the fuel cost and some other incidental cost to produce the electricity. So the so the initial fixed cost is extremely high and the variable cost is extremely low so that gives a typical shape to the average cost which I am going to show here on the board which will may clear that why it makes sense why such kind of setup actually makes this kind of output or this kind of market a natural monopoly.

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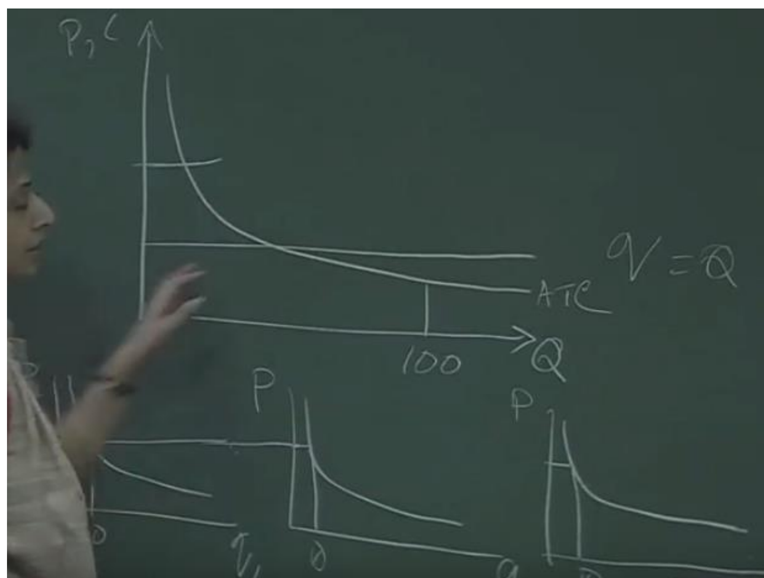

So one more thing it is a very which I would like to point out is that I said in the previous week that we are going to distinguish between the firm and the market the the quantity produced by the firm we are going to denote it as small q and the output produced in the market as big Q but

since in the monopoly the firm is the single sole producer or seller in the market so small q is equal to big Q for a monopoly.

So I am going to use it synonymously, so I am going to use Q here. So what does the average total cost then look like? So in a typical any typical firm we said that average total cost is a U shaped curve but in case of the natural monopoly that we have described here and we said that the fixed cost is extremely high so the average total cost takes the shape of the average fixed cost and if you may remember the average fixed cost keeps on falling with rise in output.

So the average fixed cost so the average total cost looks very similar to the average fixed cost. So this is the average total cost and so if the price if the total so if this is the single large power generating unit in the economy and it is catering to all the households in the economy then say it is being able to sell over here. Say it is able to sell around 100 units of power.

So when it is selling such a huge amount of units its average cost comes down. Its average cost is as low as here and in such a situation it is possible to charge a price it is possible to charge a price somewhere here and even then make a profit because average cost is here lower than the price here or even bring down the price even lower.

Now what happens if we say that okay we do not want a monopoly and we want lot of firms to produce electricity then we are going to have lot of small firms we are going to have lot of small firms who again have to incur the fixed cost because they cannot avoid the fixed cost of before they want to start producing power they have to incur the fixed cost and for them also the average cost will look like this. but now since they have split up the market amongst themselves so they will be each of them will be selling to only a part of the market.

So earlier 100 units were getting sold. So now maybe every so there are 10 such small power plants. Each of them is say selling around 10 units. So each of them if they are selling around 10 units which is maybe here so the cost becomes very high for all the small power plants. So they are able to so they are able to sell only a small amount of power that is around 10 units per power plant and so their cost becomes very high and they will not be able to sustain at a low price.

So they will have to charge a very high price which will be somewhere here and the buyers will also have to pay for this very high price because there are too many sellers in the market who are all operating with very huge fixed costs. So this is called a natural monopoly where it makes sense to not have so many small power plants and have a single big power plant which caters to the entire economy and thus produce a huge amount of output and having economies of scale

which brings down the cost for this firm and hence the price for the entire economy and price for the all the buyers in the economy.

So this is called a natural monopoly where it makes sense to have a single firm but we will however this is a very atypical case where you have very huge cost and this is but it is not the only case where you have monopoly in the economy. There can be various others reasons of having a monopoly in the economy. So we are going to stick to the usual cost diagram where we have the fixed cost, the average cost and the marginal cost.

So we are going to stick with these typical cost curves and see what is the monopoly outcome, what is the monopoly combination of price and output that happens in the market when the monopolist is trying to maximize its profit. So that is what we are going to do in the following modules of this week. Thank you.