Managerial Economics
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Lecture - 27
Monopoly

So, we will continue our discussion on theory of perfect competition. So, if you remember in the last class; we discussed about the long run price and output decision. Then we talked about that when there is a imposition of tax generally who takes the maximum of load; whether it is the buyers or whether it is the sellers? And then, we examined the case of stock market, whether this is part of perfect competitive market structure or not.

Then we will take one more example today in order to understand that whether there is a application of competitive market in the real world or whether there is a evidence of perfect competitive market form of perfect competitive market structure in the real world.

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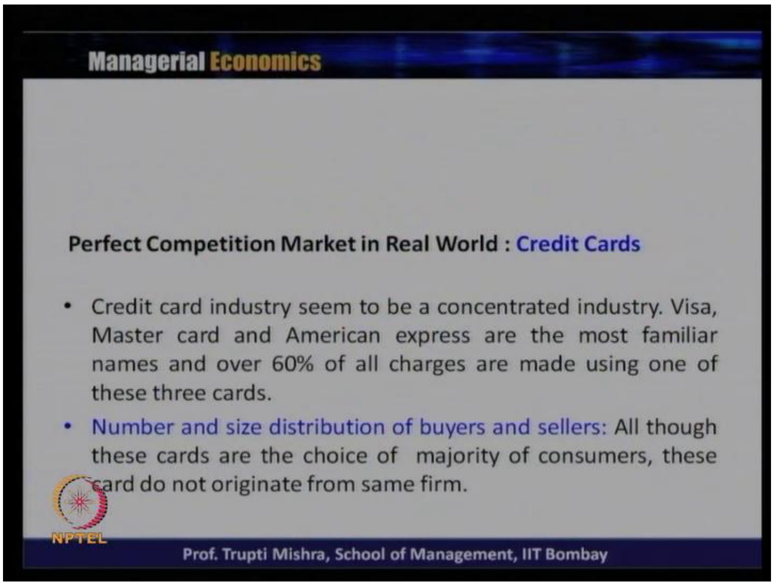

So, generally we will take the example of the credit card industry. And if we will see credit card industry seems to be a concentrated industry. Visa master card and American express are the most familiar names and over 60 percent of all charges made using one of this three card.

So, if you look at, if you are holding a credit card either it is a visa card either it is a master card or it is a American express card. So, maybe they originate from different financial institution or different banks. When it comes to type of cards either its American express master or visa card. And if you look at 60 percent of all charges are made using one of this three cards. So, when it comes to the characteristic of perfect competitive market structure and this credit card industry; the number and size distribution of buyers and seller is somehow comes to a equal characteristic, because there are large number of buyers. If you look at people, they prefer to use more credit card rather than debit card or operating in cash.

And there are number of sellers like if you take any banks specifically whether it is a small in size. But still, they offer a credit card at least to those people those who are holding a account in their bank. So, there are large number of credit card service provider and also there are large number of users of the credit card which has some similarity with the characteristic of a perfect competitive market structure that there are large number of buyers and large number of sellers. Then although this card are the choice of the majority of consumer; this card do not originate from the same firm. So, number of firms. But if you look at the product, the credit card is the product which comes from the number of firms. But if you look at its identical product because it is a credit card.

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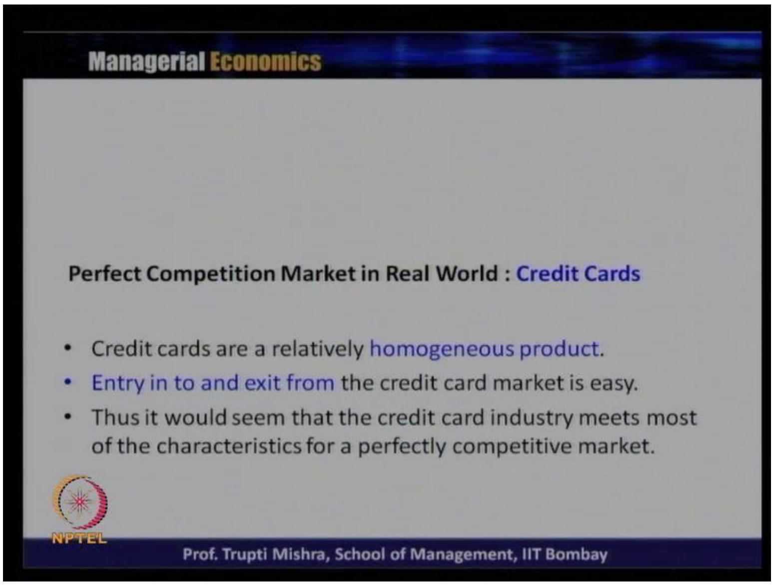

Similarly, if you look at its relatively homogenous product because the utility of the product is remain same whether it comes from HDFC bank, whether it comes from ICICI, whether it comes from SBI, whether it comes from any other banks. The usefulness or the utility of the product is the homogenous product. So, credit cards are relatively homogenous product even if it originate from the different firms still it has the same utility or the same usefulness and that is why it is a relatively homogenous product.

Entry into and exit from the credit card market is easy like if you have a repaying capacity generally you get a credit card. So, there is also entry into it and exit from the credit card is also like you can just get out of it after paying all this due. This is from the consumer perspective and from the firm perspective also there is no hard and fast rule that whether you should offer a credit card or not. If you the bank has the capacity to offer a credit card generally the firm or the bank they offer it or otherwise they generally exit if they are not feel that it is not a profitable business for the firm.

So, it would seem that the credit card industry meet most of the characteristic of a perfectly competitive for market at least when it comes to large number of buyers and sellers. When it comes to homogenous product, the number of buyers and seller in the product they are large. It is a homogenous product because the usefulness of the product is remain same whether it comes from the whether it comes from the bank x or firm x or firm y or when it comes to the entry restriction. There is no entry barrier, there is no entry restriction, there is free entry into, free exit into the firm.

Now, the question comes is there any imperfection who here incase of the credit card industry? May be the when you talk about the imperfection yes, because when you analyze it it is not the same product because is we get different category. There is a product differentiation because what facility we get it in the master card that we do not get in the visa card. And that we do not get in the American express card. And otherwise also if you take it in a different angle what facility we get it in the we get it in the American express card or a visa card we do not get in the master card.

Similarly, when you talk about that homogenous product again the homogenous product may be different because if you look at the cap like the. What is the credit card limit may be for one card limit is forty, if it is a gold card, if it is a platinum card or if it is a again there are different scheme credit card. Different schemes are coming and in that case you get different cards into the different cards and different credit limit. And also the different phases sometimes we get the cash back offer. And so if you analyze the product in that angle again that again the question comes whether it is a homogenous product. May be that time the answer is no. Similarly, free entry and free exit may be also a relative concept. And if you analyze it may be again it is not fit be a perfect competitive market structure. So, may be out of this out layers again when it comes to a comparison between the credit card industry and whether it is a perfect competitive market structure. May be closely the answer is yes because at least there are few features which gets there is a resemblance with the perfect competitive market structure.

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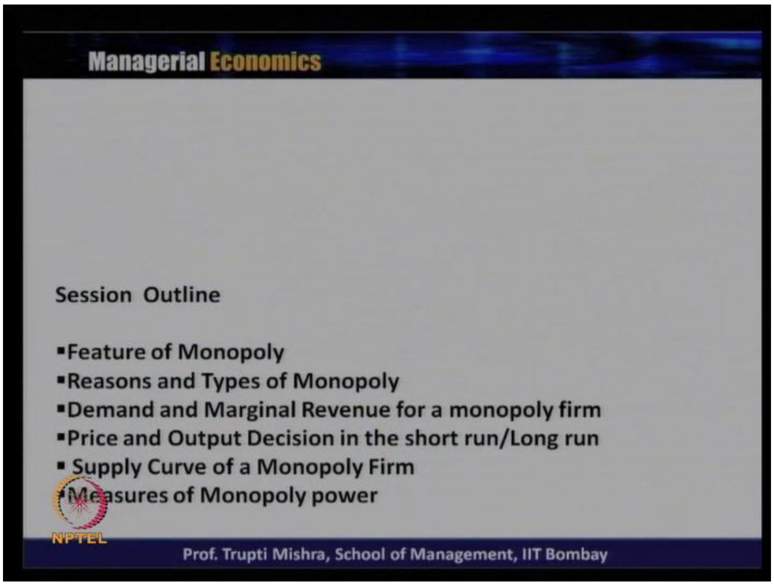

So, then we will take our discussion into the next form of market structure that is the monopoly. So, in one extreme we have perfect competitive market structure and the other extreme we have the monopoly. So, in today’s session we will talk about the features of monopoly. So, if you look at perfect competitive is the one form where there is no competition at all. There are large numbers of firms and in the other end we have the monopoly, where there is a single firm there is no close substitute product.

So, two extremes. So, we have already discussed about the perfect competitive market structure. Then we discussed about the monopoly and we will do a comparative assessment between the perfect competitive market structure and the monopoly market structure. So, in today’s session we will talk about the features of monopoly. We will find out what are the reasons for monopoly. Generally, why the market immerge in the form of the monopoly? Then we will look at what are the different types of monopoly. We will check the demand and marginal revenue for a monopoly. How it is generally derived? Then we will talk about the price and output decision in the short run and long run and then we will talk about the supply curve of the monopoly firm and how the generally the measurement of the monopoly power is done.

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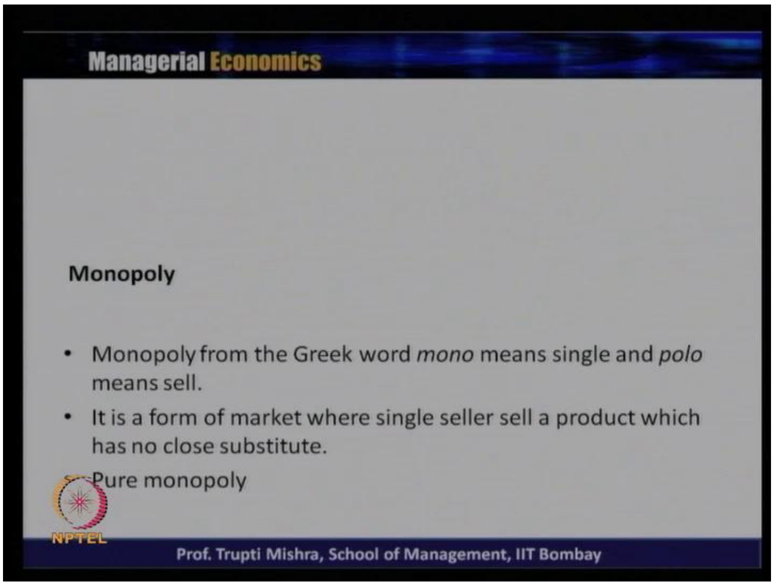

So, the word monopoly comes from a Greek word mono that is single and polo that is sell. So, it is a form of market where the single seller sells a product which has no close substitute. So, we can do a quick mind game over here that when we think about a product. Immediately we need to find a substitute. So, whether we talk about a toothpaste; it is a tooth powder. When you talk about a soap, it is a liquid soap. When you talk about a particular wend shirt and it is another shirt.

So, if you look at if you closely look at there are some form of substitute is not there may be some time it is close substitute, sometimes it is the distant substitute like. If you look the case of railway may be there is no close substitute. The railway, but there are some distant substitute like when you the take the mode of travel as air, take the mode of travel by road, they there are substitute available. Railway is not the only products available in the market. So, that is the reason when at least for a product we get close substitute or distant substitute, we cannot call it monopoly. It is not a pure monopoly because still some close or the distant substitute available.

Similarly, when you talk about monopoly and we are always saying that the extreme form of a market structure; can we get the evidence of pure monopoly in the monopoly? In the real world may be the answer is again no. Either it is a monopoly because of regulation, either it is a monopoly because of the natural factors or maybe it is a economic monopoly. But again you take a specific example; suppose it is rock, suppose it is salt. So, for the time being when you do when you think over it may be there is no close substitute to salt because this is the only product. And if you want to use salt that is the only form of product there is no close substitute.

But you think it over again, it is not salt there is also a substitute that is called rock salt right. So, may be the product there are few products in the market if you look at that is the only product in the market, but still it has some substitute. So, we cannot say there is one product which has no substitute and that is the reason we can say that there is no pure monopoly. At least in case of a real market real world situation or the market situation because it is pure monopoly is one where there is no close or no distance substitute should be available in the market. And that is quite hard to find in the real world example. And that is why we say that may be the monopoly comes in the form of regulated. The monopoly comes in the form of the natural factor, but not as a pure monopoly. And that we will discuss in due of time. That what are the different kind of monopoly and how they form. Or how they immerge themselves as a monopoly market in the market, in the real world situation?

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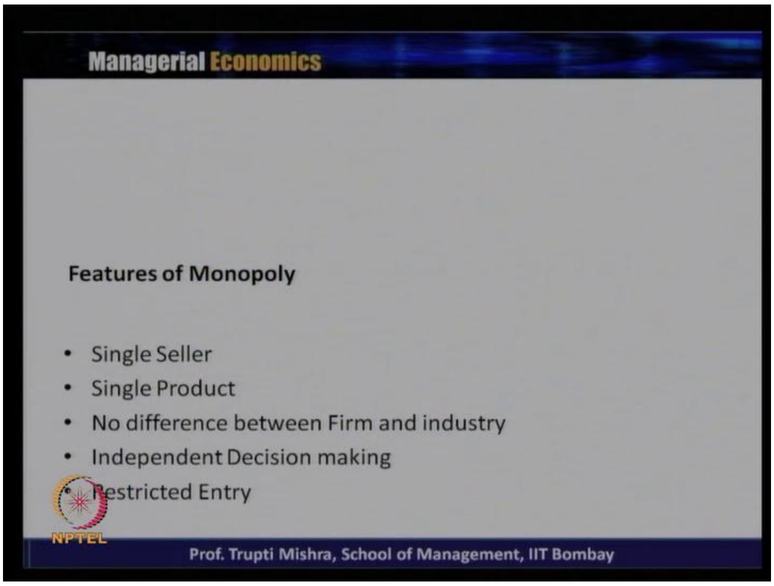

So, when you look at the features of monopoly there are single seller single product, there is no difference between the firm and the industry because it is the single product and the firm produces all the individual firms or the numbers of plants. They produces all the product. So, it is not number of firms, it the industry. There is no difference within the firm and industry because there is a single seller who sells the produce or sells the entire product that is required in the market.

Independent decision making because there is no competitor. So, the existing firm has not has to take care of the, what will be the competitor reaction when it comes to regarding the decision about the price and output. So, in this case there is a independent decision making and also one of the significant feature of the monopoly market structure; it is a restricted entry. And why we call it a restricted entry? Because there is a entry barrier. May be sometime this is manmade otherwise it's natural also. There is a entry barrier whenever a firm interested to produce a product. It is not that its free, it is not that they can just entry into the market and they can produce and they can sell it the market.

So, that is the reason this form of market is more different from the other form of market because at least there is no entry barrier in case of the other market. But in this case specifically there is a entry. There is entry barrier. Then we can analyze that whether it comes natural or whether it comes as a whether it comes there is a reason behind this monopoly.

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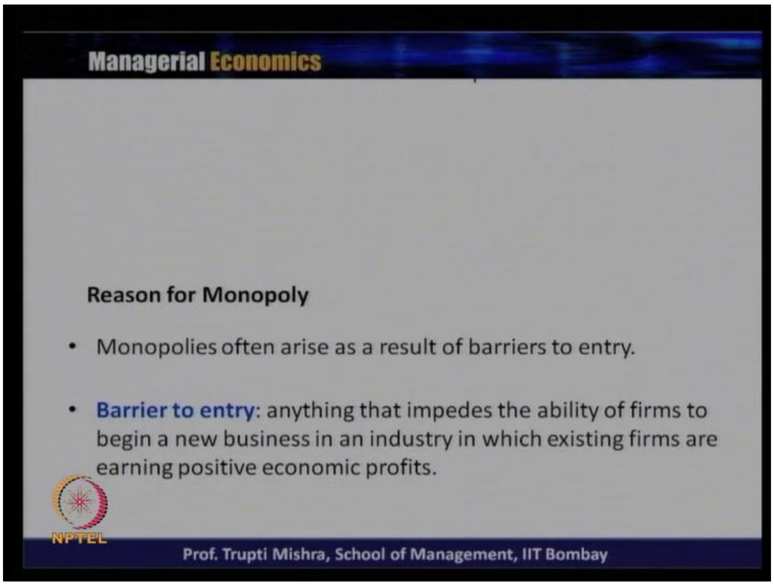

So, the main cause or the main reason that monopoly generally arises from the barrier to entry and there a entry barrier and that leads the market into the monopoly market. Now, what are the entry barriers over here? The barrier to entry before getting into the what are the different kind of entry barrier we can say? What is barrier to entry or how generally we define the barrier to entry? Anything that imbeds the ability of the firm to begin a new business in an industry in which the in which existing firm of earning positive economic profit.

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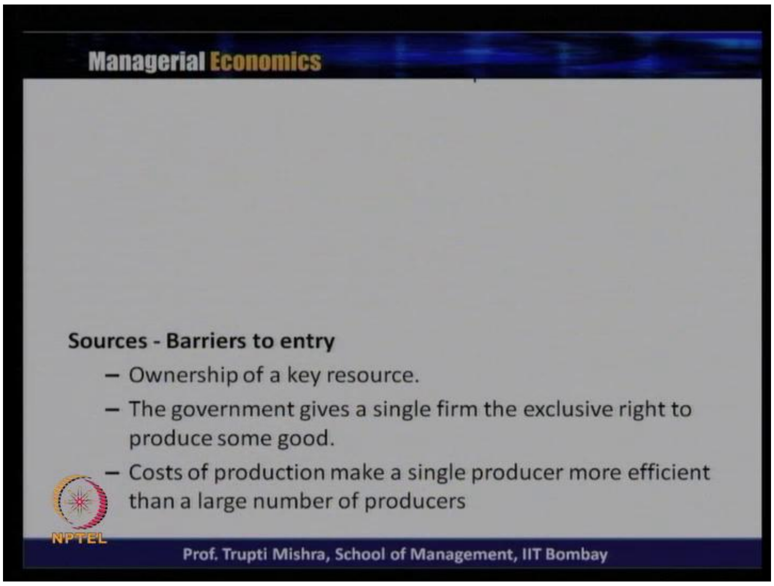

So, it is kind of situation any factor which stops the new firms or the which stops the firms to get into that business is generally the generally known as the entry barrier because that that generally create a barrier for the new firms to enter into the market where the existing firm they are getting the economic profit. They are or they are getting the normal profit. They are getting the super normal profit.

Then, we will see where the, where what is the source for this barrier to entry barrier to entry is any factor which stop the entry of new firm into the industry or start a new business into the industry. So, what would be the sources of the barrier of entry or generally from where this entry barrier comes first? When the firm they have a ownership of a key resources. Generally, they that stop the other firms to enter into the market because they have the ownership of key resources. And that is the reason they have also ownership to produce the product in a more cost effective manner.

Any new firm enter into the market they have to get the resources which may be more costly as compared to the cost of production of the other firms which which having the ownership of the key resources. Second, the government, when the government gives a single firm the exclusive right to produce some goods, like if you look at everybody cannot produce the equipment required for defence; the government gives the single firm the exclusive right to produce some goods. So, here it is a regulation that creates a entry barrier for the other firms to enter into the market. Third third sources of source of barrier to entry is the cost of production make a single producer more efficient than a large number of producer.

So, cost of production. So, if you remember incase of cost analysis we discussed about the economies of scale. So, there are different stage when the firm operation, expanding the scale of operation at a lower cost of production, firm expanding the scale of operation at a cost and cost of production and firm expanding the scale of operation in a increasing cost of production.

So, in this case if the existing firm they are operating the scale expanding the scale of operation at a lower cost of production. They get the cost advantage and they get the angle the economies of scale which may not be possible for the new firms to enter at that stage in case of the market because the existing firm. They are producing the product at a lower cost of production any new firms. They enter into the market, they have to any new firms enter into the market. Generally they have to compete with the existing firm at a higher cost of production and which may not be profitable for them and that stops them to enter into the market because the cost of production make the single producer more efficient than the large number of producer.

So, generally barrier to entry comes from three sources; one when the firm has the ownership of key resources used for the production. Second the government gives the single firm the exclusive right to produce something. And third the cost of production make the single producer more cost effective than the large number of producers in the market.

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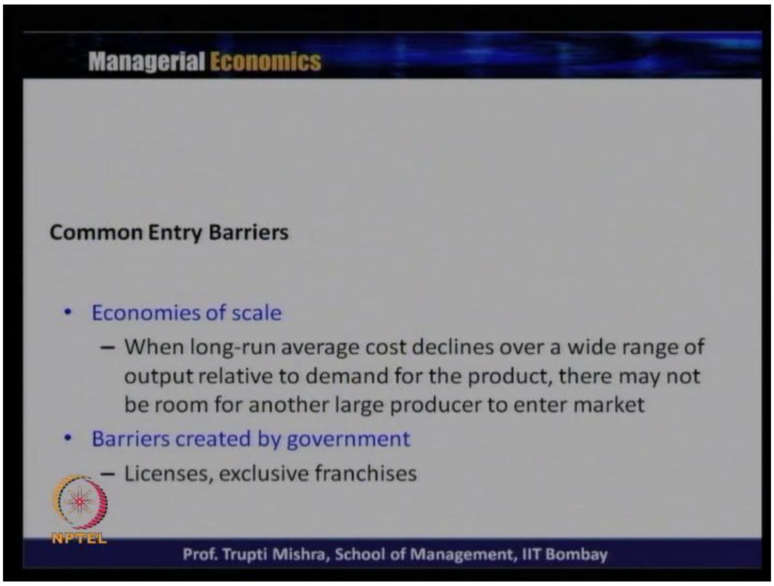

Then, we will see what are the types of barrier or what are the common entry barriers. The first one is economies of scale. So, when the long run average cost declines over a wide range of output relative to the demand for the product; there may not be room for another large producer to enter the market. Like in the previous case, we are examining that when one large firm is producing at a lower cost of production; there is no scope for the other firms to enter into, enter into the market producing at a higher cost of production and competing with the existing firm.

Since the existing firm is enjoying the economies of scale, they are producing the product in a most cost effective manner and that reduces the scope of the other firms to enter into the market. So, when the long run average cost declines over a wide range of output relative to demand for the product. There may be, there may not be room for the another large producer to enter the market and this serve as a one kind of entry barrier battery.

Then barriers created by the government license exclusive franchises if it is given by government. Then that creates as a entry barrier like we are taking, the we are talking about the example of the supplier of the defence equipment. Everybody cannot get into the market. It should be through the government when they are giving a exclusive franchising, when they are giving a license to do that then only they can get into this and this serve as a entry barrier for the other firms into the market and they immerge as a monopoly leader.

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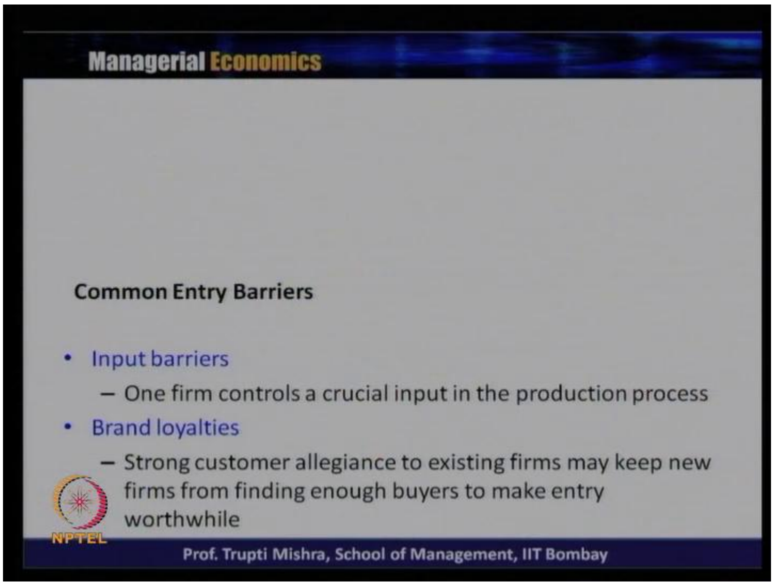

Then we have input barrier. That is one firm control the crucial input in the production process like if someone is having the key ownership of the resources whether it is a technical logo like you can take the example of IBM who specializes in the mainframes. So, any firms they enter into this may be they are not the specialized because the IBM they are holding a crucial input in the production process or the mainframe. And that serve as the input barriers for the other firms to enter into the market.

Then brand loyalty strong customer allegiance to existing firm may keep new firm from finding enough buyers to make entry worthwhile. Like you can take the example of Johnson and Johnson; its like for the baby product if you look at they are the market leader because till the time people they have the brand loyalty, there are many more brand it has come in the market in the recent time. But if you look at people they have still the brand loyalty for the people and that makes them the that makes them actually the firm to become monopolist and brand loyalty serve as a in entry barrier like Microsoft when it comes to the window. When it comes to the any other Microsoft process we always say that Microsoft is the market leader.

So, the brand loyalty for the Microsoft generally takes the other firm out of this market and that is why it serve as a entry barrier because people they have a confidence on the brand. They have the loyalty for the brand and which acts as a barrier to the other firms to enter in to the market.

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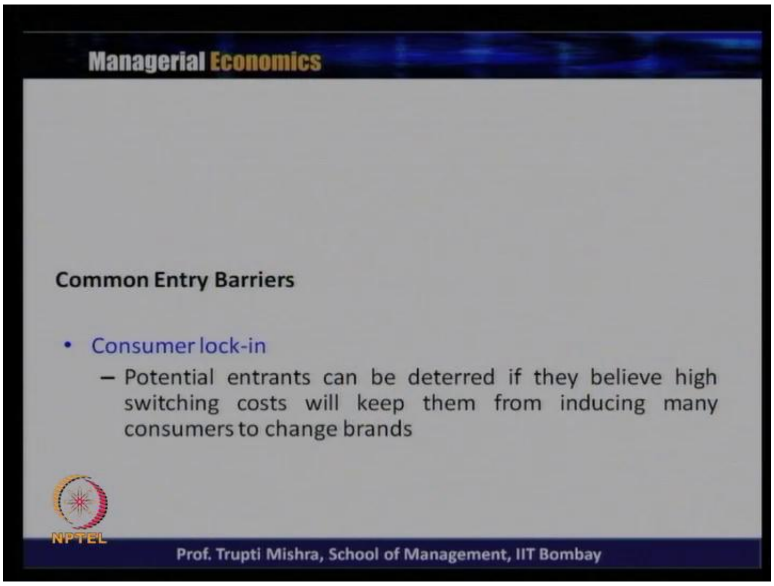

Then we have something to called consumer lock in. And what is this consumer lock in? When the potential entrant can be deterred if they believe high switching cost will keep them for inducing for many consumer to change the brands like some times the switching cost from one brand to another brand puts the consumer into the lock in situation. And that leads to that leads to the situation where the other firm, they they cannot enter into the market.

Like, you can take the example of a mobile service provider. When you have one connection from one mobile service provider you do not change that easily because it again use a again leads again requires a switching cost or the high switching cost because it may be high. But there is some amount of the switching cost may be in case of mobile service provider at least when you need to buy a sum, when you need to put a recharge card and which is is which generally consider as a part of the switching cost.

So, generally when people they move from one product to other product; they look at what is the switching cost available with this. So, if the switching cost is high generally people they take this to a, they takes as the if the switching cost is high and let me not get into the change into the other product I am with this product. So, this thought process itself because the consumer is not changing the brand because there is a high switching cost that leads to the other entry barrier for the firm into the other firms into the market.

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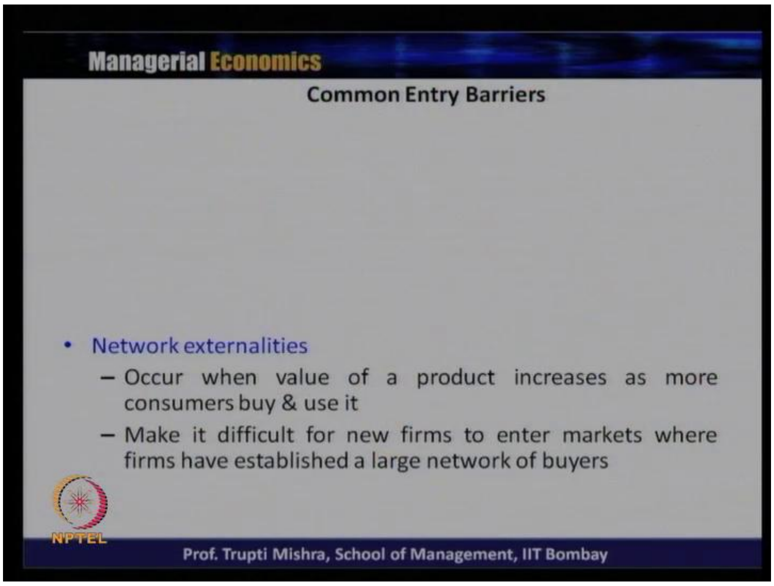

Similarly, we have network externality which serves as a entry barrier. It occurs when the value of a product increases as more consumer buy and use it and make it difficult for new firms to enter the market where the firms of establish a large network of buyers. So, when we are moving to a new place you can take the example of a. We can take the example of a maybe it’s a phone connection or its can its can be a buying a laptop, buying a computer. Generally how do you take a call that which one to buy? You say that which product is more common in this area whether it if it is a mobile service provider, whether it is BSNL, whether Vodafone, whether it is Airtel. And if it is you look for the tower which gets a better connectivity and what people they are using more in this market.

So, that that leads to the fact or that leads to the this fact leads to the decision of the buyers that what they are buying. And this is generally called as a net work externality because the benefit reach to the other consumer. When one consumer uses this or similarly when you are planning to buy a laptop you always say that who is the nearest service provider. If it is Sony via the nearest service provider is there you generally buy it. If it is Dell if you find that the nearest service provider is there generally you buy it.

So, it is about the network extended because since many firms they are using many consumer they are using the single product that that leads to the positive external benefit to the other firms with in term of the other facility available, with respect to that firm. And that generally creates as a entry barrier for the other firms to enter into the market.

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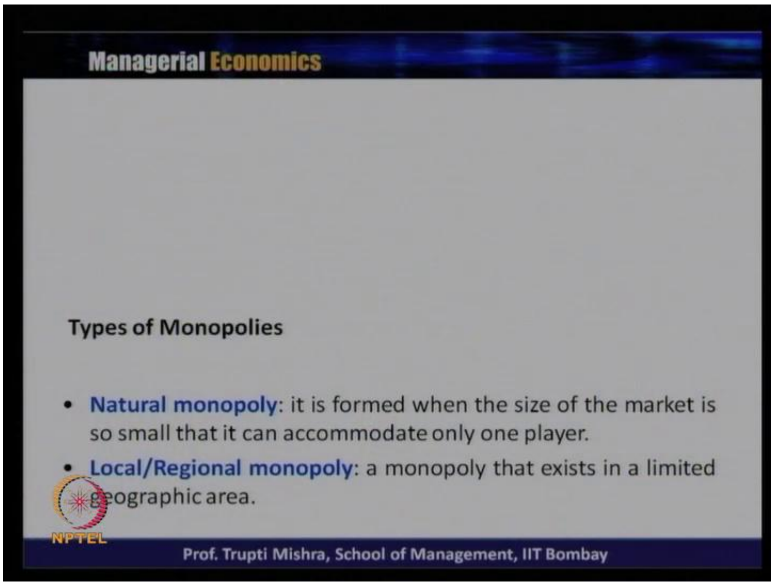

Then, we will talk about the types of monopoly. The first one is natural monopoly. It is firm when the size of market is. So, small that it can accommodate only one player means the capacity of the market or the size of the market is. So, small that it can only accommodate one player. Then we have local and regional monopoly, a monopoly that exist in the limited geographic area like whether it is through regulation. Like if you take under the this WTO rules or similarly may be you can take another example like that local grocery store because that serve as a local monopoly because there is no other shops available in that particular region.

Similarly, this regional monopoly is generally if you look at this stripes agreement or the

WTO agreement the that leads to the regional monopoly because there is a restriction for the other firms to enter into the market.

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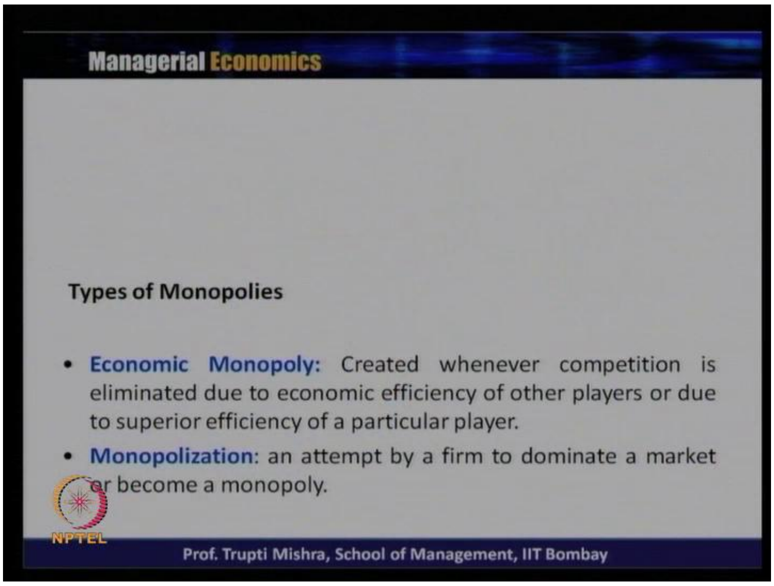

Then we have economic monopoly and economic monopoly is created whenever the competition is eliminated due to economic efficiency of other players or due to superior efficiency of a particular player. So, it is created whenever competition is eliminated due to economic efficiency of the other players or due to superior efficiency of the particular player.

So, may be the efficiency is that one firm is doing really well that leads to the economic efficiency and that stops the other firms to enter into the market. Then we have a kind of monopoly we cannot call it exactly it is a monopoly. It is act of monopoly that is a monopolization where the attempt by the firm to dominate the market or become the monopoly and generally we take the typical example of Microsoft where they are trying to get into the antivirus market and by bundling their product. And that is the classic example we always take that this is the act of monopolization by the Microsoft to become a monopoly leader in antivirus market. Also, because they were trying to do it through the bundling activity; and if you remember there is also a antitrust case against the Microsoft for this monopolization act.

So, it is not a kind of monopoly rather a act of rather a act or rather an attempt by the firms to become a monopoly leader. Then we have a legal or regulated monopoly. It is created when the government restrict the entry of other players in particular market in order to keep the total control in hand. Like the typical example of India and railway and may be the different state electricity board.

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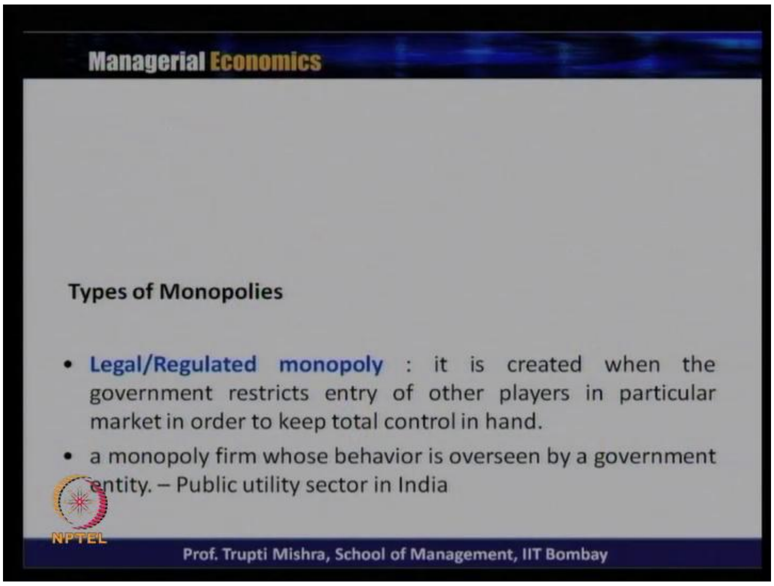

This is the regulated monopoly because this generally the government keeps all the control. The government takes a call with respect to price and the output decision and that leads to the generally that leads to the market or that leads to the entire market form into the monopoly market.

And generally this is a kind of monopoly where the behavior is overseen by the government entity and typically the public utility sector that is generally known as the generally comes under this form of the monopoly like that example of state electricity board. Orit's a case of we Indian railway where the behavior is overseen by the government or there is some say of the government when it comes to the price and output decision. And that leads to the market as the monopoly firm of market structure.

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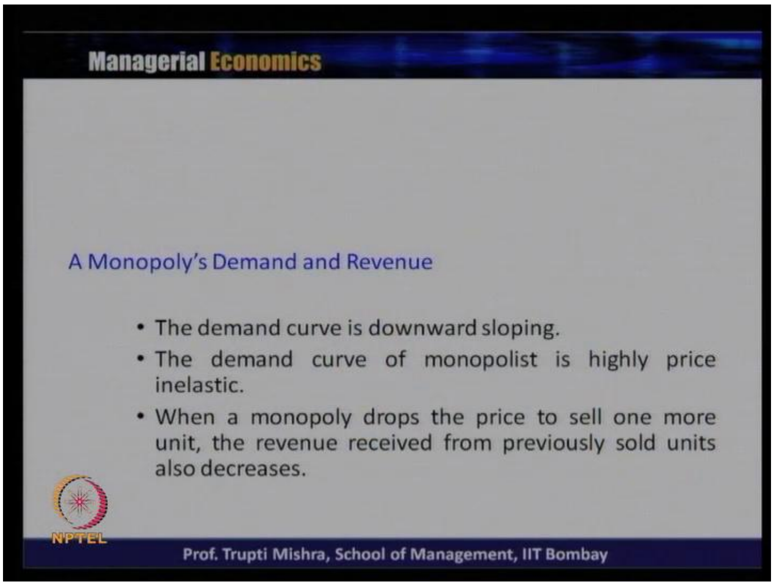

Then we will talk about the demand and monopoly demand and revenue of a monopoly market demand curve is downward slopping. It is a regular demand curve downward slopping price and quantity demanded. There inversely related and if the monopolist want to sell they have to reduce the price. So, the demand curve of monopolist is highly price inelastic because of this is the single product available in the market. And there is no close substitute that leads to the inelasticity of the monopolist. And that is why the demand curve is highly price inelastic.

When a monopoly drops the price to sell one more unit the revenue is received from the previously sold unit also decreases. Because since there is a single product and there is no close substitute sometime if the monopoly firms wants to sell more. They have to at least reduce the price and in this case the revenue received from previously sold unit also decrease decreases because the price is decreasing even if the quantity is increasing.

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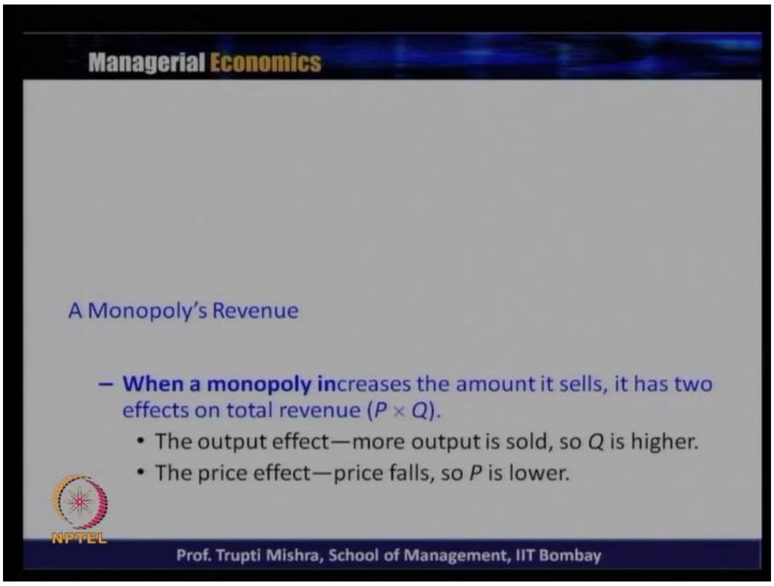

So, when a monopoly increases the amount itself it has two effect on total revenue. So, what is our total revenue? Total revenue is price and quantity. So, output effect more output is sold and q is higher because there is a decrease in the price that leads to a output effect because q is higher price effect price decreases. So, price is generally lower. So, whenever the monopoly increase amount itself it has to reduce the price then only the sale will be more. And that is why it leads to two kind of effect; one is output effect and second one is the price effect.

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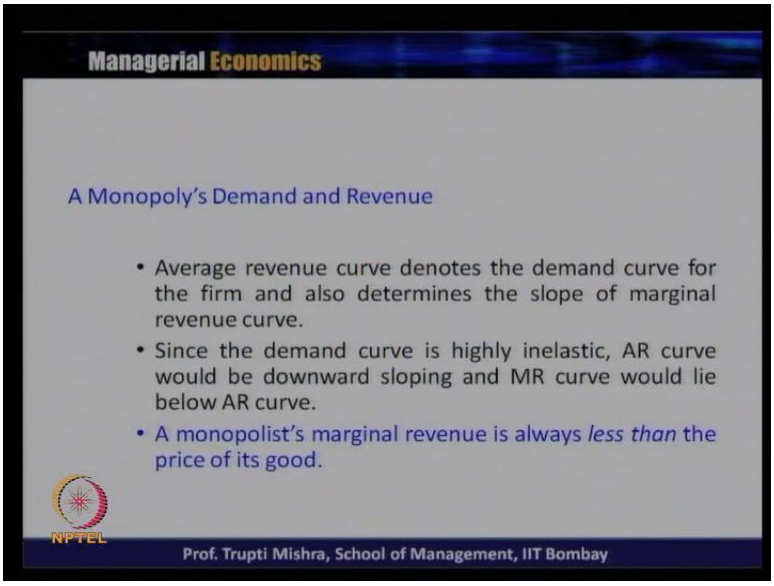

So, here the average revenue curve is denotes the demand curve for the firm and also determine the slope of the marginal revenue curve. So, average revenue curve is also the demand curve. This is the same in case of a perfect competitive market structure also because the average revenue is also equal to the demand curve. But here the difference is that here the marginal revenue curve is separate. But in case of competitive market structure the marginal revenue curve is also equal to the average revenue curve.

And the average revenue curve also determines the slope of the marginal revenue curve since the demand curve is highly inelastic average revenue curve would be downward slopping and the marginal curve would lie below the average revenue curve. So, if the demand curve is highly inelastic average revenue curve will be downward slopping and marginal curve would lie below the average revenue curve and the monopolist marginal revenue is always less than the price of its good.

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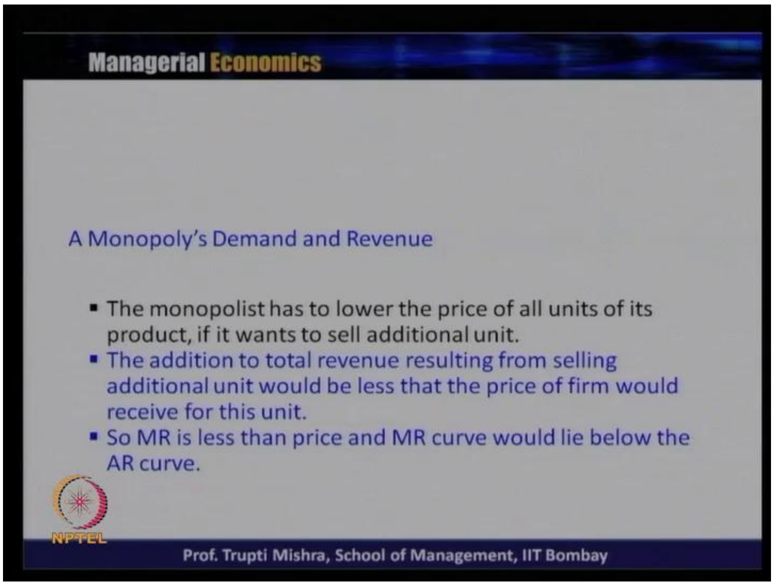

And why it is generally less than the price of its good? Because monopoly has to lower the price of all units of its product if it wants to sell the additional unit and the additional to the addition to the total revenue resulting from selling additional unit would be less than the price of the firm. It would receive for this unit. It means the marginal revenue has to be less than the price. So, MR is less than price and MR curve would lie below the average revenue curve.

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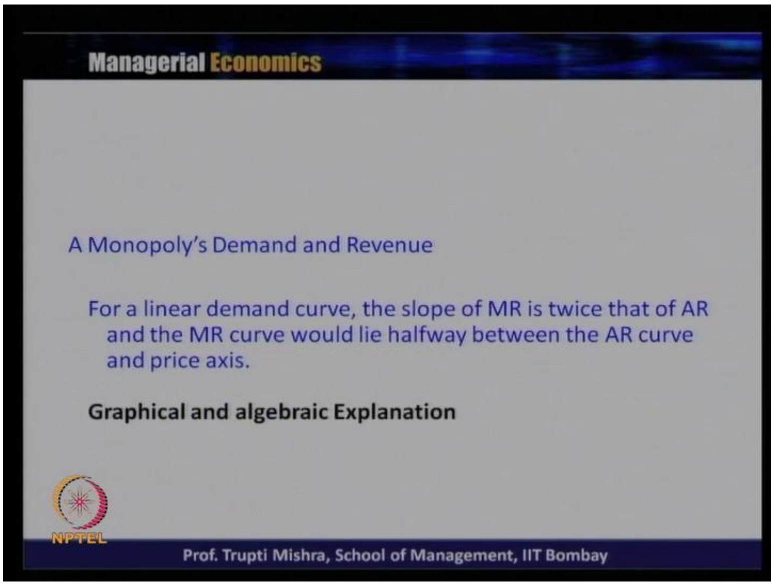

Now, we will see for a linear demand curve the slope of the marginal revenue curve is twice that of average revenue curve and marginal revenue curve would lie half way between the average revenue curve and the price axis. So, for a linear demand curve the slope of the MR is twice that is slope of the AR it will lie half way between the price curve price axis and the average revenue curve.

So, let us see the how generally we graphically look at the slope of the average revenue curve and the slope of the marginal revenue curve. And we will check whether the slope of the marginal revenue curve lies below average revenue curve and algebraically also we will see what is the slope. What is the slope? Generally, for the average revenue curve and whether the slope of marginal revenue curve which twice of the slope of the average revenue curve.

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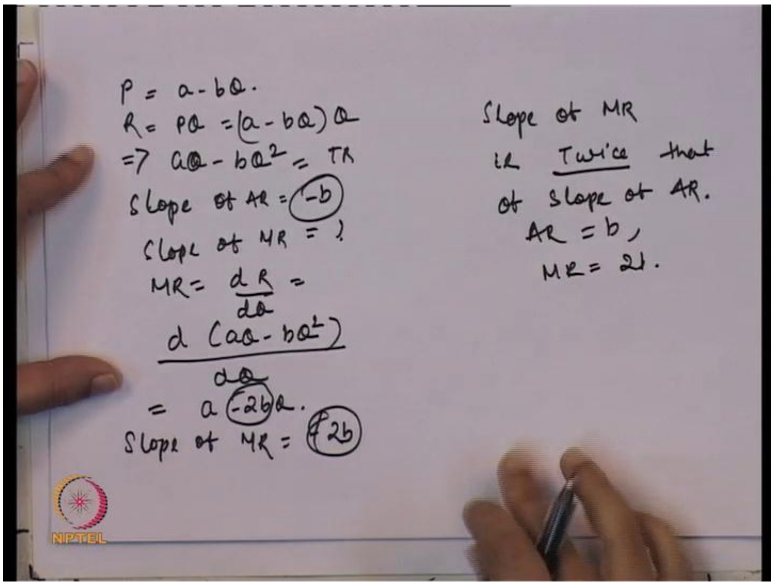

So, if you take a demand curve that is P is equal to a minus b Q; then what will be the revenue? Revenue is p Q. And if it is p Q then it is a minus b Q multiplied by Q which leads to a Q minus b Q square and this is the total revenue slope of average revenue will be b. Because this is TR by Q and slope of marginal revenue will be we need to find out the slope of marginal revenue. And what is marginal revenue? Marginal revenue is d R d Q. So, that comes to d a Q minus b Q square with respect to Q and that get it then this is a and two b Q. And what is the slope of marginal revenue curve? The slope of marginal revenue curve is minus 2 b.

So, slope of average revenue curve is b and slope of marginal revenue curve is 2 b. So, we can conclude that the slope of marginal revenue is twice that of slope of average revenue curve because the slope of AR is b and slope of M R is 2 b.

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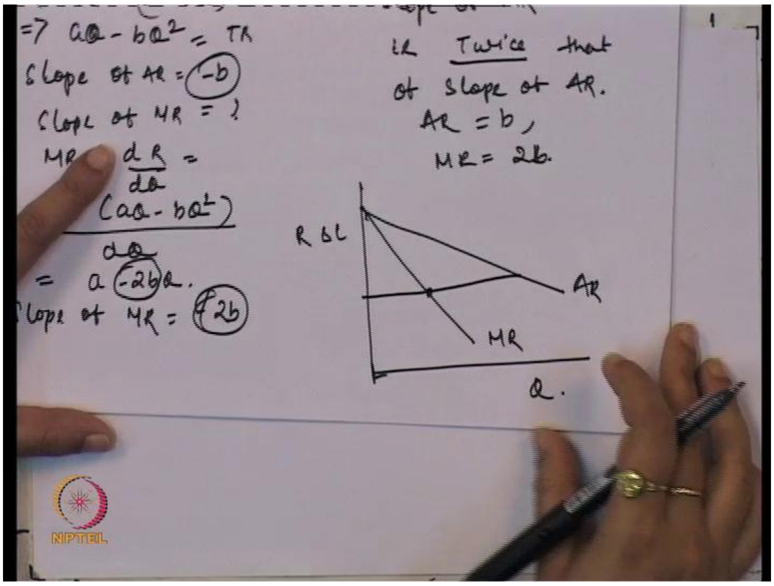

Then graphically how we generally represent this? Graphically, we represent this as this is our average revenue curve and this is the marginal revenue curve. Here, we take revenue and cost and here we take the quantity. And if you look at the marginal revenue curve, you just look at it lie in the half way between the average revenue curve and the price axis.

So, monopoly demand curve if you look at monopoly demand curve is the average revenue curve. And the slope of the average revenue curve in a typically demand function if it is a minus b Q; then if it is get b and slope of marginal revenue curve is 2 b Q 2 b. So, that leads to the slope of marginal revenue curve is the twice of the slope of the average revenue curve and for a linear demand curve always the slope the MR lies below the average revenue curve, because the slope is more than the slope of the average revenue curve.

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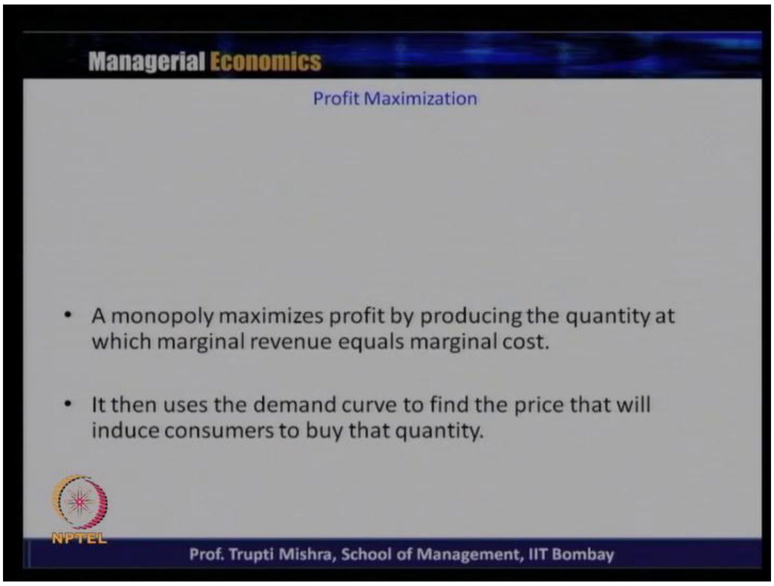

Then, we will come to the profit maximization of the monopoly firm. So, the profit maximizing rule is again same marginal cost has to be equal to marginal revenue for the first order condition and the slope of the mc should be greater than the slope of the MR for the second order condition. So, monopoly maximizes the profit by producing the quantity at which the marginal revenue equal to marginal cost. And then it uses the demand curve or the typical average revenue curve to find what price induce the consumer to buy that quantity.

So, the first one they find out the output level by MR and mc that the profit maximizing rule. And then by using the demand they find out the price at that price what the consumer which is ready to buy.

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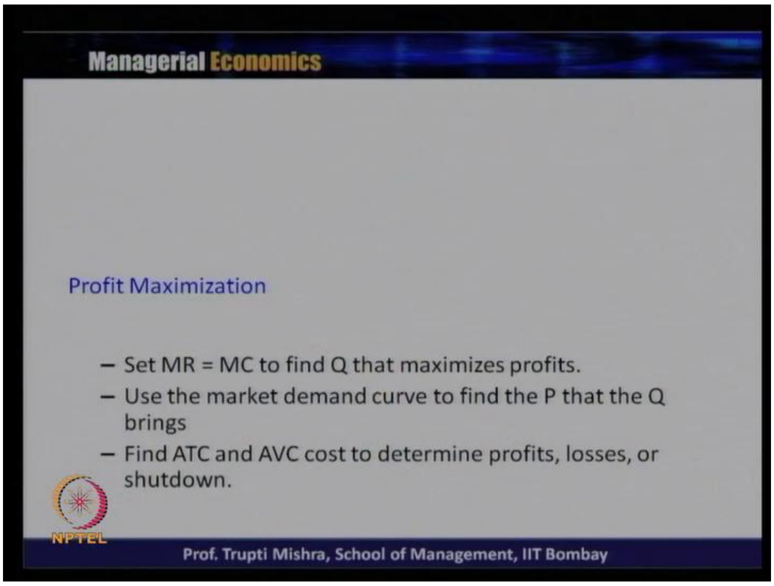

So, what is that the steps for the profit maximization? We need to set marginal revenue is equal to marginal cost to find the Q that maximizes the profit. Then we use the market demand curve to find out P that the Q brings. And then, we find average total cost and average variable cost to determine profit losses or shut down.

So, the first step is to equalize marginal revenue and marginal cost find out the Q that maximize the profit. Then we use the market demand curve to find the price that the quantity brings. And finally, we will find out the cost associated with that level of producing Q because that will tell us whether the firm at that level of quantity whether the firm is incurring loss making profit or making super normal profit.

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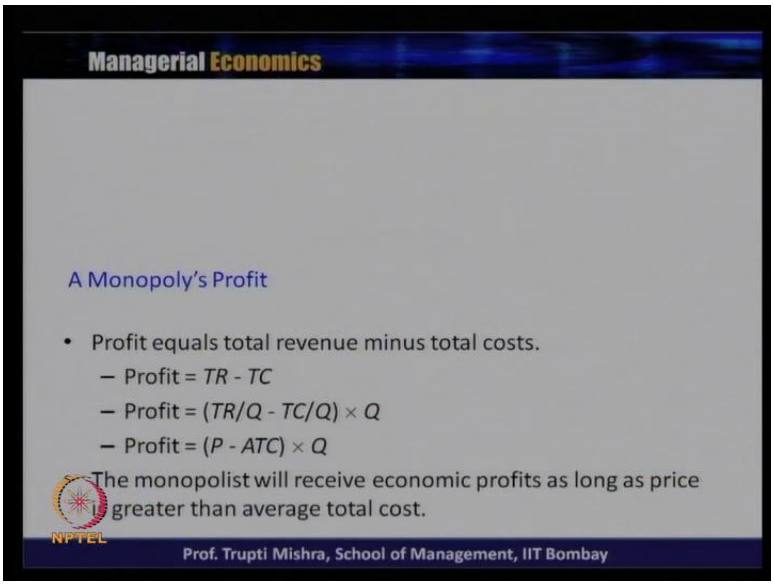

So, here the profit is equal to the total revenue minus total cost total revenue is that is PQ and total cost is a fixed cost plus the variable cost. So, profit is total revenue minus total cost. So, if you simplify this then it becomes P minus average total cost multiplied by Q. And this is also called as the profit margin and the monopolist will receive economic profit as long as price is greater than the average total cost. So, till the time price is greater than average total cost monopolist will receive economic profit. If the price is equal to the average cost, the average total cost that is normal profit and if the price is below the average total cost then it becomes the loss.

Then we will case the take the case of in case of short run we will take the case of super normal profit in which case generally the firm gets super normal profit. Then we will take the case of loss like in which case the firm gets loss and in which case the firm gets the normal profit.

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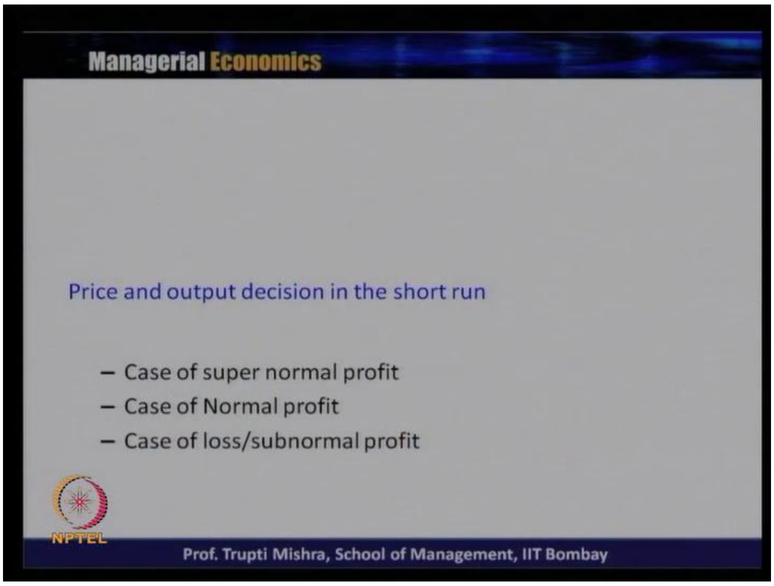

So, to start with we will do it for the super normal profit. So, we will find out our here we will take quantity here.

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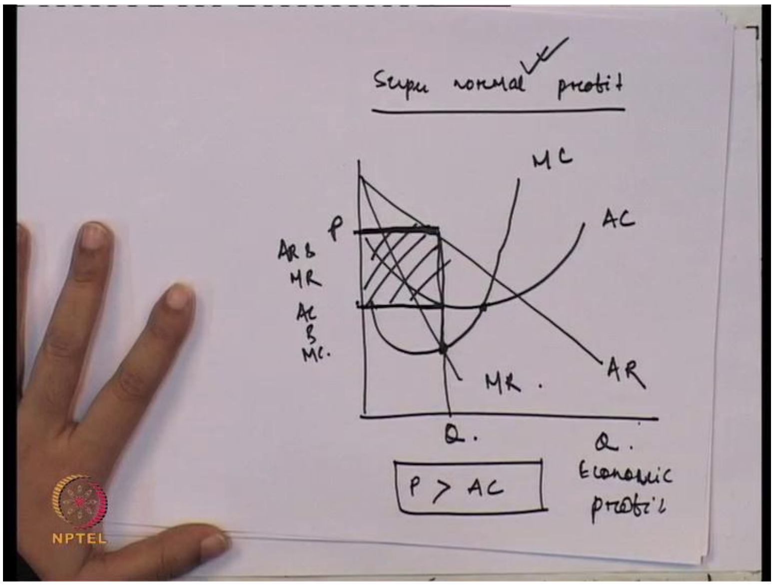

We will take average revenue marginal revenue average cost and marginal cost. So, this is our average revenue, this is our marginal revenue. Then this is our average cost, marginal cost intersect the average cost at its minimum.

Now, what is the, what is the steps for the profit maximization? First, we need to find the equality of marginal cost and marginal revenue. So, this is the point where the first order condition gets fulfilled. And corresponding to this we will indentify the quantity this is the profit maximizing level of output. Next what we should do using the demand curve we will find out the price. So, corresponding to this we will find the price axis and this is the price, now this is the profit maximizing quantity, this is the profit maximizing price. This we have got through the equalization of marginal cost and marginal revenue.

Now, next we need to find out at this price, at this quantity what the, what is the situation for the firm? Whether the firm is getting super normal profit, whether the firm is getting the normal profit or whether the firm is getting loss. How to find out that? That is through the average revenue or so called price and the average cost. So, corresponding to this what is the average cost corresponding to this? This is the average cost and this is the price. So, P is greater than average cost.

So, if you remember till the time P is greater than average cost the firm will get economic profit or so called super normal profit. And what is the amount of the super normal profit? The difference between the average cost and the average revenue curve and this is the amount of profit super normal profit what the firm is getting. So, if the price is greater than average total cost. The amount between the average total cost and the average revenue curve, that gives us the super normal profit. This is above of the cost of production.

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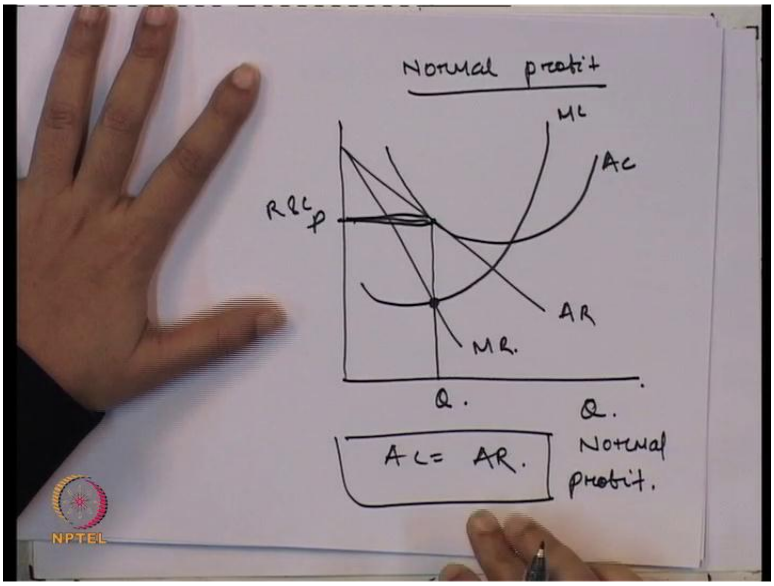

Now, next we will find out what is the second situation that is for the normal profit. We will follow the same process or the same steps to find out the normal profit. So, here we have revenue and cost. Here we have quantity, we will draw a average revenue curve, we will draw the marginal revenue curve. Then we will draw out average cost curve and we will draw the marginal cost curve, we have average revenue, we have marginal revenue, we have average cost, we have marginal cost. Marginal revenue, marginal cost is the to find out the profit maximizing level of output corresponding to that we get the level of output corresponding to that in the demand curve we get the price.

Now, what is the next task if this is the profit maximizing price? This is the profit maximizing output. We need to find out that what is the profit? What is the profit or what is the loss. So, in this case if we look at corresponding to this point, the average cost is just equal to the average revenue. If average cost is equal to average revenue the firm is incurring no loss. The firm is not incurring the super normal profit. Now, this is the case of a normal profit where corresponding to the profit maximizing level of output the average cost is equal to the average revenue curve.

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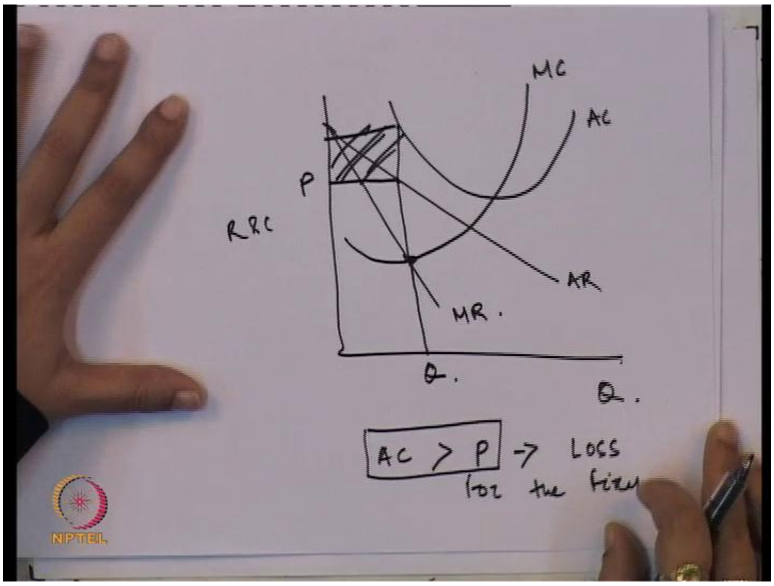

Then we will analyze the case of loss where particularly the firm incurs loss when it is a profit maximizing condition. So, we have average revenue quantity revenue and cost. We have marginal revenue, we have average cost and we have marginal cost. We will find out the marginal revenue marginal cost condition. We will find out the Q, we will find out the p. So, this is p, this is q corresponding to this. If we will find this the amount of the cost; so in this case the average cost is greater than price and that leads to the loss for the loss for the firm H; this much area, because this keeps the difference between the average cost and P. So, in this case at this level of output the average cost is higher than the price and that is why the firm is incurring loss. The common question comes here whether since it is a case of the monopolist whether the firm should incur loss or not because it is a monopolist they have a independent independent capacity to take a decision on the price and price and output there is only single firm single producer at least there is no close substitute. So, monopoly is a market form where there is no close substitute.

Now, still when the firm is incurring loss in the short run what may be the possible reasons? There is possibility that the firm may incurs loss, in the also in the short run. And what are the possibility or what is the reason that the firm is incurring loss in the short run?

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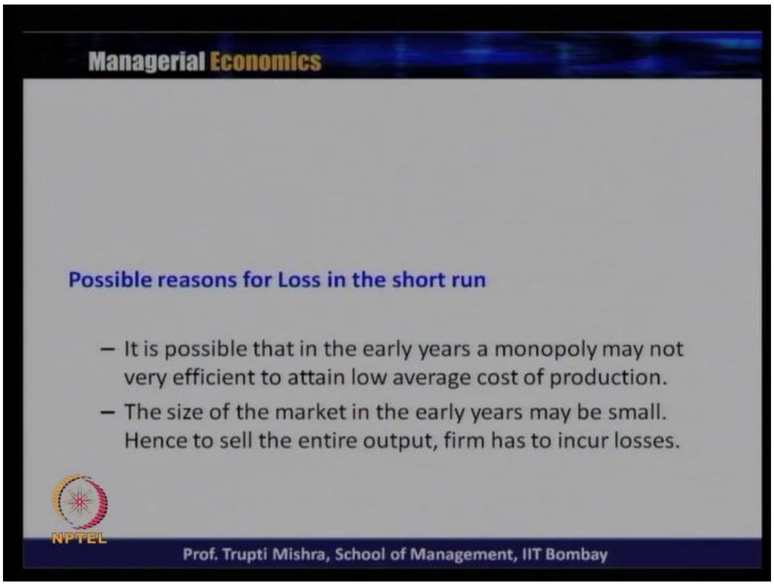

First, may be it is possible that in the early year the monopolist may not very efficient to attain the low average cost of production, may be the cost efficiency or may be to attain the low average cost of production. It is not possible at the early year of the monopoly.

Then the size of the market in the early years may be small hence to sell the entire output firm has to incur the losses. So, the size of the market in the early year may be small not very large and to sell entire output, may be the firm has to lower the price which leads to incur or may be evidence of loss in the short run.

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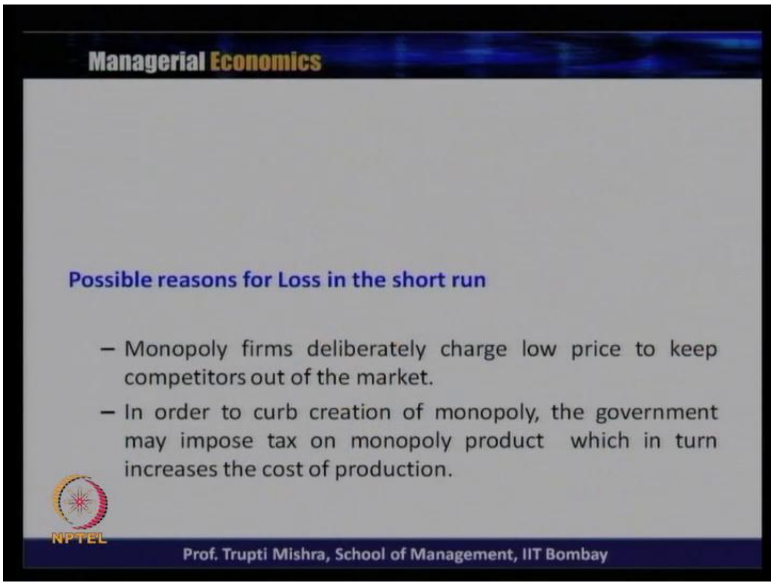

Then the monopoly firm deliberately charge a low price to keep the competitor out of this market. Why they charge a low price? If you remember whenever there is a super normal profit that attracts the firm other firms to enter into the industry.

And if they are charging a high price that leads to super normal profit and that will attract the new firms enter into the industry and in that case may be the competition will be there and it may not be a monopoly market again. And that is the reason they take a strategy to maintain a lower price. Because if we are maintaining a lower price that is not profitable for the other firms to enter into the market or there will be no incentive for other firms to enter into the market. And that serve as a entry barrier, but in other side when they are charging a low price generally that that leads to the loss for the firm because they are they are charging a low price. And that leads to a situation where price is less than the average total cost.

Then in order to curve the creation of monopoly sometimes the government may impose a tax on the monopoly product which in turn increases the cost of production. So, there is a tax. So, whenever there is imposition of tax that increase the cost of production and in that case whatever the price they are charging that becomes less than the average total cost and that leads to the that leads to the may be the possible cause or that leads to the sum up sum up the loss in the monopoly market.

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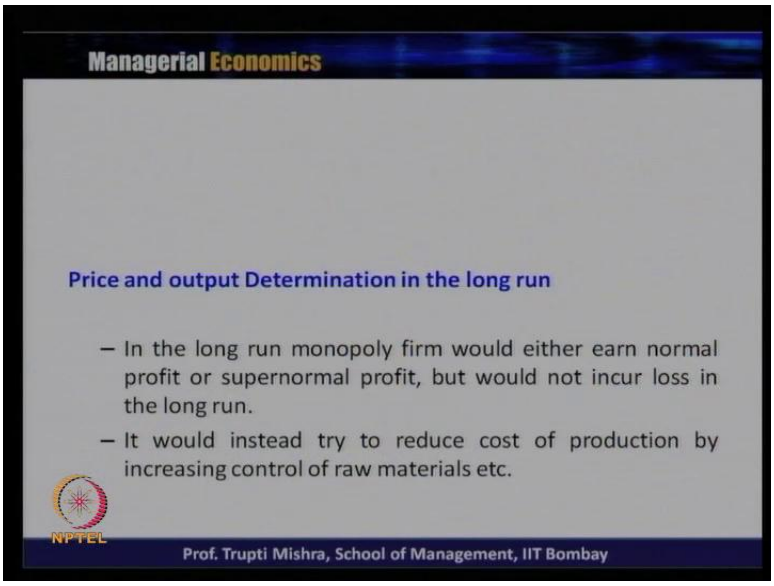

Then we will come to the price and output determination in the long run. So, here you look at the long run again. It is different from the short run in term of the factors used incase of the expanding the scale of operation or may be the it has a there is no fixed cost or there is no fixed in input. All the inputs are variables. That is why all the cost are variable. So, in the long run monopoly firm would either earn normal profit or super normal profit, but would in not incur loss in the long run because if they are, if you if you have if you remember the in case of competitive market when the firm incur loss in the short turn. Still, they continue with a hope that the long run they are going to incur loss in at least they can they are going to make the normal profit. But in case of monopoly generally in the long run, they are not going to incur loss at all; either they will get a normal profit or super normal profit.

But as a strategy they prefer to take a normal profit because when it is they are earning super normal profit that work as a incentive for the incentive for the other players to enter into the market. And that is the reason if we look at all the firms they get normal profit not the super normal profit. And they would rather try to reduce the cost of production increasing the control of raw materials. And that will give some amount of profit to the firm above the normal profit because if they are reducing the cost of production still charging that much price the gap between the price and total cost is more and that brings more profit to them.

And how generally they reduce the cost of production when by increasing the control on the raw materials? Because since they are the sole producer of sole seller if the raw material the suppler is not selling the raw materials to them may be there is no there is no market for that particular raw material. And in that way the exercise control on the supplier of the raw material they get it in the reduced cost and that again leads to the reduce cost of production for the other firms.

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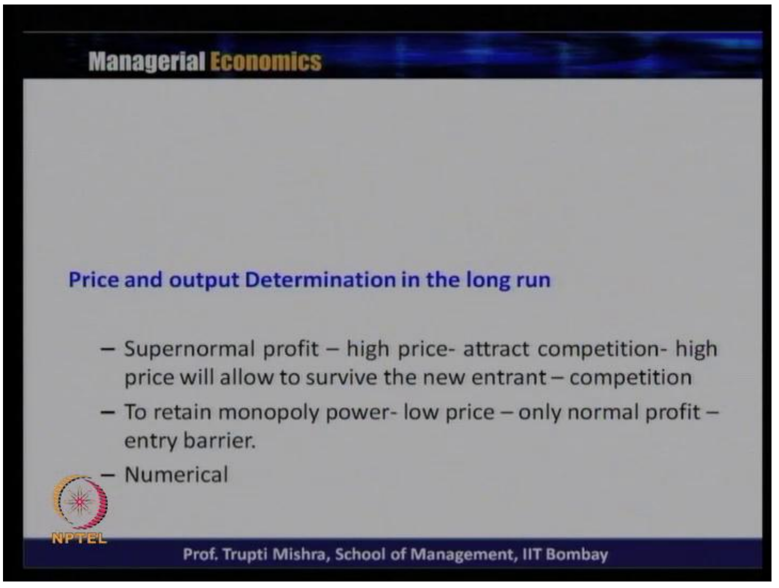

So, what happens when they are getting the super normal profit? Super normal profit leads to high price, attract competition high price will allow to survive the new entrant and the it leads to again competition. So, whenever there is a super normal profit; if they are getting super normal profit it's always the because of high price which attracts the competition and high price will allow to survive the new entrant and that will lead to competition.

So, to retain the monopoly power generally the firm they charge a low price where they get only the normal profit and the low price also serve as a entry barrier for the new firm. Then we will just take a numerical to understand that how in the long run the price and output is decided and also the profit.

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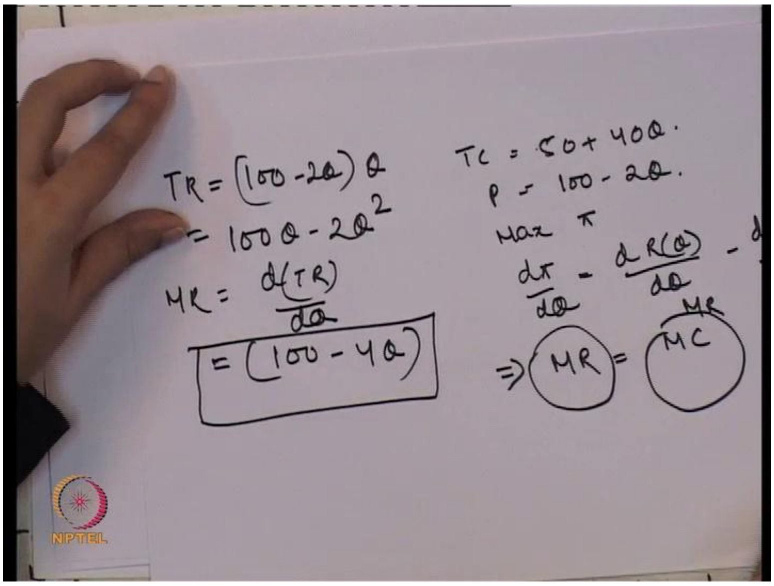

So, here we take the total cost that is 50 plus 40 Q. We will take the demand curve that is hundred minus 2Q, we need to maximize the profit and for that we will find out the d pi by d Q which in turn this is d R Q with respect to d Q minus d C Q with respect to d Q.

Now, marginal revenue is equal to marginal cost. So, if you know from here because this is marginal revenue this is marginal cost. If this is equal to 0 then marginal revenue is equal to marginal cost. We will find out now the marginal revenue and we will find out now the marginal cost. What is total revenue? Total revenue is 100 minus 2 Q multiplied by Q. So, that comes to hundred Q minus 2 Q square and marginal revenue is d T R with respect to Q. So, this becomes 100 minus 4 Q. This is the value of the marginal revenue.

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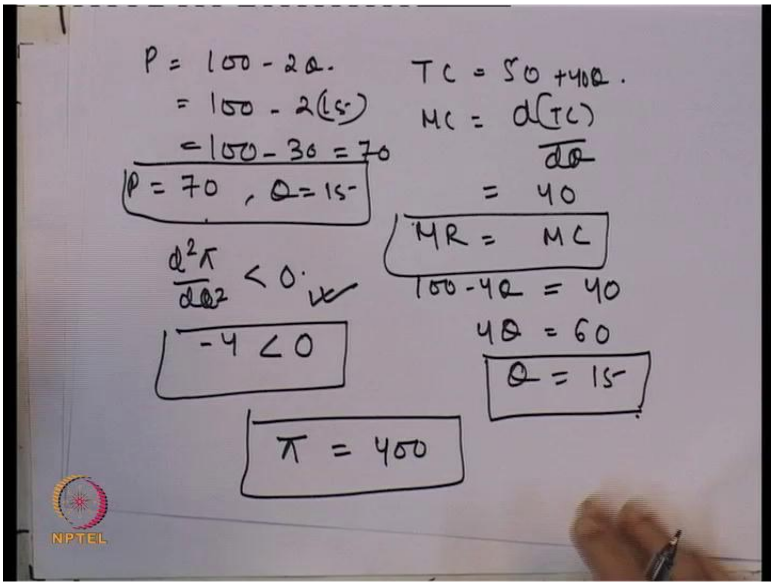

Then we will find the marginal cost; and how we can find out the marginal cost? That is again through the taking the derivative from the total cost function with respect to the with respect to the Q. So, we have total cost function that is 50 plus 40 Q and marginal cost is d T C with respect to Q. So, that becomes 40. So, we have now we will find out find out the quantity. So, marginal revenue is 100 minus four Q M C is equal to 40 and if you simplify this then this is 4 q is equal to 60 and Q is equal to 15

Now, from here we can find out the value of P. How we will find out the value of P P is equal to 100 minus 2 Q. So, that comes to 100 minus 250. That is 100 minus 30. That is seventy. So, P is equal to 70 Q is equal to 15. Now, we will see because this is the first order condition will see whether the second order second order condition gets fulfilled or not.

So, second order condition is d square pi d Q square should be less than 0. So, in this case if you look at what is the, what is the second order derivative of this, if we look at this is minus four; if you solve this is we get minus four which is less than 0. So, second order condition also get fulfilled and with this value of P 70 is Q is 15. We get the value of profit, which is equal to 400. So, this is how generally we solve the numerical when it comes to whether short run or long run. We equalize that with a, we check whether both the conditions get fulfilled or not and from the first order condition we get the value of Q and P. We put the value in the Q revenue function and cost function in order to get the profit. So, we will stop here today. In the next section, we will discuss about the supply curve of the monopoly firm. How the measurement of the monopoly power is done. Generally how the multi plant firms they function? Or how the price output determination is done in the multi plant firm? And we will do a comparative assessment between the monopoly firm and the perfect competitive firm.