Foundation Course in Managerial Economics
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Lecture - 37
Difference between Market Outcomes

Welcome back to our discussion on oligopoly. We in the previous module we took an example and we saw what are the different outcomes if the firms behave in different ways. So if the firm behaved like a perfectly competitive firm they would be earning zero profit. Then we went on to see what would be the monopoly output in case of a situation where we have the demand schedule, we have the cost, and we have the profits and we clearly saw what the monopoly outcome was and we discussed why it is difficult for oligopoly firms to settle at the monopoly output and monopoly price in a oligopolistic market.

When there are more than one firms there each firm acting on its own self-interest they end up producing more output than the monopoly output. So this is what we saw in the earlier module and this is a very short module where we are going to just extend that discussion and see compare the different outputs.

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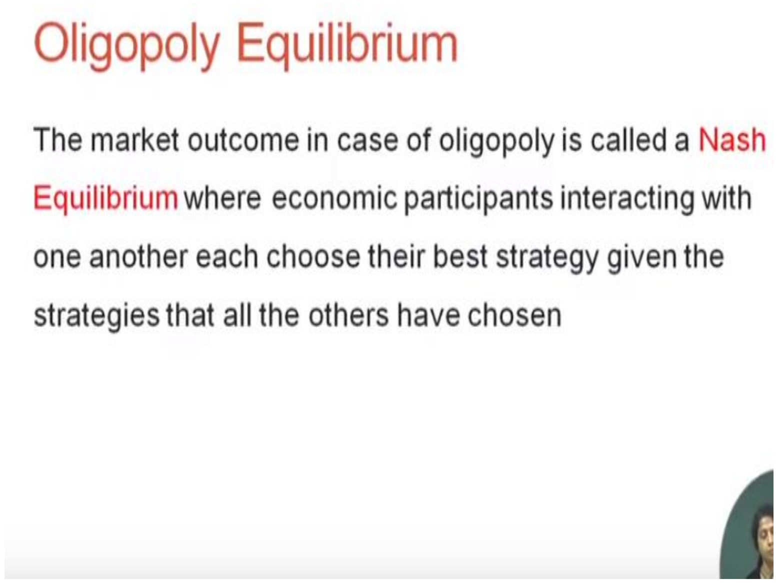

So oligopoly equilibrium is the market outcome in case of oligopoly is called a Nash equilibrium where economic participants interacting with one another each choose their best strategy given the strategies that all the others have chosen. So the market equilibrium in case of so as we saw in the earlier example we took the earlier example and in the earlier example we saw that the firms do not settle at the monopoly outcome. Although the monopoly outcome gives them the higher level of profit or the highest level of profit, they do not stick to the monopoly outcome and what they do is they move on to produce more output ending up at a market equilibrium where from where they do not have any incentive to move away from.

So they end up each of the firms ended up producing 40 units of output instead of 30 units of output and each of the firms ended up getting a profit of Rs 800 against the monopoly profit level of Rs 900 for each of the firms had they stuck to the monopoly output of total 60 units and 30 units by each of the firms.

So this situation or this outcome this equilibrium is called a Nash equilibrium where the participants basically when they interact with each other they know that each of the firms they know what the rival is probably going to do or what the rival is going to do and accordingly they change their decision output producing decision like in the example that we took earlier.

Each of the firms although they agree amongst themselves that each of us is going to produce 30 units yet each of the firms once they know that the other firm is going to produce 30 units it is best for them to produce 40 units and secondly worse is if the firm distrust the rival or distrust the other firm and thinks that the other firm is going to break the agreement then also it makes sense for this firm to change its output level from 30 to 40 units.

So given the situation or given the strategy that has been chosen by the by its rival it is in the best interest of the firm to produce 40 units. Hence production or output of 40 units by each of the firms in the in our example was a Nash equilibrium and neither of the firms is going to move away from that output level of 40 units.

So this is called Nash equilibrium where economic participants interact with one another and they choose their best strategy given the strategies that all the others have chosen.

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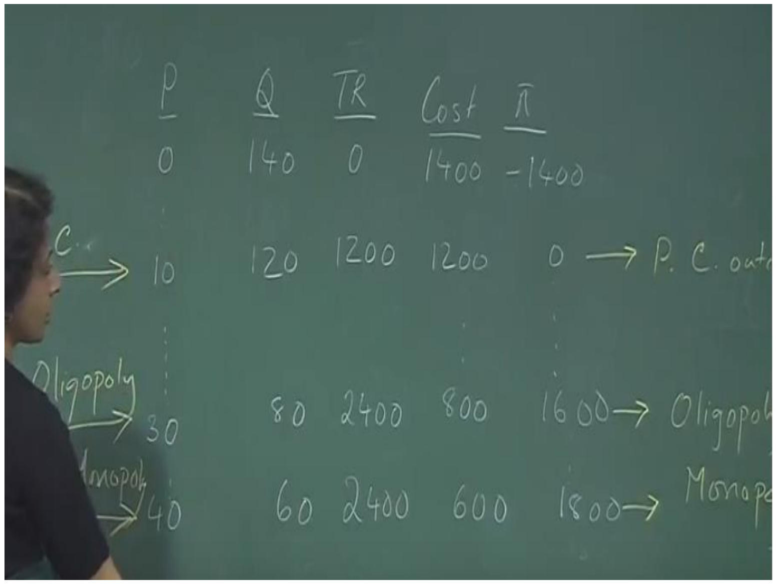

So from our discussion so far we know that the market outcomes are such that competitive outcome we already saw in our example if you have if you have taken down the examples if you remember the so I am just going to write the so we had a price series here, a output series here. The first point was 0, 140, 0, 1400, and -1400. So then we had then 10, 120, 1200, 1200, and 0. Then 30, 80, 2400, 800, and 1600 and 40, 60, 2400, 600, and 1800.

So I have not filled up the other figures but these are just for interest and we saw this was the perfect competition this was the perfectly competitive outcome. Our oligopolistic outcome came out to be here. This was oligopoly and the final one this one was so this one was monopoly price. This one was oligopoly outcome and this was perfectly competitive outcome.

So as we see here the output is output in case of competition is highest 120 is more than 80 which is the oligopoly outcome and monopoly outcome is output is 60 which is lowest and the price is just the reverse and similarly in case of profit also competitive profit is 0. Oligopoly profit is 1600 and monopoly profit is 1800.

So these are the situations which so these are the differences in outcome between different when the firms behave as a as competitive firms or monopoly firms or oligopoly firms.

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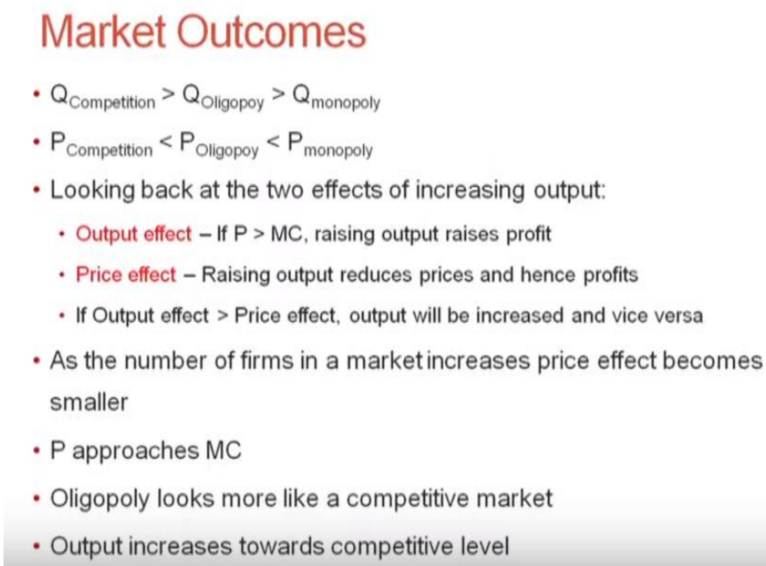

So price in case of competition is lowest. In case of oligopoly is slightly higher and in case of monopoly it is highest. Now just why does that happen. So it is basically what we mean here is in each of these firms or each of these market structures of competition, oligopoly, and monopoly the difference is very broadly speaking the difference is in the number of sellers who are operating in the market.

So the number of sellers who can actually be present in the market that is that is a that results from the nature of the output that is being produced in these kinds of markets which we discussed initially when we talked about market structure but finally what price to charge and what output to produce that basically comes from the interaction between all these firms in the market.

So higher the number of firms there is more competition in the market and price is lower and output is higher and profit is lower. So that is where it boils down to at the end of the day. So that is where it boils down to and although we have theoretically developed various models of competition, monopoly, monopolistic competition, and oligopoly and we have tried to make distinctions between the different kinds of market structures and hence develop theoretical models. We have drawn diagrams with demand curve, marginal cost etc. and seen what the firm's equilibrium output is going to be.

But in reality in the real world there is the demarcation between the market structure for different firms is quite grey. It is not in black and white that one firm is really a oligopolistic firm or is it a monopolistic competition or even if there are few firms more than one firm in the market yet they can behave like a monopoly. So all these sorts of situations are possible in a market. So finally it all boils down to how many firms are operating in the market and how they can decide their strategy, what is possible for them to do and what is not possible for them to do.

So to look at the outcomes in a different way, let us look back at the 2 effects of increasing output. If you may remember when we had introduced the negatively sloping demand curve in case of monopoly if you remember in case of perfect competition the demand curve facing the firm is horizontal. So the firm knows that it can sell as many units of output as possible at that given price.

But in case of the monopoly and monopolistic competition and any firm which had some amount of market power was facing a negatively sloping demand curve and when we introduced the negatively sloping demand curve we discussed about the 2 effects. We said there was this output effect and there was this price effect. So let me let us see what they were.

So looking back at the 2 effects of increasing output, one was the output effect that is if price is more than marginal cost raising output raises profit. Price effect was raising output reduces prices and hence profits. So if output effect is more than price effect, output will be increased and vice versa.

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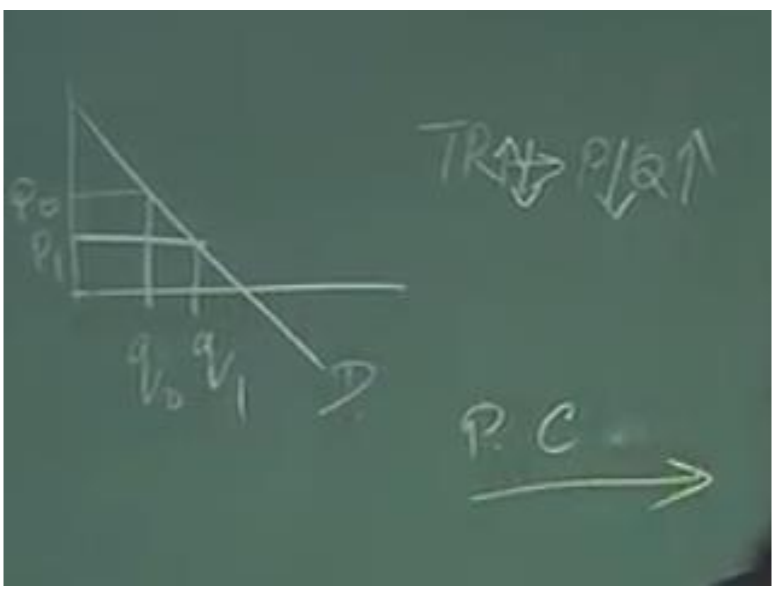

So basically going back to the price effect and output effect if you may if you remember we discussed that when the a firm facing a negatively sloping demand curve or a firm facing a negatively sloping demand curve and if this is the so for a firm facing a negatively sloping demand curve if the firm increases output there are 2 effects.

One is the increase in output from q 0 to q 1 which raises the total revenue by increasing the Q component here. But at the same time when the Q component increases price falls to P 1. So price falls to P 1. So TR when P when q increases there is a increasing impact on TR because of Q rising and as Q rises P falls to P 1 and hence there is a downward impact on revenue and hence profit also. So both these effects work in work together.

So there is a output effect and there is a price effect. In what situation is output going to be increased? Now output is going to be increased if the output effect is stronger than the price effect. So output will be increased or the firm it would be the interest of the firm to raise the output if this effect is more than this effect. So if the output increase effect is more then it makes sense for the firm to raise the output.

So keeping that in mind in what situation do the firms actually increase the output? So as the number of firms in a market increases, price effect becomes smaller. So as the number of firms in a market increases price effect becomes smaller and hence P approaches marginal cost. As more and more firms enter the market so the output effect becomes stronger so it makes sense for the firms to increase so as more and more firms enter the market the output the amount of output goes up and it makes sense for the firms to increase output and price gradually approaches marginal cost.

So when that happens as price moves more and more towards marginal cost and output keeps on increasing because more firms have entered the market oligopoly looks more like a competitive market. So oligopoly then starts looking like a competitive market. So output increases towards competitive level. So when more and more firms enter the market then the output becomes bigger and bigger and price comes closer and closer to marginal cost and hence the oligopoly market outcome looks moves more towards competitive outcome.

So that is what happens and so another way of thinking about it is imagine that there were instead of 2 firms there were 3 firms. If there were 3 firms you would see that if you could do it as a exercise actually that instead of 2 firms had there been 3 firms what would they do in that case. If had there been 3 firms so the monopoly output would be 1800 and they would be splitting it up amongst themselves so they would be producing 20 units each.

So you can keep on increasing the number of units and each firm when they break the promise and they increase the output they end up producing output which is more than 80 units. So as more and more firms enter this market this quantity is going to move say when it when from instead of 1 firm when there are 2 firms there is 80 units.

As they move as more and more firms enter the market this output keeps on increasing and in the extreme situation if there are whole lot of firms in the market they might end up producing almost close to this level of output. So that is the intuition behind it and that is the intuition behind it that in case of a oligopolistic market framework as more and more firms enter the market the divide between oligopoly and monopoly that becomes broader, wider and oligopoly market starts looking more and more like a competitive market.

Now this is this outcome could be compared or this outcome could be compared to the case of trade between countries to the benefits of trade between countries. How so? Say for example there is a closed economy, there is a closed economy which has only a few manufacturers. Let us take the example of the car manufacturing industry. So let us take the example of cars and say there is say each of the country say taking the example of say US.

Now imagine that US has only 2 firms which manufacture cars. One is the Ford other is the General Motors. Now Ford and GM they together so they form a duopoly within the market setup in the US and they are catering to all the car requirements of the country. In that case they will end up somewhere here. They will end up producing number of cars which is similar to or commensurate with this kind of outcomes, slightly more than monopoly but less than competitive output.

Again, say Japan, Japan has 2 car manufacturers of its own say Toyota and Honda. So they also in their country if they are not allowed to trade. If Japan is does not trade they also end up with only 2 firms within their country and they also produce less amount of output and again say Germany has BMW and Mercedes and they do not trade with any other country.

Now instead imagine that now these countries open up so each of these country say US now has instead of 2 car manufacturing companies they now have 6 car manufacturing companies. So they now have 2 of their own, they have 2 Japanese companies and 2 German companies who manufacture cars for their domestic market.

So as soon as the oligopoly market becomes bigger with instead of 2 firms they now have 6 firms in the market and they again they behave like a oligopoly and they are going to behave and make their decisions exactly like this and they will also not be probably be able to collude and they are not going to settle at this equilibrium but they will end up producing instead of this equilibrium their output will be bigger because each of the firm defaults on the agreement and each of the firm ends up producing more.

So the net result is the total output in the market goes up many folds. As the total output in the market goes up many folds price approaches this competitive price and output approaches this competitive output. It may not be reaching the competitive price and output is unrealistic but at least it will be close. It will be much away from the monopoly equilibrium and it will be closer to competitive equilibrium.

So hence we see from these illustrations why it is important for a market to have a large number of firms. Why it is important for the government to see to it that there are no artificial entry restrictions or entry barriers for different companies. So to create a competitive setup a competitive environment in any market is desirable because as the market becomes larger and larger with large number of producers the final outcomes comes closer and closer to the competitive outcome which is the most efficient and which has the highest amount of welfare maximization possible in a economy.

So as you have more and more firms entering the market price goes down for the customers, for the consumers and quantity goes up for the consumers so they have a whole lot of choices available in the market so hence market outcome in case of a market outcome a perfectly competitive outcome, perfectly is something perfectly competitive although is unrealistic but at least competitive outcome is something which the markets and the government needs to need to strive for because of the betterment of consumption for all the consumers and it improves competition and it improves efficiency of production also because as price gets closer and closer to marginal cost the cost of producing the last unit of output becomes closer and closer to the price that the consumers are willing to pay for that unit of output which is a efficient outcome.

So that is a discussion about the comparison between oligopoly and other kinds of market structures and finally we have seen how the different market structures are very similar to each other.

The only difference being the change in the number of producers operating in the market and in the following module we are going to discuss about game theory because so far in case of oligopoly we have said that it is more about strategy of the firms deciding how to act depending on how the rivals are going to respond. So we are going to try to understand the decision making process of different firms through game theory in our next module. Thank you.