Foundation Course in Managerial Economics

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Lecture - 34
Oligopoly

Hello and welcome back to the course on foundation Course in Managerial Economics. We have completed our discussion on different forms of market structure like perfect competition, monopoly, and monopolistic competition and now we are going to take up the model for oligopoly.

So far we started with the most simplest case of perfect competition where basically the market determines the price and none of the stakeholders have any influence on price. That is they cannot increase or decrease the price and they have to take the price for granted.

They have to take the price as exogenously given by the market and decide only on how much output to sell in the market which again depends on their cost structure and on the other extreme we have discussed about monopoly where there is only firm and this firm basically caters to the entire market and hence has a lot of control over price and quantity and the monopoly the monopolist basically faces the market demand curve and hence it maximizes its profit and decides the price accordingly.

And in between the 2 cases we have talked about monopolistic competition which has a lot of buyers because of which the buyers do not have too much influence of price yet the buyers try to differentiate their product and hence they face a product specific negatively sloping demand curve that is they face consumers who consume their differentiated products which the producer is supplying in the market and they know that the products are not exactly unique.

They have some differentiation from other products available in the market yet if prices are too high consumers can shift or change their preferences or their choices .or tastes and move to other firms or other producers in the market. So hence the monopolistic competition also has very limited control over prices and they have to be they have to constantly differentiate they try to differentiate their product in the eyes of the consumers to stay in business.

So these were the 3 different kinds of market structures which we have discussed so far and today we are going to start our lessons on oligopoly. So let us move on and see what are the questions that we are going to address in this when we cover this chapter on oligopoly.

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Questions we address here:

- What is an oligopoly?
- What does the market outcome look like in oligopoly?
- Can the few firms in a oligopoly cooperate and behave like a monopoly?
- How do competition laws prevent anti competitive behaviour?

So the questions we address here are what is an oligopoly. What does the market outcome look like in oligopoly? Can the firms in oligopoly cooperate and behave like a monopoly and how do competition laws prevent anti-competitive behaviour in a oligopolistic market structure. So once we have defined oligopoly we are going to see we are going to try to find out if there is any unique price or price and output combination which brings the market into equilibrium because we have been able to determine price and quantity on the basis of profit maximization objective of the firm in the other cases of market structures that we have discussed so far.

In case of perfect competition we know the P and Q, the definite P and Q produced by each firm and eventually what is supplied in the industry we have seen it is a horizontal supply curve.

And in the case of monopoly we have been able to arrive at a specific combination of price and Q which maximizes the profit of the monopolist and in case of monopolistic competition also there are combinations of P and Q for each of the firms which brings the market into equilibrium so that in the market in the long run none of the firms is actually making any positive economic profit.

They make a economic profit equal to zero, not negative because if there is a loss they are going to leave the market but nevertheless the economic profit is equal to zero in the long run in case of monopolistic competition and we know the price and quantity combination for each of the firms in case of monopolistic competition.

So the question that we are going to ask here in case of oligopoly after we understand what are the assumptions or how does the oligopolistic market structure look like, we are going to try to we are going to tread the similar path and see that if profit maximization is a goal of each of the firms do we have a unique combination of P and Q or not?

Then we are going to see that oligopoly in case of oligopoly there are few firms in the market unlike perfect competition and monopolistic competition there are few firms in the market so since thee are only few firms and the producers are likely to know who are the rivals who are or competitors who are their competitors who are operating in the market, is there any way that these few firms can tie up together?

They can come together and decide how much to produce, what price to charge, and I am sure when I asked this question some of you might have already understood that I am hinting towards a cartel formation. So if not then please be a little patient and we are going to discuss about cartel formation.

We are going to discuss about cooperation in case of oligopoly later and as many of us already probably known that cartel formation is illegal, that firms cannot firms are not allowed to collude in a market and decide prices to charge and so there are various competition laws which again we are going to discuss in details later and they prevent any anti-competitive behaviour so what happens when there is some law and what happens to what happens when there is a law to prevent collusion and the oligopolist firms what do they do in such situations. So we are going to discuss all these in details. So let us go to the next slide.

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Oligopoly

- Few firms
- Entry and exit is relatively difficult
- Each big enough to influence price
- But unlike monopoly, firms have to worry about their competitors

So this slide basically gives us the characteristics of a oligopoly market structure what happens in case of oligopoly market structures. In a oligopoly typically there are few firms. Entry and exit is relatively difficult which can be kind of inferred from the fact that few firms or few firms can be inferred from the fact that entry and exit is relatively difficult so that is the reason probably there are only a few firms in the market and each firm is big enough to influence price.

Now since there are only few firms in the market and they are basically catering to the entire market or they are catering to the entire demand that is existing in the market so each of the firms is big enough to influence price. So in real life example a very good example would be the automobile sector where there are few car manufacturers.

They come up with whole lot of models and they have a quite substantial control over the price that they are going to charge to the customer. So one might ask the question that in case of oligopoly are the products then differentiated because I had taken the example of differentiated, of cars when I try to explain about differentiated products in the earlier lectures.

So yes cars can be highly differentiated, even within a section of car like say SUVs. There can be whole lot of different models of SUVs with different kinds of features and accessories etc. So huge amount of product differentiation is possible yet the car manufacturing sector is such or the automobile sector is such that it is not very easy to enter the market and it is not very easy to exit the market also.

Lot of fixed cost is involved and lot of R&D is involved and to some extent reputation, brand name, advertising, these are also involved so once a company, a car company has been able to

establish itself in the market then only it can compete with other rivals in the market. So it is not so easy to do that in case of say cars.

So car is a very good example of oligopoly and on the other hand we have example in case of oligopoly we have the example of OPEC or Oil Producing and Exporting Countries who basically collude or cooperate or decide together how much what price to charge or how much amount or what quantity to produce. Each of the countries they decide what quantity to produce and together they decide what price to charge in the market.

So this is also an example of oligopoly where there are only few producers, these are producing countries rather than companies but they are producing a product which is which can be considered as highly homogenous. They are all oil, crude oil.

So it can be considered as homogenous. Yet it is not possible to enter this market so easily because you have to have the oil. You, unless you have the resource, if unless and until the country has the resource endowment it cannot enter this market. It is as simple as that. So there is a barrier to entry, entry in this market.

So unlike monopoly, firms have to worry about their competitors. This was the last point in the slide which basically means that in case of monopoly there is, entry and exit is difficult. There are there is only 1 firm and since there is only 1 firm and the product is unique or the entry and exit is really difficult so the monopoly can need not worry about any competitors and it can charge a profit maximizing price and it can eventually get a high, huge amount of profit in the long run.

But does that hold true for oligopoly or not? Because, one might think that if there are only a few firms in the market, if it is only the oil the countries which have oil, they are only catering to the entire demand for oil all over the world then they basically have lot of control over the market so they can exercise so they have a lot of control over the price as well and they can get away with earning a huge amount of profit.

Similarly, in the case of car manufacturers one might think that there are only a few companies which are producing cars and they are basically supplying to the entire market which has a huge demand for cars. Say imagine in India the demand for cars is exploding and there are only a few manufacturers who are basically coming up with whole lot of models to cater to different kinds of needs and tastes of customers in the country.

So in that case one might think that since each of the firms is catering to a whole lot of consumers it is possible for the firms to have a lot of control over the price or have a lot of market power and can stay at a very high level of price like a monopolist and continue to earn, enjoy profit in the long run. But does it happen that way in case of oligopoly? That is what we are going to study here.

And what we see the very preliminary discussion in this for this slide I am just going to say that also remember that it is although there are few firms but it is not a single firm. So since there are few firms in the market and they all know each other they know who all who else is producing cars or who else is producing oil.

So they also know they have pretty much good idea about the cost conditions of the rivals. They know what quality what quantity what they are producing, the rivals are producing and what kind of prices the rivals are charging. So unlike monopolistic competition where the firms do not bother to look at the what the rivals are doing because there are so many of them.

It is not possible to compete with all the other rivals in terms of so it is not possible in case of monopolistic competition to gather information about all your rivals and try to decide a price and quantity. So what every firm does in case of monopolistic competition is strive to retain its demand curve. It strives to retain its consumers by constantly product differentiation by constant advertisement etc. so that it can hold on to the demand curve or shift the demand curve to the right as much as possible and earn a decent profit and zero economic profit in the long run and decide on a price and quantity.

But in case of oligopoly it is very easy to find a have full information about your rival and know what your rival what price he is charging, what kind of cost he is operating on, what kind of product he is selling in the market. So every firm in that case they every firm utilizes this information. Every firm is going to utilize the information and try to beat its rivals in terms in making profit.

It will try to capture as much part of the market as possible to increase its profit or whatever its objective is in the market. The objective could be anything could be something other than profit maximization also but nevertheless the point here is in case of oligopoly the oligopolistic firm basically tries to be it is always abreast with the with information about its rivals what the rival is doing and it also knows that the rival also has keeps an keeps a watch on the firm itself and they

are also going to change keep changing their price and quantity decision according to the actions of the of its other rivals.

So all the firms take this information into account and they decide on the price and quantity. So as a result in case of oligopoly determining the price and quantity becomes a little more tricky. It becomes a little more complicated than in the case of other market structures where it is a simple profit maximization of MC is equal to MR and one gets the combination of P and Q if the demand curve is known. But in case of oligopoly it is not as simple as that. So let us proceed and see.

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How few is few?

- Measured by market concentration
- Concentration ratio: the percentage of a market's total output produced by its four largest firms
- Rule of thumb:
  - Low concentration- 0% to 50% (perfect competition to oligopoly)
  - Medium concentration – 50% to 80% (likely to be an oligopoly)
  - High concentration – 80% to 100% (Oligopoly to monopoly)
- One firm Concentration Ratio of 100% implies a monopoly

So before we move on we have defined oligopolistic market as having few firms. Now the question is how few is few? Is it like 3 firms, 4 firms, 6 firms, 10 firms? So how few is few is produced by top few firms in the industry. So this is a typical measure, is the concentration ratio which is the percentage of a market's total output produced by its four largest firms.

Now the rule of thumb is low concentration implies this concentration ratio 0% to 50% which happens in the case of say perfect competition to oligopoly. It can it this could be applicable, 0% or close to 0% would be a perfect competition and 50% it could be a oligopoly also. It could be oligopoly also where the 50% is maybe shared by 2 or 3 firms and the rest 50% is basically produced by whole lot of other firms. So that could also be a oligopoly.

And medium concentration is basically 50% to 80% which is likely to be an oligopoly if the top 4 largest firms are producing 50% to as high as 80% of the total output of the industry this

market is likely to be an oligopoly and very high concentration is 80% to 100% which could range from oligopoly to monopoly.

So if it is like 100% then it is almost like a monopoly and the monopoly that we have defined in the case of when we discussed monopoly we said it is a single firm and if it is a one firm monopoly then it that case one firm concentration ratio of 100% implies a monopoly. That is it implies that 100% of output of the market is being produced by one single firm in the market.

So this is how this this is to just to give you an idea about how few is few. Now moving on to the market outcome in case of oligopoly. So the next question once we have understood what a oligopoly market structure basically looks like then the next obvious interest is to know what is the market outcome. What is the price and the Q that in case of oligopoly.

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Market outcome in Oligopoly

- Firms objective is profit maximization
- Yet, there can be several market outcomes of P and Q
- This is because a firm's decision about P and Q can affect other firm's choice of their P and Q.
- Hence all firms take this fact into consideration and choose their P and Q accordingly
- Game Theory helps us to understand a firm's strategy in such a situation

So as in other cases we are going to assume that the firm's objective is profit maximization. So yet there can be several market outcomes of P and Q. This is because a firm's decision about P and Q can affect other firm's choice of their P and Q. Hence all firms take this fact into consideration and choose their P and Q accordingly and game theory helps us to understand a firm's strategy in such a situation.

Now going to again to explain what we mean by each of these points in the in this slide like as I already said in the other kinds of market structures there is a profit maximization rule of equating marginal revenue to marginal cost and you get a combination of P and Q whether it is perfect competition, whether it is monopoly, whether it is monopolistic competition.

But in case of oligopoly, MR is equal to MC if a firm just sticks to that principle and decides its P and Q. It also knows that once it decides its P and Q its rivals are going to see the P and Q that this firm has settled for and they may decide their P and Q in such a way to capture as much part of the market as possible. This could be one example.

Say for example one firm decides that I am going to charge a price of 100 Rs and I am producing say 100 units and once this firm has decided this is the combination that I am going to stick to immediately the other firm whose objective is also to profit maximize he may see that if he reduces his price from 100 to say 80 he is going to get a lot of customers or lot of buyers are going to move from the first firm to this firm.

So it may then revive its price and accordingly and produce a output accordingly. So this is just an example because so this is so now the first firm he also knows that the second firm may behave this way and knowing this he has to decide how much price and price to charge and how much output to produce.

So hence although the objective may be profit maximization although we are going to discuss later that oligopoly firms may not always go for profit maximization in the short run and or profit maximization for the time being and they may decide to capture the market first and then go for profit maximization later once they have consolidated their position in the market.

So oligopoly firms, for oligopoly firms it is not so easy to decide what P to charge and output to produce. So that basically means that the decision making process of a oligopoly firm it involves making strategies, it involves making strategies taking into account the actions of the rivals.

So in that case it is very similar to game to a game like for example if you are playing chess or you are playing cards what move you are going to make on the chess board; you not only make your move but you also think about the following moves that your rival may make in response to your move and what you are going to do then once the rival makes that move.

So taking into consideration all the series of moves that are possible from your rivals eventually, you make your strategy on how to start your game or what to do, what your moves should be. So it is so in case of oligopoly also the decision making process is very similar to a game. The decision making process becomes very similar to a game and we are going to use the game theory to understand a firm's strategy in such a situation. So we are going to do game theory later.

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From our understanding of market models so far…

- Potential for profit would be high as firms can fix a price higher than perfect competition or monopolistic competition since there are only few firms in the industry
- Firms will be able to maintain Profit > 0 in the long run as barriers to entry is high
- Yet, firms keep watch on their rival's actions - like raising (or lowering) price or output - and plan their strategy accordingly

So from our understanding of market module so far one might think that the potential for profit would be high as firms can fix a price higher than perfect competition or monopolistic competition since there are only few firms in the industry. Firms will be able to maintain profit greater than 0 in the long run as barrier to entry is high.

So these points I am making on the basis of what we understand about market structures so far. Yet firms keep watch on their rival's actions like raising or lowering price or output and plan their strategy accordingly. So this is our understanding from our this is our understanding about market models and we know that since there are only a few firms and they.

So basically the firms are probably facing negatively sloping demand curve we are going to develop look at the demand curve in details in the next following module and firms will be able to earn profit and probably they will be able to continue earning profit in the long run unlike monopolistic competition because there is barrier to entry is high. They know that more firms are not going to enter the market; so, that they know.

So yet although they are earning profits they are going to keep on keep a watch on their rival's actions like raising or lowering prices or output and accordingly they are going to make their strategy of whether to raise price or lower price or raise the quantity of output that they are producing or lower the quantity of output so these decisions will be dependent on the decision of their rivals also. So we will be doing or developing models to understand these actions more clearly in the following modules. Thank you.