Managerial Economics
Prof. Trupti Mishra
S.J.M School of Management
Indian Institute of Technology, Bombay

Lecture - 49
Perfect Competition

So, we will continue our discussion on market structure. So, if you remember in the last class we were talking about the different kind of market structure, and how the classification is being done in order to understand the different kind of market. One is the substitution, the ease of entry and second is again the; what is the nature of competition. So, there are three parameters on the on that basis generally the markets are divided into different form, and from that if we remember the classification, we start with perfect competition. Then we come to monopoly; a perfect competition and monopoly two extent form of market structure, and in between this monopolistic and oligopoly market structure comes.

So, we will start our discussion with a detail on particular market structure, and today we will talk about the market that is talks about the perfect competition. Its name suggest this is perfect competition, but we will check that whether it really, there is a perfect competition or there is any kind of competition between this firm in this typical type of the market structure.

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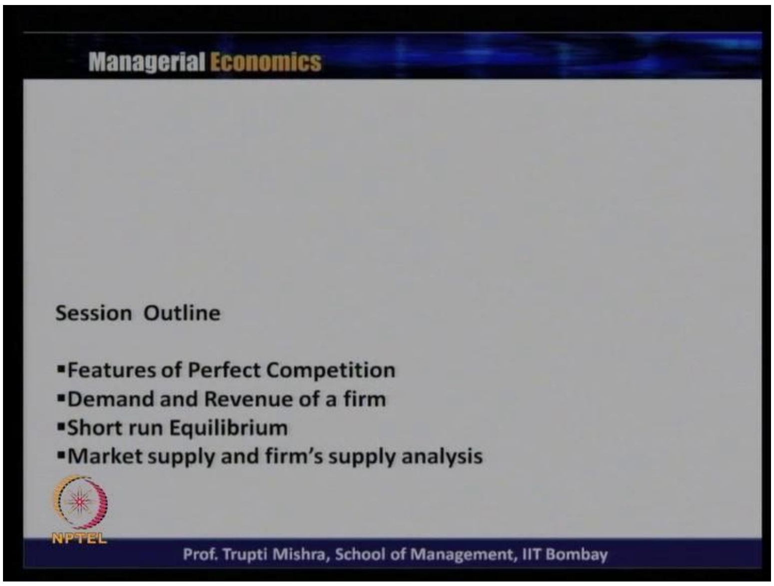

So, today our focus of our session will be on features of perfect competition; what are the characteristic or feature of perfect competition. Then we will see how the demand and revenue of a firm under perfect competitive market structure, then we will talk about the short turn equilibrium the price output determination, whether the in the short turn the firm is getting loss the firm is incurring profit or the firm is just getting the normal profit.

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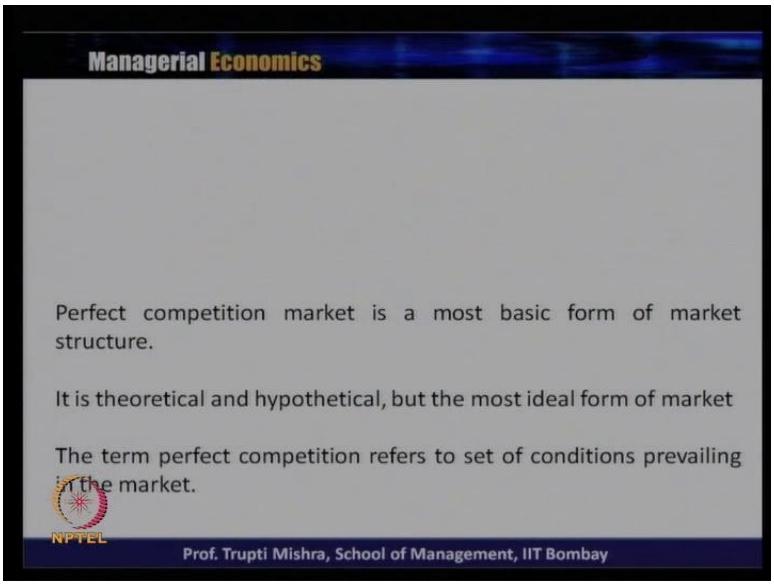

Then we will talk about the market supply and specific firm supply analysis, keeping the cost function or the cost analysis in the background. So, to start with perfect competition if we look at this is the most basic form of the market structure; it is theoretical and hypothetical, but the most ideal form of the market. So, may be this is the very basic form of market structure. It sounds theoretical, its looks hypothetical, but this is the most ideal form of the market. And why it is ideal may be when we look at the characteristic, when we look at the feature its suites both the supplier and both to the buyers and the consumer and that's why it called as the ideal form the market.

But when it comes to the implementation and applicability of the such type of market structure there is a difficulty and that is why if you look at there is no much relevance, like close relevance of this perfect competitive market structure in the real life, except in few cases the term perfect competition refers to the set of condition prevailing in the market. So, perfect competition market structure on the set of condition that prevailing in the market and this that basically how the buyers and how the sellers they behave in the market.

So, as it the name suggest and as we discussed also before couple of minute that perfect competition, if you look at the name suggest that it is a perfectly competitive market and all the come, all the firms they compete with each other, but contrary to that there is a fact that in case of perfect competitive market structure, there is complete absence of rivalry among the individual firms. So, it is not perfect competition it is about rather the absence of the rivalry or absence of competition among the individual firm.

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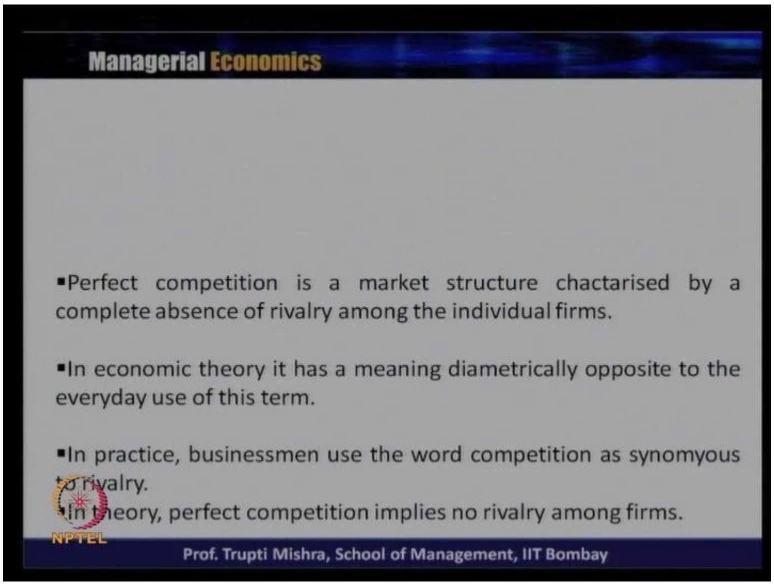

So, in economic theory it has a meaning that is diametrically opposite to the everyday use of this term. So, when you talk about perfect competition, in really if you look at, in reality this there should be the competition should be perfect, but if you look at there is complete absence of competition in the market. So, when it takes this case into the economic theory the meaning of the perfect competition is a diametrically opposite to the everyday use in this, everyday use of this term.

So, in practice businessmen use the word competition as the synonymous for the rivalry. So, competition and rivalry use as a synonym, in practice and businessmen generally use this word. But when it comes to the theory of market when you talk about the theory of the market structure perfect competition implies no rivalry among the firm, there is complete absence of competition among the firms and there is no rivalry no competition in this kind of the market structure.

So, the name if you look at that call tells perfect competition, but the reality the characteristic of the perfect competitive market says that, there is absence of the competition, there is no competition at all in this form of the market. Now, we will talk about the characteristic of a perfect competitive, what is, what are the characteristics of a perfect competitive market.

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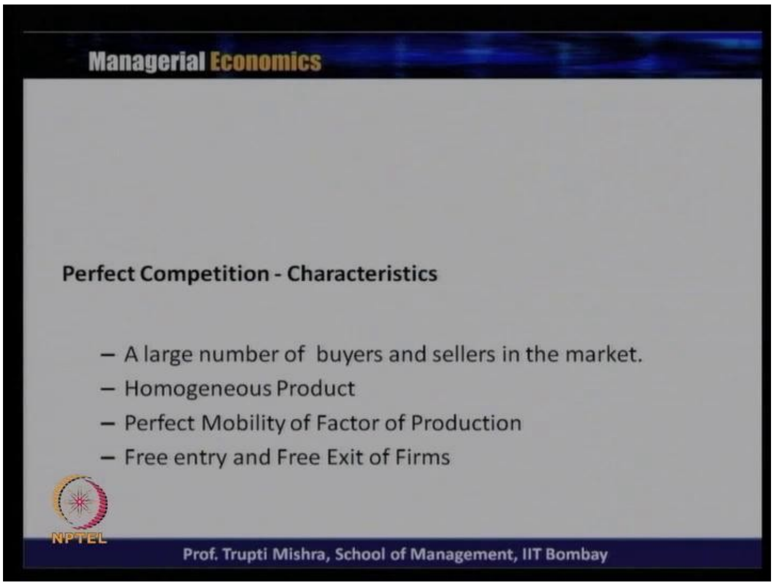

The first and the foremost characteristic of a perfect competitive market is; there are large number of buyers and sellers in the market. There are many firms who are producing the product in the market. There are many sellers, many consumers to buy the product. So, there are large numbers of buyers for the product and there is also large number of sellers of the product. So, in the background there are also large number of producer of the product because that leads to the again to the large number of sellers of the product.

So, either you call it large number of consumer or producer or you can call it large number of buyers and sellers in the market. The second characteristic of perfect competition says that, it is a homogeneous product. Its homogenous the meaning of homogeneous is that it uniform product all the firms they produce uniform. So, uniform products in case of a perfect competitive market. So, the products are not different from each other on the basis of the price, on the basis of quality or on the basis of the, may be any type of product differentiation.

So, homogeneous product is it should be an uniform product, but when you take this to the real world application whether, whether number of firms they can produce the same kind of product or may be the homogeneous product, may be the answer is somehow close to no, because that technology used by the firm is different; may be sometimes the raw material used by the firm is different, the skilled skill people involved in producing the product they are also different, may be the skill is same where the individual is different.

So, some amount of the difference is there between the one firms product to the other firm products, but as a whole it is a similar kind of product or its uniform kind of product and rather than uniform or homogeneous, we can call it that the similar product that is produced by all the firms in the market. But as theory says this is one of the characteristic of the perfect competitive market form that, it is a homogeneous product.

Then the third characteristic talks about perfect mobility of factor of production. It means there is no restriction on the factor of production, suppose you take the case in labor, the labor, they may the laborer may be one working in one firm they can move to the other firm they can move to the third firm and if possible they can again come back to the previous firm.

So, there is perfect mobility of factor of production and mainly here we talk about the labor input and they move from one firm to another firm to do the same kind of job or may be different kind of job, but the end result is again same. All the firms they are producing homogeneous product or all the firms they are producing the uniform or so called the similar product.

Then the fourth characteristic is, that is, free entry and free exit in the market. All the firms there is no entry fee, if we look at there is no entry fee, there is no restriction in entering to the market. Any one has the capability to produce and sell they will be there in the market from the supply side; anybody who has the capability to buy, they will be there in the market as the buyers. So, from the demand side if someone has the capability to buy the product, they generally there in the market there is free entry form them.

And similarly from the supply side also any producer or seller if they are ready to supply or they can ready to sell or they are ready to produce this should be there in the market because they have the capability to sell in the market, this is about the free entry.

Similarly, when it comes to free exit, there is no if you look, it is not any trapping or anything that stops the seller or the buyer to leave the market. If the sellers they feels that they are not getting profit in the market or they are or they are operating in the market, they are selling their product in the market and if they are not getting profit out of it, they will prefer to give the market and there is no restriction in exiting the market.
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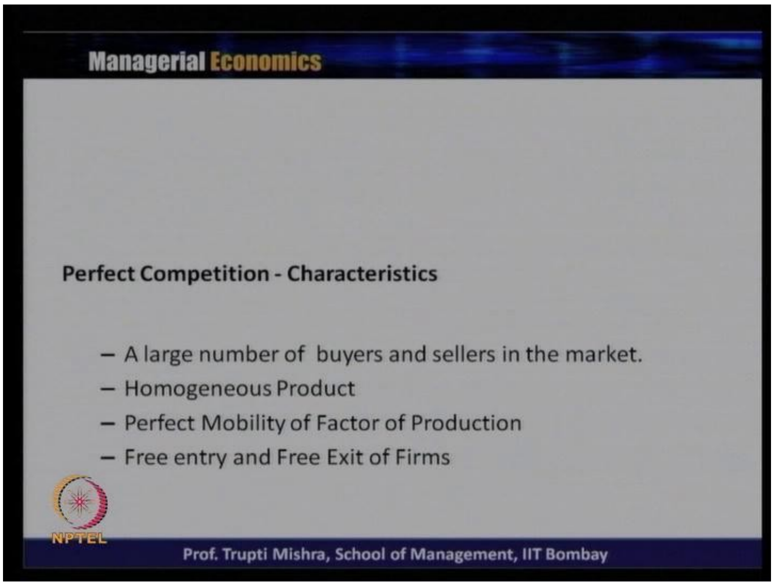

Similarly, for the buyer till the time they feel that the product is worth for them and they are getting it in a good market price. Generally, they operate in the market or they sell from the, they generally buy it from the market, but once they feel that the product is not worth buying or they do not require that product any more, they can always come out of the market of the market or they can always exit out of this market. So, if we look at there is no restriction in entering the market or there is no restriction also from coming out of this market.

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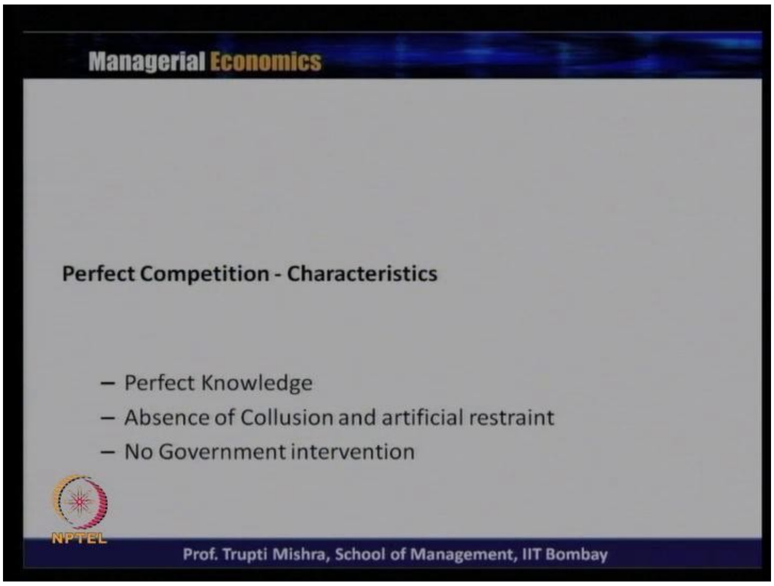

The fifth characteristic is perfect knowledge, and what is this perfect knowledge, we can reframe this as that, that all the buyers and sellers they have perfect information about the, or they have full information about the product, about the price and about the sellers from whom they are buying the product. Similarly, from the sellers from the sellers point of view also the full information about the price and they have full information about the product.

So, the one of the may be important characteristic of perfect competitive market is that, the buyers and sellers they have the full information about the price of the product, about the product, and in general what is the market condition, or what is the market how the market is doing, or as able how the what is the seller perspective, or what is the buyers perspective both the seller and buyers they have information about them.

Then there is absence of collusion and artificial restraint means, if you look at since all the firms they are producing the same product and there is absence of competition, somehow it may lead to the fact that they will collude and they will charge a higher price, which is not again a good sign for the market to grow because that way they will try to take charge a higher price and the buyer will be at the other end, and if all the firms they are producing the same product they the collusion power is also more, a strong over here.

So, there is still in case of a characteristic market even if all the firms they are producing the product, one of the characteristic of the perfect competitive market is that they will not get into the collusion or there is no form of any artificial restraint, or maybe there is no form of restraint, no form of control from the authority, or any kind of organization in the market. That is always the market forces, the supply forces and demand forces they decide as the, they decides the course of action regarding the price, regarding the product.

The last characteristic which talks about the how the market functions; whether there is a invention from the government, whether the authority gets into this or may be, whether who is who controls the demand forces and who controls the supply forces. The fact is that in case of perfect competitive market structure there is no government intervention at all. It is the demand forces, it is the supply forces; they decides the price they decides the quantity.

So, if you remember in one of our discussion when we were talking about the equilibrium, that supply and demand forces if the when the demand is equal to supply. Generally, that is the case we get the equilibrium and whenever there is a mismatch between the supply and demand, generally the buyers and the seller they among themselves, they again comes back to a situation which is again equilibrium, and how they comes back to a situation when again equilibrium either they control the demand forces or they control the supply forces.

So, in generally there is no intervention from government rather the buyers and seller among themselves, they decides the price they decides the output or may be the supply forces rather than saying buyers and seller the supply forces and demand forces they decides, what should be the price, what should be the output. And there is no form intervention it is like the invisible hand principle, as we talk about in case of a different kind of economy. So, in case of perfect competitive market structure it is a invisible hand principle that the market forces decides everything; what should be the price, what should be the product, and what should be the market condition.

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So, if you look at when you analyze or when you look at all the characteristic, perfect competition is an uncommon phenomenon in a real business world. However, the actual market that approximate to the condition of perfect competitive model; inclusive share market, securities and bond markets, local vegetable markets and agriculture of product market to name few.

So, it looks very uncommon when you talk about the characteristic that, there is free entry free exit or homogenous product, but somehow if you down the line if you can take out some of the restriction, if you can generalize some of it if you look, then in that case the actual market some of the actual market, they their feature or their characteristic closely resemble there is a resemblance with the perfect competitive market structure.

So, in case if you look the local vegetable market or the agricultural product market their product is not different from one other, not much different. Suppose, it is rice or a typical vegetable they just produce that vegetable, may be someone is of a good quality, someone is a bad quality, someone is small someone is large, but in general it is a similar kind of product. So, we will talk more about the application of the perfect competition, the real one the later part of the session, where we will see that whether a typical market fits to within the perfect competitive market.

But in general these are the market like agricultural product market, local vegetable market, share market bond and security market, they are somehow close to the, they have some feature which is similarity with the perfect competitive market structure. And if you look at even if it is uncommon still some form of market, still they adopt it and they call it is a perfect competitive form of a market. Okay.

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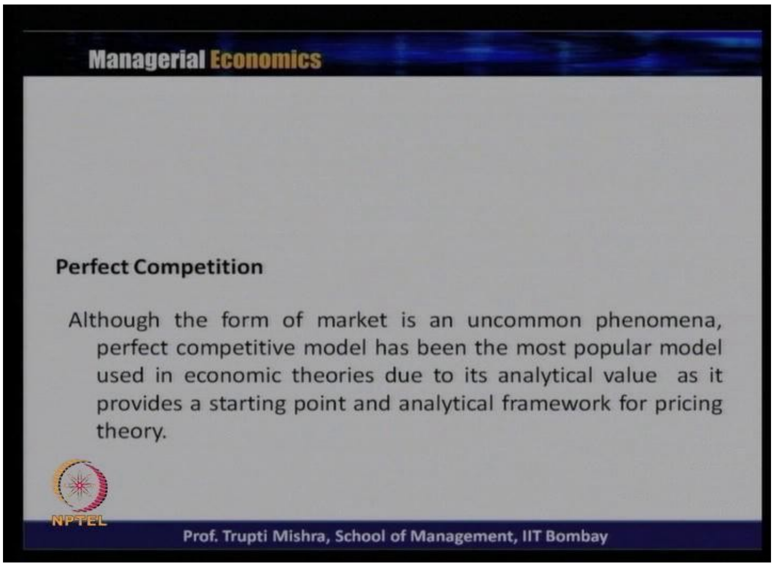

So, as we know this is a uncommon phenomena looks like from the characteristic as a whole this market form is a uncommon phenomenon, but as a whole when you talk about a perfect competitive model, that has been a popular model used in economic theory due to analytical value as it provide the starting point and analytical frame work for the pricing theory. So, if you look at may be from the characteristic point of view it is like very uncommon, but when it comes about the model that gets used in the perfect competitive market structure, that is, most popular model and sometime this serve as a base to them many of the other models and it is due to its analytical value as it provide the starting point and analytical frame work for the pricing theory.

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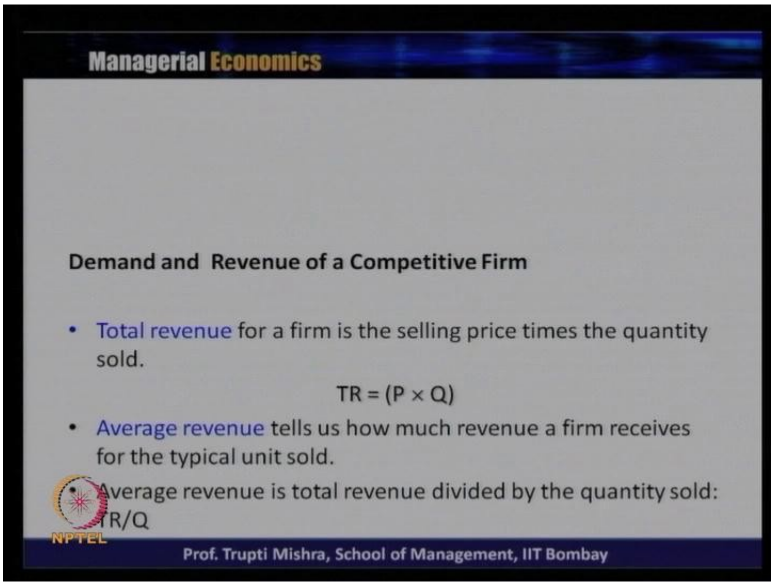

So, then we will talk about that how what is the demand and what is the revenue of a competitive firm or as a industry as a whole, or what should be the value of total revenue, how total revenue is calculated, what is the demand that will check for the typically competitive firm. So, we will take the revenue part first, and total revenue for a firm is selling price times the quantity of goods sold. So, total revenue is price multiplied by the quantity $(TR = P \times Q)$. If price is ten rupees and quantity sold that is hundred units total revenue will be thousand units because P is 10 and Q is 100.

So, total revenue is in the very simple manner its nothing but the total revenue or the total output what they total revenue, they get by selling the quantity that is produced by them or that is getting sold by them. Average revenue tells us how much revenue or firm receive for the typical unit sold. So, basically this is the average revenue that is revenue per unit of the output, and average revenue is the total revenue divided by the quantity sold, that is, $\frac{TR}{Q}$.

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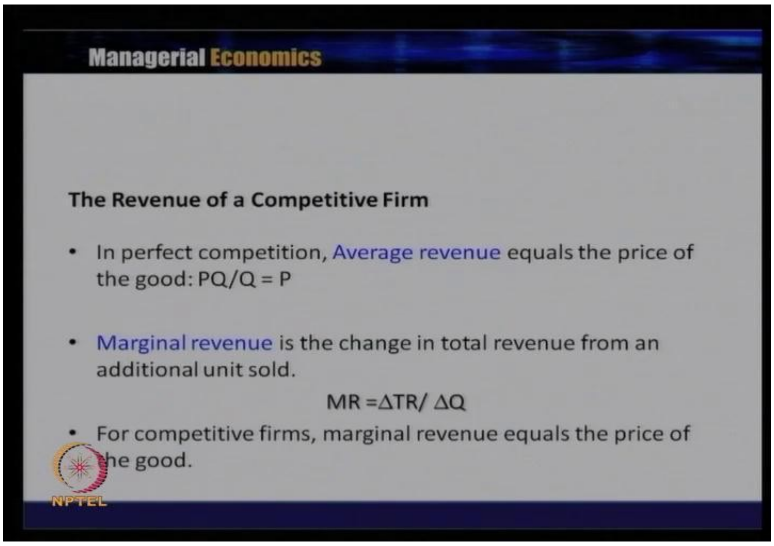

Then the revenue of the competitive firm, in perfect competition average revenue is equal to the price of the goods, that is, $\frac{PQ}{Q}$ which comes to P. And marginal revenue is the change in the total revenue from when additional unit sold, and for a competitive firm the marginal revenue equals the price of the goods. So, is you look at in case of perfect competitive market structure the price is equal to the average revenue which is also equal to the marginal revenue. There is no difference between the average revenue, marginal revenue and price, that we will check later again when we will take a numerical form, but for the time being. The understanding is in case of perfect competitive market structure the price is equal to average revenue which is equal to the marginal revenue.

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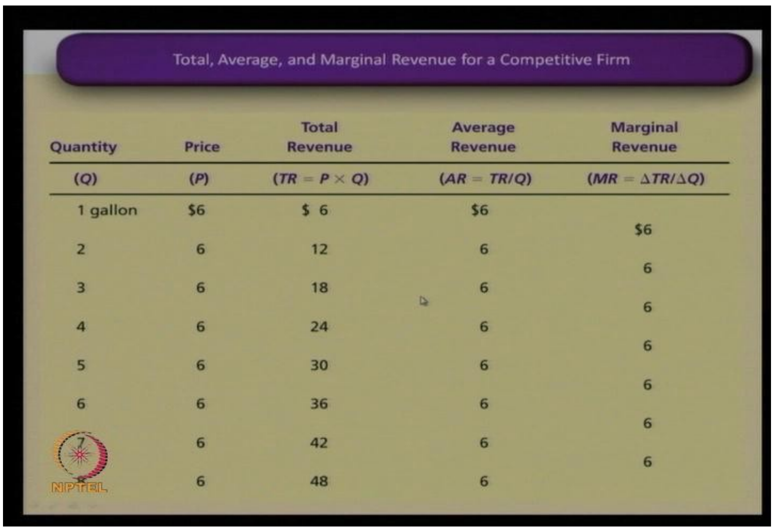
Total, Average, and Marginal Revenue for a Competitive Firm

Quantity (Q)	Price (P)	Total Revenue (TR = P × Q)	Average Revenue (AR = TR/Q)	Marginal Revenue (MR = ΔTR/ΔQ)
1 gallon	$6	$ 6	$6	
2	6	12	6	$6
3	6	18	6	6
4	6	24	6	6
5	6	30	6	6
6	6	36	6	6
7	6	42	6	6
8	6	48	6	6

So, this is the typical example that how we get the total revenue, average revenue and marginal revenue. Q is the quantity, the number of unit sold, P is the price and total revenue is nothing, but the price multiplied by quantity average revenue is, that is total revenue divided by Q they because this is the per unit revenue and marginal revenue is the change in the total revenue with respect to change in the Q.

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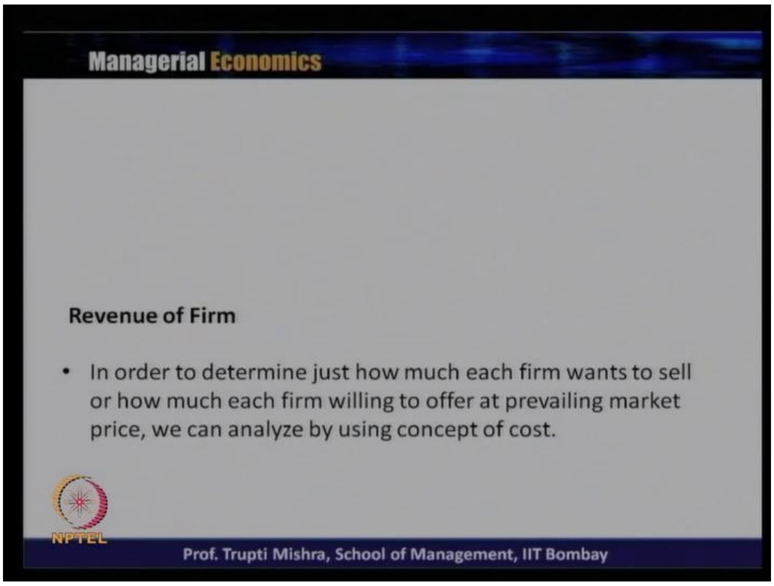

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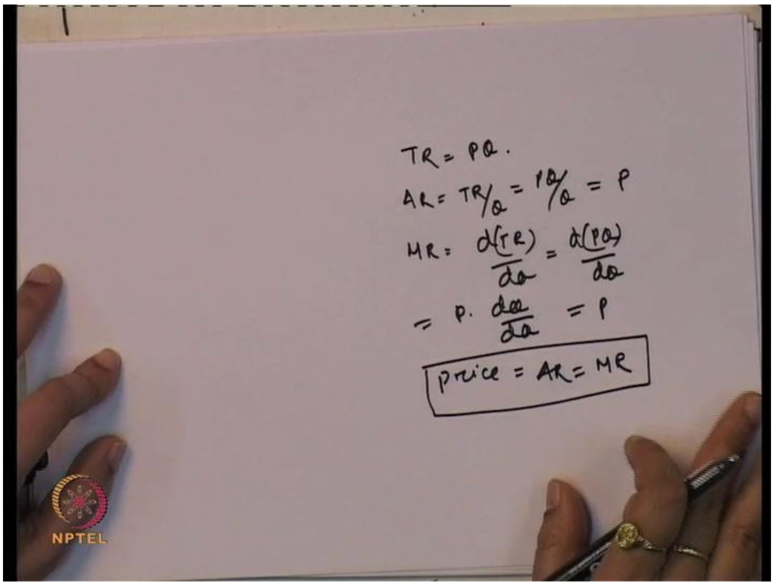

So, if you take that why this P is equal to average, P is equal to average revenue which is equal to marginal revenue. Suppose, total revenue is equal to $TR = PQ$, then average revenue is total revenue by Q $AR = \frac{TR}{Q}$. So, this is $AR = \frac{PQ}{Q} = P$and this comes as P, and similarly marginal revenue is $MR = \frac{d(TR)}{dQ}$, then this is $MR = \frac{d(PQ)}{dQ}$ and again if you simplify this, then this is $MR = P\frac{d(Q)}{dQ} = P$. So, price is equal to the average revenue which is equal to the marginal revenue in case of the perfect competitive market structure.

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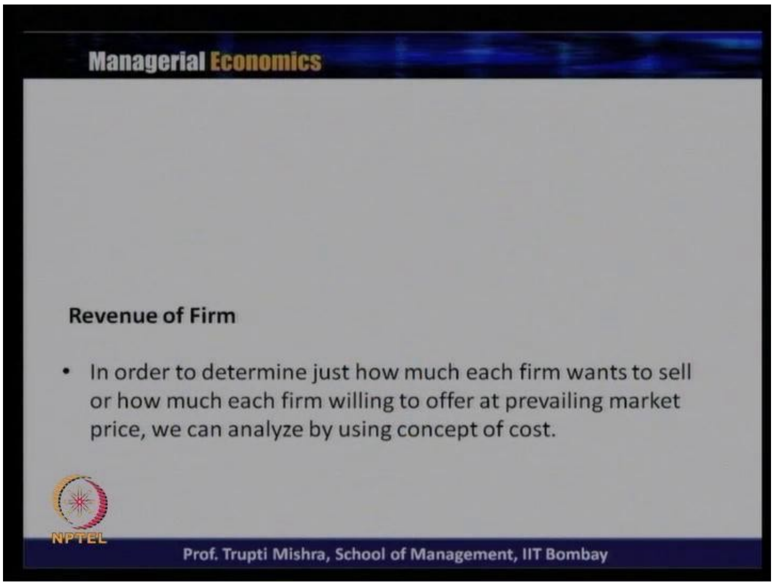

So, in order to determine that just how much each firm wants to sell or how much each firm is willing to offer at prevailing market price, we can analyze using the concept of cost. So, how much the firm is willing to sell or how much the each firm want to sell that can be decided on the basis of the cost function, or that can be decided on the basis of the prevailing price.

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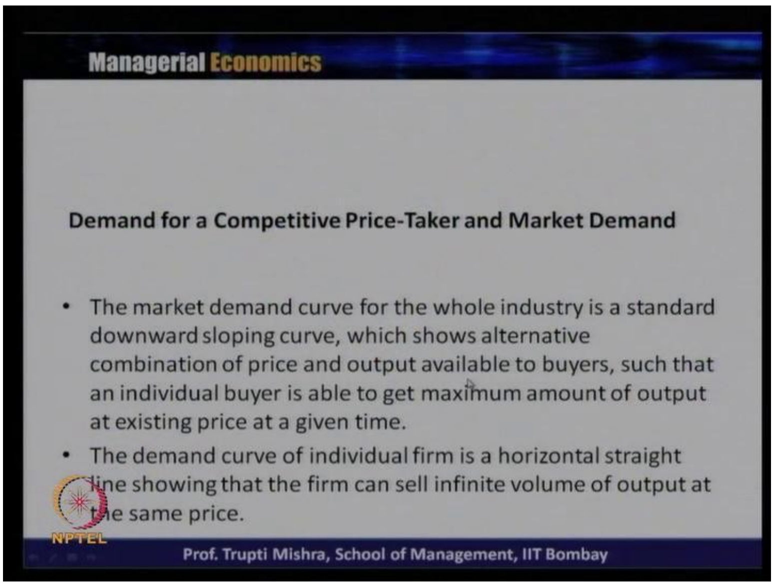

So, we will analyze that using the concept of the cost. Then the market demand curve for the whole industry and if you remember in the previous class, like when we were talking about that how much they want to sell or how much that depend always, depends on the profit of the whatever the profit they are getting. So, what is the profit over here, the profit is the difference between the total revenue and total cost. So, if you remember the point at which the profit is maximum, that is, the point the firm generally they want to operate because they want to sell that much amount of output where they get the maximum profit.

Then we will talk about the demand for the competitive price taker, that is, for the individual firm and for the market demand as a whole. So, the market demand curve if you look at the market demand curve, this is the sum total of the demand from the all the firms and it is generally a standard downward sloping demand curve, because we know that the demand curve is downward sloping. So, market demand curve is always downward sloping this is the summation of the individual demand curve from the all the firms.

The downward sloping curve gives the price and quantity combination that is available to buyer, such that the individual buyer is able to get the maximum amount of output at the existing price. And the demand curve of the individual firm is horizontal straight line showing that the firm can sell infinite volume of output at the same price. So, in case of a competitive price taker the demand curve for the firm is, the demand for the firm is straight line that is horizontal and parallel to the x axis, that is horizontal axis, and what is the significance of that the significance for that is that whatever amount the firm wants to sell the can sell at the same price.

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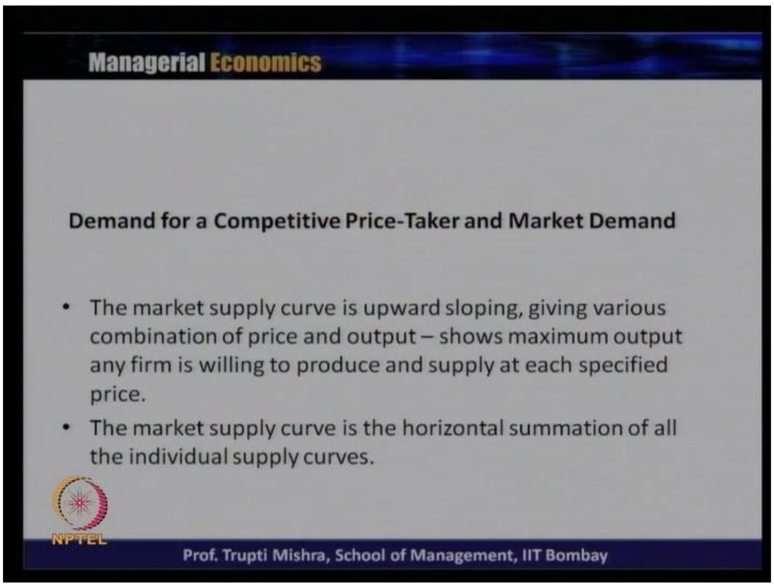

There is no restriction on the amount what they are going to sell because price has to be constant at that point. Any firms any amount they would like to sell they sell at that typical market, is typical market and typical price. Now, what is market supply market supply is upward sloping giving various combinations of price and output shows the maximum output any firm is willing to produce and supply at each specified price.

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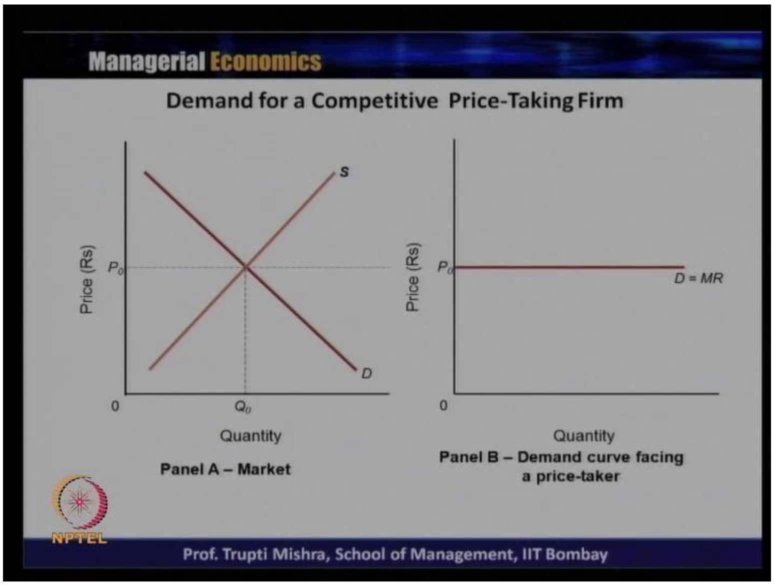

Market supply curve is the horizontal summation of the individual supply curve. So, this is the demand for the competitive price taking firm. In the market panel a talks about the market industry as a whole, panel two talks about the demand curve facing the price taker. So, supply is upward slopping, demand is downward slopping the point at which demand and supply intersect each other, that is, the equilibrium point and corresponding to that we get the equilibrium quantity, that is, Q_0 and equilibrium price is P_0.

Panel B is the demand curve facing generally facing a price taker or a for a individual firm, and as we know that the price is equal to marginal revenue and also average revenue, here the demand curve is just a straight line. The price comes from a because individual firm not in a position to influence the price, that is, the reason the generally all the firms they are the price taker firm because not a single buyer or not a single seller they generally influence the price.

So, whatever the price set by the market, that is, generally accepted by all the firms. So, none of the seller they fix up their price rather they accept whatever the price fixed by the market supply and market demand and they accept that as the market price. So, here we get from the market supply and market demand curve we got the price, and if you look at the demand curve for the, and at that price the firm can sell any amount. So, that is the reason a price is fixed and the quantity is changing, the quantity is just moving from one point to another point and the here, that is D is equal to M R.