Managerial Economics
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Lecture – 9
Theory of Demand (Contd.)

Welcome to the second session of module two; module two talks about specifically theory of demand. And in the previous class, we discussed about the nature and behavior of, mainly two market forces like, we introduced the concept of demand. And in today's class we are going to take some of the behavior of the demand typically, how the law of demand works? How the law of demand, what is the law of demand? In which case it is applicable, which case it is not applicable? And also, what are the forces that influences this demand?

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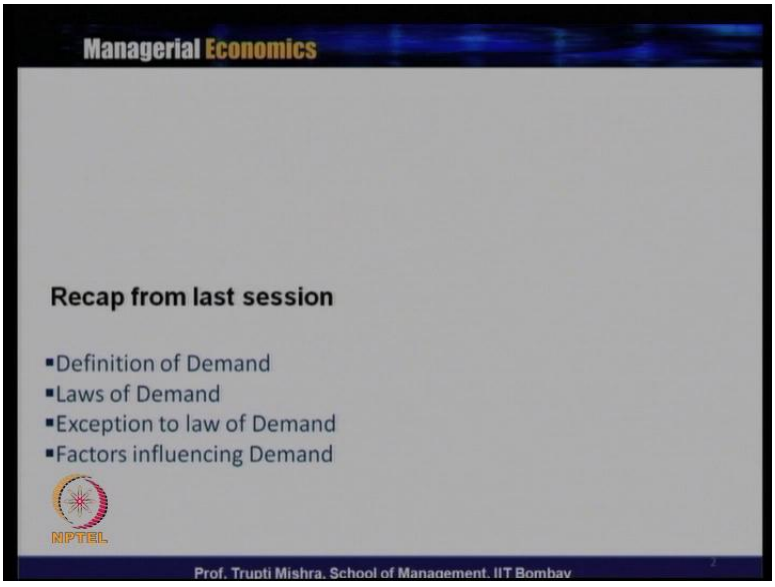

So, if you look at, if you go quickly whatever we have done in the last session, so quick recap of that is, that we defined the demand, how one of the important market forces is demand? And what is the role of demand in the market? Then we discussed the law of demand, for and, different scenario, different situation, where the law of demand does not applicable. And there are, and again we discussed the different factor that influence the demand. And market demand also always the, the summation of the individual demand that the last topic what we discussed in the last session.

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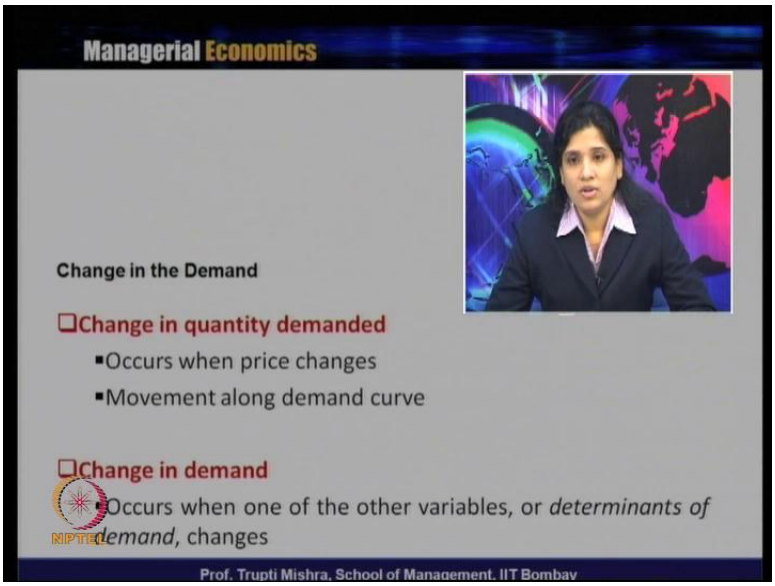

Today's class we will see that, how there is a change in the demand. Till now we have understood that demand is basically, there is a inverse relationship between the price and quantity demanded. And it get influenced by few other factors like price of related goods, income of the consumer, expected future price of the product, number of consumer in the market, and also the taste and preference by the consumer. Now we will see why there will be a change in the demand? Whether it, this is due to change in the price, associated with the product, or due to change in the other factors, those influence the demand. So, change in the demand is because of two reason; one, when there is a change in the quantity demanded, and it occurs when there is a change in the price. And this change is generally reflected through movement, along the demand curve.

And second one, when there is a change in the demand, it occurs when one of the other variables like determinants of demand, just now we discussing, the price of the related goods of the consumers income, or expected future price of the product, or any other factor, the non price determinants; any other factor which is not priced, if those with if the change in those variables that leads to change in the demand. So, if you look at between the, these two, the first one is change in the quantity demanded, because this is due to change in the price; and second one is the change in the demand, because of all other factors changing. So, the basic difference between these two, if you look at, one you represent along the demand curve or in the second case, we cannot reflect the

changes due to other factor, along the demand curve, either the demand curve has to shift to the right or shift to the left.

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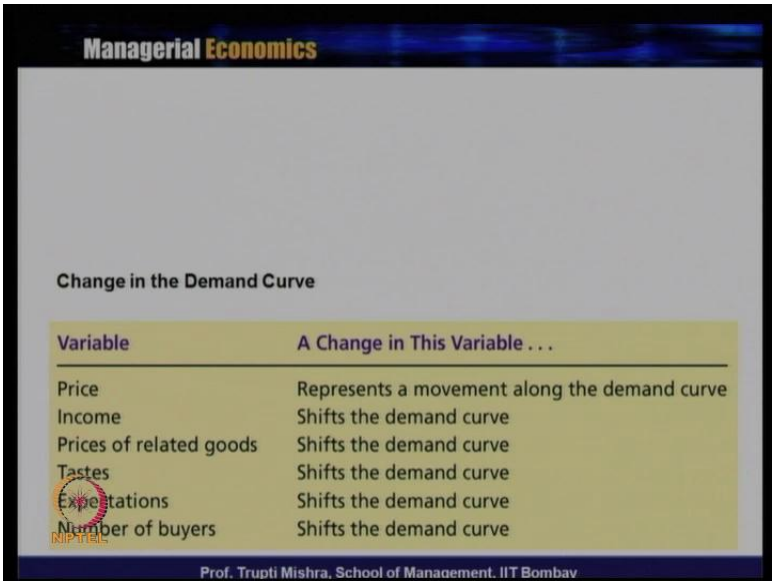

So if, why there is a change in the demand curve? Either there is a change in the price, that leads to the change in the quantity demanded; or there is change in the price of related goods, change in the consumer income, change in the taste preference of the consumer, expected future price of the product is going to change, or there is a change in the number of buyers in the market.

So, if you look at, in case of a change in the price, represent a movement along the demand curve. So, this is between from one point to another point. And in case of income, in case of price of related goods, in case of taste, in case of expectation, in case of number of buyers, generally the demand curve shifts to the right, if it is in case of increase; and shifts to the left, if it in case of decrease

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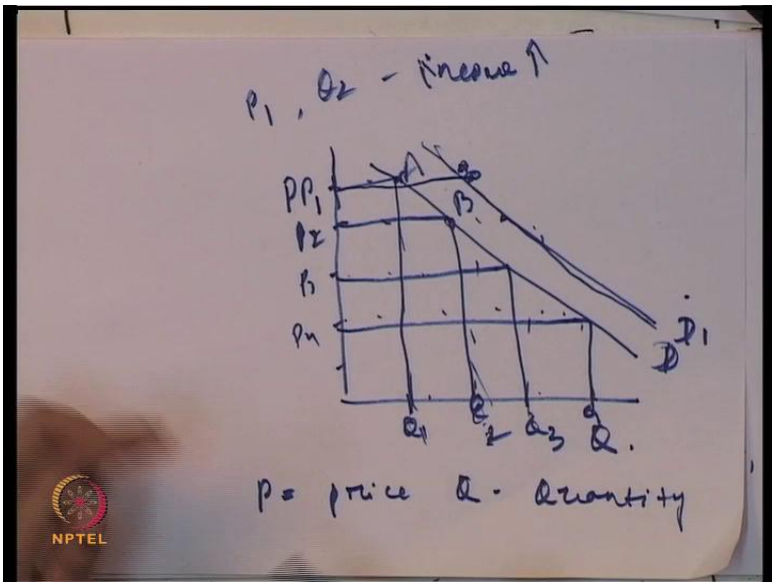

So, we will take a quick example like, in the last class also, if you look at, we have drawn a demand curve considering P in the y axis, and Q in the x axis; Q is quantity and P is price. So, if you take different point here like, suppose this you take P 1, this is P 2, this is P 3, this is P 4; and this is Q 1, Q 2, Q 3, and Q 4. So, you get different combination, and that combination gives us the demand curve. So, if you take all these point then this is the demand curve. So, we get one combination P 1 Q 1; we get second combination P 2, Q 2; we get third combination P 3 Q 3; and fourth combination P 4 and Q 4.So, if it is a demand curve, now, what happens, if there is a change in the price? If the price moves from P 1 to P 2, if you look at, there is a change in the quantity demanded from Q 1 to Q 2. So, movement from point A to B is because of change in the price. So, in this case also there is a change in the quantity demanded, but the change in the quantity demanded is not moving or not shifting the demand curve, it basically just moving one point to the another point. Suppose there is a, at the same price the consumer income is increasing; even if the price is P 1, still the consumer will demand more, because the consumer has more purchasing power to buy the same product, same, buy the more quantity at the same price. So, given P 1 fixed at this movement, may be the consumer will buy Q 2, because there is a increase in the income of the consumer. So, when there is a change in the income and correspondingly, if there is a change in the demand; that means, if the change in the demand is not because of price, the change in the demand is because of any other factor. So, in this case, we get a point this. So, even if

the price is P 1, the quantity demanded is Q 2. Similarly, even if this price is P 2, the quantity demanded is Q 3.

So, in this case, if you look at, you get a new demand curve that is D 1, and the shift in the demand curve is because of change in the income. So, giving the same level of price, if there is a change in the income and, change in the income is, increase in the income, that leads to increase in the quantity demanded because income and quantity demanded they are positively related, the demand curve shift from D to D 1. And in this case, there is a shift in the demand, there is no movement along in the demand curve. Similarly, if we look at for the other variables also, whenever there is a change in the price of related goods, or whenever there is a change in the taste and preference of the consumer, or any other factor which is non price, the shift in the demand curve is goes to right, if it is in the case of quantity demanded; and it comes to left, if there is a decrease in the quantity demand curve.

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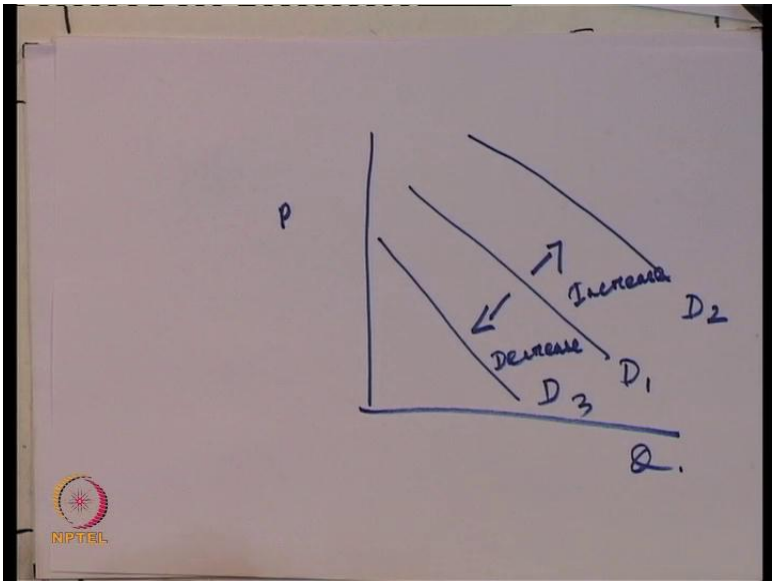

So, if you see, generally, if this is a demand curve, here we take quantity, here we take price, if there is a increase in the quantity demanded, the demand always shift to the right. If there is a decrease in the quantity demanded, the demand always shift to the left. So, this is the case of increase, demands curve shift to the right, and this is the case of decrease when the demand curve shift to the left.

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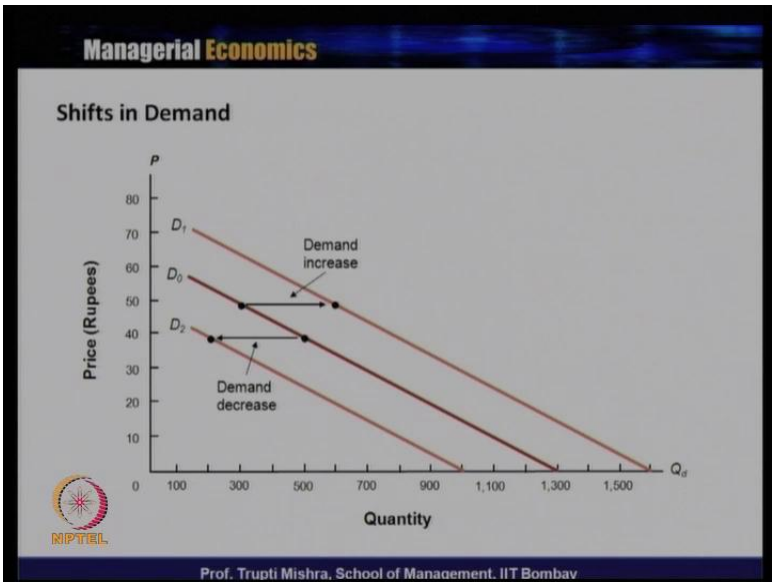

So, now we will take specific example that, in which case there is a change in the demand or in which case there is a change due to change in price or in which case there is the change in the demand is because of non price determinant. So, if you have seen the graph, initially the demand curve is D 0, whenever there is a decrease in the demand curve there is a shift towards left which becomes D 2, the demand curve is D 2; and whenever there is a shift, increase in the demand, the demand curve shift to right and that is D 1. So, in case of increase in the demand curve, it shift to right, and in case of decrease in the demand curve, it shift to the left.

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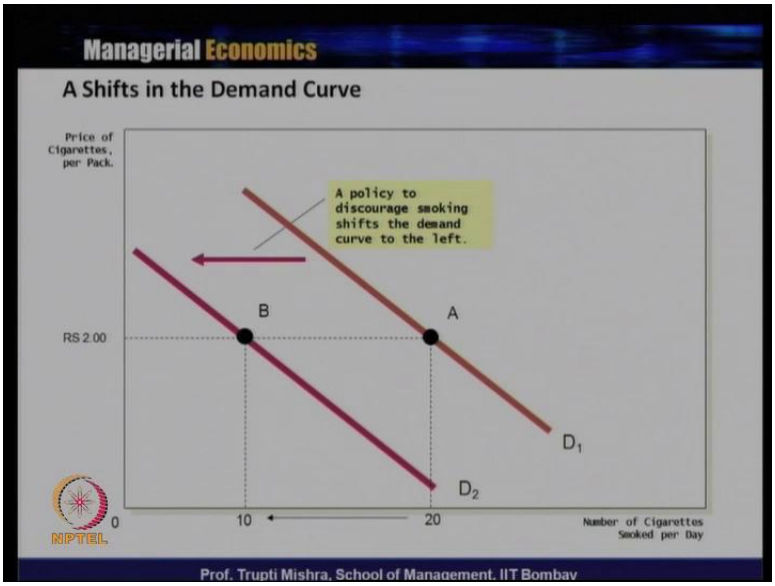

Now suppose we take a case of, specific case, if there is a policy initiative , how there is a change in the demand? A policy to discourage smoking, shift the demand curve to the left. So, this is the case of, the product is cigarette here; the price of cigarette per pack is in the, is represented on the y axis, and number of cigarettes smoked per day is represented on the x axis. The demand curve is D 1. When the price is 2, the quantity demanded is 20. Now if you remember there is a ban in the public smoking before 1 year, the policy or the rule by the government is that there is ban in the public smoking.There is no change in the price, if the same price, the quantity demanded has decreased from 20 to 10. Now, what is the reason here? The reason here is that there change in the demand, not due to change in the price, rather due to change in the non price determinants. So, in this case, because of government policy, there is a ban in the public smoking which discourage the smoking and reduce the demand; price even fixed too.

Now the quantity demand moves from 20 units to 10 units, and the demand curve shift to the left, and the new demand curve is D 2. So, the price is fixed, the change in the demand is because of non price determinant; the demand curve moves from D 1 to D 2. So policy to discourage smoking, shift the demand curve to the left, price remain fixed.

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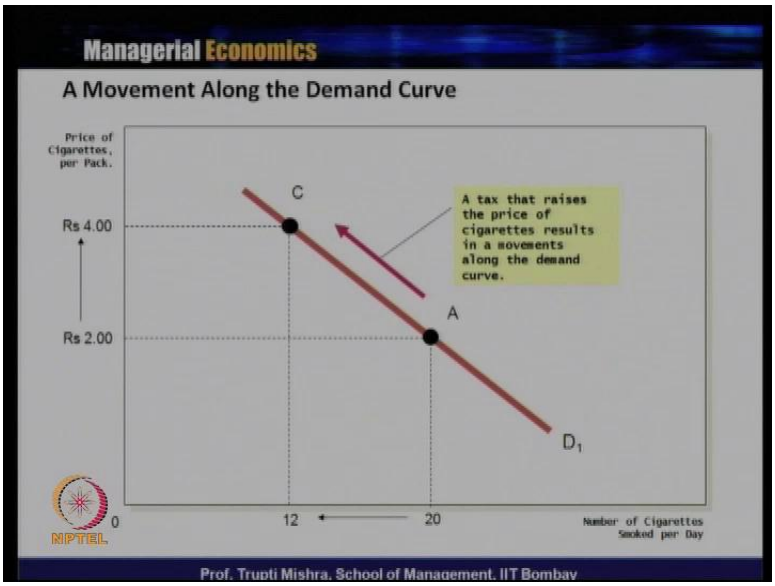

Now, suppose we take a different case, that there is a imposition of the tax by the government. Now, what is the tax? The tax raises the price of cigarettes results in the

movement along the demand curve. Whenever there is a imposition of tax, the producer try to shift that to the consumer. And, how they shift this to the consumer? Through the increase in the price. So, this typical graph if you look at, the price is again represented in the y axis and the quantity, the number of cigarettes smoked per day, that is represented in the x axis; the demand curve is D 1.

When the price is 2, the quantity demanded is 20, corresponding to point A . And when there is a tax, imposition of tax, that leads to increase in price, from 2 rupees to 4 rupees, following the law of demand, there is a decrease in the quantity demanded from 20 unit to 12 unit. And in this case, if you look at, the change in the quantity demanded is only to change in the price, because price increases from 2 to 4 , that is the only reason that quantity demanded is shifting from 20 unit to 12 unit. So, this case, the change in the demand is represented through only in the movement in the demand curve, from one point to another point, basically representing two combination, two price and quantity combination

One combination, when price is 2 rupees, quantity demanded in 20 unit; and in the second combination when price is 4 rupees, the quantity demanded is 12 units. So, two points to remember here: point one, when the change in the demand is due to change in the price, the shift is between one point to another point in the demand curve. So, the change is represented through the movement along the demand curve from one point to another point. And second point is, when the change in the demand is due to change in the non price determinants of demand, like any other factor apart of price, the movement or change in the demand is represented through the shift in the demand curve. If there is the increase in the demand curve that leads, the increase in the demand leads to shift in the demand curve to the right. And if there is a decrease in the demand that shift the demand curve to the left.

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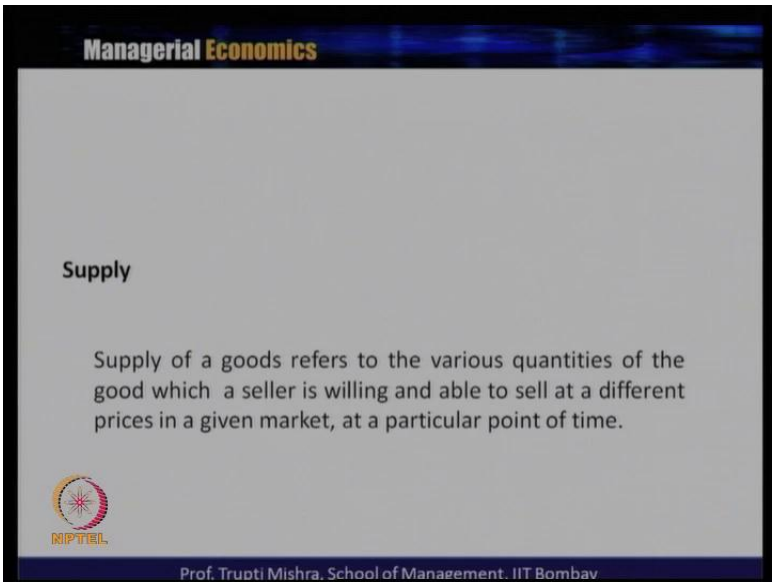

Now, we will come to the second market force, that is supply forces. So, if you remember in the beginning of the session that the market forces is always governed by the demand and supply forces, and they generally set the rule for the market mechanism or the market mechanism works on the basis of supply and demand principle.

We will discuss the second forces of market that is supply. And to define supply, we can say that this refers to various quantities of the good, which the seller is willing and able to sell a different prices in a given market, at a particular point of time. So, time being fixed, prices are different, and at different prices what is the exact quantity the producer is willing and able to sell, that is supply. So, if you look at, again it goes to the basic principle of demand that, it is not only, the supply is dependent only, also the producer is willing to sell and able to sell.

So, when it comes to willing to sell, the whatever the price that is gives some profit to the producer; and when it comes ability to sell, whether the producer has the ability to sell, or ability to produce the product or not. If the producer has the ability to produce the product, generally they sell it in the market. If they are getting a good price that leads to the willingness to sell in the market. So, supply, it refers to various quantity of goods and services which a seller is willing and able to sell at the different prices, in different market, or may be in a given market, at a particular point of time.

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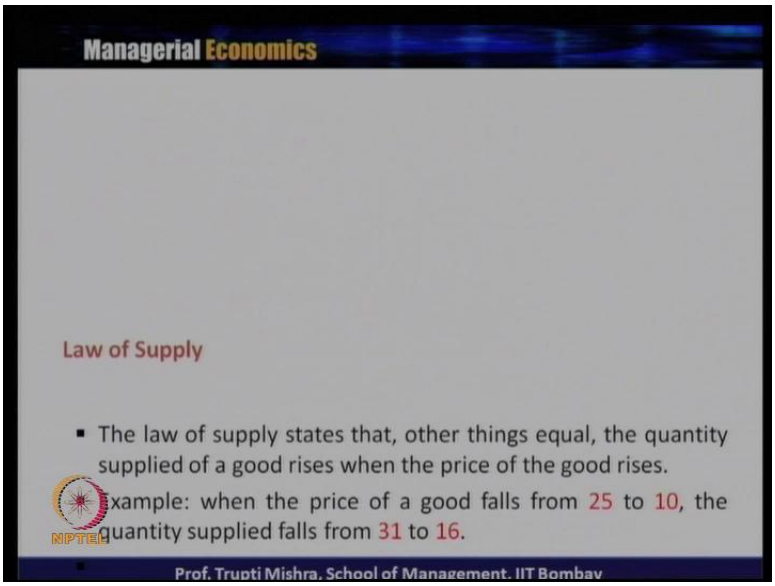

Now, what is law of supply? If you remember that, price in the quantity demanded is always inversely related, other things remaining constant. So, following the Ceteri Paribus principle, Ceteri Paribus means everything is, every other thing is equal. The law of supply states that the quantity supply of good increases when the price of good increases. So, in this case, if you look at, the economic law for supply, the relationship between the supply and price is , there is a positive relationship between the price and the quantity supply; more is the price, more is the quantity supply.

But in case of demand, if you remember, there is a inverse relationship between the price and quantity demanded. More is the price, less is the quantity demanded; and less is the price, more is the quantity demanded. In case of supply, more is the price, more is the quantity supply; less is the price, less is the quantity supply. And the logic is also quite clear that, if the price is more, the seller will sell more in the market because they will get more profit. If price is low, they will prefer to sell low because they are not getting more profit, if price is low.

So, if you take a typical example, when the price of good decreases from 25 rupees to 10 rupees, the quantity supply decreases from 31 rupees to 16 rupees. So, when price was 25, the quantity supply is 31; and when price is 10 the quantity supply is 16 , which goes according to the basic principle of law of supply; that when price is more quantity supply

is more, and when the price is less quantity supply is less. That gives us, in term of the number also price is 25quantity supply is 31; price is 10, and quantity supply is 16.

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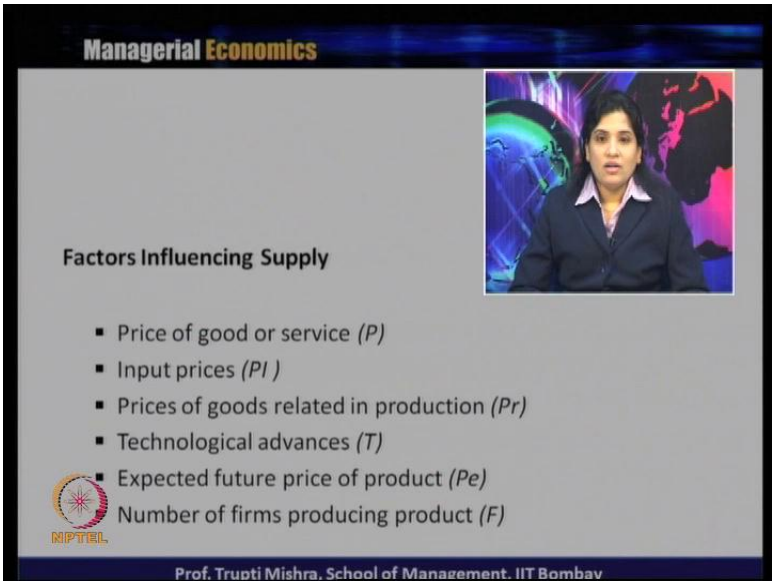

Now, we will discuss, what are the factor that influence the supply? The first factor which influences the quantity supply is, price of the goods and services. So, just in the previous slide, we are talking about, that how the price and quantity supply they are related to each other? If price is more, quantity supply is more; price is less, quantity supply is less. So, they are positively related price and quantity demanded they are positively related. So, the first factor that influences the supply is price, because the seller or producer they always look for profit when they are producing in the market, and selling in the market. So, if price is more, they are going to sell more. So, the first factor which influence the price, influence the quantity supply is the price of the good or services.

The second factor which influences the supply is, input prices. Like, how input prices is influencing the supply? Input price is one, this is the input for the output. So, whether the input is land, whether the input is labor, whether the input is capital, whether the input is technology, whether the input is entrepreneurship, the more is the price of those inputs, it is more costly for the producer to produce. And if price remain fixed, input price is more, the difference between the cost of production and market price comes down. And that

leads to less profit to the producer. So, in this context, if the input price is increasing, the supply is less, because if you are keeping all other constant and the producer is not able to increase the price, with the increase in the input prices, they will prefer to supply less, because they are not getting a good amount of profit, if input price is on a higher side and the market price remain constant. So, input price is increasing, generally the quantity supply decreases; and if input price is decreasing, the quantity supply is more, because the gap between the input price and market price is more, and they get more profit. So, input price and quantity supply, they are inversely related.

Then the third factor is price of goods related in the production. Now what is the price of good that is substitute and the complementary good? If substitute good is supplied more, then this typical good has to supply less. So, there is inverse relationship between the substitute good and this good price of the substitute good and this; and there is a positive relationship between the price of complementary goods, and the price of, between the quantity supply of this particular good. Similarly technological advances, if the good technological advances, if technology is good, there is a progress, that leads to more supply in the market. Expected future price of the product, it works, if there is a increase in the, if the expected future price of the product is going to increase, they supply less; and if the expected future price is going to decrease, they supply more. So, again the relationship between the quantity supply and the expected future price of the product is inverse; and number of firms producing the product, more the number of producer in the market, more the number of seller in the market, the quantity supply is more.

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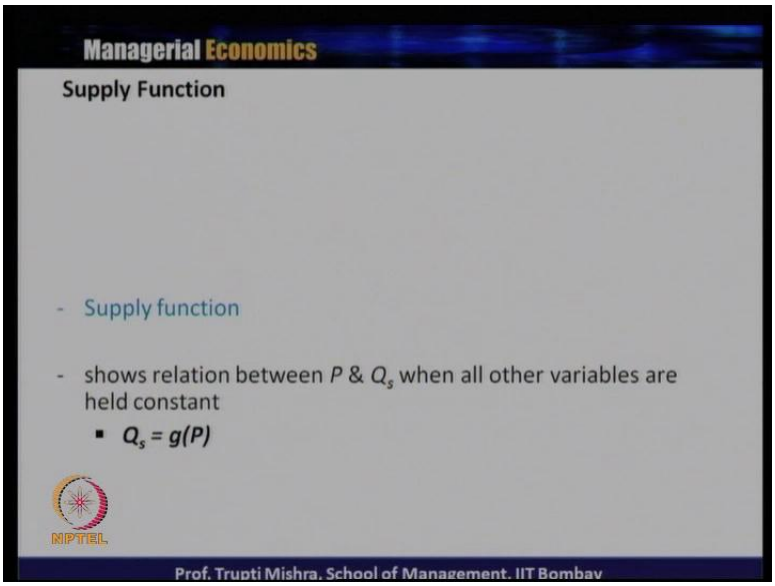

Then we will come to a supply function; and supply function at this point if you are keeping all other variables which influence the quantity supply remains fixed, only if it is the relationship between the price and quantity supply, which comes directly between the law of supply, all other things remaining constant; law of supply says that there is a positive relationship between the price and quantity supply. Following that, if you formulate a supply function which shows a relationship between price and quantity supply, quantity supply is a function of P.

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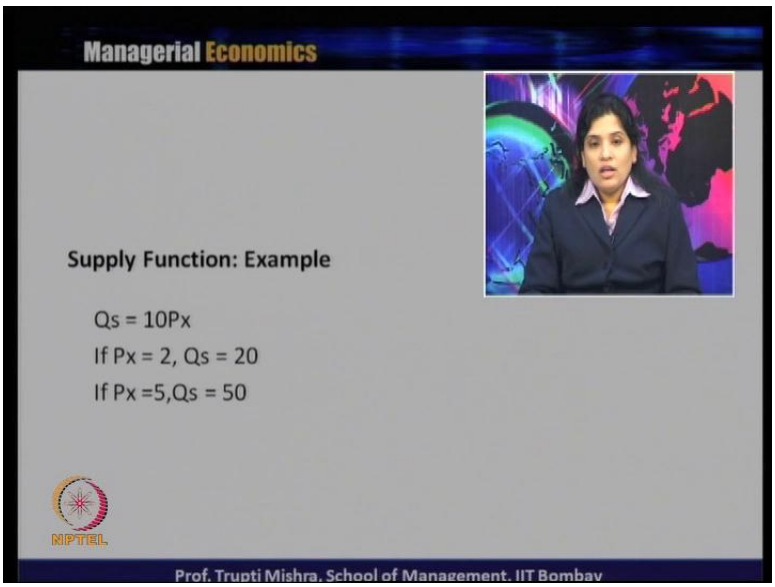

So, if you are taking a supply function where Q s equals to 10 P x; if value of P x takes 2 then Q s is 20; if the value of P x is equal to 5 Q s takes 50. So, if you look at, in the supply function also, the price, quantity supply is dependent on the price if is positive, that is because it is positive sign there is no negative sign over here, so, they are positively related. And, Q s is equal to 10 P x means always whatever the price of quantity supply is multiplied by that number.

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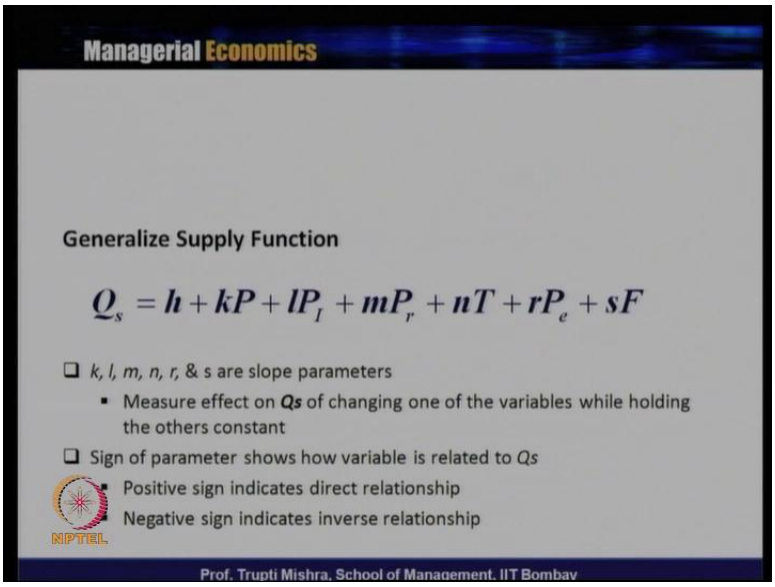

Now, if you consider the generalized supply function, which includes all the variables which, influence the supply. So, what are the variables that influence the supply? The first one is, price of the product, that is represented through k P; h is the value of intercept; P is the price of product; P i is the input price; P r is the price of related goods in the production whether it is the substituted goods or whether the complementary goods; T is the technological advances; P e is the expected future price of the product; and F is the number of producer in the market.

So, there is one variable attached with each variables, in terms of parameter. So, k is associated with P, l is associated with P 1, m is associated with r, n is associated with t, small r is associated with P e, and s is associated with F. So, all this variables like k, l, m, n, r, and s, they are the slope parameters. And what is the role of slope parameters in case of a generalized supply function? It measures the effect on quantity supply of changing one of the variable by holding the other constant.

So, suppose, what is the role of k or how k is being used? k will measure the effect of quantity supply of changing, when there is a change in the price. Similarly what is the role of l? l will measure the effect and quantity supply when there is a change in the input price; similarly m will measure the effect on quantity supply, when there is a change in the price of related goods. Similarly n will measure the, change in the quantity supply when there is a change in the technological advances, r will measure the effect on quantity supply when there is a change in the expected future price of the product, and s will measure the effect on quantity supply, when there is a change in the number of producer in the market.

And, how we represent the sign of parameters? The sign of parameters shows, how variable is related to quantity supply. Positive sign indicates, there is a direct relationship between that variable and quantity supply; and negative sign indicates there is a inverse relationship between, the typical variable and the quantity supply.

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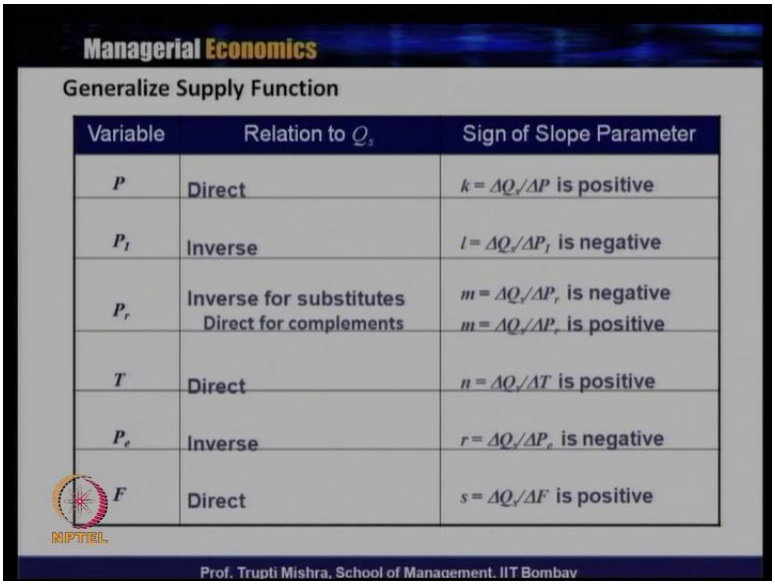

Now, we see that, how both the variables, all the variables, the, all the factors, those, all the factors that influence the supply, how they are related with supply. The first variable is P, price of the product, directly related to quantity supply. And the value of the slope parameter del Q s by del P is positive. Input price is inversely related with the quantity supply. The value of slope parameter is del Q s by del P h negative, because there is a inverse relationship between the input price and the quantity supply. The related price of

the goods, other goods in the market, the relationship is inverse for the substitute and direct for the complement.

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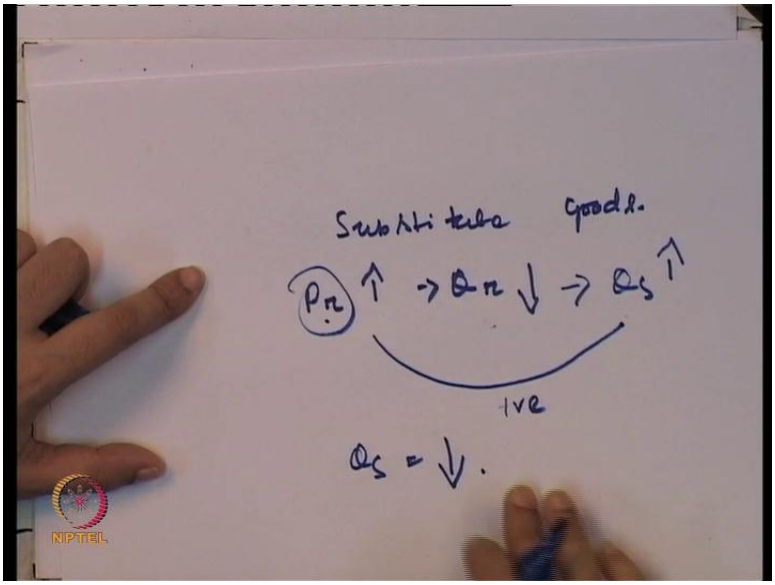

How this is inverse for the substitute? So, this is substitute goods . So, when the price of related good increases, that leads to quantity of the related goods to decrease, because they inversely related, price and quantity supply, the price and quantity demand they get inversely related. But, how they are related with the quantity supply? Quantity supply is positive. So, whenever the price of related good increases, quantity demand decreases, but quantity supply increases; h price and quantity positively related. Now, how this will effect this quantity supply of this typical good? Since the substitute good is supplying more, in this case, price, there is no increase in the price, there is only increase in the price of related good, the quantity supply of this will decrease and how this work for complementary goods?

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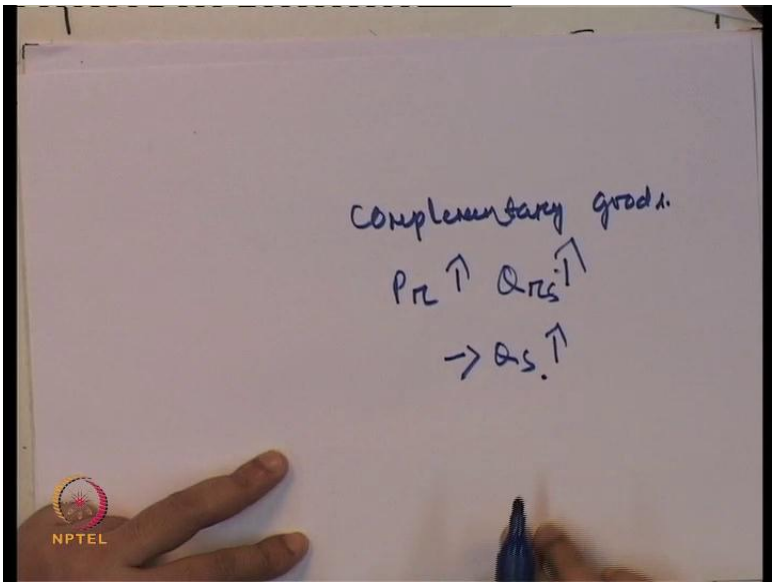

What is the nature of complementary good? complementary good is one good , if two goods are complementary, one good cannot be consumed with other good. So, in this case, if the price of related good increases that leads to quantity demanded of, quantity supply of the related good increases; and that also leads to increase in the quantity supply, because if there is a demand for this, there is a supply of this, again there is a supply for this quantity supply.

So, again it is the same logic for the quantity demanded; also that complementary goods, it cannot be consumed individually, one cannot be consumed without another. So, in case of relationship between the quantity supply, and the price of the substituted goods, and price of complementary goods, it always inverse for the substitute, the price of related good and the relationship to the quantity supply. And if it is a case of complement, it is always direct because more is the quantity supply of the complementary good, more is also quantity supply for the, this typical good, for what we are discussing the factors.

In the first case, this is negative, the slope parameter is negative. In the second case the slope parameter is positive. Now technological advances, the relationship is direct to the quantity supply; more is technological advances, more is the quantity supply. Expected future price of the product, if the expected future price of the product is going to increase, quantity supply will decrease, now, because the producer or the seller will feel more profit, if they are going to postpone their sale in the market; and if it is going to

decrease, they will pre pone all their sale and sell more now. So, the relationship between the quantity supply and the expected future price of the product is inverse; and the slope parameter r that is del Q s by del P that is negative. Coming to the last factor that influence the supply function that is the number of producer and the number of sellers in the market. And how they are related to the quantity supply? They are directly related to the quantity supply. Because, if there are more producer, more seller, generally the market supply is more and also the individual firm again, summation of the individual firm, the market supply is more, and they are directly related to the quantity supply. Here the slope parameter s, that is del Q s by del P is positive.

So, this is how all the factors, they are related to quantity supply; some of them are directly related, and some of them are inversely related with the quantity supply.

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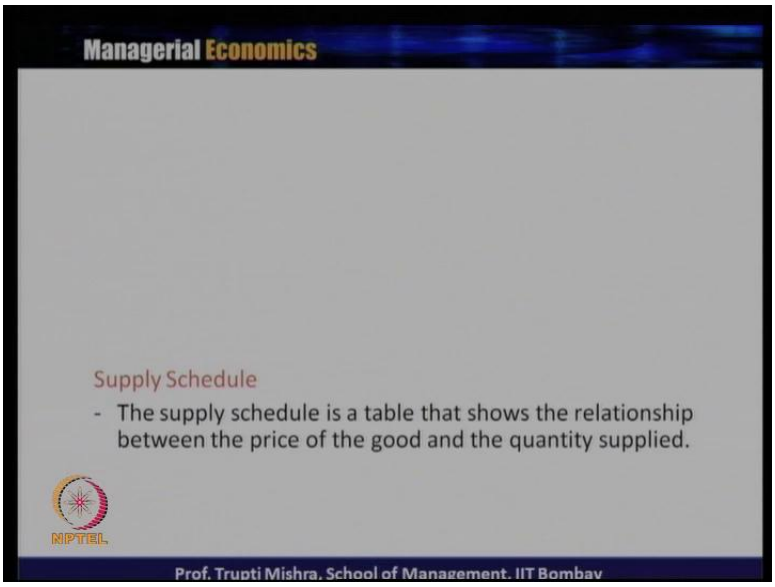

Now, we will see, what is a supply schedule? Supply schedule is a table that shows the relationship between the price of the goods and the quantity supply. So, this is nothing but when you take the exact quantity, exact number, of price and quantity supply, in different time period or it is a trend, giving a trend that how the quantity supply and price are related, that shows through a supply schedule.

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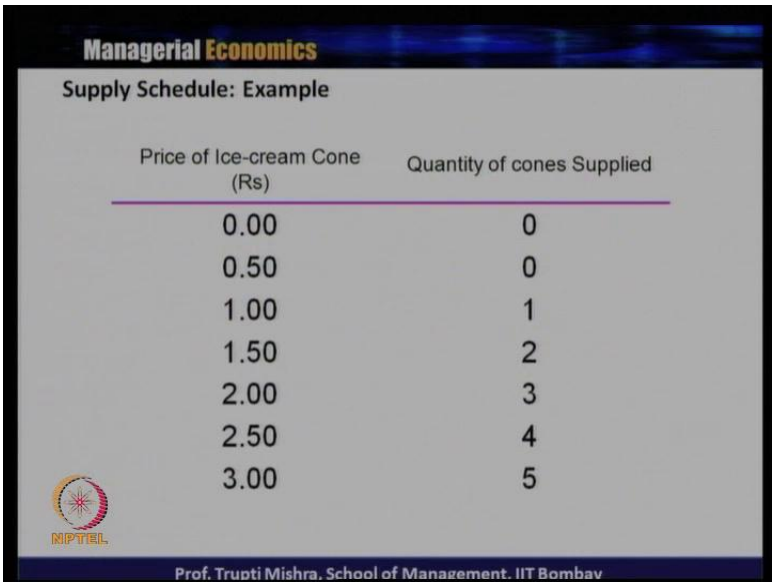

So, if you take this specific example of the supply schedule, when the price is 0, this is the case of, the product is ice cream over here. So, the price of ice cream cone is the represented in the first column, and the quantity of cone supplied is represented in the second column.

If you look at, when the price is 0, the quantity of cone supplied is 0. The simple logic over here is that, if there is no price for the product, producer is not going to produce the product, and they are not going to supply also. When the price is 0.50, still the quantity supply is 0, may be we can, explain in this way that, if this is 0.50 the producer is not getting their share of profit, or it is not profitable for them to supply in the market, and that is the reason that they are not supplying it. So, one is 0, another is 0.5. So one understanding from here is that, when they are not getting profit by supplying in the market, they are not supplying in the market.

And the third case, when the price of the ice cream cone is 1 rupee, the quantity supply is 1 unit. And similarly, when the price goes on increase from 1 to 1.5 , 1.5 to 2, 2 to 2.5, 2.5 to 3; and look at the second column, the input, the quantity of cone supply unit generally goes on increasing, that is 1 to 2, 2 to 3, 3 to 4 unit and 4 to 5 unit. Now looking at the basis of the law of supply that the price and quantity of supply is positively related, in this case also, you can get an evidence of that. If there is a increase in the price, that leads to increase in the quantity supply, in the market. And that is become

evident when we are discuss about this supply schedule. So, this is the case of the individual supplier schedule.

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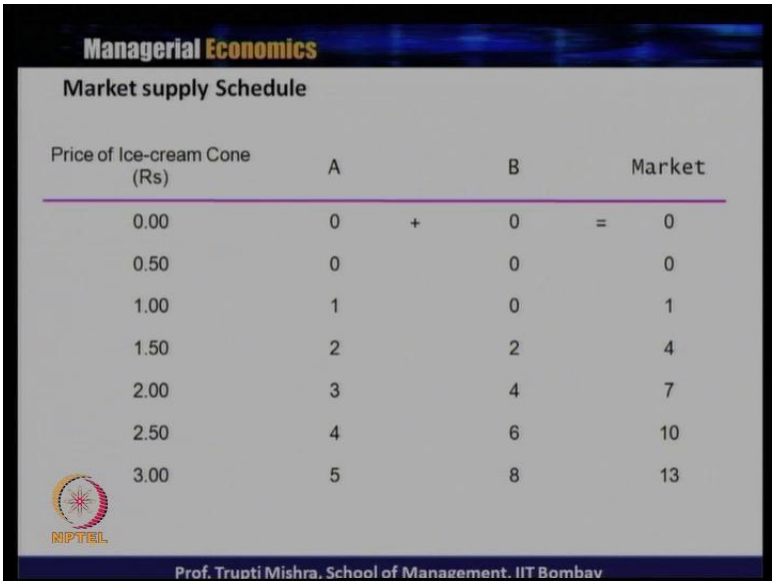

Now, if you say, how you find the market supply schedule, when the number of firms are more in the market. Suppose there are two producer, they are producing the ice cream cone and they are supplying it to the market; assuming the producer and seller, they are the same entity.

So, in the first column there is a price, in the second column, the supply, quantity supplied by seller A, third column quantity supplied by seller B ; and if you are assuming that in a market, there are only two supplier, summation of the quantity supply of both the supplier A and B that will give us the total market supply. So, if you look at, when the price is 0, or price are 0.5, the market supply or the total market supply is 0, because none of the supplier is applying the ice cream cone when the price is 0.

Similarly, when the price increases from 0 to 0.5 to 1 to 3, if you look at, most the cases supplier A and B, there is a increase in the quantity supply. And if you take a summation of supplier A and supplier B, assuming there are only two supplier in the market, the market supply is represented in the last column and that is total market supply of ice cream cone, at different price level in a given period; the given period can be a month, the given period can be a week, given period can be a year. So, generally, market supply

is the total quantity supplied by different seller in the market, at different prices in a given period represented through the market supply.

Now we will see how we graphically, we can explain the relationship between the price and the quantity supply, that through a supply curve. And supply curve is a graph of the relationship between the price of goods and quantity supply. So, mathematically we do this through a supply function, what is the exact quantity at the different price, and the quantity demanded. And graphically we will see how the supply curve will look like, assuming that the law of supply is valid that there are positive relationship between the price and the quantity supply.

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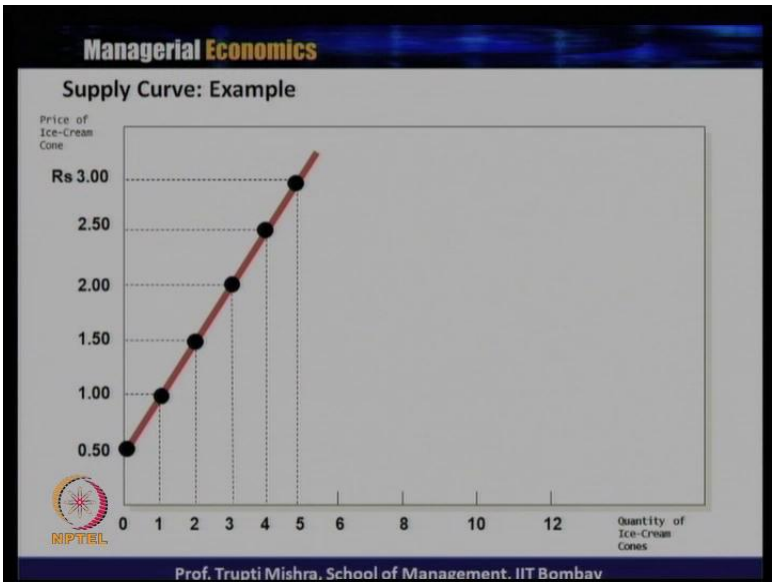

So, if you look at, if you are taking directly data from the supply schedule, y axis gives us the price of ice cream cone and x axis gives us the quantity of ice cream cone. So, in the price, you start from 0, then it is 0, then 0.5, 1, 1.5, 2, 2.5, 3, price is increasing; and with the increase in the price, the quantity supply is also increasing. So, if the price is 0, quantity is 0; if the price is 0.5 again quantity is 0.5. And similarly, when price is 1, each point, each bullet point on the curve that shows a price and quantity supply combination. So, since they are positively related with each other, price and quantity supply, the supply curve is always upward sloping, because there is a positive relationship between the price and quantity supply.

More is the price, more is the quantity supply; less is the price, less is the quantity supply. So, as contrast to the demand curve which is always downward sloping, because the basis is inverse relationship between the price and quantity demanded , in case of supply there is always a positive relationship between price and quantity supply; and that is the reason, the supply curve is always upward sloping and is got a positive slope.

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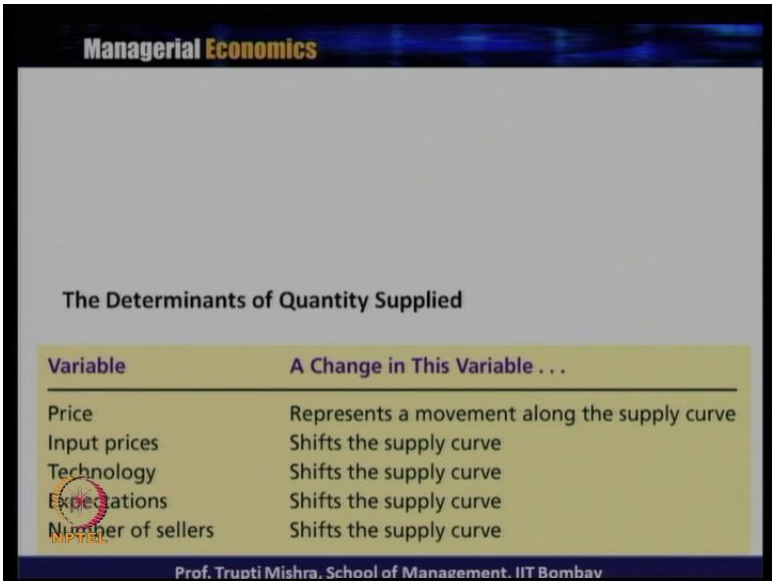

So, now, we will see what are the factors that decides the quantity supply. As you have already discussed, price, input price, technology, expectation and number of sellers; these are the factors, or these are the determinants of the quantity supply. So, we know that supply curve is upward sloping and it has a positive slope. But when there is a change in, any of these factors which determines the quantity supply; whether it is price, whether it is input price, whether it is technology, whether it is expectation of the future price, number of sellers or may be the, the price of the related goods in the market, whenever there is a change in the, those, one of those variable, however there is a change in the supply.

So, the logic is again uniform like, in case of demand curve, if there is change in the price, the change in quantity supply is just from one point to another point, but if the change is because of non price determinant if there is a change in the input price, there is a change in the technology, or change in the any other non price determinant, the supply

curve will shift to the right, or shift to the left. If it is shift to the right, in case of increase; it shift to the left, in case of decrease.

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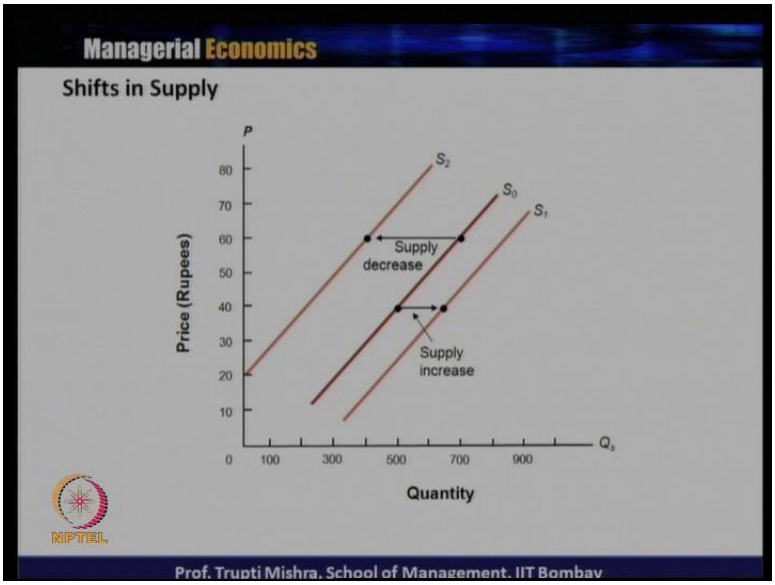

So, this is the shift in the supply curve. Initially the supply curve is S 0. Supply increases so, supply curve moves to right S 1; supply decreases s and supply curve moves to left S 2. So, shift in the supply due to non price determinant, not due to change in the price, rather due to change in the other factors which influence the supply, it, because of the that quantity supply is increasing, the supply curve will shift from S 0 to S 1, to the right. Because of those influence if supply is decreasing, the supply will move to left, the shift in the supply is to the left, and that is from S 0 to S 2.

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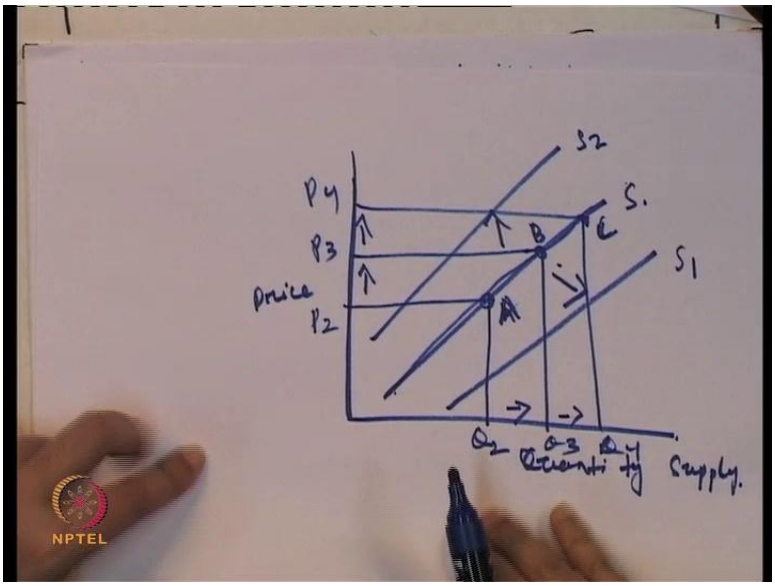

What will happen, if there is a change in the price? So, if you look at, this is our supply curve. Here we take the price, here we take the quantity supply. So, in the previous slides as we have seen that if there is a increase in the supply, then supply curve will shift to the right; if there is a decrease in the supply, supply curve will shift to the left. So, this is in the case of increase in the supply, this is in the case of decrease in the supply. Now, what will happen exactly when there is a change in the price? These two scenario exist, when there is a change in the supply due to non price determinant of the supply.

Now there is a change in the price, suppose this is, this is the original supply curve and we get different points like, this is, suppose P 2 Q 2, Q 3 P 3, Q 4 P 4. So, price is P 2, quantity demanded is Q 2. If price increases from P 2 to P 3, quantity demanded increases from Q 2 to Q 3; if price increases from P 3 to P 4 again there is a increase in the quantity demanded from Q 3 to Q 4. So, if you look at this is one price of quantity supply condition, this is second price quantity supply condition, and this is third price quantity supply condition.

Now, what will happen when there is a change in the price? So, this is price and quantity supply condition, if there is a change in the price; if the price is increasing from P 3 to P 4, the movement is only between, only between the supply curve, between two different points of supply curve that is from point A to point C.

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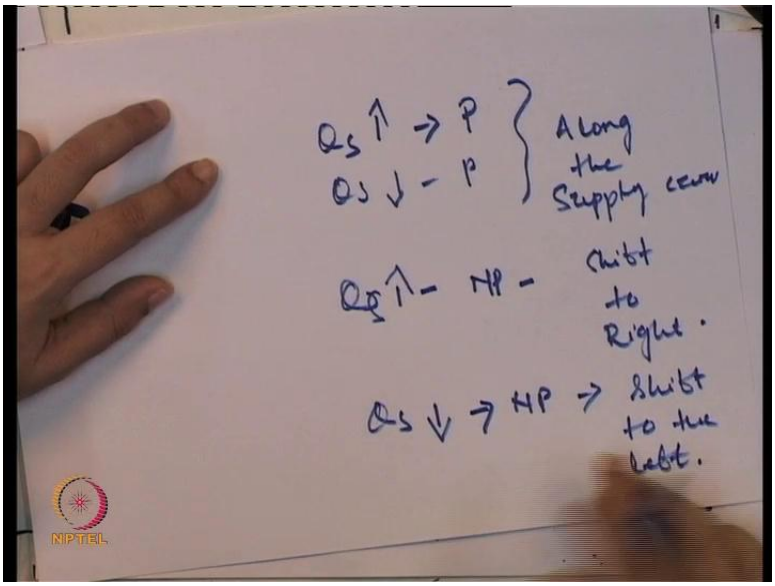

And if there is a decrease in the price, again suppose from P 4 to P 3, the movement again is along the supply curve from the point B to C. So, two points to remember again in case of supply also, if the quantity supply is increasing due to change in the price of price, or quantity supply is decreasing due to change in the price, the movement is along the supply curve. And if the quantity supply is increasing due to non price determinants, then there is a shift of the supply curve to the right. And if the quantity supply is decreasing due to non price determinants, the shift is to the left, of the supply curve.

So we have discussed about the demand, we have discussed about the supply; these are the two market forces generally , that governs the market mechanism, or that may be, the principle of market, demand forces or the supply forces leads to the, may be the working of the market system. Now, we will see, how they reach to the equilibrium or how the market reaches to the equilibrium. Assuming demand behaves in the similar manner, how we have discussed; and supply behaves in the similar manner, how we discussed just a couple of minutes back.

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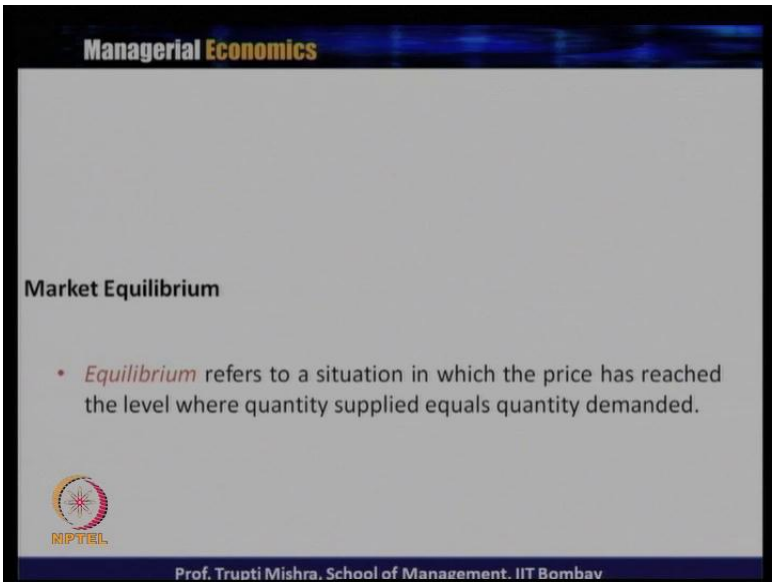

Now what is market equilibrium? Before analyzing that, how the demand force behaves, or how the supply forces behave, what is market equilibrium? Equilibrium refers to a situation in which price has reached the level where the quantity supplied also equals to quantity demanded.

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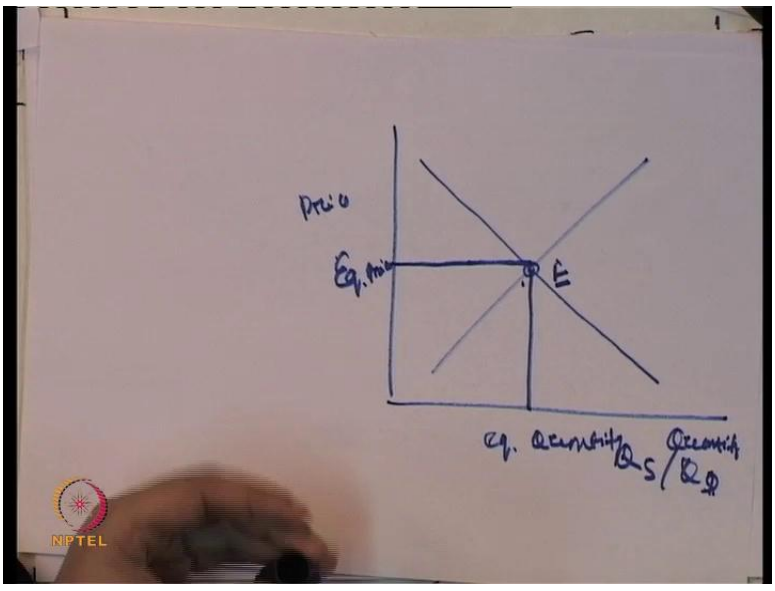

So, if you look at, if you plot now both the market demanded, and market supply in the graph. Let us consider this as quantity supply, quantity supply, quantity, may be

demanded or may be this is quantity, this is price. Demand curve is downward sloping, supply curve is upward sloping. Demand curve is downward sloping because there is a inverse relationship between the price and quantity demanded; and supply curve is upward sloping because there is a positive relationship between the price and quantity supply. Now, the point at which demand curve intersect the supply curve, this is the point of equilibrium; and this is the equilibrium price and this is the equilibrium quantity. Or sometimes we use the word interchangeably market clearing price and market clearing quantity.

Now, so if what is equilibrium? Equilibrium is a situation where the price has reached that level where the quantity supply is just reached equal to the quantity demanded. So, the equilibrium price is one, or the price is one where at that price whatever the supplier wished to or would like to supply in the market that is the, exactly equal to the whatever the consumers demand from the market for that typical product. And corresponding to that, that typical quantity is known as the equilibrium quantity; and that typical price is known as the equilibrium price. So, equilibrium is a situation where equilibrium price, the price reach to such a level where the quantity supply by the supplier is just equal to the demand by the consumer.

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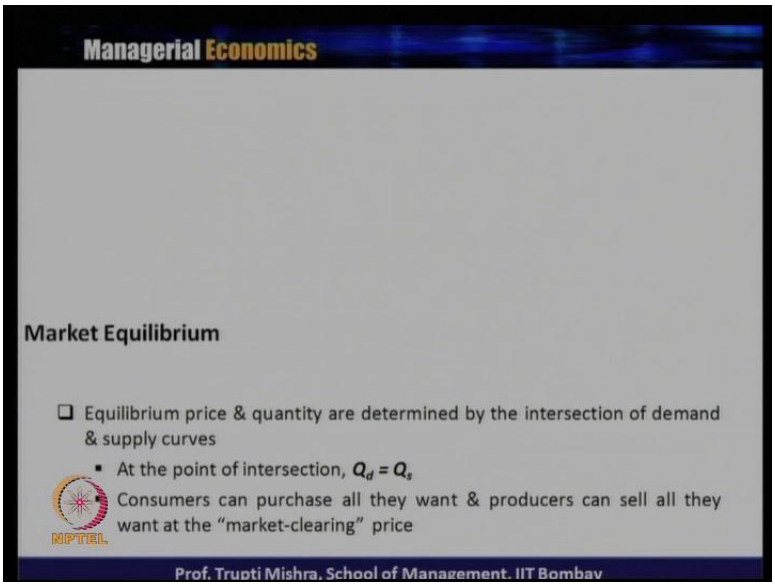

So, market equilibrium is generally leads to equilibrium price and equilibrium quantity. And it is determined by the intersection of demand and supply curve. And at the point of

intersection, as we have seen in the graph, the quantity demanded is just equal to the quantity supplied. At this point, consumer can purchase all they want and producer can sell all they want, at a market clearing price. So, the equilibrium price is also known as the market clearing price A and at this price, consumer can purchase all they want and producer can sell all they wish to sell in the market, at the market clearing price.

So, equilibrium point is one, for the price level has reached such a level where the quantity supply is just equal to the quantity demanded. So, corresponding to the intersection point of the demand curve and supply curve we get the equilibrium point; corresponding to that point on the x axis gives us the equilibrium quantity, and point on the y axis that gives us the equilibrium price. At this price, consumer can purchase whatever they want, and producer can sell whatever they want, in term of the quantity.

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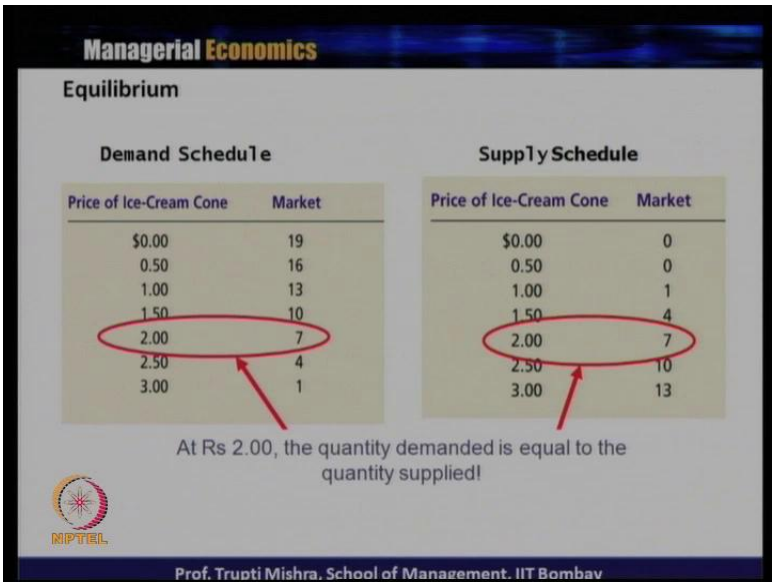

Now we will just extract whatever demand schedule, we discussed during, the discussion of demand, and supply schedule when we discussed during the, when we are trying to intersect the concept of supply. So, if you remember the first part gives us the demand schedule, price and quantity there, negatively related, they are inversely related to each other. And second part gives us a supply schedule where price and quantity demanded but they are positively related. So, if you look at carefully, the schedule, both the demand schedule and the supply schedule; at rupees 2, the total market supply is equal to the total market demand. So, the rupees 2, the total market demand is 7 units; and at rupees 2 the

total market supply is 7 units. So, we can say, rupees 2 is the equilibrium price or the market clearing price, where the quantity demanded is equal to the quantity supply ; and 2 rupees as the equilibrium price and 7 unit as the equilibrium quantity.

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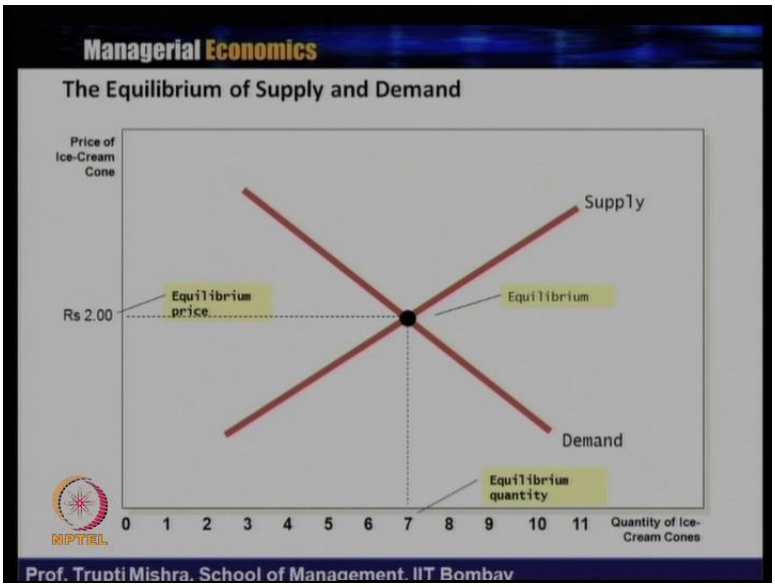

So, graphically, this is the equilibrium of supply and demand. As we discussed, supply curve is upward sloping, demand curve is downward sloping. The point at which demand curve intersects the supply curve is become the equilibrium point. Corresponding to that we get the equilibrium price, and, in the y axis; and we get the equilibrium quantity in the x axis. So, equilibrium quantity is 7 units and equilibrium price is 2 rupees basically in this case. But the demand is equal to supply, there is a market reaches the equilibrium. How long this can continue? How long can the demand be equal to supply?

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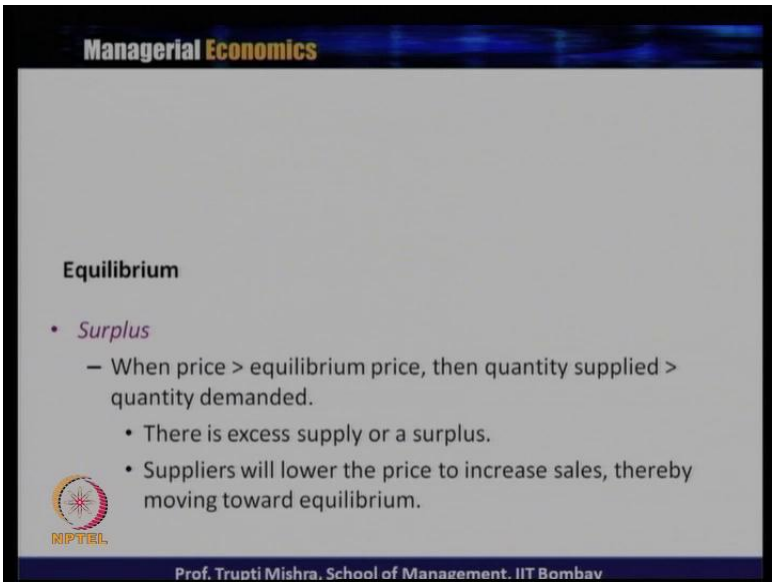

May be a situation arises where there is a surplus in the market, because quantity supply is more than quantity demanded. And sometimes it happens that, there is a shortage in the market because quantity demand is more than the quantity supply. So, till the time demand is equal to supply, there is equilibrium. But there is also a deviation from the equilibrium at any point of time, if quantity supply is more than quantity demanded or quantity demanded is more than the quantity supply.

I will take the first case, where the quantity supply is more than the quantity demanded. And this situation is generally known as the surplus situation; and how this happens? When the price is greater than equilibrium price, quantity supply is more than quantity demanded, because, the price is more than the equilibrium price. Price and quantity supply they are positively related; more is the price, more is the quantity supply. So, at any point of time, the price charge in the market is greater than equilibrium price, then the quantity supply is greater than quantity demanded, which leads to excess supply or surplus in the market.

And how to come out, again, how to come out of the surplus situation and reaches the equilibrium? Producer try to lower the price, to increase the sales, and that leads to again the equilibrium. So, this is the case where if you look at, the supply is more than the demand; and why supply is more than the demand? Because, the price is more than equilibrium price, that leads to a situation of surplus, and how to come back to the

equilibrium again, the supplier will reduce the price. And if the supplier is reducing the price, as the basis of law of demand, whenever there is a decrease in price that leads to increase in the quantity demanded. So, supplier will lower the price, that will lead to lowering the quantity supply; as contrast to that, that will increase the quantity demanded, because price is decreasing; and that will lead to, again that will lead to a situation where the quantity demanded is equal to quantity supply; and market will reach to the equilibrium.

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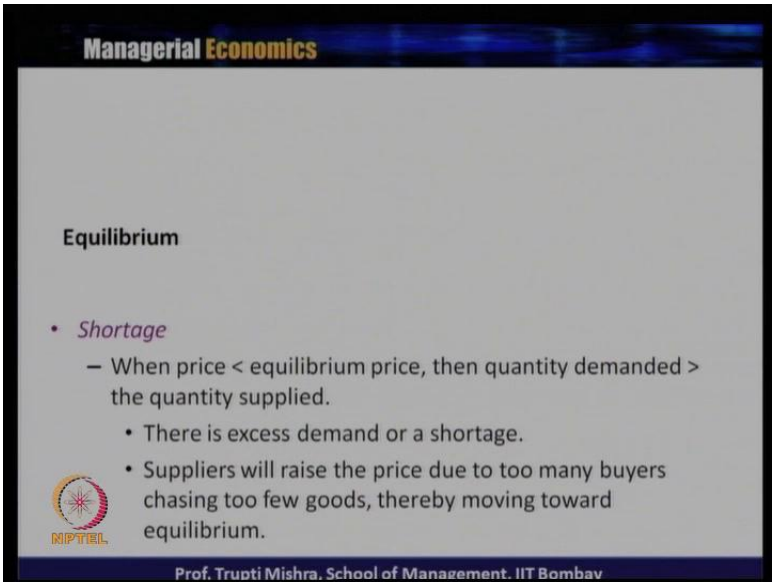

The second situation is shortage. When price is less than equilibrium price, then the quantity demanded is greater than quantity supplied. So, this is the second type of situation when the price goes below the equilibrium price. And what the law of demand says? If there is a decrease in the price, there is a increase in the quantity demanded. So, the same thing happens over here. When the price is less than equilibrium price, the consumer will demand more, because price is on a lower side, that leads to the increase in the quantity demanded; and quantity supply decreases because price is low; and since price and quantity supply is positively related, the supplier will also reduce the supply. So, more is the quantity demanded, less is the quantity supply; and that leads to a increase in the quantity demanded and decrease in the quantity supply. So, price is greater, price is less than the equilibrium price; quantity demanded is more than quantity supply.

Now, what is the outcome? Outcome is. that is a excess demand or a shortage. Now, how to come out of this situation? And how to reach equilibrium? Again supplier will increase the price, if there is a increase in the price, that reduces the quantity demanded, again the basis is law of demand. Increase in the price, leads to decrease in the quantity demanded; increase in the price on the other hand increases the quantity supply. So, that leads to again to a equilibrium because, supplier is increasing the price, that will increase the quantity supply, also that will decrease the quantity demanded. So, again the equilibrium will be raised when the quantity demanded is equal to quantity supplied. And here the, here to come out of this shortage situation, again there is a, again there is a initiative by the supplier to increase the price.

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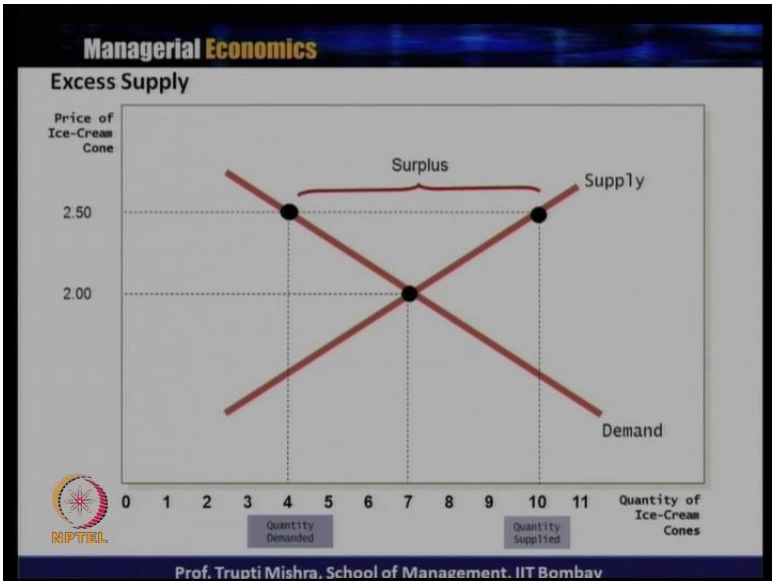

So, graphically this is the representation of the, graphically this is the representation of the excess supply where the supply is more than demand and there is surplus situation.

How it happens? So, initially the equilibrium point is 7 units, equilibrium price is 2 rupees; if price is 2.5 which is more than equilibrium price, the supplier increases from 7 units to 10 units; and the demand decreases from 7 unit to 4 units. The gap between the 4 units and 10 units that is the surplus, because the quantity supply is more than quantity demanded.

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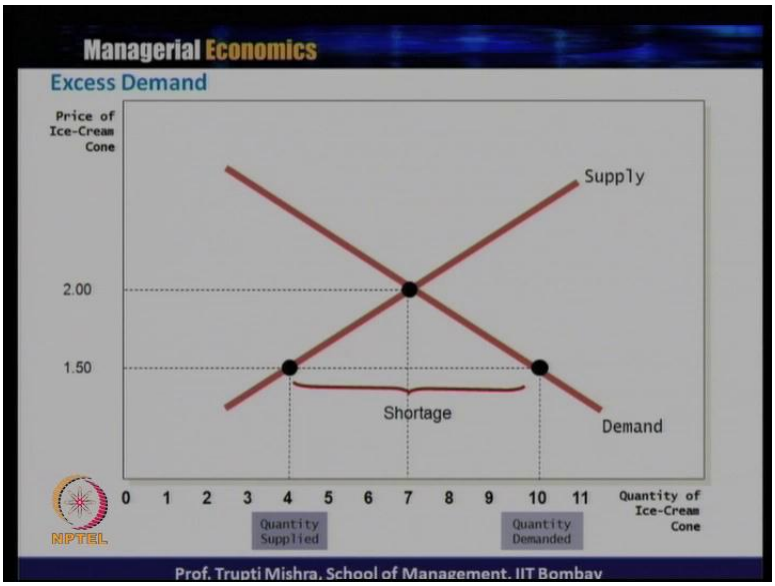

Then, the second situation, excess demand, the graphical representation of that; price is decreased from the equilibrium price So, equilibrium price is two; price is decreased from 2 rupees to 1.5, less is the price, more is the demand; 1.5 is the price, 10 units is the demand, sorry, yes, 10 units is the demand.

And what happens to supply? Supply decreases from 7 units to 4 units. Because less is the price, less is the quantity supply. The gap between the 4 units quantity supply and 10 units quantity demanded, that leads to shortage in the market. And gain how to come back to the equilibrium? Again here, the supplier will increase the price, which leads to increase in the quantity supplied, and leads to decrease in the quantity demanded, and which will eventually lead to the equilibrium between the quantity supplied and the quantity demanded.

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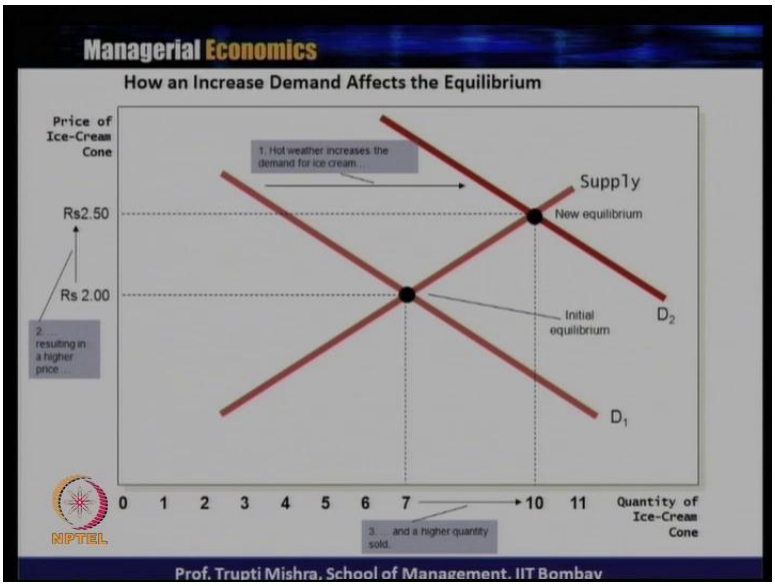

Now, we will see, what happens when there is a change in the demand? And, when there is a change in the supply? So, if you look at, 7 is the equilibrium quantity, 2 is the equilibrium price. Now suppose demand increases, why there is a increase in the demand? So, this is the case of a price of ice cream cone again. Hot weather increases the demand for ice cream; demand increases from D 1 to D 2. And what is the, what is the change in the quantity demanded? The change in the quantity demanded is 7 units to 10 units.

What happens to price? Since, if there is more demand, the supplier will increase the price. So, price increases from 2 rupees to 2.5; and again quantity also increases from 7 units to 10 units. So, supplier is the constant, if there is a increase in the demand, that leads to increase in the price and also increase in the quantity demanded.

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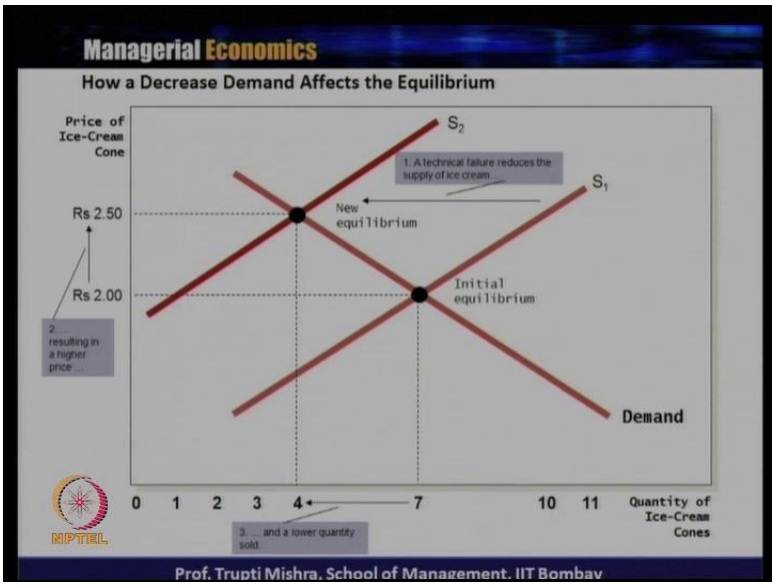

Then, we will see that, how there is a decrease in supply? How it effects the equilibrium. So, initially, demand curve is given by demand; supply curve is given by S 1; initial equilibrium is at 7 units, suppose there is a technical failure and that reduces the supply of the ice cream, leads to decrease in the supply; decrease in the supply leads to shift in the supply curve from S 1 to S 2. New equilibrium point, the quantity is 4, the price is 2.5. So, a technical failure reduces the supply of ice cream, which results in a higher price, because supply is less and demand remains constant; and price increases from 2 to 2.5 and quantity decreases from 7 units to 4 units. So, whenever there is a decrease in the supply, that leads to increase in the price, and increase in the, decrease in the quantity demanded.

Next we will see, what is the shift in the both supply and demand, in the next session. Because till now, we are just looking at, what happens when the supply remains at constant demand, increases or decreases, and when demand remain constant, when there is a decrease or increase in the supply, what happens to the price, equilibrium price? And, what happens to the equilibrium quantity?

So, in the next session, we will see, when there is a simultaneous shift in the both supply and demand, what happens to the equilibrium price, what happens to the equilibrium quantity. And the movement in the price and quantity demanded, in which direction whether it increases or whether it decreases.