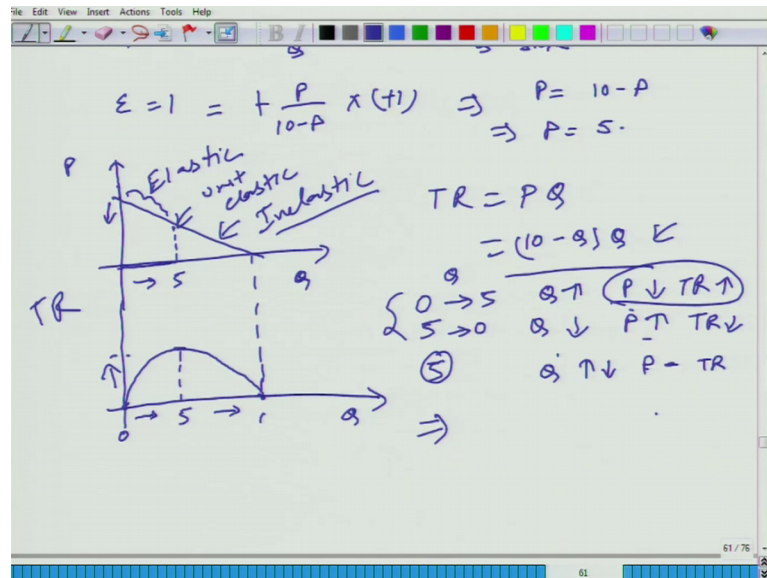**An Introduction to Microeconomics**
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Department of Economic Sciences
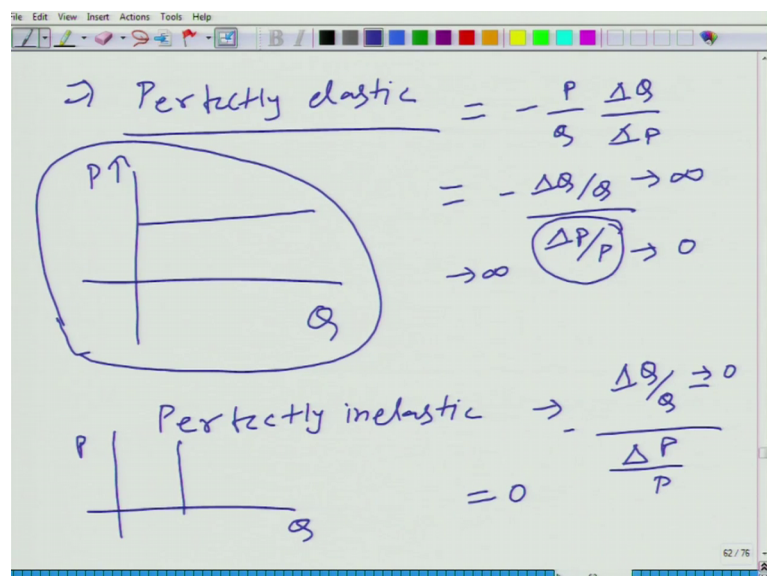**Indian Institute of Technology, Kanpur**

Lecture- 25
Perfectly Elastic and Perfectly Inelastic Demand

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We looked at elastic zone of the demand curve, in elastic zone of the demand curve, and in the middle, we get a point where demand is unit elastic that is what we have discussed.

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Now, let us discuss the 2 extreme cases the one extreme case is perfectly elastic, what it means is that you change price by tiny bit amount, and you get the maximum possible change in quantity demanded. Now what is that maximal possible change in quantity demanded that your quantity demanded is becomes equal to.

Student: 0.

0 if price goes up by even tiny amount. So, let us look at the equation what happens minus p by q delta q by delta p, and if we get the huge change if we have very, very small change in price. So, what we are saying that if we use this particular way to write it, that this is even if this is very, very small, and this is going to be very, very high. So, in that case what should be the value of elasticity, when we have perfectly elastic demand infinite it should be infinite, and how can you draw it, how would the demand cure look like.

Student: (Refer Time 02:05).

We have q on x axis and p on y axis it is horizontal, and we will come back to this is a very special case of the demand function we will come back to it is very important, it is like in physics you never get frictionless word, but you have an idealised motion where friction does not work, similarly we will talk about this particular situation. We in reality it is never observed in any real-life situation, but we will talk about it a great deal you know just to understand how the market functions, but not today sometime later.

And now similarly we have the opposite extreme perfectly inelastic, and that is no matter how big the proportional change you bring in price, you will not get any response in.

Student: change in quantity.

Change in quantity. So, there what we have is this is equal to 0, and it does not matter how much how big the change you have in price. So, in that case this is equal to 0, and if you draw you will get a vertical line, this is perfectly inelastic demand curve.

Now, also just think about it what happens to the total revenue, in case of perfectly elastic demand curve. If there is a small increase in the price total revenue becomes equal to 0. Because as soon as you increase the price, the quantity demanded would fall to 0, I am talking about the high idealised situation of.

Student: inelastic.

Perfectly inelastic perfectly elastic. So, in that case it will be 0.

And how about perfectly inelastic case.

You keep on increasing the price your revenue will keep on increasing, because people would demand same quantity of this particular good at all the prices. Fine even if you increase the price quantity demanded would be the same. So, what is total revenue equal to p multiplied by q, p is going up while q remains the same. So, overall impact would be total increase the increase in total revenue fine.

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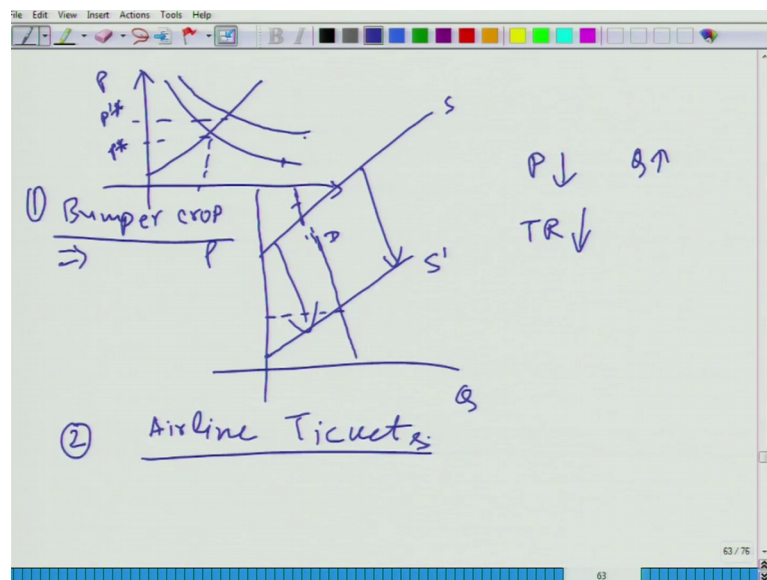
Now, one thing that you should notice that whenever we are talking about, elasticity price elasticity of demand. We are talking about we are picking a particular demand function, and as it is demand function it is a downward sloping curve. It is always a downward sloping curve you know you can have a scenario, when you have perfectly inelastic then it is flat, but it would never be demand curve would never be an upward sloping curve.

Now, let me talk about a scenario, let us say that this is an equation for banana, and price an apple and banana are substitute, and price of apple goes up what would happen to the demand curve.

Student: (Refer Time 05:41)

Accepts rightward now of course, if we bring here the supply function also let us say the supply function is this, earlier the price market price was p star, and the new market price is p dash star, can we talk about price elasticity of demand.

Student: no sir.

We cannot talk about price elasticity of demand, because here what has happened, the demand curve has changed, we have moved away from this demand curve, we have shifted the demand function now we are on a new demand curve. So, when whenever we talk about elasticity when only we move along a particular demand curve while everything else is.

Student: constant.

Fixed ceteris paribus, and only the price of that particular good is changing, then only we talk about price elasticity of demand fine.

Now, let us take another example just to understand. Have you ever heard of farmer saying that this year we had bumper crop? but that is why I am making the loss, the price has come down. So, heavily that I am making a loss have you ever heard such a statement, this is quite common whenever we have mons very good monsoon very, very good monsoon farmers are not very happy, probably they have the same feeling which they express when they have very poor monsoon and drought. So, why do you can you explain this particular phenomena, do you think farmers are lying or is there any economic reason behind exhibiting such a behaviour. So, tell me what is that economic reason.

Student: sir because them supply is supply has gone up, because production of the every farmer has increased.

Ok.

Student: So, (Refer Time 07:48) whereas, supply demand remains the same.

So, what you are saying is, that demand for crop, demand for food item let us say for rice for wheat for maize is almost inelastic, you demand the same quantity of rice, in almost

all situation again I am talking in a highly idealised fashion, not in the exact manner fine. So, if I can draw, let me draw it here demand curve is almost vertical, I can draw it like this and let me say this is the supply curve in the beginning, p q this is supply this is demand, and when you have bumper crop what happens.

Student: outward.

Outward shift let me redraw it, let me say that this is the new one the earlier one is, this is the earlier one and this is the shift, because of better monsoon production will go up, what is happening to the market price.

Student: it is falling.

Market price is falling heavily, p is p has fallen and demand is inelastic. So, what happens to the total revenue?

Student: (Refer Time 09:25).

P has fallen of course, p has fallen so.

Student: q also falls down.

Q has gone up though q has gone up.

Student: (Refer Time 09:35)

To what happens to the total revenue.

Student: increases.

Now can I say the farmer farmer's happiness is a function of not the amount of quantity they sell, but a function of total revenue that they earn. In fact, total revenue minus total cost, but right now we are ignoring the cost part just to understand. So, what is happing to since demand is almost perfectly inelastic it is not perfectly inelastic, but I am saying almost, p has come down. So, q has gone up, but how about TR.

Student: it is decreased.

It has decreased and that is the reason that farmers express unhappiness, even though they have bumper crop now this is one example bumper crop

Next example I will not describe it in completely because we need more concept, but just I will give you an idea in airline let us say you want to travel 6 months from now, and you buy a ticket from Kanpur to Delhi, and let us say you forgot to buy the ticket today, and you want to buy just one day before you travel, what would be the price can you compare the price of these 2 tickets.

Student: yes sir.

Which one will be more?

Student: one day before.

One day before and significantly more.

Student: yes.

The way airline tickets are priced, why do you think that airline have this particular kind of pricing.

Student: because sir at one day before the demand is quite inelastic. So, if the demand is quite high.

Just demand is one thing let me just tell you are in the right track, but let me just point out one thing, even when demand is quite high, but if price is also very high quantity demanded would be very, very less.

Student: yes sir.

Demand high means, the demand function whenever we use this term demand we are talking about demand function not quantity demanded, these 2 things are different quantity demanded is a point on that demand function.

Student: yes sir.

Fine. So, when demand may be very high, but price is also very high. So, quantity demanded would be very less.

Student: yes sir.

So, that is not the reason the reason that he was talking about, that one day in advance the demand is very, very inelastic.

You want to go tomorrow, you need to go tomorrow, 6 months from now if you are buying again airline would not be able to basically also you have to understand from a little bit from their perspective. They do not know how inelastic a particular person's demand is, but they have one way to distinguish that if a person purchases a ticket well in advance, it means that person is buying for some leisure travel, that he is planning for vacation and all.

Student: (Refer Time 12:54).

So that person has fairly elastic demand, if price goes up he would not travel, he would travel to some other place, or he may travel using train. So, that person has very elastic demand, but a person who typically buys ticket on short notice, they can say they may not know that person it may very well may be that person has poor memory or poor planning skill, but what they think that majority of people who are buying tickets on short notice they are business travellers, and why are they buying tickets because they need to attend certain meetings, where they need to go somewhere for some work. So, their demand is relatively inelastic.

So now think about total revenue when your demand is inelastic, and now here airline in this particular way airline finds a way to distinguish people who have elastic demand and who have inelastic demand. If airline couldn't distinguish these 2-sort different kind of people then airline will have to charge the same prices. Fine, but here using this airline can separate, segment the consumer into 2 different categories, people with elastic demand and people with inelastic demand. So, when I know, I can guess that you have inelastic demand, in that case to increase my total revenue what should I do, I should increase the.

Student: price.

Price and when I know you have inelastic demand what should I do.

Student: has to decrease.

I should decrease the price so, that is what airlines do.

Student: Sir also the concept of time value of service is here (Refer Time 14:43) like you are demanding a ticket now, and I am providing you right tomorrow. So, the time value you are giving me, it has a time value right now than for 6 months.

See again that would be do you think, if you want to let us say one way to include the time value for the logic sake, is that let me put it in more in econ in economic terms, that what you are saying if rather than using 6 month let us you used one year.

Just for example, that I am putting I am giving 100 rupees right now, instead of giving one day before. So, this 100 rupees they can use it for their own work. So, one way to look at it that what is the value that the interest that you can earn from the bank, or interest you can earn in share market. So, roughly interest that you can earn by fare means, I can say it is around 10 to 15 percent in India in this particular time, but the price if you look at the ticket of the price tickets, the difference is not 10 to 15 percent it is sometime it is 4 times 5 times.

Student: yes sir.

Means 500 percent. So, the logic that you are giving can be an auxiliary reasons, but not the primary reasons because, if that is the reason then the change should be just 10 to 15 percent, but what I suggested that the demand is again you have to whenever you are explaining you have to look at the primary reasons, I am not saying that is not a factor that is definitely a factor, that is the reason that you give that is why when you pay for magazine, where there it would be more applicable when you pay for 3 years right in the beginning you pay significantly less amount, 30 forty percent less.

Student: yes sir.

One component is coming from the fact, that the money they get immediately that they can use to, generate more revenue for themself. So, that is why they are giving you discount.

And the second when you pay immediately you are guarantying that for 3 years you will keep on buying, if you do not register you may buy you may not buy. So, for to compensate for these 2 factors they give you huge discount, even in airline that can be a

reason, but that explains very small percentage. Fine the digrest fine, so, these 2 example bumper crops and airline ticket we will come back to airline ticket, when we talk about monopoly later.