An Introduction to Microeconomics
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Lecture – 10
Market Demand Function

So, what we have learn so far is, individual demand function. Now we will move from individual demand function to, market demand function. And how these 2 are different, let us say when we are talking about individual demand function. We are talking about a person responsiveness, of quantity demanded, in terms of with variability in price of that particular.

Good, but let us say the in market, there are more people participating as consumers, not just one person. So, let us for example, the sim let us take a simplest case, where there are 2 people participating in market as buyers, just 2 people and that demand individual demand function of person one is,

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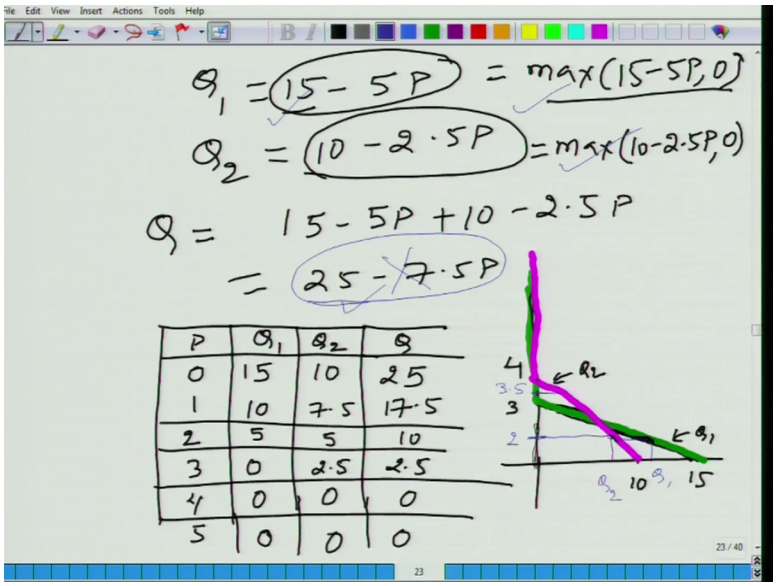

15 minus 5 P, again remember this q is quantity of a particular good demanded by person one, and P is the price of that particular good. As we have already discussed that demand function, is not only the function of it is own price, but also the prices of.

Student: Other goods.

Several other goods and not just prices, but income of individual, and several other factors so far. But when we were talking about, movement along a curve or a demand function, what we assumed that all other factors are held constant. So, what we can say for time being this 15 is taking care of, the values of all other factors. Similarly let us say that we take the demand function of second individual, and this is 10 minus 2.5, and now we want to get the market demand function.

What is the market demand function? Market demand function gives the, total quantity demanded in the market as function of it is own price. So, what do you think? What would be the market demand function?

Student: Q1 plus Q2.

Q1 plus Q2 do you mean that it is going to be 15 minus 5 P, plus 10 minus 2.5 P, or in other words let me write it here, do you think this is going to be the market demand function.

Student: Yes sir.

Let us see, we will go to the our basic principle we will draw a table, where then the first column, we will have the different prices of this particular good. This is P, the second column will give quantity demanded, as a function of this price for individual one, similarly third column will give for second individual, and forth column will give information about quantity demanded in the market. So, let us say when price is 0, how many units person one would be willing to buy.

Student: 15.

15 how about the second person?

Student: 10.

10. So what we are going to get is.

Student: 25.

25 let us now change it to one, if price is one how many units person one would demand?

Student: 10.

10 how about person 2?

Student: 7.5.

7.5 and total is.

Student: 17.5.

17.5 similarly let us do for 2, 3, 4 and 5. So, when 2 it is going to be 5, and this is going to be again.

Student: 5.

5 and total is.

Student: 10.

10 when it is 3, it is going to be.

Student: 0.

0 and.

Student: 2.

This is going to be.

Student: 2.5.

2.5 and this is going to be just 2.5.

Student: (Refer Time: 04:43).

When 4 it is 0.

Student: 0 negative.

And this is 0.

Student: 0

And this is.

Student: 0.

0 how about when it is 5.

Student: 0 0 0.

0 0 0, but when we are saying 0 0 0, it means we are not following this equation.

Because if you follow the situation, and you put P is equal to 5 Q, one is going to be.

Student: Negative.

Minus 10. So, it is good that you understood on your own although, we are writing Q1 is equal to 15 minus 5 P, but what we mean is, the maximum of 15 minus 5 P comma 0, demand cannot be less than, 0 why cannot be less than 0? Think about it.

Student: It does not make any sense.

It does not we are talking about your buying decision. When you are buying something in the market, you cannot buy amount less than 0. So, at less amount that you can buy from the market is equal to 0. So, although we are saying 15 minus 5 P, what we mean that either 15 minus 5 P, but if it is negative we are taking it is as equal to 0, and similarly here. So now, if you draw, we have done the table let us draw Q1.

Then let us draw Q2, and then we will draw Q1 plus Q2, if we draw Q1 how would it look like?

Student: Straight line.

Straight line.

Student: Downward slopping.

Downward sloping, Q1 is going to be 15, when Pone is equal to 0 and Q1 is going to be equal to 0, when p is equal to 3.

Student: 3.

And as we know that it is, a straight line 2 points are good enough to figure out this line. And this is what we get. Fine how about the Q2? This is Q1 how about the Q2? When p is equal to 0, then quantity demanded is.

Student: 10.

10 and when p is equal to 4, then quantity demanded is 0. Of course, these lines are straight line, even though my drawing says that, they have some curvature, but please take them as 2 straight lines. Now we are talking about 0, one thing what you said that we can simply add them, but be careful when you are simply adding them up, because notice when price is above 3, when price is above 3, but below 4, in that zone Q1 is equal to 0, but Q2 is positive number. So, in this zone total market demand will be given by Q2 only.

So, we cannot simply add them up and, why it is happening again go back, although we are saying colloquially, that we are drawing Q1 is equal to 15 minus 5 P, but that is not the demand function.

Demand function is this, it is maximum of 15 minus 5 P comma 0, demand of a good cannot be less than 0. So even though we are drawing, just this line as Q1, but in actual sense, Q1 is this, let me use a different color pen probably that will help us. And this, this is Q1 because above p equal to 3 quantity demanded is 0, for person 1.

Similarly, for let us take another color for person 2, his demand function is not only this part and this is straight line mind you, although it does not look like, but please take it as straight line. And above 4 it is going to be equal to 0. Now if you want to obtain the market demand function, we will have to add these 2 curves horizontally, what we mean by adding up horizontally, it means we have to keep P fixed, and we have to obtain Q1, as well as Q2 and then add Q1 and Q2 to get the market.

Student: Demand.

Demand, the quantity demanded, at that particular price. So, we are adding we are picking. So, let us say at this particular price, at this price let me. So, let us take price 2, what we are doing? We are calculating here Q2, and then Q1, and we are adding keeping price at 2 we are adding this Q1 and Q2, and we are obtaining the quantity demanded by

the whole market. But notice, if we take here price above 3, but below 4 let us say 3.5, what is happening in this case that Q1 is equal to.

Student: 0.

0 and Q2 is some positive numbers. So, when we are adding up Q1 plus Q2, basically we are adding 0 plus quantity demanded by person 2, at that particular price. So, quantity demanded by the whole market is just, quantity demanded by person 2. So, we cannot simply say this, this is wrong you know because, we have to be careful about it, because this we are getting because we are thinking our demand function is 15 minus 5 P, and 10 minus 2.5 P, that is wrong our demand functions are maximum of 15 minus 5 P comma 0, and maximum of 10 minus 2 p com 2.5 P comma 0, and we are adding these 2 up. So, be very careful ok.

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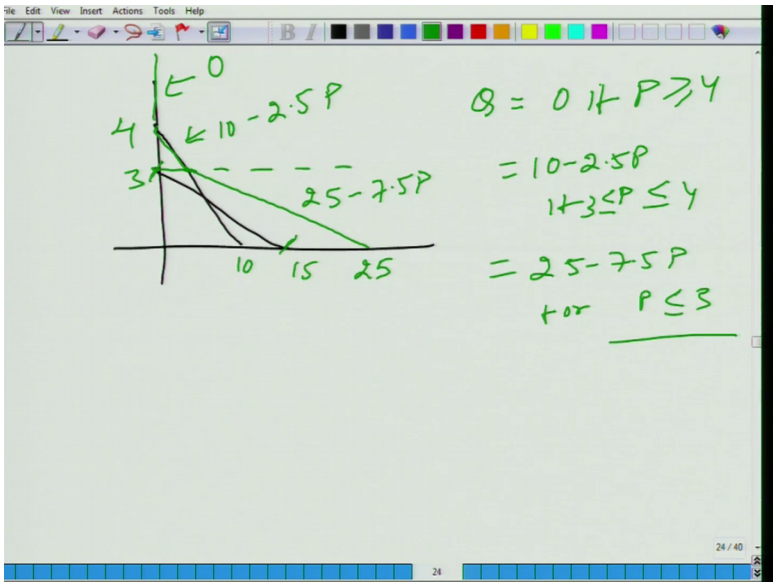

So how it is going to look like? It is going to look like if, so what we had basically, is something like this, and now we want to get the market. So, till, till this point, this is the market demand function, this is 3 this is 4, this is 10 this is 15, and from here what we need to do we need to super impose this curve, on this curve. So, it is going to look like, we have to do the parallel shift, it is going to look like this and this is going to be equal to 25. So, in this zone in the earlier page, you were saying 25 Point 7.5 P, in this zone it is going to be 25 minus 7.5 P, but in this zone, it is going to be.

Student: 10 minus (Refer Time: 11:42).

10 minus.

Student: 2.5.

10 minus 2.5 P, and in these zone, it is going to be 0. So, market demand function if we want to describe it completely; market demand function we can write it like this, 0 if p is greater than or equal to 4, is equal to 10 minus 2.5 P, if p is greater than 3, but equal to 4, and it is 25 minus 7.5 P, for p less than 3. And that is how we get the market demand function, be very careful about it, just do not do plane edition.