Microeconomics: Theory & Applications
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Lecture - 02
Major Themes in Microeconomics (Part-I)

Hi, welcome you all to the lecture series on Microeconomics. We will continue with the discussion on Themes of Microeconomics. So, last time we have seen the definition of production possibility frontier. Now let us have a graphical illustration of the concept and through that graphical illustration I will explain how these themes called trade off, opportunity cost and marginal analysis are linked and they can be displayed through this concept of production possibility frontier.

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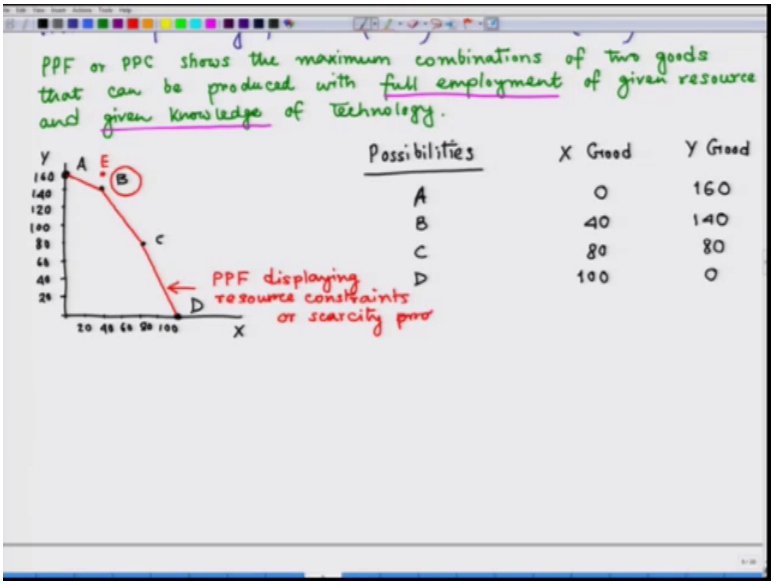

So, I am measuring the units of X good, along the horizontal axis and measuring the units of Y goods to be produced along the vertical axis.

Now, let us have some data so, let us assume that there are some possibilities. And these are the possibilities of different combinations of good X and Y to be produced. So, let me write X good and Y good here. So, the possibility A gives 0 units of X good, but you can produce 160 units of Y Good. There is also a possibility B which offers 40 units of good X and 140 units of good Y.

Similarly, a possibility C exists where you will get 80 units of both the commodities. And there is possibility D, where you get 100 units of X, but you will get 0 units of Y Good. Now let us draw a diagram where we represent these 4 possibilities. So, let us see each mark here represent 20 units of goods. So, 20 then 40 then we have 60, 80, 100, 120, 140 and finally here. So now, let us plot these A B C D 4 production possibilities. So, the first production possibility is the case of a where we are producing 0 of unit of the X Good, but 160 units of the Y Good.

So, basically we are here. Now the other extreme is basically the possibility D where the firm produces 100 units of good X, but 0 units of good Y. Let us also plot the other possibilities B and C. So, for point B we have 40 and then 140 so, we are talking about a point somewhere here. Then the possibility C is basically 80 and 80 so, somewhere here is point C. Now one thing is sure that the shape of these production possibility frontier will be obtained if we join these points. And the curve or the frontier is going to be a downward sloping.

One we do not know a prior whether it is going to be a convex or concave or a straight line, but it is definitely going to be a downward sloping curve. And this is because the resource constraint issue or the scarcity problem. And the other issue that leads to these downward sloping curve is the case of tradeoff or the issue of trade off. As we have given resources, we cannot produce one good by more units without sacrificing some units of the other good.

So, as one moves from A to B as someone wants to produce some units of X, the firm has to sacrifice some units of Y good as well. So, here the firm is producing 40 units of X and 140 units of Y. Now a point like this say here where the farm say let us call this point E. So, a point like E is infeasible or unattainable. A farm cannot simultaneously produce 40 units of X good and 160 units of Y good, because of the resource constraint issue. So, if the firm decides to produce more of X good, the firm has to reduce some amount of Y good and that reduction or sacrifice has to follow these straight lines or this frontier.

So, this is my PPF displaying resource constraint or scarcity problem. Now note that a farm faces a decision whether to produce at point A or point B or point C or point D. So, these are basically the possibilities that a farm confronts with and there is a tradeoff of course. So, what does the slope give there? Slope gives that if I want to produce one unit

of extra X good then how many units of Y good I have to sacrifice as a farm so, these gives the opportunity cost. So, the slope of the production possibility frontier has the opportunity cost or marginal cost of production interpretation.

Now, this has got a name in economics, and the name of this is marginal rate of transformation. So, let us have a definition for marginal rate of transformation which is associated with the concept of opportunity cost. Now can we comment on the curvature of production possibility frontier? We have already opined on the slope which is going to be a negative one.

Yes, we can comment on the curvature of the production possibility frontier, but that depends on the production condition and 3 types of curvatures possible. Production possibility frontier can be a straight line, it can be concave and it can be convex as well. But convex PPF is not common in economic analysis for some theoretical reasons. So, we are going to concentrate on the cases where we can obtain a straight line PPF or a concave to origin PPF.

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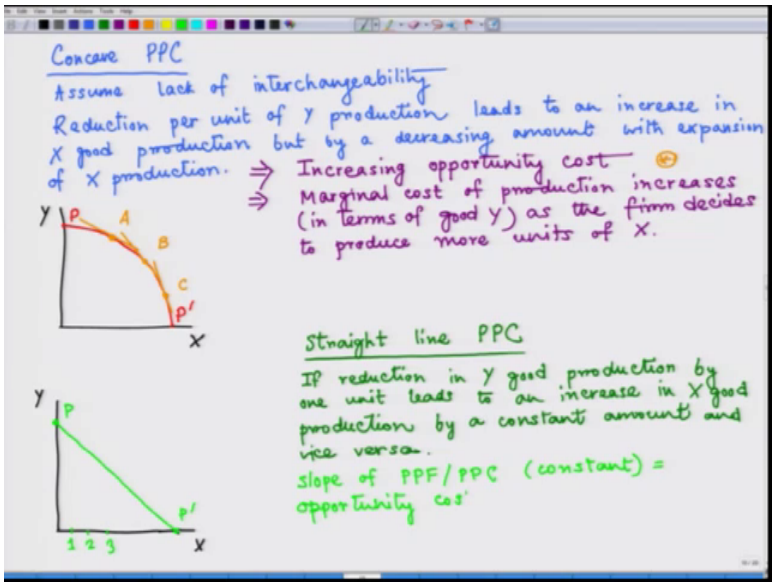

So, it is not that easy to transfer the resource from production of X to production of Y. In that case, we get concave PPC so, we can comment like this. In that case, we have already seen that if we want to have more units of commodity X we need to sacrifice, the units of Y or if we want to have more units of Y, we need to sacrifice some units of X. So, in the case of a concave PPC or in the case of lack of interchangeability of resources,

the reduction per unit of Y production leads to an increase in X Good production but by a decreasing amount with expansion of X production.

So, in this case, let us draw this diagram again. So, we measure X commodity production along horizontal and Y commodity production on or along vertical axis. And we are saying that the production possibility frontier which gives the resource constraint is going to be of this shape. So, we can call this P prime. And note that as we have written the implication of a concave PPC, here this has another implication, and this is known as increasing opportunity cost.

So, what does that mean? That means, that marginal cost of production increases in terms of good Y as the farm decides to produce more units of X. Now you can see this from the diagram also. Suppose this is a point A, this is a point or possibility B, and this is another possibility C. Now if you draw tangent to this production possibility frontier at these points, they will give the slope of production possibility frontier at these points and you see the absolute value of the slope is increasing.

So, that is the interpretation or implication of increasing opportunity cost in terms of calculus. Now what is the implication of straight line PPC or you know what production condition will lead to straight line PPC we can summarize this as follows. If reduction in Y good production by one unit leads to an increase in X production by; this time a constant amount and vice versa, then we have this straight line PPC case.

So now, let us draw a straight line PPC here. So, we can again call this P and P prime these extreme points. And note that as the firm decides to move from say one unit of X to the second unit of X, and again from second to the third unit of X, the sacrifice it has to make in terms of the Y commodity is constant. And that is basically given by the slope of this straight line PPC. So, again the slope of PPF or PPC this time it is constant. It gives the opportunity cost of the farm.

Now, let us move to the 4th theme in the list, and the theme is known as prices and market. Prices and market mechanism are the core of microeconomics. So, we will study that in deeper details.

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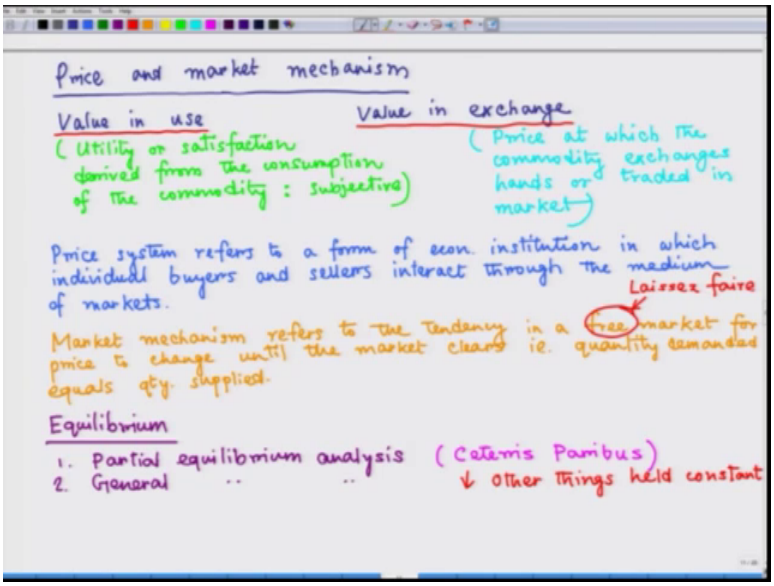

So, when in 1776 professor Adam Smith wrote his famous book titled Wealth of Nations Economics as a modern subject has begun it is journey. And since then economists have distinguished between value in use of a commodity and value in exchange.

So, the distinction is as follows, the value in use is basically the utility or satisfaction derived from the consumption of the commodity. So, of course, this is subjective in nature. And by value in exchange the classical economists mean that value in exchange of a commodity is given the price at which the commodity exchanges hands, or in other words traded in markets.

So, we will start with the definition for price system. What is price system? Price system refers to a form of economic institution in which individual agents which are basically buyers and sellers interact through the medium of markets.

Now we will have another definition and that is for market mechanism. So, market mechanism refers to the tendency in a free market for price to change until the market clears. It implies quantity demanded equals quantity supplied.

Now, let us note that there is this word called free. What do we mean by that? By the French phrase Laissez Faire we mean that there is no interference in the working of the market by government. So, if that is the case, we call or Adam Smith called that as a free market. So, here free means this phrase holds. We have already explained what

equilibrium is; now we are going to look at 2 different types of equilibrium which is common in micro economic analysis. And these 2 types of equilibrium are partial equilibrium analysis and general equilibrium analysis.

In the case of partial equilibrium, we study the problem of one single economic agent like a firm or a consumer, or it can be even a market or an industry. So, here in the case of partial equilibrium analysis, we assume that we treat one particular agent or one particular goods market at a time. And that is known as the assumption of Ceteris Paribus. This Ceteris Paribus is a Latin phrase which is commonly used in micro economic analysis and that means other things held constant.

Now, in the case of general equilibrium analysis, we assume that these markets or this economic agents are actually interlinked. So, if there is a disturbance or perturbance in one sector it will automatically influence the outcome of the other sector. And so, we basically leave the assumption of Ceteris Paribus and we go for simultaneous determination of equilibrium in this inter linked markets that is in equilibrium analysis. But for our course we are not going to study general equilibrium, we are going to concentrate on partial equilibrium analysis. We will continue with these discussion in the next lecture.