Environmental & Resource Economics
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Lecture 50
Economic Valuation of Environmental Goods and Services – Different Valuation Approaches Part – 10

Welcome to our discussion on Economic Evaluation of Environmental Goods and Services once again. In our last session we completed our discussion on choice experiment that means by now we have completed our discussion on economic valuation in the category of stated preference approach. That means both choice experiment and contingent valuation method they are part of stated preference approach wherein we ask the respondent to state their preference for environment that is why this is called stated preference approach. Today we are going to discuss about the other approach or other methods for environmental evaluation which is revealed preference approach, so this is the reveal preference approach that we are going to discuss today.

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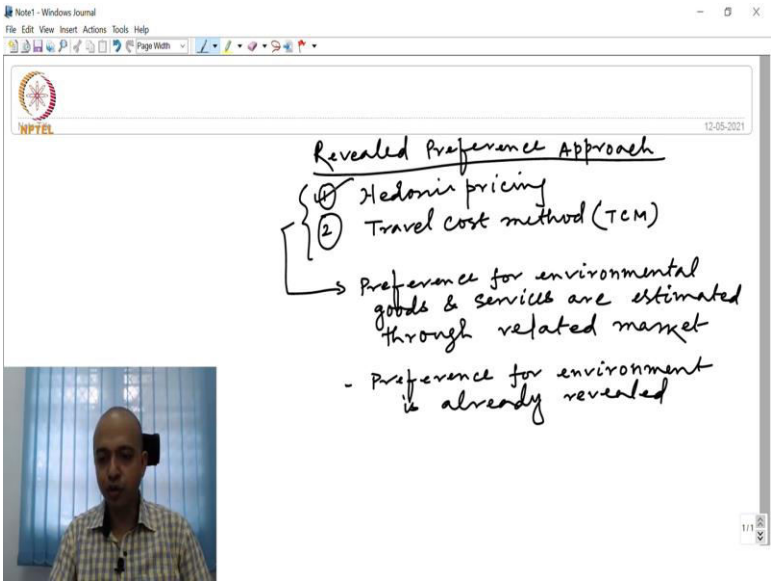

Reveal Preference Approach. Under this reveal preference approach there are basically two methods one is hedonic pricing and the second one is Travel Cost Method or in short TCM. Now, in reveal preference approach what we do we try to estimate individuals preference for environment through related product. That means preference for environment or environmental goods and services are estimated through a related market.So, that means

unlike stated preference approach wherein we ask the respondents to state their preference in this reveal preference approach preference for environment is already revealed. So, preference for environment for environment is already revealed and how it is revealed through related market right. Now, today we will first talk about hedonic pricing and then we will talk about travel cost method right.

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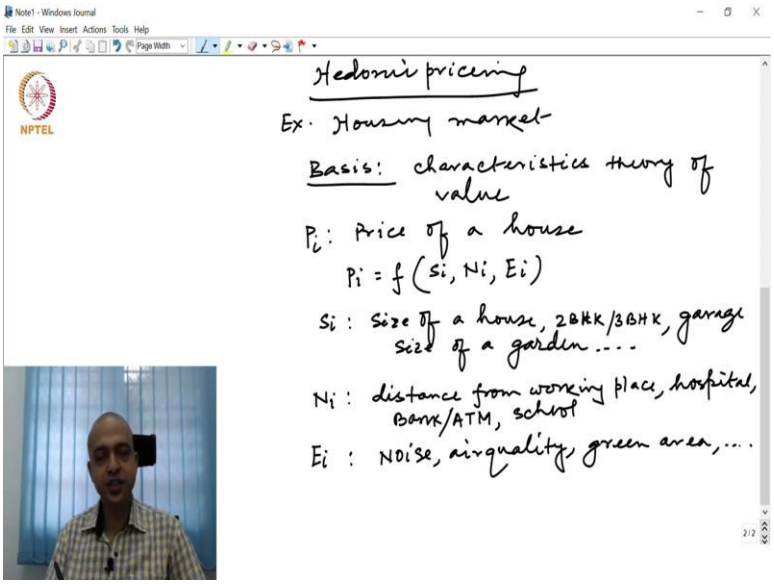

So, in hedonic pricing also as I said preference for environment is already revealed through related market. As an example, we can take the housing price or housing market this is an example an example of hedonic pricing can be understood by taking housing market example, housing market. Like the choice experiment, this hedonic pricing is also based on characteristics theory of value. What is the basis the basis for hedonic pricing also is characteristic theory of value that means value for a good or product is basically, the summation of the values of its different attributes.

Now, when we talk about if we assume house as a product then the price of a house if we denote Pi let us say Pi is the price of a house price of a house. Then this Pi is actually a function of several factors some of the factors are called site-specific that means purely on the house specific or apartment specific. Some factors are called neighborhood factors locational factors and some factors are environmental. So, that means I can say Pi is

basically a function of site-specific factors Si then neighborhood specific factor Ni and environmental factor Ei.

Now, I will give example of all these three types of factors for example this Si site specific factor could be the size of the house size of a house. Then how many bedrooms it has 2 BHK or 3 BHK like that. Then what is the whether the house has a garage or not, what is the size of a garden? It has if at all any garden is there, so on and so forth. You can think of any number of factors whether it is a south facing or north facing east facing or west facing. So, these are purely site specific or apartment specific factors then something called neighborhood specific factors that means how far is the house so that means these are called locational factors. So, distance from distance from working place existence of any hospital, existence of bank or a ATM, existence of any school.

Those who are going to buy they will also see in the neighborhood of that house if there is any school for their kids to study so these are called neighborhood specific factors. So, Ni is called neighborhood specific factors. Then there are environmental factors also which will determine the housing price what are those environmental factors? Maybe noise in that locality, air quality, in that locality air quality then greenery green area so and so forth these are called environmental factors that will also determine the housing price. Now, if we estimate this price function that means housing price by a simple regression analysis then what we can say we can specify this type of function.

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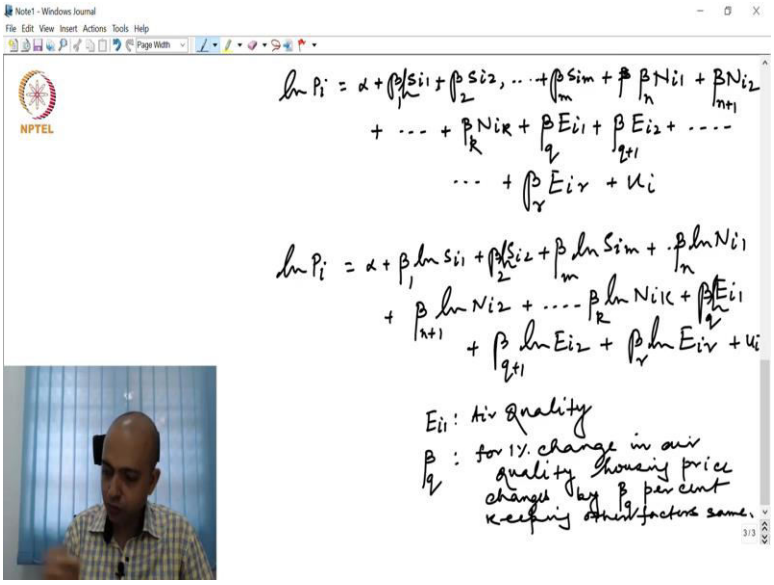

Let us say I am specifying the equation in logarithmic term so log of Pi equals to alpha plus beta 1 Si1 plus beta 2 Si2. Likewise let us say you have n number of side specific factors so this will become beta m Sim. Then plus beta let us say this is let us say this is instead of beta okay let us say this is beta Ni1 plus beta N plus 1 Ni2 plus let us say you have you have k number of such neighborhood specific factors. So, this will become beta k Nik plus beta let us say beta q beta q Ei1 plus beta q plus 1 Ei2 plus beta let us say you have r number of environmental factors. So, this is your specification of the equation then ui.

So, housing price so price of the ith house is determined by m number of site-specific factors then we have k number of k number of neighborhood specific factors and r small r number of environmental factors that determine the environment housing price. For simplicity sake we can we can take this equation in both side logarithm so that will help so that means we can say that these are all logarithm.

So, I will write the equation once again so this will become log of Pi equals to some alpha plus beta 1 log of Si1 plus beta 2 Si2 plus sorry this is again log beta m log of Sim plus beta n log of Ni1 plus beta n plus 1 log of Ni2 plus beta k log of Nik plus beta q Ei sorry this is again log Ei1 plus beta q plus 1 log of Ei2 plus beta r log of Eir plus ui0.

Now, this particular equation will tell us for example let us say this Ei1 let us say Ei1 is let us say this is air quality Ei1 is the air quality. So, that means this beta q what does then beta

q indicate for 1 percent change in air quality what is the percentage change in the housing price keeping other factor constant. So, that means if the individual, if the individual pays little higher amount for the same house for the same house. That means if the housing price in a better air quality environment area is a higher than the similar house in a lower environmental quality air quality area that means we can say that individuals they are ready to pay some extra premium for this air quality.

So, that means the additional price in the how in additional price for this house is purely due to better environment this is how preference for environment can be estimated through the housing market through the housing price. Similarly, beta q plus 1 will indicate for a percentage change 1 percent change in Ei2 let us say that is greenery what is the percentage change in the housing price. So, I will say that beta q is for 1 percent for 1 percent change in air quality housing price housing price changes by beta q percent keeping other factors same.