Economics of Health and Healthcare
Prof. Deep Mukherjee
Department of Economic Sciences
Indian Institute of Technology - Kanpur
Prof. Angan Sengupta
Department of Management, Amirtha Vishwa Vidyapeetham, Bangalore

Lecture – 39
Cost-Benefit Analysis

Now after cost benefit analysis, we will move to our last economic evaluation technique that is, after cost utility analysis we will move to cost benefit analysis. Now what is cost benefit analysis?

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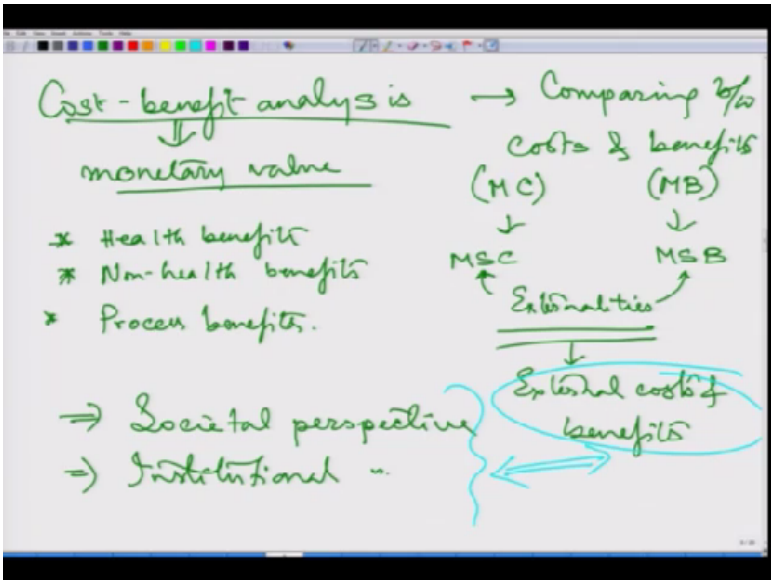

We learnt that in cost benefit analysis, our values are estimated in terms of monetary values. You know the benefit is, so both the cost and benefit are estimated in monetary values, right. And then when we talk about this both the cost as well as benefits and estimating them in terms of money. Then we have both the, all the health benefits, non-health benefits, opportunity cost and opportunity gains, process benefits. Similar to what we have seen for cost utility analysis, right.

So this and we need to look when we are doing a cost benefit analysis. Cost benefit analysis is mostly used in health and a lot in environmental economics, anyways. So we have both the societal perspective as well as institutional perspective because when we do a cost benefit analysis, what we are doing? We are comparing between costs and benefits.

Can we tell that marginal costs and marginal benefits, can we tell the same thing to marginal social cost and marginal social benefit and is not it what we do in externalities, is not it? Is not it this externality assessment? The comparison between marginal social cost and marginal social benefit or eventually it can be marginal private cost and marginal social cost or marginal private benefit and marginal social benefit.

If there is some external costs and benefits attached. So when we do this assessment of external costs and benefits, we need to look at this social perspective as well as the institutional perspective, yes. So then we generally estimate this when we try to estimate the monetary values, we generally estimate the monetary values through our technique called contingency valuation method.

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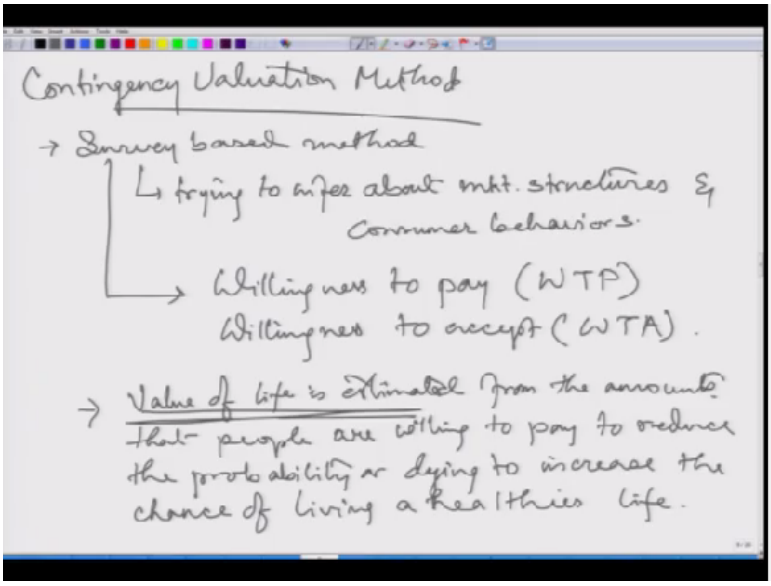

It is a survey based method where you ask people about their willingness to pay and willingness to accept for it is highly used in several countries, both in developed as well as developing countries where you try to infer about this, trying to infer about market structures and consumer behaviour, right and in this survey based method, we collect information on willingness to pay and willingness to accept.

Willingness to pay is the most accepted one and willingness to accept and what does this

willingness to pay say? That to avail a particular benefit if the government or some private organization gives you this benefit to avail that, how much would you like to pay? Yes, that is generally known as willingness to pay. So and we try to estimate the value of life. So value of life is estimated from the amounts that people are willing to pay to reduce the probability of dying or to increase the chance of living a better, a healthier life or healthy life whichever way, yes.

So that is the value of life, right. So if I want to live this better life, how much I will pay? Or if I get a diagnostic system just in my locality, how much would I like to pay? If I get a hospital, how much would I like to pay, something like that. If I want fresh air or a park, the government wants to set up a park and they ask me that how much would you like to pay as an entry fee or they want new clinic, how much would you like to pay a user fee or they would like to again clean a particular lake which was polluting, so how much would you like to pay.

And then we will do a beautification of that lake which you can probably use later and that is what this Elinor Ostrom. So she was the political scientist who won the noble, economics noble prize for her contribution towards this environmental economics, especially the bargaining capability of her and she worked intensively with these IAC and (()) (07:12) to improve the lakes, Bangalore lakes.

And it has been very influential, that project and then the Bangalore authority, the civic authority, the BMP, they have taken up with, so they have taken up. They have cleaned the lake and which eventually increased the property prices around the lake by up many many folds, right. Otherwise, they were just dumping grounds. It had a pretty bad condition. Many of the lakes were already filled up and all.

Anyways so, if you improve the lake and then the value of life increases and then the willingness to pay of the people who can afford that increases, right. So it is the value for money overall. Therefore, it is proximate third of calculating the monetary value of health benefits in terms of comparison between benefits.

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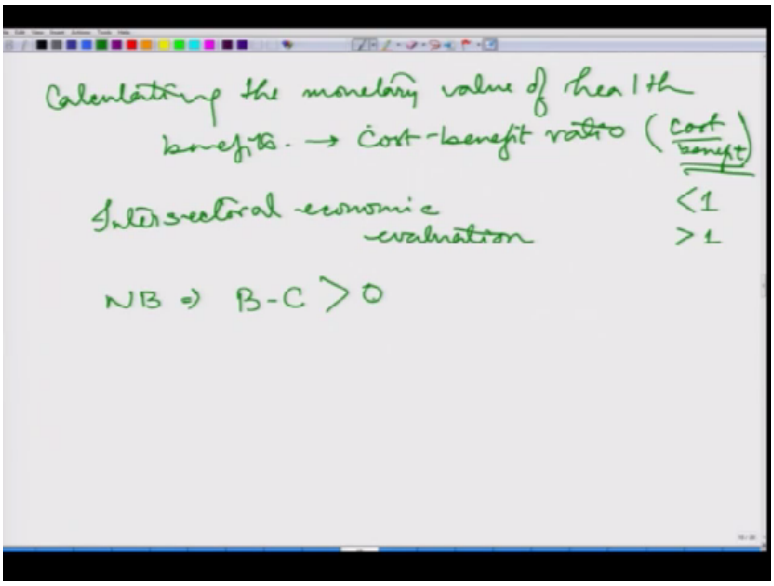

So I will clearly write expressed as cost benefit ratio. So it is the comparison between cost over the benefit. It is not incremental, right. It is just the ratio, C/B. It is the cost benefit ratio and if it is more than 1, then the cost is higher than the benefit. If it is less than 1, then the benefit is higher than the cost because it is like cost/benefit, right. If benefit is higher, then naturally benefit is more than the cost.

So this is less than 1. If cost is more than the benefit, then this is greater than 1. This is how and then we try to estimate that which one is dominating, whether the cost is dominating or the benefit is dominating. So and it is kind of very helpful one when we look at this intersectoral economic evaluation because now it is easier to understand as everything is measured in terms of money.

So it is good to have an intersectoral. When we have an intersectoral decision making dilemma then probably this cost benefit analysis helps a lot. And this both the cost benefit analysis as we say it, you have to be very particular about whether you are taking all these costs, direct cost, indirect cost. Similarly, in the benefit, you take the, not only the health benefit or not only the monetary values of health benefit because I asked a person about their willingness to pay.

They also need to have a psychological benefit. So this psychological valuation, monetary valuation is also like if there is a benefit, then that valuation is also important because and then

for that matter people have to know that what, like the psychologically how much can gainful they will be and so. Therefore, whenever we have a net benefit, we estimate benefit-cost and we will see that whether greater than 0 or not which is just like that in a cost benefit ratio.

And CBA is mostly used in to make the public decisions, yes. So this, I mean, public decisions as in if you remember that took an example drunk driving, in a case of drunk driving, how much the life value could be saved or the property value could be saved. And then based on that, they estimate the proportion of people who are doing drunk driving and then being caught and then the charge type of fine can be put on them.

So again as we in the beginning we talked about the societal perspective and institutional perspective. So when we estimate the cost benefit analysis for a particular say public decisions, so it has both the social aspect as well as institutional aspect and then and any decision, it can be because we are also thinking of the psychological parameters, (()) (11:51) parameters, then we must have to think about the externality.

And whenever we are thinking about the externality because we are considering all costs and benefits and whenever we are considering this external cost or external benefits, the net benefit till now should be my net social benefit.

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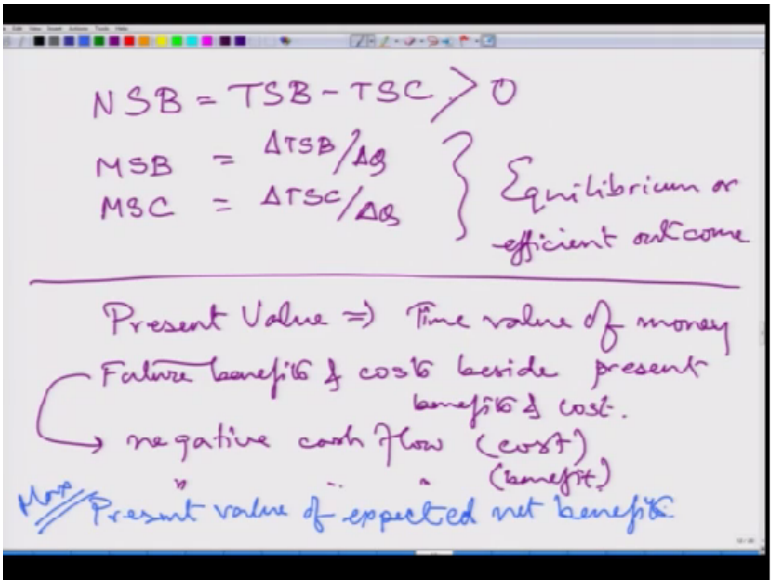

This is nothing but the difference between total social benefit-total social cost and we will see whether this is greater than 0 or not, yes. And that is how we estimate our, whether shall we go for say the, and it eventually determines that it should be a public good or not, yes. And then of course, when we try to estimate the efficient output, of course net to estimate the marginal social benefit and marginal social cost.

Otherwise, I will not have an idea about how the cost is increasing with more the output or lesser the output, how much the cost is coming down. At the same time, how it is meeting the demand or the marginal benefit, yes. So and in that way, we have to consider. So it can be either delta this way or delta total social benefit/delta Q and delta total social cost/delta Q. With 1 unit change in output, how much my benefit and cost is changing and based on that, how much equilibrium I am achieving.

Equilibrium or efficient outcome, yes. And then when at the point where your social benefit, net social benefit is most, then you will take the decision, whether you will consider that or not. Eventually it is not a particular time points decision. So when we implement a decision say if the government is taking up a decision and then if the government is taking up a decision, then we must think that the time component, you think over the time component that with the long run or short run, how this is going to work.

And then for that, we have to do a present value analysis by estimating our time value of money, right. That is what present value estimates or analysis try to do, time value of money. So once we do this time value of money, we have to estimate the future benefits and costs beside present benefits and costs and while we are estimating say we have to estimate both the negative side which is cost, often we call negative cash flow but here it is not required which is cost and positive side which is benefit.

And based on that we will try to estimate. Based on today's cost and benefit, we will try to estimate the future predictions, we will do our forecasting or something like that and then we will try to estimate the present value finally, we will try to estimate the present value of or we will try to maximize the present value that is the objective of expected net benefits or net social

benefits, right.

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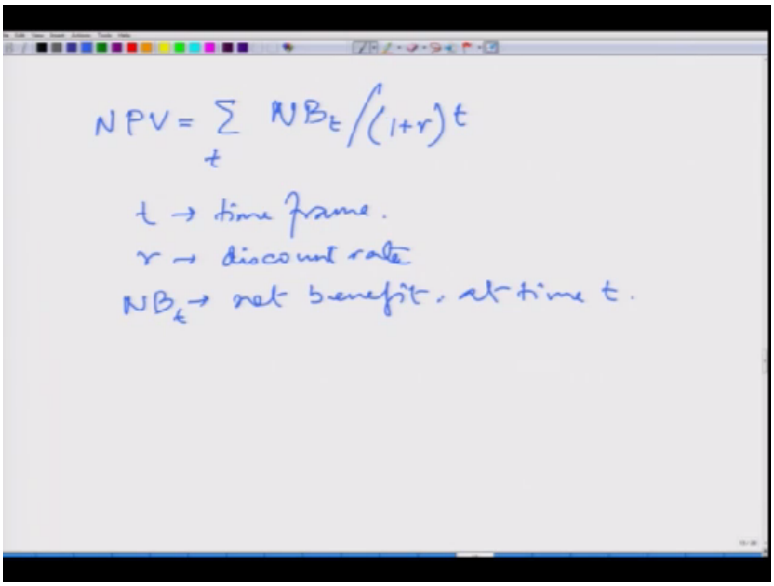

That is what we try to do and when we write down the present value formula then how we write? We write in terms of PV or net present value=summation Rt 1+r t, t is the time frame, r is the discount rate and Rt can be net cash flow or the net benefit here. I will keep it as NBt, yes, net benefit at time t and this is how we estimate and based on the discounting rate, it will be adjusted and that is how we estimate the net present value for a particular project.

And similarly we have to estimate the present value for both try to forecast the present value for both the cost as well as benefits and eventually social cost and social benefit, not a very easy task because you are supposed to take care of this external cost and benefit as well. But still if we can do that, it gives us the broad idea about a long term implication of a particular decision, yes.

So this is all about cost benefit analysis and cost utility analysis and this is the end of our economic evaluation technique sessions and now in the next session, we will discuss the development theories or development aspect on health, social and the economic developments policies or associated theories. Thank you very much.