

Difficulties Faced During the Measurement of Environmental Values

Article shared by : **Puja Mondal**

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We discuss some problems of measurement of environmental values:

1. Market Prices:

When there are adverse health effects and loss in productivity due to environmental damage, market pieces are to evaluate them. The procedure is to evaluate damages due to soil erosion, deforestation, and air and water pollution. For this purpose, the ecological relationship between environmental damages and its effects on production or health are estimated on the basis of prices to derive monetary values. Welfare losses relating to health risks due to polluted environment are measured by income foregone because of illness or premature death. Such estimates are difficult to compute because they rely on loss in income.

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2. Costs of Replacement:

People and firms invest in installing alternate devices to avert environmental damage of air, water and land. Such investments can provide an estimate of environmental damage. But the effects of damages cannot be evaluated.

3. Surrogate Markets:

The effects of environmental damages on other markets like property values and wages of workers are also evaluated. Valuation in the case of property is based on risks involved in evaluating the value of property due to environmental damage. Similarly, jobs with high environmental risks will have high wages which will include larger risk premiums. But this technique is impracticable because property owners and workers are ignorant of the effects of environmental damages.

4. Social Discount Rate:

Environmental degradation leads to costs and environmental improvements confer benefits on resource users.

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1. The problem of measuring environmental damage is to evaluate it and compare it with the cost of preventing it. It concerns comparing the benefits of environmental protection with the costs incurred on it.

2. But the main problem is how to measure costs and benefits of environmental effects on the present and future generations. For this, a rate of discount is needed for discounting all costs and benefits. But there is lot of confusion and differences among economists in discounting environmental costs and benefits on the following grounds:

Critics do not favour discounting in general and high discount rates in particular. According to them, there is no unique relationship between high discount rates and environmental degradation. When discount rates are high, the level of investment falls which discourages development projects and slows down the pace of development. It thus shifts the burden of high costs to future generations. Even demand declines for resources on which investments are to be made.

However, the main problem is how to choose a social discount rate. This cannot be the market rate of interest because of uncertainties and imperfections of capital markets. Therefore, the majority of economists measure the social rate of discount at government's borrowing rates on long-term securities because they are riskless. But there are numerous borrowing rates on government securities relating to different time periods. The problem is which rate to choose as the social discount rate.

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Many economists, therefore, favour social rate of time preference and opportunity cost of capital in measuring the cost and benefit of environmental degradation. But like the social discount rate, they have their problems of measurement and the effects on environmental degradation on the present and future generations are unclear.

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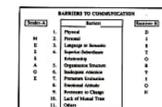
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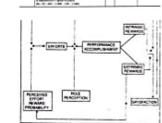
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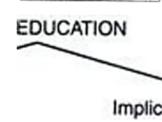
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