Measuring the benefits from a project

1. Travel cost method
2. Hedonic pricing method
3. Defensive expenditure method

Goal: Measure the benefits from a project, where there may not be good market information.

Travel cost method.

Method of inferring the value that individuals put on a project (e.g. park, campground, waterfall, beach, clean water) based on the resources they are willing to use to enjoy the benefits.

e.g. National Park in Maine. Question: How measure the value of this park to the public. Entry to park, which was in the middle of wild forests, was free.

Imagine we have a park.

10 people visit from within 5 km. Cost of getting there (time, transport) = $5 per person. In this zone, there are 1000 people living.

6 people visit from 5-10 km away. Cost of getting there = $12 per person. These people were willing to pay at least $12 to visit the park. So value of the park, to them, was at least $12. In this zone there are 1000 living.

Assume that the demand for the park is similar in both zones.

In Zone A, there are, presumably, 6 people who are willing to spend at least $12 to go to the park. But these people only need to pay $5 in costs to get to the park. So they enjoy a consumer surplus of $7 each. Reminder: Consumer surplus = willingness to pay – what you actually have to pay.

Travel cost method: identify and add up all the consumer surplus. This reflects the willingness to pay to enter the park.

Information needed: For park visitors, where do they come from; value of their time; cost of transport per km; number of people per zone.
Example.

1976. Kerry Smith and William Desvousges


Many parts of the river were dirty.

Boat. Fish. Swim.

Measure quality of the water as % dissolved oxygen in water.

Cost of travel: $0.06/mile. Value of time varied from $2.75/hour to $7.89/hour (profession)

\[ \text{Ln (visit rate)} = -3.928 - 0.051 \text{ travel cost} + 0.00001 \text{ income} + 0.058 \text{ Dissolved oxygen} \]

\[ t=-.31 \quad t=-.28 \quad t=1.11 \quad t=3.92*** \]

Inferred value of improving water from boatable to fishable was $7.2m

And from fishable to swimmable was $29 million. Per year.

Limitations

1. Values the entire site, not specific features. E.g. playground.
2. Hard to value some of the pieces, such as travel time.
3. How deal with multidestination trips?
4. How include other costs (such as tents). …

Hedonic pricing

Trying to measure the value of an attribute (e.g. a great view, clean air, quiet, etc.).

Use results to estimate the willingness to pay for changes in the attribute.

What would be the value of closing down a dump site. Smelly, unhealthy.