

ECON4910 Environmental Economics

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ingrid.hjort@econ.uio.no

Problem set 3

Background

Country A has several national parks, of which one is especially popular with both national and foreign visitors. Many of the visitors come to walk a famous hiking path, which follows a sharp mountain edge. They normally arrive by car and park on a big parking lot with parking spaces for more than 300 cars. The parking lot is situated at the beginning of the hiking path, next to one of the most admired mountain lakes in the national park.

Many visitors complain about the parking lot. In the opinion of many, it damages the scenery around the lake, and the feeling of wilderness when they start on the edge-track. Hence, an alternative proposal has been put forth, namely to move the parking lot 2 kilometers away from the lake, down under the timberline.

The local community nearby the national park is opposed to this proposal. Among other things, the local population uses the lake for fishing and prefers to park by the lake. The local tourist industry also claims that the value of their product will be reduced by moving the parking lot. According to the tourist industry, they have many guests who stay for one night down in the valley, and then do the edge-track the day after. If they instead would have to walk for 4 more kilometers, some of them would prefer not to do the hike, and will instead just drive through the local community in the valley without staying over the night.

The national park administrator had to work out an estimate of the benefits and costs of moving the parking lot. He concluded that a social preference (SP) valuation survey was required, but could not decide between using the contingent valuation method (CVM), or design the study as a choice experiment (CE).

Ex. 1 CV methods

He went on to hire an economist to design and carry out a CV survey among park visitors during the summer holiday, asking about the benefits of moving the parking lot. Visitors were asked to reveal their WTP of having the parking lot moved, in two, slightly different, alternatives, as follows:

- (A) All traffic to the lake is shut of - except for delivery of supplies to the mountain cabins by the lake (with no possibility for person transport)
- (B) A smaller parking lot is retained at the lake (with approx. 30 parking spaces). Tour buses, local fishermen and persons with disabilities will be allowed to use this lot.

The bids were obtained by the using the following payment card (for each of the two alternatives, asked in sequence):

Annual payment	yes/no
50 \$	
40 \$	
30 \$	
20 \$	
10 \$	
0 \$	

In addition, the persons interviewed were informed that the new parking lot would be financed by users directly, through parking fees.

Discuss the design of the CVM survey, in particular, the following issues:

1. Does the survey adequately represent all affected parties?
2. What are the incentive compatibility properties of the survey, and does it deal adequately with some of the common potential biases with the CDM (strategic bias, starting point bias, vehicle bias, problems of scope)?
3. Does it deal with the potential problem of WTP-WTA divergence?
4. Does the design satisfy the NOAA recommendations for CVM surveys that were issued in 1993, after the Exxon Valdez accident?

The data is available (see Data_seminar3.xlsx for the Excel file or Data_seminar3.dta for the STATA file). Respondents were asked to state their age, annual income, level of education, and place of residence (urban = 1, or rural = 0). Approximately 20 000 persons do the hike each year. There are 2 million households in the country in question.

5. Look at the data, how many respondents are included in the survey? Is this a representative sample?
6. Based on the data, calculate mean WTP, for each of the two alternatives.

7. Formulate your own regression models and regress WTP on the relevant variables, in each of the two alternatives. What do your results tell you about the CVM survey?
8. How would you estimate the aggregate national WTP per year, for each of the two proposals above. Discuss some possible pitfalls in using this figure as basis for the final decision to move the parking lot.

Ex. 2 CE Alternative for SP Valuation Study

The park administrator was still not completely satisfied with the survey and its results. He wanted to also investigate whether a viable alternative could be to set up a bus service from the new parking lot (2 km from the lake) to the lake during the high season. This issue could be investigated doing an additional study, using a choice experiment (CE).

It may then also be relevant to investigate alternative payment mechanisms, such as alternative payment levels for both parking at the new parking lot, and paying to travel with the shuttle bus.

1. Do you have any suggestions on how such a CE study should or could be designed? You may apply the following set up, and design some alternatives:

Alternative	Cost	Move parking	Bus service
Alt. 1			
Alt. 2			

2. Would it be possible to include also the local population, many of whom were against moving the parking lot under the first alternative discussed in points 1-2 above, as part of such a CE survey?