Environmental Econ 8545

Review Questions -4st set.

Some Review Questions for Recreational Demand and Benefit Estimation

1. Write a brief (two or three pages) research proposal explaining how one might use market data to determine the benefits (exact CVs and EVs) different individuals would receive from either an improved environmental amenity (not recreational sites). Choose your example carefully and then be as specific as you can.

2. Write a short introductory paper on how one might estimate the demands for a group of recreational sites. How about the demand for a proposed site? Discuss the theoretical foundations of your proposed method, data requirements, etc.

3. First read the two articles by Morey "The Demand for Site-Specific Recreational Activities: A Characteristics Approach" (JEEM 1981), and "Characteristics, Consumer Surplus, and New Activities: A Proposed Ski Area". In the latter paper, I derive what I assert are the compensating variation and equivalent variation associated with a proposed ski area. These assertions are incorrect. Note that I derived my welfare measures from an estimated demand system that did not explain how often an individual would ski, but rather took the skiing budget as exogenous and only estimated how the individual would allocate that budget amongst the different sites. What are the problems and limitations associated with deriving welfare measures from such a "partial" demand system. Write a one page paper on this issue. In this paper, explain what I did derive if it was not the CV and EV, and explain how what I derived is related to the CV and EV. Hanemann and Morey, "Separability, Partial Demand Systems and Consumer's Surplus Measures" (JEEM May 1992, pp 241 - 258) will hopefully help you to clarify the issue.

4. Consider the designation of a new wilderness area in Colorado. Assume that the economics consulting firm of Snerd, Snerd, and Gomer has accurately determined the CV each hiker and back packer would associate with designation and that the sum of all these individual CV's is $5 million. Snerd, Snerd, and Gomer included all the aspects of the change in their CV calculation for the hikers and backpackers. However, designation of this Wilderness Area will decrease the availability of water to grow Soy beans on the plains of Colorado. This reduction will cause the price of Tofu to rise by $1 a pound. Assume that before the change, four million pounds of Tofu was produced and sold. This price increase obviously makes Tofu consumers worse off. Note that hikers and backpackers are not in this group; i.e., they never consume Tofu. Convince me whether designating the Wilderness Area is a potential pareto improvement. What if the price increased by $1.50 rather than by $1?

5. Define Maler's "Weak Complementarity Condition" and explain its relevance to applied welfare economics.
6. Discuss when it is, and is not, possible to estimate an expenditure function with environmental amenities from market data.

7. Recreational fishing is a major sport in Colorado. Trout is one of the more important species. Trout live in high altitude rivers and lakes. In contrast, other species such as bass and panfish live in the warmer water of the eastern plains. The population of trout has been adversely affected in some of Colorado's high altitude rivers and lakes by pollution from old abandoned mines. Many of these mines leach toxic chemicals (particularly heavy metals) which drain into the rivers and kill fish. The State Government is considering a project to clean up part of the mess. Specifically, the project will double the catch rates for trout in two important Colorado rivers, the Arkansas and the Roaring Fork. The cost of this project would be financed by increasing the cost of a Colorado fishing license by $10.00 per person per year. You have been hired to determine whether this project would be (or might be) a potential pareto improvement for anglers as a group. (Don't worry about nonanglers.) You have one year to complete the job. This would give you enough time, for example, to collect data if you need to. Outline, in as much detail as possible, the procedure that you would undertake to derive your answer. What are the advantages and disadvantages of the procedure that you have chosen. To complete your answer briefly discuss the distributional aspects of this proposed policy for anglers.

8. Compare discrete-choice models of recreation demand, where the season is divided into a number of periods, with more traditional recreation demand models that assume utility, for the season, is a function of the number of trips to each site during the season. As part of your answer, briefly describe both types of models. What are their differences? What are their similarities? What are the advantages and disadvantages of each?

9. Assume that, in terms of transportation costs, the value of your time, and direct costs (lift ticket, etc.), it cost you $50/day to ski at Snerd Valley. Given this, you choose to ski there five times per year. Is your per year consumer's surplus from Snerd Valley at least $250? Yes or No and explain. What do we know about how you value these five trips? As part of your answer define consumer's surplus.

10. What is the travel-cost method for valuing site-specific recreational activities? Briefly explain what it is and how it can be used to value recreational sites.

11. Why do you think that the management arm of the conservation movement (a current proponent of this philosophy is the U.S. Forest Service, etc.) has concentrated more on the production of produced goods and services from natural resources rather than the potential flow in services from in situ natural resources? Historically, was this a good policy for the Forest Service to adopt? Does it remain a good policy?

12. Describe and critique a discrete-choice model of recreational participation and site choice. As part of your answer describe the derivation of CVs (compensating variations) for changes in site characteristics.

13. Outline how a travel-cost model might be used to estimate the demand for and benefits from
a site with historical and/or cultural significance. What are some of the difficulties?

14. What is the difference between a market commodity and a nonmarket commodity? As part of your answer define both terms.

15. (10 points) What is the travel-cost method for valuing site-specific recreational activities? Explain what it is and how it can be used to value recreational sites. Your audience is your dinner guests who were all intelligent enough not to choose a career in economics, so be intuitive. Math is not an appropriate language during dinner.

16. Specify a very simple discrete-choice model of recreational demand. Describe a data set and derive the log likelihood function associated with the model and data set. Explain all of your steps in words. Report and explain the type or types of compensating variations that can be derived from this model.

17. List a potential application of travel-cost modeling that was not discussed in class.

18. List and discuss advantages of contingent behavior data over observed trip patterns to real sites in the estimation of the demand for and benefits from recreational sites as a function of their costs and characteristics.


20. Briefly outline a utility-theoretic single-site travel-cost model. What are its advantages and disadvantages with respect to a multiple site model?