Chapter 10

Some Broader Considerations

10.1 The Territory Covered

A book on conceptual issues in revealed preference approaches to valuation does not lend itself to linear reading from beginning to end. Nevertheless, we conclude the book with some ideas about more general issues surrounding valuation, and some thoughts about challenging and potentially fruitful research directions.

Our approach in each chapter has been to connect the welfare measure that researchers typically want with observed behavior. By proceeding in this manner, we have covered the most prominent revealed preference approaches to environmental valuation. Two points emerged from this discourse that we would like to reiterate. The first concerns conventional practice in welfare economics. Economists are likely to think of welfare measures as derived from the standard prices-as-parameters model. This practice, which connects utility functions, expenditure functions, and indirect utility functions so neatly with demand functions, is not often a good guide for devising welfare measures when the change is some dimension of the environment or some type of public good. Rather, when changes in circumstances involve non-price influences, one must search for plausible restrictions on preferences that will allow behavior to reveal or approximate the conceptually correct welfare measure.

The second theme concerns marginal values. For almost all valuation problems, it is easy to derive the marginal value of a public good, and in many such cases, it may even be possible to connect the marginal value directly with the

slope of an estimated behavioral function. This has led some researchers to compute marginal values in benefit cost exercises, especially those depending on hedonic techniques or averting behavior models. In the case of hedonic wage models, the marginal value of risk would seem the exact measure needed. But many policy actions or exogenous events induce non-marginal changes in outcomes. In cases where marginal values are not constant, which is the situation in most economic problems, multiplying a marginal value by a discrete underlying change will typically produce conceptually misleading and inaccurate welfare assessments.

10.2 When *Not* To Do Valuation

Throughout the book we have addressed valuation as if the purpose were clear. Valuation has a clear role in correcting market failures. When there is no market failure, it is not in society's interest to devote resources to valuation.[1] This is obvious and noncontroversial. When the rationale for valuation does exist, the undertaking must also be responsive to a well-formed question. This almost always relates to *changes* in policies or to exogenous events that change the amount and/or quality of environmental goods and services. The most obvious uses of environmental valuation include the evaluation of regulatory policy and damage assessment. Estimation of individual and aggregate values is required to evaluate rule making in the design phase or in assessing the effectiveness of past policy. Environmental valuation is essential for the estimation of compensation for natural resource damage cases.

Employing valuation where it is not answering a well-formed question will not in general lead to useful results. A good case of the misuse of valuation occurs in the several attempts made by non-economists to value the services of the world's ecosystems. Notable among these is the frequently sited paper by Costanza, d'Arge, de Groot, Farber, Grasso, Hannon, Limburg, Naeem, O'Neill, Paruelo, Raskin, Sutton and van den Belt (1997).[2] The aim of this paper is to answer an ill-formed question: what is the value of the world's ecosystems? To answer such a question we would need to compare the current state of the world with a well-defined description of what the world would look like in the absence of these ecosystems. It takes little imagination to see the impossibility

[1] However, there is substantial, and no doubt more profitable, opportunity for private firms to employ some valuation tools in market research. See for example Louviere, Hensher and Swait (2000) who have used conjoint analysis for a variety of market-related tasks.

[2] Among the numerous critiques of this paper are Bockstael, Freeman, Kopp, Portney, and Smith (2000), Freeman (2002), Pearce (1998), Smith (1997b), and Toman (1998). Other ecologists' attempts at valuation include Ehrlich and Ehrlich (1996), and Pimentel, Wilson, McCullum, Huang, Dewn, Flack, Tran, Salmon, and Cliff (1997).