Ethical Preferences and the Assessment of Existence Values: Does the Neoclassical Model Fit?

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Some of the implications of ethical preferences for traditional welfare analyses of existence values are discussed in **this** paper and illustrated with a lexicographic model for preference structures. Although willingness-to-pay and willingness-to-sell are well-defined, their connection with Hicksian surpluses is lost when a person is motivated by an ethical commitment to others[1] welfare. Researchers need to expand contingent valuation methods to collect information on underlying motives and types of preferences in order to identify respondents who fit the neoclassical model of egoistic man.

Introduction

There is a small but growing movement within the economics profession to bridge the gaps between environmental economics and environmental ethics. The approach that receives most attention takes economic values for individuals as given and contrasts the implications of alternative humanistic ethics—utilitarianism, egalitarianism, elitism, libertarianism—for social discounting when environmental risks are large or when impacts of a policy are spread across many generations (Schulze and Kneese; Schulze, Brookshire and Sandier). Another approach, but one that has not received much attention in the environmental economics literature, contrasts egoistic and ethical preferences of individuals as foundational for the assessment of existence values. This paper is a discussion of the implications of ethical preferences for estimating existence values for wildlife and future generations from contingent valuation data.

In Section II egoistic preferences are contrasted with the ethical preferences of one who personifies an environmental ethic. Relying primarily on distinctions already carefully explained by the economists Kennett and Sen, I discuss reasons why the purest forms of altruism and commitment to others undermine traditional welfare analyses that are based on self-interest and indifference. Section III uses a lexicographic ordering for personal income and environmental assests to illustrate how ethical preferences for the welfare of wildlife and future generations "drive a wedge" between monetary valuations and Hicksian surpluses. The paper is concluded in Section IV with a recommendation that contingent valuation surveys collect data on underlying motives as well as monetary valuations in order to distinguish between respondents with egoistic and ethical preferences.

Indifference Curves and Ethical Preferences

This section contrasts the preferences for two behavioral stereotypes of man. As is well known, economics's "egoistic man" is motivated entirely by self-interest and is indifferent between states of the world that yield equal levels of personal utility. In contrast, the ethical preferences of "altruistic man" (i.e., the psychological antithesis of egoistic man) are motivated purely by an unselfish interest

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in the welfare of others.[1] It should be understood that the realism of these two stereotypes is not an issue in this paper. The primary issues here are the implications of assumptions about ethical preferences for traditional welfare analysis.

We begin with Kennett's comprehensive review of the literature on altruism and his important distinction between "quasi-altruism" and "genuine altruism." Many actions that appear altruistic are in fact consistent with economic models of individual welfare maximization. As explained by Kennett, choices that benefit others but which are actually motivated by expectations of personal benefits are quasi-altruistic since they are founded in self-interest. For example, if personal discomfort alone motivates someone to contribute to Greenpeace efforts to eliminate whaling or to a program designed to protect ground water quality for future generations, then the sole intention to reduce discomfort qualifies the contribution as an egoistic act. Generalizing these examples, quasi-altruism is precisely the motivation that some economists now ascribe to people when defining existence values (Boyle and Bishop; Madariaga and McCon-nell; Randall and Stoll). This is manifest when existence values are defined rigorously with utility-theoretic behavioral models.[2] In this context, egoistic man's willingness to pay to prevent environmental losses is a proxy for compensating notions of Hickian surpluses since value is assigned in terms of changes in income that hold personal utility constant.

Egoistic motives and indifference do not in theory cover all possible preferences for environmental assests, however. Indeed, the very fact that the well-being of others—wildlife and future generations—is at issue at least suggests the possibility of genuinely altruistic interests. In contrast to quasi-altruism, choices that are motivated entirely out of an unselfish interest in the well-being of others are genuinely altruistic—"there must be no . . . identifiable *quid pro quo* in a truely altruistic act" (Kennett, p. 184).[3] Although the altruist may also benefit from the choice, the feedback is inessential (Kennett; Nagel; Sen 1977).

The discussion thusfar (including the definitions of altruism in footnote 1) suggests that altruistic interests in others can involve a devotion, or commitment to their welfare which is dictated by an ethical principle. Although perhaps unfamiliar to most economists, this association between altruism and ethical commitments is made explicitly in the philosophy and psychology literatures (Nagel), and in Sen's (1973, 1977, 1979) series of articles on the implications of ethical preferences for traditional welfare analysis. According to Sen, as we consider departures from egoistic man we must distinguish between the separate concepts, sympathy and commitment. Choices based on sympathy alone are in an important sense egoistic, since personal welfare is psychlogically dependent on other's well-being.[4] In contrast, choices based on commitment to others are rooted in what one thinks as being right or wrong from a moral, or ethical point of view regardless of how one's own welfare might be affected. Sen explains the serious implications that commitment has for welfare analysis:

> ". . . [C]ommitment does involve, in a very real sense, counterpreferential choice, destroying the crucial assumption that a chosen alternative must be better than (or at least as good as) the others for the person choosing it, and this would certainly require that models be formulated in an essentially different way. . . , Commitment is, of course, closely related with one's morals. . . . [I]t drives a wedge between personal choice and personal welfare, and much of

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[1] Webster's Third New International Dictionary defines altruism

Similarly, the Oxford Dictionary defines altruism as "devotion to the well-being of others as a principle of action."

[2] For example, a person's indirect utility function can be defined as

(1) $$V(P, R, M)$$

where P is a vector of prices for market commodities, R is an environmental resource that yields personal utility, and M is nominal income. If R is the change in the population of a wildlife species or in the size of a bequest of natural resources or a clean environment to future generations, the Hicksian value, equivalent surplus (ES) is defined by:

(2) $$V(P, R^\circ + R, M^\circ) - V(P, R^\circ, M^\circ + ES).$$

Similarly, compensating surplus (CS) is defined by:

(3) $$V(P, R^\circ, M^\circ) = V(P, R^\circ + R, M^\circ + CS).$$

In either case, the person is indifferent between situations described on either side of equations (2) or (3) since personal utility stays the same.

[3] As Kennett explains, some economists question the existence of genuine altruism as a motivation of people's choices. However, to reject altruism by *defining* choice as an attempt to select an alternative that will enhance personal welfare is a tautology. A more useful point of view, and one taken up in Section IV, regards genuine altruism as a proposition that is amenable to empirical testing.

[4] This dependence is exemplified in the work of Collard and others where someone else's utility or level of consumption is an argument in a person's utility function.

> traditional economic theory relies on the identity of the two," (pp. 328-9)

Interestingly, Sen considers the possibility of commitment to be most important in the provision of public goods. Here he challenges the assumption that a person's true willingness-to-pay for public goods maximizes his/her personal welfare. This challenge is relevant because "the presence of non-gains-maximizing answers, including truthful ones, immediately brings in commitment," (p. 332) and, therefore, the aforementioned wedge between personal choice and personal welfare. Consequently, observations of behavior alone, or behavioral intentions in contingent valuation research, are not sufficient to distinguish between egoistic and ethical preferences. This dilemma is in effect an identification problem.

Although Sen does not address environmental concerns specifically, his rationale extends to ethical principles that involve altruistic commitments to wildlife and future generations. These principles include fiduciary obligations (Manning; Weiss) and moral obligations to protect wildlife (Taylor), inter-generational equity and fairness (Ferejohn and Page), and the perceived rights of animals and future generations (Feinberg; Singer; Tribe).

Some Implications of Ethical Preferences for Contingent Valuation Research on Existence Values

Ethical commitments to the welfare of others requires a substantial departure from the neoclassical model of an egoist. Instead, ethicists often refer to lexicographic orderings as being consistent with choices based on perceptions of what is right or just. For example, Tribe discusses the rights of animals and future generations in terms of being preferred lexicographically to personal wants. Similarly, Manning uses lexicographic preferences when extending Rawl's theory of justice to the basic liberties of future generations.

Lexicographic orderings are based on binary choices among alternatives whereby one alternative is ranked before another based on a particular rule. A distinctive feature of a lexicographic ordering is that no two alternatives can be of equal rank. For example, the concept of a lexicographic ordering comes from the arrangement of words in a dictionary according to the alphabetic rule. Clearly, no unique spellings can occupy the same rank. Similarly, one committed to the rights of wildlife and future generations is in effect stating preferences according to an ethical rule that says more protection is preferred to less regardless of what happens to their personal welfare. For example, in binary choices between levels of protection for the endangered right whale, our personification of an environmental ethic would always rank more right whales above fewer regardless of what happens to personal welfare. In both cases indifference between alternative choices is undefined.

Of course, a lexicographic ordering for the welfare of wildlife and future generations could be bounded by a constraint on personal welfare similar to that discussed by Margolis. However, this constraint does not undermine the analysis of our hypothetical altruist; it merely limits the possibilities to a subset of alternatives.

In what follows, Sen's conceptual model of the implications of ethical commitments for welfare analysis is illustrated quantitatively using lexicographic orderings as a physical model for preference structures. In Figure 1 alternatives involve personal income, M, and numbers of the endangered species of right whale, W. First consider a person whose preferences for whales are characterized by the indifference curves in Figure 1A. The person is motivated solely by expected personal utility from knowing that the species is being helped (i.e., preservation value) and/or from protecting the species for possible use by future generations (i.e., bequest value). This neoclassical model of choice is representative of the framework used in contingent valuation studies of existence values (Boyle and Bishop; Brookshire, Eubanks and Randall; Hageman; Madariaga and McConnell; Walsh, Loomis and Gillman).

Willingness-to-pay (WTP) and willingness-to-sell (WTS) are well-defined *and* are theoretically sound measures of Hicksian surpluses for this egoist. For example, maximum WTP to prevent a reduction in the number of right whale's from W° to $W_{\sim}$ is M°-$M_{\sim}$ (Figure 1A). Since the reference level of utility corresponds to the reduced population size, maximum WTP approximates equivalent surplus [see equation (2) in footnote 2] such that the person is indifferent between alternatives B and C. Similarly, compensating surplus, or the

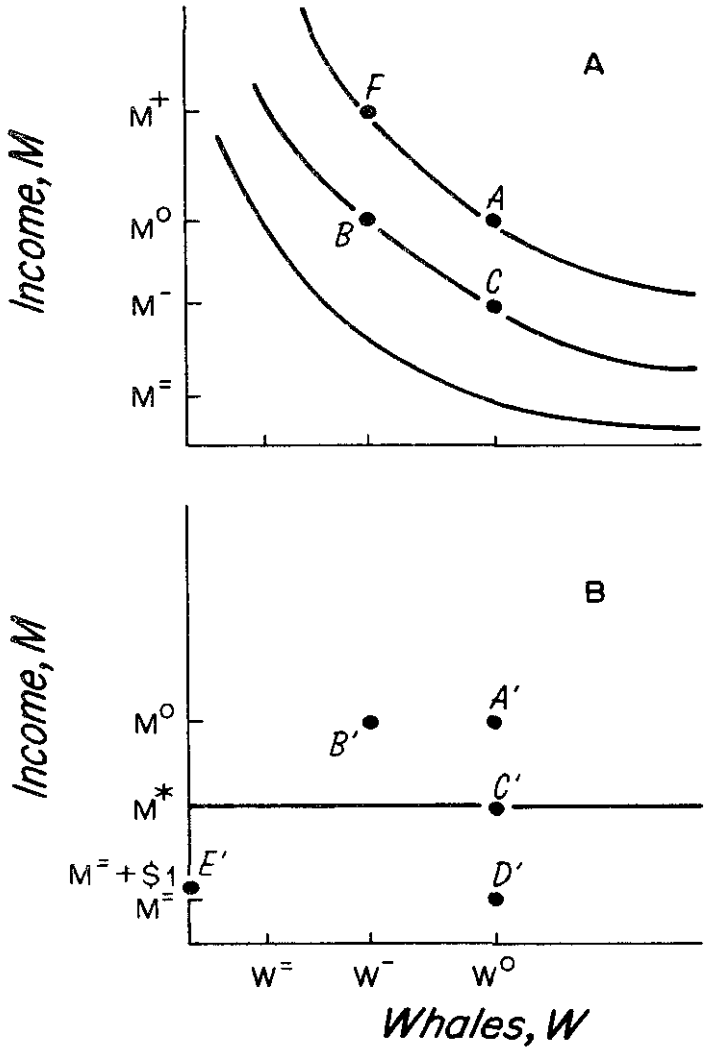

Figure 1. Illustrations of (A) **indifference and** (B) **lexicographic preferences for the preservation of whales.**

minimum WTS to condone a reduction in the number of whales from W° to W~, is M^{+} — M° [see equation (3) in footnote 2]. In this case, the person is indifferent between alternatives A and F.

Next consider an altruist with ethical preferences for the survival of right whales and for income as depicted in Figure IB. M* demarcates a standard of living below which preferences for personal welfare supercede preferences for whales. Above M*, more whales are always preferred to fewer regardless of what happens to income.[5]

Several results are interesting. First, Hicksian surpluses are clearly undefined in Figure IB. While more right whales are always preferred to fewer when income is greater than M*, more income is certainly preferred to less when the number of whales is held constant Therefore, no two points in Figure IB are preferred equally. That is, tradeoffs between personal income and numbers of whales that leave the person indifferent are undefined.

Curiously, though, WTP and WTS are well-defined depending on the location in lexico graphic space. For example, if the initial con dition is at point A', maximum WTP to prevent a reduction in the whale population from W° to W~ is M°-M* (Figure IB). How ever, the individual is clearly not indifferent between situations B' and C' as in Figure 1A; C' is preferred. Therefore, while WTP is well-defined, it does *not* measure equivalent sur plus as in the case where preferences are mapped by indifference curves. A further im plication of this model is that WTS is not even defined when income is greater than M* since more whales are always preferred to fewer whales in this region.

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Conversely, WTS is well-defined when income is less than M*. In fact, the person depicted in Figure IB would sell the whales to extinction for any amount of money *if* given the opportunity. For example, E' is preferred to D'. However, WTS does not measure compensating surplus since indifference is undefined. Furthermore, WTP is undefined when income is less than M* since more income is always preferred to less in this region.

The lexicographic model can explain other possible features of bid behavior. First, a zero WTP is expected for people at (point C') or below (point D') their required standard of living.

Second, the model predicts similar bids for disparate scenarios. For example, the person depicted in Figure IB who just stated a maximum WTP of M° — M* to prevent a reduction in whale population size from W° to W^{-} has the same bid if asked to value *any* reduction in whale population size from W° (e.g., from W°

[5] While the preference structure illustrated in Figure IB is sufficient for the purpose of this paper, the reader might be interested in more complex possibilities. For example, thresholds could exist whereby preference switches between egoistic and ethical interests (see Tribe for a short discussion). This might happen when the population of a species is reduced to the endangered level. Also, a person could have first order preferences as depicted in Figure IB, but also have a second order preference to prefer preferring whale preservation regardless of the level of persona! income. See Sen (1977) and Jeffrey for discussions of higher order preferences and meta-rankings. Finally, Margolis and Opaluch discuss the interaction of separate preferences for self and others and its implications for allocative efficiency.

to $W^{=}$). This differs from the utility maximization model since more preservation always yields more utility, *ceteris paribus,* although at a decreasing marginal rate. For example, maximum WTP to prevent a reduction in whale population from W° to $W^{=}$ is M° —$M^{=}$ which is greater than the maximum WTP to prevent a smaller reduction to W~ (Figure 1A).

Finally, the lexicographic model for the structure of ethical preferences provides a framework to hypothesize about alleged anomalous responses in contingent valuation experiments on existence values. For example, since WTS is undefined for ethical preferences when income exceeds a minimum standard of living, an altruist commited to the welfare of wildlife and future generations is expected to protest against contingent markets when asked for minimum WTS by either refusing to bid, bidding zero dollars, or bidding an extremely high amount.[6] It is interesting that researchers choose not to include WTS questions in contingent valuation studies of existence values even though the notion is well-defined by neoclassical theory.

Concluding Remarks: Another Opportunity for Contingent Valuation Research

The contingent valuation method is being used increasingly to provide policy makers with heretofore unknown data on existence values for wildlife and future generations (Boyle and Bishop; Brookshire, Eubanks and Randall; Hageman; Madariaga and McConnell; Walsh, Loomis and Gillman). In these studies, respondents' hypothetical choices expressed in terms of WTP are assumed either implicitly or explicitly in utility-theoretic models to approximate personal benefits. However, the above extension of Kennett's and Sen's arguments about genuine altruism and commitment illustrate that bid data alone do not identify either egoistic or ethical preferences. This identification problem presents a fundamental dilemma to policy analysts who want to include contingent valuation assessments of existence values into comprehensive analyses of environmental policies—although valuations are expressed in fungible units, ethical values are not homologous with egoistic values, and, therefore, do not fit comfortably into efficiency analyses.[7] The ambiguity substantially weakens the credibility of research that prides itself on a rigorous approach to measuring Hicksian values.

One may also view the identification problem as an opportunity for economists to define the purview of economic analysis such that complaints about our predilection to monetize environmental values will be ill-conceived. Whether there are any altruists with ethical commitments to wildlife and future generations is actually an empirical matter that needs to be tested. Fortunately, in some cases the null hypothesis that preference structures are not lexicographic can be evaluated strictly from straight forward rankings of alternative states of the world. For example, ranking fewer whales and more income above initial conditions is inconsistent with ethical preferences for whale preservation. Unfortunately, though, other orderings of alternatives from least to most prefered can be accommodated by either egoistic or ethical preferences. As recommended generally by Sen, researchers need to elicit further introspection and communication from respondents to surveys on how and why they decided on a particular preference ranking. Did they consider the tradeoffs between changes in income and environmental assets or did they only consider changes in the latter? Does the notion indifference fit into their choices? In addition, methods designed to measure attitudes and a person's commitments to specific principles and groups need to be assimilated into the design of contingent choice experiments. For ex-

[6] Other hypotheses concerning anomalous bids to contingent valuations querries (e.g., protest bids, endowment bids, conservative lein and Kealy; Knetsch and Sinden). The hypothesis suggested here is consistent with ethical commitments to others.

[7] It's helpful to recognize the distinction between homologies and analogies that biological taxonomists stress. Homologous species have a common lineage or derivation. In contrast, species that are analogous in appearance but not related evolutionarily are not homologous. If we view value concepts as "species," egoistic and ethical values that are measured in monetary units are analogous but not homologous concepts since they are derived from distinctly different types of preferences. This confusion between analogies and homologies also arises on the subject of intrinsic values. Certain ethicists such as Tribe, Taylor and Godfrey-Smith describe the intrinsic value of wildlife and future generations as a property which is independent of what anyone else might *assign* to them. In contrast, economists define the intrinsic value of wildlife and future generations as the value that is assigned to them according to their capacity to provide personal utility to the valuer. Depending on whose typology you look at, even option value—a personal use value—is classified with existence values under the intrinsic value category (Fisher and Raucher).

ample, Kellert's work on quantitative scales for moralistic and utilitarian attitudes toward animals should help to identify those who do not fit the neoclassical model of man, if they exist at all.

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