

Gain, loss and personal responsibility: the role of motivation in resource valuation decision-making

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ABSTRACT

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The paper examines the issue of whether willingness to pay (WTP) or willingness to accept (WTA) is the most appropriate indicator of the benefits or costs that people realize from a change in an environmental asset. Specifically, the paper addresses the disparity between estimates obtained in contingent valuation research with these different measures, and it suggests a reason for the disparity that requires an expanded model of valuation. The model focuses on the context in which valuation decisions are made, accounting for the role of change position (gain or loss) and motives like personal responsibility and altruism in influencing resource values. The paper also calls for an expanded inductive approach to researching the issues raised by the model. It reports some initial results from inductive research that suggest that WTP is the most appropriate indicator, but the paper calls for further research that addresses the issues this finding raises.

INTRODUCTION

Willingness to pay has been identified in research on nonmarket valuation as an indicator of the monetary value that people put on objects not usually sold in the marketplace – particularly environmental assets like clean air, wilderness and wildlife. A common approach to measuring these values is the contingent valuation method (CVM), whereby interviews or self-report instruments directly collect information on the dollar amounts people decide and then state they would be willing to pay (WTP) to realize some change in an asset. This WTP represents the maximum amount they would pay either to realize some gain in the amount of that asset (e.g., an increase in the number of animals in a population of an endangered

wildlife species such as spotted owls) or to avoid some loss (e.g., a decrease in the number of owls in that population). A second measure of value discussed in the CVM literature is WTA , or the minimum amount of dollars people would accept in compensation for a loss in some environmental asset.

Recent discussions focusing on CVM have raised several questions concerning the theory, methodology and application of value measurement that have yet to be addressed by economists. Conditions that are basic to the theory and practice of contingent valuation, such as who gains or loses from some change in an environmental asset and how feelings of responsibility and self-interest influence the value judgments of those gainers and losers, have important implications for the CVM. Psychological and legal theory have much to contribute to our understanding of those conditions. This paper presents an interdisciplinary perspective on resource valuation, discusses an expanded model of the value decisionmaking process, describes some preliminary research results pertinent to the issues that model of valuation raises and, finally, explores the ramifications of those results for future efforts to measure the monetary values of environmental assets.

A BASIC QUESTION FOR THE CVM

A basic question for the implementation of the CVM is whether willingness to pay (WTP) or willingness to accept (WTA) is the most appropriate indicator of benefits or costs (negative benefits) people realize from a change in an environmental asset [see Gregory and Bishop (1988) for a comprehensive discussion of this issue]. Benefit-cost analysis (BCA) is based on the compensation test (Kaldor, 1939; Hicks, 1943) that posits that a proposed project or policy resulting in a welfare change can be economically justified only if those individuals who would be better off from that change (the gainers) could potentially compensate those who would be negatively impacted by it (the losers). Strict adherence to this decision rule requires that the gainers and losers be identified and the magnitude of the economic values they place on their gains or losses be estimated.

In the case of the gainers, WTP is deemed the appropriate measure of value. At the same time, economists have recognized that the losers from an environmental impact have the right to feel that incurring an environmental loss is something for which they should be compensated – or, at the least, that those responsible for the loss should be willing to pay for that loss. For these individuals, WTA is accepted as the proper measure of economic value. Implicitly, gainers seek to maximize their gain from a resource-allocation decision while losers seek to minimize their loss from that decision.

However, as Gregory and Bishop (1988) have noted, the actual operationalization of BCA is problematic because the assignment of parties as gainers or losers depends upon one's perspective. The ongoing controversy concerning spotted owls provides a timely example of this problem.

From the perspective of people favoring preservation of this endangered bird species, continued logging of the old-growth forests that constitute this species' habitat will result in a change in the status quo (i.e., the relationship that currently exists between old-growth forests and the owl population dependent upon them). This change is a decline in the forests. Those people favoring owl-preservation and the owls themselves would emerge as the losers from this change, while those who benefit from the logging would emerge as the gainers.

However, to the loggers and residents of communities dependent on logging, an economy long based on this logging represents the status quo, and any reduction in the timber yield of the forest will result in fewer jobs and reduced income for those dependent on the timber industry. From this perspective, if old-growth logging is curtailed, the timber industry and local economies are the losers and those segments of society that support owl preservation and the owls themselves are the gainers.

What is operative here is a difference in the position (i.e., context) and thus value perspective of each party. If, for example, the status quo is defined in terms of maintaining the current supply of trees and owls (i.e., the existing resources), decisions about the economic efficiency of continued logging should be based on the view of beneficiaries of the timber industry as the gainers and those advocating owl preservation as the losers. The appropriate measure of welfare change in the case of first party would be WTP and, for the second, WTA. Economic theory posits that these two measures should produce estimates of monetary value that are fairly close (Willig, 1976). Loggers could potentially pay owl advocates that dollar amount, and the logging could be justified as having positive net benefits for society as a whole and thus as being economically efficient.

THE WTP-WTA DISPARITY

Unfortunately for economic theory, its deduction that the two measures of economic welfare, WTP and WTA, should provide dollar values similar in magnitude has not received empirical support. As Knetsch (1985) noted, the first reports of differences in the results obtained with the two measures were made by Hammack and Brown (1974). Since then research has well documented a disparity between value estimates obtained with the two measures, with the empirical evidence indicating that WTA estimates typically exceed WTP estimates (see, for example, Bishop and Heberlein, 1979;

Cummings et al., 1986; Gordon and Knetsch, 1979; Gregory, 1986; Gregory and Bishop, 1988; Knetsch, 1984; Knetsch and Sinden, 1984).¹ This contradiction of theory and evidence has compelled researchers to seek out alternate possible reasons for this disparity. In the past, two reasons have been advanced.

One of these reasons focuses on the psychological phenomenon of loss aversion, or the tendency of human beings to avoid losses. This aversion could especially influence potential losers in a resource change who are asked in WTA questions to give up things, rights or privileges that they currently possess (Schroeder and Dwyer, 1988).

A second, related reason is one suggested by Sagoff (1988), who argues that a basic fallacy in the theory underlying the CVM is that people may not even be willing to consider market-like transactions involving public resources that, by definition, are nonmarket goods for which people can refuse to even consider making or receiving payment. Sagoff comments on Rowe and Chestnut's (1982) study of the value of air visibility threatened by pollution from a power plant:

When the respondents were asked how much they would demand in compensation (the 'cs' or 'wta' value) to permit the loss of visibility..., at least half of them used the question as an occasion to express a political opinion...

The experimenters found even in their own experiment that a majority of a sample of citizens rejected a cost-benefit or 'consumer surplus' approach to trade-offs between health, safety, or environmental quality and economic growth, an approach which also seems to be precluded by the Clean Air Act, the Occupational Safety and Health Act, and by other legislation. Attempting to make their approach practical, if not legal, they ended up in an awkward position: they asked citizens participating in the experiment to accept the concept of trading dollars for pollution 'rights', a concept that many citizens reject, and most of the subjects responded by entering protest bids or by refusing to cooperate with the experiment (pp. 70-71).

Despite these concerns over the operationalization of CV processes, students of policy analysis recognize that some method for public involvement in decisions about the allocation of public resources such as timber and spotted owls is needed. As Sagoff (1988) admits,

The ideal of a perfectly unpolluted environment... is a chimera. At some point, the Administrator of the EPA (and of the other regulatory agencies) has to recognize not only the law of the land, but also the law of diminishing returns. The question will then

¹ Although few economists dispute this once-controversial conclusion, one reviewer of this paper maintains that "economic theory is... more subtle on this point," citing papers that discuss the various theoretical conditions under which estimates of WTA and WTP do and do not diverge. However, this reviewer concluded with the statement: "Nevertheless, some economists suspect that self-reported WTA diverges from WTP by larger amounts than theory predicts."

arise: how much safety, purity, or whatever are we willing to pay for? How much clean air – as opposed to other goods and services – is enough?

...We must acknowledge... that clean air, workplace safety, etc., have a price, and that at some point the additional amount we may buy may be grossly disproportionate to the goods and services we must forego in order to pay for it... But... What counts as a 'significant' risk or a 'significant' deterioration of air quality? When should we apply the law of diminishing returns? (p. 67).

Thus, the basic issue of whether WTP or WTA is the most appropriate approach in any given value-measurement situation is not a moot one. Sagoff's comment suggests that one of these measurements of value, if properly obtained and appropriately applied, could be useful in providing answers to the questions he asks. Thus, this issue has important implications for improving future contingent valuation surveys that seek to gather information for public policy analysis by applying one of these approaches. Given that these two measures of economic value fail to provide the same result, the question of which approach is the most appropriate must be resolved.

VALUATION CONTEXT AND IMPORTANCE OF MOTIVES

It is critical that in well-conceived applications of the contingent valuation method the appropriate question be asked within the appropriate context to ensure valid value measurement. As Brown and Slovic (1988) have noted, "the evidence... indicates that seemingly minor contextual factors often significantly affect assigned values" (p. 29).

In the case of the WTP–WTA disparity, the valuation process is complicated by the possibility that knowledge of whether people gain or lose is, by itself, insufficient for deciding whether WTP or WTA is the most appropriate indicator of value. A possible mediating factor here could be how a beneficiary's motives – the reasons why people place the values on environmental assets that they do – influence his/her values. This section attempts to clarify the role of motivation as an influence on valuation decisions.

The importance of context and the key role of motives in that context can be best explained with a simplified model of the individual's valuation process, such as that presented in Fig. 1. This figure extends a framework developed by Brown and Slovic (1988) with the addition of the concepts of information and motives to the psychology of valuation.

Factors in their original model included:

...(1) a collection of held values..., beliefs, and dispositions; (2) a physical and emotional state; and (3) an endowment of current and expected assets... The first factor is a complex set of rather general proclivities, including 'tastes and preferences', that are assumed to be relatively stable over the time during which distinct valuations occur...

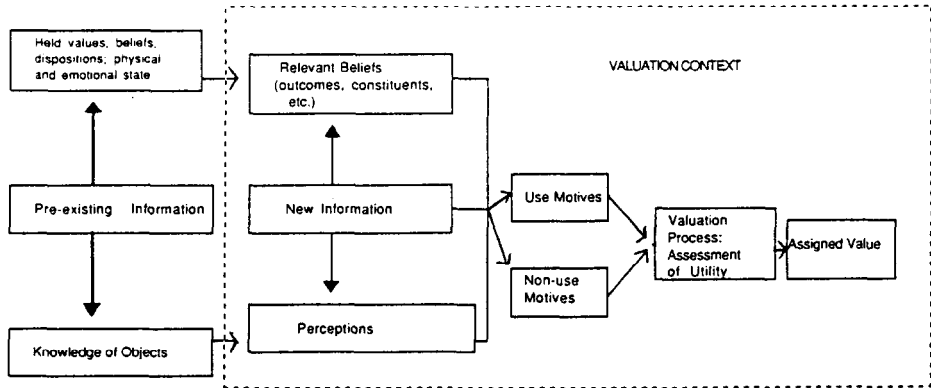


Fig. 1. An expanded framework for assignment of value to objects.

The context of a valuation is the set of circumstances that characterizes both the situation in which the person interacts with the object(s) and the mode in which the assigned value is expressed (Figure 1). This interaction involves perception of the objects at issue and a process whereby the relevant held values, beliefs, and dispositions come to the forefront. Of course, perception may affect which beliefs play a role, and beliefs may affect which characteristics of the object are perceived. In any case, the interaction results in an unobservable sense of value, called utility, which may through some mode of expression yield an assigned value.

...[The] figure... helps depict the salient point that we wish to make – the valuation context may affect how objects are perceived, the beliefs that become relevant, the utility experienced, and the value assigned (Brown and Slovic, 1988, p. 24).

The incorporation of the concepts of *information* and *motives* as intervening variables in this framework is useful because it helps clarify their potential importance as influences on an individual's assigned values. As noted earlier, simply identifying people as gainers or losers from a societal perspective is insufficient for assessing the appropriate CV measures of their values; the motives involved in the valuation process can significantly influence this assessment. As Fig. 1 shows, an individual's value perspective is formed through a consideration of *relevant beliefs* (say, the importance of maintaining ecological diversity in an old-growth forest) and *perceptions* of some object being valued (say, a decline in the population of spotted owls in that forest) in light of *pre-existing* and *new information* the individual receives. This consideration results in a set of particular motives for valuing owls (say, one that includes a concern for ensuring the existence of these owls to maintain the ecological diversity of the forest).

Motives could, in turn, result in a different assigned value being formulated than one might expect from people simplistically identified as gainers or losers from some resource change. Take the example of a 'gainer' from this decline in owls (say, a logger) whose value perspective is based on the above set of motives, including a concern for maintaining bio-diversity. For

this logger, WTP might be perceived to be more appropriate than WTA, given that he/she is a 'gainer'. However, because of the logger's motives, he/she might place a higher WTP value on owls than might be expected – indeed, one even greater than a WTA-based estimate which is typically greater than the WTP estimate. Accordingly, motives both reflect the valuation context and also emerge as key indicators of the appropriate CV measure to use.

A number of possible *use* and *non-use motives* for valuing resources, as depicted in Fig. 1, have been discussed in the literature (e.g., Bishop and Heberlein, 1986). They include ones suggested by the segmentation of an asset's total value into its component 'use' and 'non-use' values. A 'use' value may be seen as paralleling a use-related motive; in the case of the spotted owl, a motive for placing a use value on this species might be to ensure that a person could continue to see or study one of these owls or enjoy them vicariously if that person so desired. Non-use motives for valuing an asset relate to all other values that asset might have. These motives include ensuring that the asset is preserved for future generations to use or enjoy (i.e., bequest value). Another motive might be sympathy or concern for people and/or animals adversely affected by a change in that asset, which is related to both use values and non-use values such as option and existence values. Feelings of personal responsibility for direct involvement in impacting an environmental asset also have been suggested as a motive (Bishop and Heberlein, 1984, 1986). Finally, a non-use motive for participating in the process of valuing a resource might be that a survey respondent feels pressured by expectations explicit in the survey situation itself – that an interviewer or survey instrument is demanding a value, so the respondent must produce one.

All of these types of motives suggest a number of more general factors that influence motivation that reflect the context in which valuation occurs. These influences, which include *relevance* and *outcome*, are specified in the expanded model as part of the beliefs construct (they are, in fact, a subset of the subjects about which beliefs determining the individual's value are held); their influence can be conceptualized as part of the motivation process. Perhaps the most obvious factor is that of *relevance* – that the change in the current situation for which values are being assessed is relevant to the individual who is asked to assess their value. The more relevant it is, the more involved the individual will become and the greater the time and energy that will be committed to the valuation process. Related to this factor are the *outcomes* or consequences of the resource change for the individual: Does the change represent a net benefit or cost to the individual in terms of the utility realized from the outcome of that change? If the outcome has no impact on the individual, it will, of course, be of little relevance to that person. At the other extreme, a person might

be significantly affected to the extent that they try to influence the results of the entire valuation process with an extreme value; this response would result in the kind of strategic behavior and bias in CV results that has received much attention in the literature.

Non-use values are differentiated on the basis of two types of outcomes of the resource allocation process: (1) maintenance of the resource for future use by oneself, others now living or future generations, and (2) maintenance of the resource for its own sake. These outcomes reflect the constituents that people may consider in valuing a resource; those constituents could include the resource itself (which may be unique and irreplaceable), oneself, one's family and/or friends, society as a whole, one's future descendants, and future generations in general.

In sum, these outcomes and the constituents they involve are important influences on a person's motivation while making a valuation judgment. The relative salience of various outcomes depends on whether and how clearly these outcomes are posed in the course of value elicitation, as well as on other factors influencing motives: To what extent does the individual feel sympathy for significant others, future generations or the resource itself? To what extent does the individual feel any personal responsibility for the change in the status quo, and to what extent was the individual personally involved in or responsible for that change? To what extent does the individual consider trade-offs inherent in a change so that losses (costs) that result are considered along with benefits?

Figure 1 depicts the influence of both *pre-existing* and *new information* about the situation to which the respondent to a valuation problem is responding. As Sagoff and others have noted, the information provided for making a value judgment is critical. A survey using a WTP or WTA measure of value explicitly or implicitly conveys information about the object being valued (e.g., how unique the resource is), the situation (e.g., the constituency one is representing with one's value judgment) and the information implicit in the survey instrument (e.g., the problem posed, the way it is posed, the actual wording of the questions asked, etc.). This information provides the context in which value judgments are made and thus significantly influences the value estimates that result.

ALTRUISM AND THE RESPONSIBILITY MOTIVE

The focus of this paper now turns to one potentially critical motive: a person's sense of responsibility. As conceptualized here, this motive can be represented as a spectrum of feelings that extends from a feeling of personal responsibility (due to one's involvement in causing the impact itself) to a more general concern for the environmental asset affected that

is unrelated to any personal utility that one might realize from directly or indirectly 'using' the asset; an equal mix of these polar feelings would provide a mid-point for this spectrum. In the case of the spotted owl, a motive based on direct personal responsibility might be held by a logger actually cutting down old-growth trees while the more general concern for the owls would be that of, say, an environmentalist living in the eastern United States. Many people having feelings that fall on this spectrum would likely be characterized by a mix of feelings, in that they feel they have some indirect personal responsibility (due, say, to their consumption of some wood products) as well as a more general concern for the owl's potential demise.

Some researchers have suggested that feelings of more general concern or global responsibility are best expressed as a form of altruism. For example, Randall (1987) has suggested that "pure existence value excludes any values that arise from current (personal) use or anticipated future (personal) use. Because vicarious consumption is a kind of use, all pure existence demands must be altruistically motivated" (p. 6).

Randall, in fact, suggests that all non-use values have their basis in the motive of altruism. He distinguishes among three types of altruism: "interpersonal altruism," from knowing an asset is available for others to use; "intergenerational altruism," from knowing that an asset will be available for future generations to use; and "Q-altruism," from knowing that the asset Q itself benefits from being undisturbed. This typology reflects the typology of non-use values discussed above.

Understanding the role of altruism and its opposite, acting in one's self-interest (i.e., egoism), as influential motives is important if they act as intervening factors in the relationship between people's perception of themselves as gainers or losers and their judgment as to whether WTP or WTA is most appropriate. As presented in standard economic theory, BCA reflects a view of people and decision-making that is based on the paradigm of the rational 'economic man'. According to this paradigm, exemplified in its purist form by the principles of capitalism, individuals make decisions within the context of competition and a view of human interactions as a zero-sum (win-lose) game. These individuals conduct their market transactions (i.e., purchases and sales) based on the goal of maximizing their own net benefits; thus, they have a direct stake in the outcome of market transactions, act out of complete self-interest, and necessarily make atomistic decisions whose goal is to realize short-term gains.

In contrast, altruism has been conceptualized by psychologists as behavior having three characteristics: it is done voluntarily; its goal is to benefit another (person or thing); and it must be done without expectation of a reward (Bar-Tal, 1976). The third criterion closely parallels Randall's

thoughts, but is perhaps put in terms that avoid the “pure altruism” argument which suggests that any possible benefit – such as knowing that you have done (what you think is) the right thing – automatically means a behavior is not altruistic. (Taken to the extreme, the concept of “pure altruism” suggests that *no* behavior can be altruistic and thus that the concept is vacuous.)

People who act out of altruism (as characterized by writers like Randall and Bar-Tal) do not, by definition, fit the model of the ‘economic man’ in the purist spirit of capitalism who acts out of self-interest and concern for personal gain.² In fact, altruistic people represent a different model of humankind. The theories of psychologist Abraham Maslow (1968) reflect this alternative perspective. Maslow focused much of his theorizing on self-actualization, the process of totally fulfilling one’s human potential. One characteristic of self-actualized people is especially pertinent here. Maslow (1968) believed that self-actualized people “are more able to perceive the world as if it were independent not only of them(selves) but also of human beings in general... (and can) look upon nature as if it were there in itself and for itself, and not simply as if it were a human playground...” (p. 76). Self-actualized individuals thus might be more likely to hold non-use values due to the broad sense of responsibility described above, and therefore be more willing to pay to maintain an environmental asset regardless of the benefits they themselves receive from that asset.

As previously noted, WTA compensation would be the logical, appropriate measure of welfare change for losers from that change who choose to act out of self-interest. However, some people, such as those who are self-actualized, may feel a broader responsibility for preventing or mitigat-

² We would note that the basis for one’s altruism – whether personal pleasure, a sense of moral duty, or whatever – is unimportant for the present discussion. We disagree with one reviewer’s suggestion that “The real difficulty for economics arises in models that depart from utilitarian notions of motivation, e.g., X cares about Y because he believes he has a moral duty to do so. Rational economic person is motivated by preferences (altruistic or not), rather than by moral duties.” This difference in motivation is irrelevant according to standard economics utilitarianism: whether motivated by moral duty or preferences, X derives some utility from the ensuing altruistic action or he wouldn’t take it in the first place; but as we stated earlier, this renders the concept of ‘altruism’ vacuous. This paper focuses on valuation within its context of a capitalist system in the real world that is based on certain operational principles and values. A basic point of our argument is that any application of BCA (and economics in general) cannot be made in a vacuum: our distinction between ‘economic man’ and ‘altruistic man’ in the context of a capitalist society is a substantive and useful one.

ing that loss regardless of where the personal responsibility for it lies (i.e., they choose to act altruistically). These individuals, even if they are losers, may believe that society or people in general should pay to cover that loss. In this case, the WTP of these altruistic losers, along with the WTP of other members of society, would be the appropriate measure of welfare change.

On the basis of these considerations, some preliminary operational rules might be formulated on the conditions under which WTP and WTA are appropriate measures of utility change:

- (1) WTA is the appropriate measure of welfare change for individuals who are *self-interested* losers from a resource change.
- (2) WTP is the appropriate measure of welfare change for individuals who are *gainers* and are either (a) *self-interested* but are compelled to compensate the losers, or (b) *altruistic* and are readily willing to compensate the losers in recognition of their responsibility for the resource change. WTP is also appropriate for those individuals who are *altruistic losers* from a resource change and who believe all societal members, regardless of the win/lose condition they realize as a result of that change, should help pay the costs of the change, thereby distributing those costs across a larger group and reducing the individual burdens the costs impose.

AN ALTERNATIVE APPROACH TO UNDERSTANDING RESOURCE VALUATION

If one accepts that judgments as to which measurement approach is most appropriate depend on the valuation context, one must ask the question: How are those judgments to be made? Until recently, research on the discrepancy between WTP and WTA has been guided primarily by a deductive approach to theory development and testing. The results of comparisons between WTP and WTA have proved contrary to theory and given rise to broader conceptualizations of the relationship between the two measures as put forth by Schroeder and Dwyer (1988) and Sagoff (1988). In this section, research that reflects an expanded use of an inductive approach to extend our understanding of that relationship is presented. This research involved a survey that presented people with options involving a specific resource loss; the options were based, in part, on past theory about the WTP–WTA discrepancy. Respondents to the survey were asked to select the one option with which they most concurred.

This inductive research was conducted as part of a 1988 study of taxpayers' values and behaviors relating to the Idaho Department of Fish and Game's Nongame Wildlife and Endangered Species Program. That program is predominantly funded with monies donated with a state income tax check-off, and the primary objective of the study was to ascertain how

the behaviors and attitudes of people who had donated to this fund in 1987 differed from those of people who had not.

To achieve this objective, a mail questionnaire was sent to systematic random samples of 1000 donors and 1000 nondonors to that program. These samples consisted of names drawn at random by the Idaho Department of Revenue and Taxation. Standard survey research methods were used following procedures described by Dillman (1978). Of the 1911 questionnaires that were deliverable, 1281 were returned, for a response rate of 67%. A nonresponse survey was conducted and found no major differences between those who had responded and those who had not.

Questions asked in the questionnaire included ones about the values people place on nongame wildlife. They were prefaced with the statement:

The next few questions will help us understand the values people place on nongame wildlife and endangered species. We realize you probably aren't used to thinking about wildlife in this way, but please give us your best answers.

Respondents were then asked the question:

Suppose that land development might result in a major reduction of nongame wildlife and endangered species. Suppose also that this loss would not occur if enough dollars were spent to prevent it. Which one of the following best describes your response to this situation?

Four responses to this question were then listed from which people could choose. They included: (1) 'The state of Idaho should pay to prevent this loss with tax dollars from all Idaho taxpayers' (this response is hereafter referred to as 'all taxpayers should pay'); (2) 'Only those people to whom Idaho's nongame wildlife and endangered species are important should pay to prevent their loss,' (or 'those people to whom the wildlife are important should pay'); (3) 'Only those people responsible for this loss should pay to prevent it' (or 'those land developers responsible should pay'); and (4) 'The loss of Idaho's nongame wildlife and endangered species doesn't concern me.'

When these responses were weighted to adjust for our disproportionate sampling of donors and thereby provide an accurate representation of the population of all Idaho taxpayers, only five percent of that population indicated that the loss of Idaho's nongame wildlife and endangered species didn't concern them (No. 4 above).

Equally significant, only a small minority (10%) suggested that only those people to whom nongame wildlife are important should pay (No. 2 above). This response may reflect one particular perspective, wherein those people to whom nongame wildlife are important are the gainers: they are the ones who gain from maintaining current levels of nongame wildlife in Idaho. Consequently, those gainers (i.e., wildlife 'preservationists') should be willing to pay the losers (i.e., those who stand to lose from the allocation of resources to wildlife preservation rather than elsewhere). This response

also captures the idea underlying the concept of willingness to pay as an indicator of value. It assumes that people who value a resource most and to whom a resource change is most important are the gainers from wildlife preservation. Because they realize the greatest utility from the wildlife resource, they should be willing to pay the greatest amount to maintain that resource.

This response may also have been given by responsible, altruistic gainers – that is, ‘preservationists’ who stand to gain personally from wildlife preservation but who assume personal responsibility for paying for that gain. On the other hand, that response also could have been given by self-interested losers (e.g., benefit-maximizing land developers) who benefit personally by being compensated for this allocation of resources and thus having the opportunity costs of this allocation subsidized by the gainers. Whatever their position and motivation, only a small percentage of Idaho’s taxpaying population apparently felt that this approach provided an acceptable basis for assigning value to changes in Idaho’s current nongame wildlife populations.

From a second, different perspective, the present state of Idaho’s nongame-wildlife populations represents the status quo and any reduction in them would be a loss. From this alternative perspective, the people to whom the state’s nongame wildlife resource is important are the losers if such a reduction occurs. Accordingly, they are the ones who should be compensated by the gainers, or those developers responsible for causing this reduction. The two remaining responses, which were selected by the largest proportions of Idaho taxpayers, reflect this perspective.

Those responses suggest two decidedly different beliefs about who should bear the cost for preventing this loss of nongame wildlife. Nearly a third (32%) of all the respondents to this question stated that only those people responsible for this loss should pay to prevent it (No. 3 above).

This result suggests that a sizable minority of Idaho taxpayers may include two types of respondents, including self-interested losers (i.e., benefit-maximizing preservationists) who believe that the gainers (i.e., land developers) are solely responsible for covering the costs of this loss. According to this view, society in general is the loser from the proposed development and society’s members should be compensated by the gainers; accordingly, WTA is the appropriate measure of economic value. However, this minority could also include altruistic gainers. These respondents would be those developers who believe that, because they are responsible for the loss in wildlife, they should help bear the costs of that loss.

Perhaps the survey’s most significant finding for the focus of this paper is that the majority of respondents (53%) indicated that the state of Idaho should pay for the loss of wildlife with tax dollars, implying that all

taxpayers should pay to cover this loss (No. 1 above). This finding represents a majority opinion among the population of Idaho taxpayers that the state of Idaho, through its taxpayers, should bear the actual costs of preventing this loss and, implicitly, share in the responsibility for bearing what could be viewed as social costs of wildlife preservation. Assuming the perspective that the existing wildlife population in Idaho represents the status quo, this position could have been selected by three different types of respondents: (1) self-interested gainers, or those developers who could compensate the losers but who, out of self-interest (again, personal benefit-maximization), want their share of the compensation reduced by having all taxpayers help bear the social costs of the wildlife loss; (2) altruistic gainers, or developers who believe that subsidizing any implicit wealth transfers with monies from Idaho's general fund of taxpayer payments is the most equitable approach for covering the social costs (i.e., negative externalities) incurred with development; and (3) altruistic losers, or those preservationists who either (a) could demand compensation for the wildlife loss but who, out of concern for sharing social costs of preventing that loss, believe that all society's members (i.e., all taxpayers) should help bear those costs; or (b) believe all Idaho's citizens benefit from both economic development and wildlife preservation, and feel that the equity issue of few gainers compensating many losers is an insignificant one.

CONCLUSIONS

Our findings on the opinions of Idaho taxpayers pose some preliminary but important implications for the issues presented earlier in this paper. One concerns the relevance of the outcome (loss of wildlife) to the respondents: our finding that only five percent reported that this outcome was not of concern suggests that the loss of wildlife is of at least some relevance to the vast majority of taxpayers. (However, we recognize that this small proportion may indicate some degree of social desirability bias at work, in that respondents might have felt that admitting this lack of concern would be inappropriate and thus they were unwilling to acknowledge it.)

The most significant implication of the survey's results for the theme of this paper is that the majority of Idaho taxpayers have expressed a perception that WTP is a more appropriate approach to resource valuation than WTA. It is important to note that couching all the options listed in the survey in terms of payment does not mean that all options were measures of WTP. Indeed, a critical premise of the conceptualization presented here is that the measures of payment for utility loss (WTA) or gain (WTP) used are

more a reflection of the appropriate valuation context than of the wording used to express those measures. (If one accepts that the current state of nongame wildlife and land development in Idaho is the status quo, then the decision that those who benefit from future development should pay for wildlife losses represents the position that those people are the gainers and should be willing to pay the losers. This situation is exactly the one in which WTA, regardless of whether it is expressed in terms of payment or reception of compensation, is the most appropriate measure.) The substantial but minority vote for the WTA option is interesting in light of proposed explanations for the WTP–WTA disparity. That only a third of the respondents to actual policy options chose a context reflecting WTA, while a majority chose one indicating one in which all citizens should be willing to pay to prevent wildlife loss, suggests that altruism and broader feelings of responsibility may well influence implicit policy judgments – despite the findings on the WTP–WTA disparity and concerns like those that Sagoff has expressed.

This research has two major theoretical and methodological implications. One is that the nature of these realistic, pragmatic options can help define the proper scope of resource-valuation theory – its key concepts and relationships – which may not have been adequately identified through a more deductive approach. A second implication is that, if this survey of opinion is considered a policy referendum on the issue of the proper measure of value, then people are implicitly ‘voting’ for the context and the corresponding approach to resource valuation (WTP or WTA) that they believe is most appropriate within that context. If a ‘majority rule’ decision rule is applied, then the measure (and the context) that is most socially acceptable is WTP.

Concerning the first point, empirical findings of a discrepancy between WTP and WTA initially led economists to reconsider their normative theory about the relationship between these two measures of welfare change (that is, what this relationship theoretically *should* be). The research results described here also suggest that resolution of the issues raised by that relationship need to be studied empirically as well as through deductively derived theory. A recent discussion of the shortcomings of neoclassical economic theory by Kuttner (1985) suggests that the need for more testing of that theory with empirical research extends beyond welfare economics to many research problems raised by standard economic theory.

One role that empirical research that focuses on the WTP–WTA disparity can play is suggested by Gregory and Bishop’s observation that:

Once substantial differences in WTP (willingness-to-pay) and CD (compensation demanded, or willingness-to-accept) are considered possible, the outcome of the compensation test may rest on which group is assigned status quo ante property rights in such

situations. *Economics does not provide normative guidance about such assignments of rights* (emphasis added; 1988, p. 137).

Who or what should provide this guidance? An important ramification of the research results reported here and addressed by the second implication discussed above is that normative guidance can and should be provided by public opinion – that is, as an expression of, literally, the norms of society. This premise is consistent with that of the policy referendum format for implementing the contingent valuation method now being promoted by Randall (1988) and Mitchell and Carson (1986), among others.

The conceptualization and research results we have presented in this paper, however, suggest that *answering the fundamental question of who is ultimately responsible for paying for resource loss* is just as important as *assigning rights* to an environmental asset and on that basis determining who should pay to prevent its loss. In the deliberations of the nation's legal system, the focus has been on determining responsibility for paying for a resource loss and, given that:

an accounting of losses in economic welfare often figures prominently in the settlement of disputes and in the establishment of legal rules, [the WTA–WTP] disparity can cause considerable ambiguity and lead to unintended and undesired outcomes: it can undermine negligence and nuisance determinations and project feasibility judgments, [and result in]... seriously incorrect assessments of losses and inadequate indemnification of damages... (Knetsch, 1984, p. 5).

In addition, the results reported here extend beyond this concern and suggest that responsibility *not only for causing loss* but also *as a motive for sharing the social costs of averting it* may legitimately be used as the basis for determining the appropriate measure of value. Interestingly, a body of research is growing that presents concepts analogous to our concept of 'personal responsibility'. Recent related studies include the work of Boyce et al. (forthcoming), whose concept of 'moral responsibility' is very similar to our 'personal responsibility'. They test and validate their theory that:

the disparity between WTA and WTP for environmental goods may in great part be due to the intrinsic 'moral' values captured by such commodities. A WTA measure of the value of preserving a species such as the blue whale clearly *assigns moral responsibility to the individual*. A WTP measure makes a much less clear assignment. That is, the framing effect caused by a difference in implicit property rights when shifting from WTP to WTA may contribute to the disparity between these measures (emphasis added; p. 26).

Elsewhere, they elaborate that:

If a commodity has an intrinsic [non-use] value, ...a kinked or inflected indifference curve may result because intrinsic values may be included in the WTA measure of value but at least partially excluded from the WTP measure of value. This can occur *if the assignment of property rights* in the two measures of value *shifts the allocation of moral responsibility for preserving the commodity*. Thus, if intrinsic values are introduced, a disparity between WTA and WTP might be created or increased... (emphasis added).

The allocation of moral responsibility for preserving an asset thus provides a third reason for the WTA–WTP disparity. The implication here is

that the use of one of these measures serves to, at least partially, predetermine the context within which an individual will respond in their value assessment. This context includes not only the assignment of rights (implicitly, WTA assigns property rights to all losers, and WTP to both gainers and losers depending on how the problem is presented); it also includes, as Boyce et al. suggest, the assignment of responsibility. This context may help explain why a majority of respondents, who perhaps were unwilling to accept this 'moral responsibility', indicated a WTP measure rather than WTA.

McClelland and associates (1991) also discuss issues of responsibility and morality in the context of people's response to a WTP measure of the value of improved air quality with a zero value or the failure to respond. These researchers suggest that these responses can be attributed to the respondent's feeling, as reported in debriefings during the pretesting of survey instruments, that they are not responsible for the problem (loss of air quality) even if they are harmed by it; rather, the respondents believe industry and others should pay and are 'morally responsible' for resolving the problem. "Interestingly," the authors note

such respondents when asked their willingness to accept to allow a decrease in environmental quality often refuse any amount of money, arguing that to do so would be morally wrong. Thus, moral reasoning results in an unwillingness of respondents to provide any tradeoff between money and the public good in question. An apparent L-shaped indifference curve... results. (pp. 10–11)

These findings lend support to our contention that understanding respondents' assessment of their personal responsibility for a loss and how they act based upon that assessment is critical.

Finally, Kahnemann and Knetsch (forthcoming) present a concept paralleling that of responsibility with their suggestion that when people respond to WTP questions, they are, in fact, expressing a "willingness to acquire a sense of moral satisfaction (also known as a 'warm glow,' see ... [Andreoni 1989]) by a voluntary contribution to a public good" (p. 15). Kahnemann and Knetsch believe that what people are actually consuming is the moral satisfaction they associate with making the contribution, with the public good simply a means to that end. Results of studies conducted by these researchers support their thesis, which provides additional support for the importance of the role of altruism as a motive influencing people's response to WTP measures of value.

In concluding, we would emphasize that our purpose in presenting our results and our interpretation of them in the context of other research findings has been to stimulate thought and further research. Discussion of tentative research findings, regardless of the results of future efforts to replicate them, can prove useful in promoting further inquiry through the questions and problems raised.

We recognize that the results of the present research are limited in their ability to answer the larger questions they pose. For example, our finding that a majority of the respondents to our study chose a context reflecting WTP raises the question of the particular motives of this large segment: Do they consider themselves gainers or losers, and to what extent are they responding out of altruism and broader feelings of responsibility? Future research can help expand our understanding of these and other issues discussed in this paper.

In addition, clarifying for the public the nature of the asset itself (particularly an 'amenity resource' like nongame wildlife) and the various kinds of value (i.e., use, non-use, etc.) and property rights assigned to an asset could aid the public in forming, however implicitly, a better-reasoned opinion about responsibility for some change in that asset. For example, the finding that the majority vote was for the 'all taxpayers should pay' option poses the intriguing possibility that some people do not share economists' concern with gain and loss, but rather approach the valuation task in terms of the status quo, established precedent and societal norms: their responses may reflect a perception of nongame animals as a public or common good. The two options 'those people to whom the wildlife are important should pay' and 'those land developers responsible should pay' imply the capacity to somehow privatize the production of a public good and its benefits and costs – a perspective which may be incongruous with current perceptions of public resources, as suggested by the results described earlier of Rowe and Chestnut's (1982) research, among others. Thus, it may be that the responses of some portion of those answering with the 'all taxpayers should pay' option reflect a rejection of this implicit privatization or, at least, a failure to share the perspective that the two other options represent.

Perhaps most important, a better understanding of the relation of personal responsibility, altruism and other possible motives for valuing assets to the choice of the appropriate welfare measure (and the assignment of property rights it implies) is needed. For example, existing research has yet to assess the extent to which respondents' process of choosing an option included considerations that extended beyond their perceptions of gain and loss, and even feelings of responsibility (either personal or civic) for a change in an environmental asset, to their willingness to accept responsibility for that change.

Finally, the influence of existing and possible economic and legal institutions on this choice also requires further consideration. For example, one reviewer reported that, in their own research, they "found a sizeable number of folks rejecting 'gainers (or perpetrators) compensate losers' approaches because it smacks of litigation and court settlements, which

they see as inefficient, wasteful, and inequitable because a few victims make out with millions thus raising costs for everyone;" this anecdotal information suggests a hypothesis that could be tested and validated empirically. Increased understanding of the basic but critical issues raised by resource-valuation decisionmaking should help improve the quality of the guidance that economists can obtain from the public and that recent findings about the validity of welfare theory recommend.

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