Effects of Perceived Fairness on Willingness to Pay

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An experiment tested the effects of fairness on willingness to pay (WTP) for public goods. Treatments varied the amount requested (high vs. low), the fairness of the requested contribution (high vs. low), and the beneficiary (self vs. other) or cause of the needed change (internal vs. external). Irrespective of fairness type (beneficiary or cause), under conditions of high fairness, the public good was judged to be more valuable and the requested contribution more justified. The judged value of the public good and the perceived fairness of the requested contribution each made a significant contribution to the prediction of WTP. The requested amount influenced WTP by acting as an initial anchor. The implications of these findings for contingent valuation are discussed.

Contingent valuation (CV) is a popular tool to assess the monetary value of goods that are not traded in the marketplace (for reviews, see Cummings, Brookshire, & Schulze, 1986; Mitchell & Carson, 1989). Respondents in a survey are asked to provide an estimate of how much money they would be willing to pay for a certain good in a hypothetical or contingent market. The monetary value of the good in question is measured by aggregating these willingness-to-pay (WTP) judgments in the relevant population.

Although scores of CV surveys have been conducted in recent years, the validity of the derived measures is often disputed. Detractors of the CV method have been concerned primarily with systematic biases that may influence WTP judgments and hence jeopardize the measure's validity. Frequently mentioned concerns include the proposed amount of payment, the hypothetical nature of WTP questions, the particular information provided in the description of the public good (context cues, embedding effects), and the possibility of strategic considerations (see Hoehn & Swanson, 1988; Mitchell & Carson, 1989, for reviews). Biases introduced by these factors are assumed to produce over- or

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underestimates of the true amount that people would be willing to pay for a public good or service.

Surprisingly little is known about the psychological underpinnings of CV, especially when it is used to value public goods. Still, some investigators have gone beyond demonstrating the existence of biases to look at the ways in which respondents in CV surveys arrive at their judgments (e.g., Ajzen, Brown, & Rosenthal, 1996; Fischhoff & Furby, 1988; Gregory, Lichtenstein, & Slovic, 1993; Kahneman, Ritov, Jacowitz, & Grant, 1993; Mitchell & Carson, 1989; Schkade & Payne, 1994). The broadest descriptive account to date was provided by Schkade and Payne. In a study concerned with WTP for the preservation of migratory waterfowl, respondents were asked to verbalize the considerations that went into their judgments. Generally speaking, respondents tended to acknowledge that something needed to be done and then tried to determine how much money would be an appropriate amount. Frequently mentioned considerations that correlated with WTP responses involved doing one's fair share, the anticipated cost of the proposed solution, and family income.

The focus of the present research is the perceived fairness of being asked to pay for a public good. We assume that two major types of considerations determine CV judgments. WTP for a specified good should first be a function of the value that respondents attach to the good in question. Only when respondents agree that the proposed change is desirable should they be willing to pay some amount of money for it; and the greater the judged desirability or utility of the change, the more money they should be willing to pay, all else being equal. In this respect, paying for public goods is comparable to paying for private goods. Research has provided support for these ideas by showing that respondents indicate a greater WTP for private or public goods if the information they are given about those goods makes a persuasive case for their value (Ajzen et al., 1996). Research on the scope or embeddedness of a public good has also demonstrated the relation between the value of the good and WTP (e.g., Brown & Duffield, 1995; Carson, 1997; Smith & Osborne, 1996).

Where WTP for public goods may differ from WTP for private goods is in the second type of consideration. Given that respondents acknowledge the value of the proposed change in public good, willingness to contribute is hypothesized to be influenced by judgments of fairness. The specific amount of money that respondents would be willing to contribute is expected to reflect the amount of money that they consider to be fair or equitable under the stipulated circumstances. Unlike a private good, a public good or service benefits a broad segment of a community or society. People are therefore likely to believe that its cost should be borne fairly by all those who are responsible for the needed investment or who benefit from it.

Much theorizing and research have been devoted to the multidimensional concepts of justice, fairness, and equity (for reviews, see Mikula, 1980; Steensma

& Vermunt, 1991; Vermunt & Steensma, 1991). Various standards for judging fairness are available, depending on the nature of the situation in which the judgments are made. Participants in the present research were asked to indicate their willingness to donate money to four public projects. In an attempt to explore different aspects of fairness, descriptions of these projects systematically varied information that should be relevant to judgments of this kind. Specifically, the descriptions varied (a) the extent to which the respondent would benefit from the change, relative to other beneficiaries; and (b) the agent responsible for the needed change. The first type of information manipulates the probability that the respondent will actually have the opportunity to use the good. Greater probability of use is expected to be associated with higher perceived fairness.[2] The second type of information deals with an aspect of fairness that has received less attention in the CV literature. It is expected that benefits to individuals responsible for a needed change are judged to be less fair than benefits to individuals who are not responsible for the need.

The following specific hypotheses were formulated:

Hypothesis 1. Across experimental conditions, WTP will increase with the perceived fairness of the requested contribution.

Hypothesis 2. WTP will be greater under high opportunity than under low opportunity to use a good, and it will be greater when the beneficiary is not responsible for the needed change than when the beneficiary is responsible.

In addition to these central hypotheses, two secondary hypotheses were also tested.

Hypothesis 3. As in previous research (Mitchell & Carson, 1989), it is expected that, independent of fairness considerations, WTP will increase with the amount requested; that is, the requested amount of money will serve as a guide or anchor for WTP judgments.

Hypothesis 4. WTP is expected to increase with the perceived value of the public good. This hypothesis is based on the assumption that monetary estimates of value correlate with the psychological value of a public good.

[2]The opportunity to use a good is related to the distinction between use and non-use value in environmental economics. In the low-opportunity conditions of our experiment, WTP so that other people may benefit parallels bequest value in the case of an environmental good.

Method

Respondents and Procedure

A total of 110 college students enrolled in low-level undergraduate courses at the University of Massachusetts took part in the investigation in exchange for course credit. They were assigned at random, and in approximately equal numbers, to each of four experimental conditions. After receiving information about the study and signing a consent form, the participants, in small groups ranging in size from 4 to 12, completed a written survey. At the end, they were given an explanation of the experiment and were thanked for their participation.

Questionnaire

The materials used in the experiment consisted of a self-contained questionnaire that described four different projects conducted by the university. With respect to each project, participants were asked to make a monetary contribution to a fund drive. These materials were developed in formative research designed to construct scenarios relevant to college students and to determine appropriate levels of requested contribution. The booklet containing the questionnaire was titled "Survey of Student Opinions." It consisted of two parts. In the first part, each of the projects was described, followed by a WTP question. The project descriptions were repeated in the second part, followed by a series of questions designed to assess the perceived value of the project and the perceived fairness of the requested contribution. The four projects were arranged in two different random orders, which was the same in the two parts of the questionnaire.

On the first page of the booklet, participants were informed that they would be given descriptions of four issues facing University of Massachusetts students. They were told that, with respect to each issue, they would be asked to consider making a monetary contribution to a fund drive. However, although they would be reading about four different fund drives, they were told that only one would be instituted in the next 5 years, and they were asked to regard each of the fund drives as if it were the only one under consideration. This instruction was also reiterated orally.

Respondents were asked to consider making a monetary contribution to a library support fund, a bus expansion program, a community outreach program, and a campus beautification project. Descriptions of the four projects manipulated (in a $2 \times 2 \times 2$ design) the amount of money requested (low vs. high), the fairness of the requested contribution (low vs. high), and the nature of the fairness manipulation (beneficiary vs. cause). For two of the projects (library fund and bus expansion), the beneficiary of the proposed change was varied, and for the other two projects (community outreach and campus beautification) the cause of the needed change was varied. Participants evaluated all four projects,

but for each one they were assigned to a different combination of the requested amount and degree of fairness manipulations.

University library fund. The university library system was said to have undergone a series of budget cuts over the past 5 years. To pay for needed computer equipment and book additions, the university administration was planning to conduct a fund drive. The respondents were informed that, based on past experience with drives of this kind, it was projected that an average donation of $10 (or $20, depending on experimental condition) would raise the needed amount of money. In one condition, respondents were told that the planned improvements would be implemented "by the end of the current academic year" (high opportunity/high fairness), whereas in the other condition, the improvements would be implemented "in about 4 years from now" (after the participants would have graduated; low opportunity/low fairness).

Bus expansion program. This project involved expansion of the local free bus service to cover some of the more remote residential areas. Additional funds allocated by the state for this project were said to be insufficient. Consequently, the transit authority was planning a fund drive to help pay for the bus expansion program. Respondents were told that the amount needed was either $5 or $10 (depending on experimental condition). They were further told that the additional bus routes would serve a number of areas whose residents are "primarily UMASS students" (high opportunity/high fairness) or whose residents are "mostly not UMASS students but who work at the university or need to get to the campus for other reasons" (low opportunity/low fairness).

Community outreach program. Respondents were informed that many Massachusetts residents live in great poverty, with inadequate housing and nutrition, unable to afford heat, food, medicine, and clothing. In response to the crisis, the university had decided to institute an outreach program. To raise the necessary start-up funds, students were asked to donate, depending on experimental condition, either $10 or $20. Respondents were told that a survey had been conducted to explore the circumstances that had led to the plight of the needy individuals and families. This survey was said to have revealed that the vast majority found themselves in their predicament "through no fault of their own" (external cause/high fairness) or "because of wrong turns or decisions they have been taking" (internal cause/low fairness).

Campus beautification project. This project dealt with the marred landscaping of the university campus. To correct the problems and to prevent their recurrence, ground crews were ready to install new and improved pathways, to plant shrubs and trees, and to block off certain areas to traffic. A fund drive was to be instituted to pay for this beautification project, and students would be asked to contribute either $4 or $8 (depending on experimental condition). In the external cause/high fairness condition, respondents were informed that, according to landscape architects, the problem was a result of "the sandy local soil that lacks

adequate nutrients and to the harsh winters that tend to break up paved areas and retaining walls." In contrast, in the internal cause/low fairness condition, the problem was said to be a result of "inadequate planning of the landscape, a failure to anticipate the needs of a growing student population, and generally poor workmanship."

Willingness to pay. Following each of the four project descriptions, participants were asked to indicate, in a free-response format, how much money they would be willing to donate to the fund drive.[3] For example, in the library project, participants responded to the following question, "How much money would you be willing to donate to the Library Improvement Fund? Please enter the amount you would be willing to donate in the following space. I would be willing to donate $_____."

Perceived value and fairness. In the introduction to the second part of the questionnaire, respondents were told that they would be asked some additional questions about each of the four projects. These questions were separated from the first part to avoid contaminating the WTP estimates. So that they would not have to look back at the first part, each description was reprinted. Respondents were given the description corresponding to their experimental condition, followed by six questions. The first three questions asked respondents to rate the value of the project on three 7-point scales whose endpoints were labeled *extremely undesirable—extremely desirable, extremely unimportant—extremely important,* and *extremely worthless—extremely worthwhile.* The internal consistencies of responses to these three items, as measured by Cronbach's alpha, were high, ranging from .89 for the campus beautification project to .96 for the community outreach project. Responses to the three items were therefore averaged to yield a measure of a project's perceived value.

The second set of questions referred to the specific amount of money the respondent had been asked to donate to the project. These questions were designed as a check on the fairness manipulation and to provide a measure of perceived fairness. Respondents rated the fairness of the requested amount on three 7-point scales whose endpoints were labeled *extremely unfair—extremely fair, extremely unreasonable—extremely reasonable,* and *extremely unjust—extremely just.* Internal consistencies among these three items were also high, ranging from .95 for the outreach project to .98 for the bus expansion project. Averages across the three items were used to assess the perceived fairness of the requested donation.

Results and Discussion

Data were first analyzed separately for each of the four projects. As might be expected, there were substantial differences between projects in the amount of

[3] Implications of using this type of format are considered in the Discussion section.

Table 1

Means and Standard Deviations for Perceived Value, Perceived Fairness, and Willingness to Pay

	Low fairness				High fairness			
	Low request		High request		Low request		High request	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Fairness in terms of beneficiary (library fund, bus expansion)								
Perceived value	5.27	1.52	5.06	1.65	5.75	1.49	5.43	1.36
Perceived fairness	4.44	1.80	4.16	1.97	5.08	1.72	4.81	1.89
Willingness to pay ($)	4.43	6.29	6.83	8.05	7.09	6.90	8.58	7.94
Fairness in terms of causal agent (community outreach, campus beautification)								
Perceived value	5.32	1.69	5.23	1.35	5.80	1.27	5.61	1.23
Perceived fairness	4.86	1.86	4.41	1.79	5.07	1.66	5.07	1.49
Willingness to pay ($)	5.82	7.87	8.40	8.06	7.04	6.84	9.96	8.60

money that respondents were willing to pay. Across conditions, mean WTP was $9.93 for the library fund, $3.94 for the bus expansion, $9.69 for the community outreach project, and $5.15 for campus beautification. However, because the analyses revealed the same pattern of differences for the two beneficiary-fairness projects and for the two cause-fairness projects, data for the two projects of each kind were pooled. Only results of the pooled analyses are presented here. Two types of analyses were performed. The first examined the effects of the experimental manipulations (amount of requested donation, level of fairness, and type of fairness) on perceived value of project, perceived fairness of requested contribution, and WTP. The relevant means are presented in Table 1. The second analysis was based on within-cell correlations in which the judged value of the project and the judged fairness of the requested contribution were used to predict WTP. Multiple regressions were computed by first standardizing responses around cell means.[4]

Perceived Value and Fairness

To test the effects of the manipulations on perceived value and fairness, a 2 × 2 × 2 MANOVA was performed, with type of fairness (beneficiary vs. cause),

[4]Outliers in WTP judgments were truncated at 3 standard deviations above the mean. Only four judgments had to be recoded in this fashion.

degree of fairness (low vs. high), and requested contribution (low vs. high) as independent variables, and perceived value and fairness as dependent variables. As can be seen in Table 1, the manipulation of fairness had the expected effects. Compared to the low fairness conditions, under high fairness, the public goods were judged to be more valuable ($M = 5.65$ vs. 5.22) and the requested contributions to be more justified ($M = 5.01$ vs. 4.47). The multivariate main effect of fairness degree was highly significant, $F(2, 434) = 6.07$, $p < .01$, as were the two univariate effects, $F(1, 435) = 9.68$, $p < .01$, for perceived value; and $F(1, 435) = 10.28$, $p < .01$, for judged fairness. These effects were found to hold for both types of fairness. However, the multivariate main effect of fairness type was not significant, this factor did not interact significantly with degree of fairness or with requested contribution, and the three-way interaction was also not significant (multivariate $F < 1$ in each case).

In contrast to the fairness manipulation, the amount of money requested had no appreciable effects on the perceived value of the public goods or on the judged fairness of the requested contributions. The main effect of requested contribution on perceived value and fairness was not significant (multivariate $F = 1.33$), and there were no significant interactions between requested contribution and degree of fairness or type of fairness (multivariate $F < 1$ in each case).

Willingness to Pay

The central hypotheses of the present study had to do with WTP. We predicted that WTP is influenced by the degree of fairness inherent in the situation (Hypothesis 2) and, independent of fairness, by the amount of money requested (Hypothesis 3). In addition, we hypothesized that WTP can be predicted from the judged value of the public good (Hypothesis 4) and from the perceived fairness of the requested contribution (Hypothesis 1).

Effects of experimental manipulations. The means of the WTP measure under the different experimental conditions are shown in Table 1. Examination of the mean WTP judgments in the different scenarios suggests that participants took their task seriously and responded in a reasonable fashion. The amounts of money respondents were willing to pay for the different projects varied considerably. Moreover, as would also be expected, a sizable proportion of respondents indicated willingness to pay \$0 amounts, and this proportion again varied across scenarios. For the library fund, the proportion of respondents indicating \$0 WTP was .22; it was .25 for the bus extension, .11 for the community outreach project, and .13 for the campus beautification project.

The ANOVA revealed significant main effects for degree of fairness, $F(1, 420) = 6.67$, $p < .01$, and for requested contribution, $F(1, 420) = 11.40$, $p < .01$, and no significant interaction between these factors ($F < 1$). As expected, respondents were willing to pay more money under high-fairness ($M = \$8.17$) than under low-fairness ($M = \$6.37$) conditions. Similarly, they indicated willingness

to give more when requested to donate a relatively high amount of money (M = \$8.44), as opposed to a relatively low amount (M = \$6.11). It is important to note that the effect of amount requested on WTP occurred despite the fact that this manipulation had no significant impact on the judged value of the public goods or on perceived fairness. It thus appears that asking for a relatively low or high amount of money can serve as a guide or anchor for WTP judgments, independent of other considerations.

Degree of fairness had a somewhat stronger effect when manipulated in terms of cause than in terms of beneficiary; the difference between high- and low-fairness conditions was \$2.21 and \$1.39, respectively. However, the interaction between degree and type of fairness was not significant ($F < 1$), indicating that the effect of low versus high fairness held for both types of fairness. Finally, the three-way interaction between type of fairness, degree of fairness, and amount requested was not significant ($F < 1$).

Prediction of WTP. Correlational analyses examined the idea that WTP judgments are influenced by value and fairness considerations. In this analysis, WTP was regressed on the judged value of the public goods and on the perceived fairness of the requested contributions. The results provide support for our hypothesis. Across the four projects, the multiple correlation was .54 ($p < .01$), and each of the two independent variables made a significant and independent contribution to the prediction. The regression coefficients were .21, $t(430) = 4.10$, $p < .01$, for judged value of public goods and .39, $t(430) = 7.73$, $p < .01$, for perceived fairness of requested contributions. The same pattern of findings obtained in separate analyses of each of the four projects. Examination of the zero-order correlations revealed that perceived value and judged fairness were significantly correlated with each other ($r = .56$, $p < .01$), and that the magnitude of this correlation was about the same for each project.

Conclusion

The results of the present experiment support the proposed view of the determinants of WTP for a public good or service. WTP increased significantly as a function of the amount of money requested and of the manipulated fairness of the requested payment. These effects were found to hold whether the fair or unfair situation was due to the cause of the needed change or to its beneficiaries, although degree of fairness had a somewhat greater effect when manipulated in terms of cause. The experimental manipulations also showed that requested donations are judged to be more fair, and public goods to be more valuable, under high- as compared to low-fairness conditions, but that these judgments are unaffected by the amount of money requested.

Correlational analyses showed that WTP varies directly with the perceived value of the contemplated project and with the judged fairness of the requested

contribution. When used simultaneously to predict WTP, judged fairness and perceived value were found to make significant independent contributions.

Taken together, these findings suggest that WTP judgments in the situations studied are based on psychologically reasonable considerations. When confronted with the difficult and somewhat ambiguous task of estimating the amount of money that they would be willing to pay for a good that is not usually traded in the marketplace, respondents seemed to look for some initial guide or standard. In the present experiment, the standard was provided in the form of a stipulated amount of money that was said to be needed for the contemplated project. Our findings suggest that the level of WTP set by an initial standard or anchor can be significantly modified by at least two additional factors: the subjective value of the public good, and the perceived fairness of the requested payment. Fairness was manipulated experimentally by varying the degree to which the respondent would personally benefit or by varying the agent responsible for the needed investment. Degree of fairness of either type influenced the judged fairness of the requested contribution, as well as WTP. Respondents judged a request to be more justified and they were willing to pay more money when they believed that they would personally benefit from the project and when the beneficiary was not personally responsible for the existing need.

Of the different factors found to influence WTP judgments in the present experiment, the perceived value of the public good is clearly relevant to economic value. That is, the economic value of a public good should be reflected in subjective evaluations. As to fairness considerations, variations in use value should arguably also be related to economic value. When a public good has personal use value, in addition to having value for others, it is logical for a person to be willing to pay more money, all else being equal. However, the finding that WTP was also influenced by the beneficiary's responsibility for the existing need is more difficult to explain in rational terms.[5] Causal responsibility is akin to a "sunk cost"; negligence or faulty decisions happened in the past and cannot be changed. It would be rational to ignore such costs, and economic theory suggests that they should be ignored. However, it is well known that most people fail to ignore them in their decisions. It should be noted that this phenomenon is not restricted to CV. Like hypothetical WTP, actual transfers of money are likely to be similarly affected by beliefs about prior negligence.

It is important, at this point, to consider some limitations on the generalizability of the present findings. Our methods and procedures did not always follow generally recommended practices. In contemporary CV practice, respondents are usually noncollege students; surveys typically ask respondents to value only one good; and a closed format is used whereby one of several dollar amounts is stated

[5]Perhaps it is for this reason that degree of fairness had a somewhat greater impact on WTP when it was manipulated in terms of beneficiary, rather than responsibility.

and respondents are asked to accept or reject it. In designing the study, we were concerned more with its internal validity (i.e., with our ability to test the predicted effects of our experimental manipulations) than with its external validity. Thus, we used college students in small groups, four different scenarios, an open-ended response format, and a donation payment vehicle, all of which are open to criticism (Arrow et al., 1993).

These characteristics of our survey and CV instrument were chosen for practical reasons. Use of different scenarios and an open-ended response format lowered the sample size needed, making the study feasible, given the available subject pool. At the same time, these features did not interfere with our primary objective of comparing treatments. A donation payment vehicle was used because it was more plausible than a referendum for the types of goods at issue and therefore less likely to raise extraneous concerns that might interact with the experimental variables. Although a donation payment vehicle may not garner maximum WTP because of the potential for free riding, it can be considered a lower bound on WTP (Champ, Bishop, Brown, & McCollum, 1997) and should not interfere with the comparison of treatments that is our main concern.

In sum, the present research clearly demonstrates the potential importance of fairness considerations in WTP judgments. By using an experimental design with a high degree of internal validity, we were able to show a causal effect of fairness on WTP: fairness manipulated in terms of the beneficiary and in terms of the responsible agent. Future research on fairness issues will have to address the generalizability of these findings by showing that they do not depend on the particular methods employed in the present study. In particular, future studies will have to examine the effect of fairness on contingent valuations of a single good by a nonstudent population, using a closed-response format.

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