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The Impact of Perceived Justice on Contingent Value Judgments

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Abstract

We asked citizens suffering from road traffic about their willingness to pay for the building of a new road bypassing their home village. Opponents of that project were asked what they would consider as adequate compensation for accepting the bypass. The perceived fairness of a monetary exchange was the only predictor for the decision in principle to pay or to claim compensation, whereas the exact amount was determined by the expected utility provided by the bypass. Norms of equity or equality introduced in two experimental priming conditions biased the respondents' willingness to pay. We suggest to feed back the results of Contingent Valuation surveys into the public debate instead of interpreting them as a static measure of economic preferences.

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Willingness-to-Accept

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The Impact of Perceived Justice on Contingent Value Judgments

Introduction

Contingent Valuation (CV) is a popular tool for assessing the monetary value of environmental goods. In a typical CV survey, respondents are asked how much money they would be willing to pay (WTP) for a certain improvement of the environment. The stated amount is assumed to correspond to the *purchase* price of the environmental good in a hypothetical market. In a willingness-to-accept (WTA) scenario, respondents are asked to indicate how much money they would demand as adequate compensation for a certain loss in environmental quality. Economically, WTA is interpreted as the *selling* price of the good in question. There has been much research to examine the validity of CV (for a review, see Bateman & Willis, 2002, or Bjornstad & Kahn, 1996), primarily concerned with potential biases. Psychologists have considered WTP responses as expression of attitudes (e.g., Kahneman, Ritov, Jacowitz, & Grant, 1993), thus challenging the economic interpretation of the derived monetary values. But only little attention has been paid to one significant aspect of a CV Scenario, and it is at the core of the research described in the present paper. If you ask people what amount of money they would be willing to pay for a public good, their response might strongly depend on whether or not they consider it just to pay for it. This is important because value assessment would thus be confounded with perceptions of justice. For example, a zero response to a WTP question can have alternative interpretations: 1.) The public good in question is of no value to the interviewed person. 2.) It may have high value, but the interviewee thinks that someone else (e.g. the authorities or the one who caused the damage) ought to pay for it. The present article examines to what extent different perceptions of justice result in different contingent value judgments and discusses possible consequences in the context of traffic planning decisions in Germany.

Theoretical Background

Examining the validity of Contingent Valuation

Contingent valuation has been widely used to determine the use or non-use (existence) value of various environmental goods. Even though there is a lot of critical research challenging the validity of CV (for a review see Bjornstad & Kahn, 1996), the method is generally accepted as suitable for monetary assessment of the environment (see Wagner, 2000, for a discussion).

Economically, a WTP scenario offers a choice between two states of the world: 1. the current level of wealth and a specified quality of the environment (e.g., a certain level of traffic noise) *or* 2. a somewhat diminished level of wealth combined with a better quality of the environment (e.g., no traffic noise at all). In both options, the interviewee is assumed to maintain the same utility level, so the monetary amount elicited in a CV question is considered as measuring the economic value for the specified quality of the environment. If that is true, then the amount must be independent of the survey method used, or the way the scenario is described. Unfortunately, this is not always the case.

For example, there is strong empirical evidence for the existence of anchoring effects (see Roschewitz, 2001, for a review): In most cases, a WTP scenario contains some information about what would be considered an adequate amount of payment. This is often necessary to reduce the respondents' uncertainty when faced with the monetary valuation task. So survey designers provide a scale of possible amounts. The problem is that the outcome of the survey can strongly depend on the scale chosen, as the respondents adjust their WTP judgment to the researchers' proposals. Consequently, a CV study suggesting high amounts (say, a scale ranging from 20 Euro to 200 Euro) could possibly yield a higher economic value for the same

environmental good than a study using a more moderate scale (e.g., 5 Euro to 50 Euro). Of course, this effect violates the economic assumption of stable preferences.

A major problem in CV is that any WTA measure is generally many times greater than the corresponding WTP measure in the same scenario. Within economic theory this does not make sense: the mere monetary value of a specified good should not depend on whether you buy it or sell it¹. Arrow, Solow, Portney, Leamer, Radner, & Schuman (1993) argue that WTA is far more susceptible to strategic reflections than WTP, because there is no budget constraint. Therefore, they recommend giving up WTA surveys completely. We believe that, for ethical reasons, this proposal is not legitimate: whether you apply a “purchase logic” (=WTP) or a “selling logic” (=WTA) depends on the property rights for the good in question. The *polluter-pays principle* established in environmental jurisdiction in many countries states that people are generally entitled to the better of the two states of the environment (e.g. a good quality of water that is in danger when a waste disposal site is constructed). Consequently, WTA should be the preferred measure over WTP in many cases. Therefore, research on WTA is far from being dispensable.

Many researchers relate to the *endowment effect* when explaining the discrepancy between WTP and WTA. This refers to the phenomenon that people value a good more once their property right to it has been established. The endowment effect reflects a *norm of status quo* (Kahneman, Knetsch, & Thaler, 1991): The given economic situation (as well as the given state of the environment) is perceived as being fair – just because people have become accustomed to it (“Normality becomes normative”). That is where the notion of justice first enters the discussion of CV: Might not the higher price people demand in a WTA scenario

reflect the need for some compensation for the injustice that is perceived to accompany a worsening of the environment?

Be it anchoring effects, strategic reflections or the discrepancy between WTP and WTA – in each case the view of CV as a measure of relatively stable economic value does not hold. As a consequence, psychologists have developed an approach of *constructed preferences*, which strongly depend on the framing in a specific situation.

Psychological Interpretations of CV

Kahneman, Ritov, and Schkade (1999) view WTP judgments as attitude expressions. They refer to very high empirical correlations between WTP amounts, judgments of importance, support for political action and expected satisfaction from making a contribution, all for the same public issue (e.g., protecting the Peregrine Falcon from pollution). In all these measures, there seems to be a common factor of affective valuation accounting for most of the variance. Consequently, the authors develop the hypothesis that WTP is not a measure of economic preferences but only a specific scale for measuring attitudes. The proposition is powerful – a large part of the variance and inconsistencies observed in contingent valuation can now be explained by referring to existing research on attitudes and attitude measurement. But how much have CV surveys to do with economic valuations then?

A pragmatic answer to that question could be to examine the relationship between stated WTP and actual payments. In psychological terms, the link between attitudes and actions has to be questioned. So does the Theory of Planned Behavior (Ajzen, 1991), focusing on behavioral intentions. It postulates that the intention to behave in a particular manner (e.g., to pay for a better quality of the environment) can be predicted with high accuracy from

attitudes toward that behavior, subjective norms (e.g., “what would my wife or my neighbor think if I gave money?”) and perceived behavioral control (e.g., “how much could I afford to pay?”). There is empirical evidence that these intentions account for a considerable part of the variance in actual behavior (see Ajzen, 1991). There are important applications of the theory to consumer psychology, a research area that deals with purchasing real goods in real markets. So, what if the subject’s behavior in the hypothetical CV market had the same underlying psychological pattern? To explore this idea, researchers (Ajzen & Driver, 1992; Pouta & Rekola, 2001; Meyerhoff, 2004) have considered WTP as a behavioral intention. The implicit idea behind doing so is to reach a psychological validation of CV: If the same model succeeds in explaining consumer behavior in real markets as well as WTP responses in hypothetical surveys, then CV might be an acceptable tool for monetary valuation of the environment.

Ajzen & Driver (1992) assessed different attitudinal variables and WTP for engaging in various leisure activities. The interesting point of their study is that they distinguished between *instrumental attitudes* which concern a rational utility assessment of the activities in question, and *affective attitudes* which refer to a peripheral, more intuitive mode of information processing. In valuing public goods, people lack important information needed for rational considerations, so they use their affective experiences as a rule of thumb for monetary estimates. In the study (Ajzen & Driver, 1992), subjects placed a high monetary value on those leisure activities which evoked a positive feeling (“It’s worth paying for, if you enjoy it.”). On the contrary, instrumental attitudes (e.g., judgments about the usefulness of the behavior in question) did not account for WTP variance at all. The authors also included several items assessing moral considerations upon paying for the leisure activities.

These were strongly related to subjects' WTP. Summarizing the study, WTP was determined by affective valuation and perceptions of fairness, but not by a rational utility assessment.

The role of justice

Justice is an important motive in human interaction. Individuals are generally committed to the *Belief in a Just World* (Lerner, 1980), where people get what they deserve. This assumption has a functional component which is tied to the image of a manageable and predictable world. The theory asserts that when this view on the world is in danger, people will engage in actions or change their attitudes in order to restore the basic assumption of a ruling justice principle. Much evidence comes from research on altruistic behavior (e.g., Miller, 1977). People are normally willing to help those in need but just and deserved outcomes have to be ensured before. Helping behavior is often examined within a paradigm of donating money for charity – in other words, a willingness to pay scenario.

In contingent valuation, people are usually asked about their WTP for public goods. Once such a good is made available by one party, other parties cannot be excluded from consuming the good. Thus, the respondents in a CV survey are asked to pay not only for their personal benefit but also for the benefit of someone else (who might have refused to pay). This certainly raises questions about the fairness of the required contribution. Consequently, it can be hypothesized, that the amount of money elicited in the survey reflects not only the benefit respondents attribute to the change of environment in question but also the degree to which they find it just that they should pay for it. Indeed, in an experiment by Ajzen, Rosenthal and Brown (2000), students indicated a significantly higher WTP for different projects conducted by the university (e.g., a campus beautification project), when the basic scenario was considered to be fair.

Things get more complicated, however, when the question arises what exactly is understood by justice. Different norms exist about what is to be considered as fair. Probably the oldest competition that has existed in the philosophy of justice is the one between principles of *equality* and *equity* (see Austin & Hatfield, 1980). Equality refers to the claim that distribution of goods and opportunities in society should be equal for all people, whereas Equity Theory (Adams, 1965) considers a *proportional distribution* (equal input-output ratios) as just: workers, for instance, are not paid all equally, but according to the value of their contribution. Who works more, harder or has more skills, earns more money, and such principle is widely accepted as fair. Eek, Biel, and Gärling (1998) showed that the norm of justice applied can have an impact on CV judgments. They assessed WTP for municipality childcare in three different hypothetical scenarios according to the principles of equality, equity, and need. Participating students were WTP significantly less in the equity condition. However, the focus was different than the one in the present paper: the question was whether childcare was organized in a just way and not whether the payment was considered as just.

To summarize the findings, there is some empirical evidence for the impact of perceived justice on WTP. However, clear conceptualization of a possible differential influence of competing justice principles is still lacking. How would the participants in a CV survey think about contributing financially to a public good if they believed in a world ruled by principles of equity rather than equality? Probably, the answer depends on the benefit they expect from the good in question. If they profit from it, they are more likely to find it just to pay for it because outbalancing what we give and what we receive is the main point in equity. For WTA, the same reasoning applies, only in the opposite direction (high damage justifies high compensation). On the contrary, if the imaginary just world was more linked to the norm of

equality, the perceived fairness of a payment or compensation would rather depend on what other people in the same situation are expected to do. In Germany, the State (but not individuals) is often regarded as responsible for providing public goods. In many recent political debates, people have protested against the idea of individually paying for public infrastructure (e.g., universities in Germany). In doing so, they often implicitly refer to the norm of equality (“If we introduce tuition fees, only rich people can send their children to university. Instead, everyone should have equal opportunities.”). For the knowledge of this kind of political discourse, we assume that with an equality reasoning people are more likely to find it unfair to pay for a public good.

Aim of the Present Study and Hypotheses

The purpose of the present study was to explore further the relationship between perceived justice and CV judgments, replicating principal results from research by Ajzen & Driver (1992), Ajzen et al. (2000) and Eek et al. (1998) and extending them to non-student populations and non-hypothetical scenarios. Data were collected from proponents and adversaries of a road building project in northern Germany. We were thus able to assess both WTP and WTA for the same project. Therefore, there were two main hypotheses:

Hypothesis 1a: The perceived justice of payments has an impact on WTP.

Hypothesis 1b: The perceived justice of compensation has an impact on WTA.

We were also interested in the psychological comparability of WTP and WTA. Referring to the above cited idea of *status quo bias* (Kahneman et al., 1991) being rooted to perceptions of justice, we predicted (*Hypothesis 2*): The impact of perceived justice is greater for WTA than for WTP.

Since only people were included in the WTP question who had stated before that they would indeed benefit from the project, we expected WTP to be higher when equity was the basic principle of justice.

Hypothesis 3a: When people understand justice in terms of equity, they indicate a higher WTP than when they think in terms of equality, *ceteris paribus*.

The same reasoning applies for WTA. Equity reasoning views compensation as fair for those who expect disadvantages from the new road:

Hypothesis 3b: When people understand justice in terms of equity, they indicate a higher WTA than when they think in terms of equality, *ceteris paribus*.

In addition, two complementary hypotheses were formulated to test the importance of the Theory of Planned Behavior and demographic variables:

Hypothesis 4a: WTP can be predicted from expected utility, perceived justice, attitudes toward paying, a subjective norm, perceived behavioral control, and demographic variables.

Hypothesis 4b: WTA can be predicted from expected utility, perceived justice, attitudes toward compensation, a subjective norm, perceived behavioral control, and demographic variables.

Method

The Case of Bookholzberg

Bookholzberg is a village in northern Germany with approximately 5000 inhabitants. Traffic on the crossing federal highway B 212 is a severe problem. With on average 14,000 (partly heavy weight) vehicles passing through the village every day, noise, exhaust fumes and safety for children and the elderly have turned into the primary political issue in that community for years. Different citizens' initiatives have fought for the building of a new B

212 that would bypass the village center in order to liberate people from the enormous traffic related problems. However, several hundred people would be affected by the new course of the road because their houses are located near to the marked-out route for the bypass. Consequently, opponents of the project have formed another citizens' action group for fighting against the proposal.

Procedure and Sample

At the beginning, the mayor and other responsible persons in the local administration were contacted in order to gain their support for conducting a research project on their traffic problem. Interviews were held with spokesmen of the citizens' action groups. The public was informed by articles in the local newspaper announcing that the Humboldt University of Berlin would assess the monetary value of a quiet village, unaffected by road traffic. We announced that we would send letters to a sample of local residents to ask them about their opinion on the bypass project. In addition, supporters would be asked how much money the realization of the project would be worth to them. Opponents, however, would be asked how much money they would claim as a compensation to accept the building of the new highway in their neighborhood. A two-day pilot survey took place in a local supermarket to test the questionnaire ($N = 40$). Results were encouraging enough to continue the study after marginal changes in questionnaire design. Finally, 490 residents from Bookholzberg randomly chosen from the telephone directory were contacted by mail, told the purpose of the research project and asked to complete the questionnaire. A first reminder was sent to the whole sample one week after the questionnaire, a second reminder in the form of a postcard reached them five weeks later. The total response rate was approximately 65 %. Deducting dead letters and people who informed us that they would definitely not take part in the survey, 243 questionnaires finally entered the analysis. Respondents (78.8 % males²) ranged in age from

17 to 89, with a mean age of 53.9. Of these, 144 (59.3 %) advocated the bypass project (with 141 filling out the WTP questionnaire), whereas $N = 74$ (30.5 %) opposed it (all returning the WTA questionnaire) and the remainder were neutral. Accordingly, the analysis of WTP was based on 141 cases, and WTA sample size was 74.

The Questionnaire

The questionnaire administered to Bookholzberg residents described a concrete scenario of building a new highway bypassing their village. Respondents were provided with a detailed map, which displayed the marked-out route, as it had been adopted in a resolution by the municipal council. In the first general part of the questionnaire, obligatory for all respondents, the questions dealt with the perceived possible utility of the project. Supporters of the new road were then asked to fill out and return the WTP questionnaire printed on blue paper, whereas opponents were to complete the yellow WTA questionnaire. Finally, all respondents were to indicate the usual demographic characteristics such as age, sex, income, and household size.

Utility. There were eight questions about the advantages or disadvantages to expect after the new road was build (concerning noise inside/outside their own house, exhaust fumes, safety, the economic value of their own property, general quality of life in the village, and the impact on nature). Answers could be given on bipolar 7-point-scales ranging from “I expect only disadvantages (-3)” to “...only advantages (+3)”³. The final question directly addressed perceived benefit: “As a summary: what would the total benefit (or damage) be for you, if the bypass were built?”, with another 7-point-scale for answers. All answers were averaged, so that the reliability (Cronbach’s α) for utility was .97.

Perceived justice. Two statements, appearing at different points in the questionnaire, were supposed to measure perceived justice. For WTP, items were: (a) “I think it is just that I make a contribution to the bypass” and (b) “It is fair to contribute financially to the project”. Responses could be given on 7-point rating scales from “not true (-3)” to “fully true (+3)” and were averaged for the total measure of perceived justice. In the WTA condition, the same items were used, replacing formulations about financial contributions by words about claiming financial compensation. The reliability was .94 for the WTP questionnaire and .96 for WTA.

*Attitudes.*⁴ Attitudes toward payment (WTP) were measured by averaging the 7-point scale rated approval of the following two statements: (a) “I think it is reasonable that Bookholzberg residents contribute toward expenses for the bypass” and (b) “I do not think much of the idea of contributing to the bypass myself”. The reliability (α) was .70. Corresponding items for attitudes toward compensation (WTA) were: (a) “I think it is reasonable to be recompensed adequately, if the bypass is built.” and (b) “I do not think much of the idea of claiming compensation for the building of the road.” ($\alpha = .76$).

Subjective norms (SN). A measure of subjective norms regarding payment (WTP) was supplied by rating one statement and by answering one question (both using the usual 7-point rating scales): (a) “Most people who are important to me would approve of my paying for the bypass project.” and (b) “How much would the important people in your live approve, if you made a contribution to building the new road?” Corresponding items for measuring subjective norms regarding claims for compensation were: (a) “Most people who are important to me would approve of my claiming compensation.” and (b) “How much would

the important people in your live approve of the idea of a compensation?” Reliability was .86 for the WTP case, and .93 for WTA.

Perceived behavioral control (PBC). Behavioral control for WTP corresponds to the perceived budget constraint. Accordingly, items were: (a) “I could easily afford to contribute financially to building the bypass.” and (b) “I would not have to sacrifice anything if I made a contribution to building the new road”. Averaged response ratings delivered a reliable measure of perceived behavioral control ($\alpha = .74$). Unfortunately, the items for WTA did not yield a reliable measure of perceived behavioral control ($\alpha = .59$).⁵

Willingness to pay. WTP was measured similarly to a study by Weinberger (1992) which serves as a basis for monetary valuation of traffic noise in German infrastructure planning; i.e. the questionnaire described a scenario in which the municipal council of Bookholzberg decided to have all the residents pay a part of the costs for building the bypass (approximately 10 million €) in 24 monthly instalments⁶. The respondents were asked to consider this as if they had to pay a somewhat higher monthly rent for their house in order to benefit from fewer traffic problems in the village center. A scale ranging from 5 € to 200 € served to elicit the amount of money respondents would be willing to pay each month according to the scenario. Alternative options were “more than 200 €”, “nothing at all”, “I prefer to pay a single lump sum of _____” and “I do not know”.

Willingness to accept. The WTA scenario was intended to match the way WTP was measured. Therefore, respondents were asked to imagine they would have to pay a somewhat lower rent, receiving monthly payments from a compensation fund established by the municipal council when building the new highway (even if this is quite unrealistic⁷). The same scale from 5 € to “more than 200 €” as in the WTP condition was used to elicit the

amount of money corresponding to an “adequate compensation” for future problems resulting from traffic. Alternative response options were to “categorically refuse any compensation”, to specify a preferred “single lump sum of compensation” or to say “I do not know”.

The Experiment

Central to the study was the intention to measure the impact of different norms of justice on contingent valuation; hence, the WTP and WTA questionnaires both contained a priming in the form of “information” about what “for centuries, philosophers and social scientists have considered as the basic principle of justice.” Half the questionnaires stated there was an equity principle asserting that a consideration of “utility” was crucial to justice: “Who profits from the bypass, should pay for it whereas who suffers from it, should be recompensed.” The other half of the questionnaires maintained, that “equality” was the point in justice, stating that “everyone has equal rights to live unaffected by road traffic, regardless in which place they live or how much money they have”. The following question was included as a treatment check: “What do you think about justice?” with three options for answering: (a) “Yes, I agree on this principle of [utility/equality]”, (b) “No, I do not approve of this reasoning”, and (c) “I do not know”.

Results

Predicting WTP

Among the 144 supporters of the bypass, 68 (47.6 %) were willing to contribute money to realize the project. In order to obtain a dichotomous WTP measure, their responses were scored 1 (vs. all other responses 0).

Correlations. Table 1 presents the correlations of both continuous and dichotomous WTP with the variables assessed in the study. For the continuous measure, the “I do not know”

answers were excluded from the analysis as well as data from seven respondents who had indicated a single lump sum instead of a monthly payment⁸. The third line of table 1 presents correlations excluding respondents with zero WTP. Surprisingly, none of the demographic variables was found to influence WTP.

Insert Table 1 about here

For all WTP measures, the highest correlations occurred with the justice scale. Apparently, the respondents' stated willingness to contribute to building the new highway depended more on their finding it fair to pay than on perceived utility provided by the project. For the dichotomous measure, utility failed completely to have any influence. That is, for the basic decision whether to pay anything at all, it is not important for Bookholzberg residents how large the expected benefit from the project is. Even for respondents who are WTP in principle, the correlation between the amount of payment and justice is higher than the corresponding correlation for utility. The results support hypothesis 1a): The respondents' WTP depends on perceived justice.

Multiple regression. To test the overall explanatory power of the psychological variables in question, regression analyses were conducted. For the dichotomous WTP measure, i.e. the decision whether or not to pay anything, a logistic regression analysis was calculated. The model, which correctly predicted 83.7 % of the decisions, is displayed in the left column of table 2. The continuous (nonzero) WTP measure, i.e. the decision how much to pay, was regressed on utility, perceived justice, attitude, subjective norms and perceived behavioral control⁹ using an OLS procedure. To reduce problems with heteroscedasticity and non-normality, these continuous WTP judgments were log-transformed (regression with untransformed WTP produced similar results, but accounted for less variance). The model is displayed in the right column of table 2. The regression models were able to explain 56 % of

the variation in dichotomous WTP (according to Nagelkerke's R^2 estimate) and 33% of continuous (nonzero) WTP variance, respectively¹⁰.

Insert Table 2 about here

These results suggest a two-step approach to analyzing WTP responses. First, there is the decision whether to pay anything or not. According to the logistic regression, the only predictor is perceived justice. People decide to pay in principle, if they think that doing so is fair. Second, those who want to pay have to fix an amount. The size of their contribution seems to be determined by utility and perceived behavioral control. The more the respondents expect to benefit from the bypass, the more are they WTP, but only to the extent they think they can afford it. Perceived justice of payments no longer has any impact. Attitudes and subjective norms do not seem to influence WTP at all.

The experiment. It was predicted that respondents would indicate a higher WTP when equity was primed as the basic principle of justice (hypothesis 3b). Indeed, mean WTP was 18.81 Euro (monthly) in the equity condition and only 11,23 Euro in the equality condition. However, the difference narrowly failed to be statistically significant with $t = 1.55$, $df = 126$, and $p = .07$ (one-tailed). At least, the experimental treatment was successful in biasing the respondents' judgments about the fairness of making financial contributions: in the equity condition, mean justice rating was -1.28 and in the equality condition -1.79 . The difference turned out to be significant with $t = 1.70$, $df = 125$, and $p < .05$. But the effect size ($\epsilon^2 = .02$) obviously was too small to produce a significant difference in WTP estimates.

Results obtained when only including respondents who had replied "yes" to the treatment check item, corroborate hypothesis 3b): subjects who indicated that they indeed thought "utility" was at the core of justice considerations ($N = 25$), were willing to contribute on average 35.60 Euro per month to the bypass. However, average monthly WTP for

respondents agreeing on “equality” as the basic justice principle ($N = 35$) was only 16.43 Euro, the difference being significant with $t = 2.18$, $df = 58$ and $p < .05$. The effect size was $\varepsilon^2 = .08$.

The results can be summarized as a (weak) support for the hypothesis. Not only does perceived justice have an impact on WTP, but also is it important what exactly is understood by “justice”.

Predicting WTA

74 respondents opposed the bypass. Asked about their compensation claim in the WTA scenario, 15 (20.3%) indicated a single lump sum and 16 (21.6%) opted for a monthly rent reduction according to the given scale, whereas in each case 17 (23.0%) refused any compensation or marked they did not know. Results were aggregated in two ways for statistical analysis of WTA. First, a dichotomous measure was obtained scoring all subjects 1 who had indicated any sum at all, all others (those who refused or were indifferent) were coded 0. Second, a continuous WTA measure was composed out of z-transformed both monthly and lump sum amounts of compensation claims.

Correlations. Table 3 presents the correlations of both WTA measures with the psychological variables in question¹¹.

Insert Table 3 about here

It was predicted (hypothesis 1b) that the perceived justice of compensation would have an impact on WTA judgments. Indeed, there is a high correlation between justice ratings and dichotomous WTA. Respondents who thought that being recompensed was fair, claimed compensation. Other than for WTP, utility also influenced the choice whether to indicate any

amount or not. Respondents who expected the new highway to provide them with higher disadvantages were more likely to claim compensation. Turning to the specific amount of “adequate compensation”, perceived utility remains the only determining factor. There was no significant correlation between justice ratings and z-scores of elicited WTA estimates. All in all, perceived justice came out as an important predictor for the decision about any compensation claim in principle, but not for the specific amount.

Multiple regression. A logistic regression model with dichotomous WTA as the dependent variable is displayed in table 4. The model correctly predicted 80.3 % of the decisions whether or not to claim compensation. .

Insert Table 4 about here

It should be noted, that none of the predictors turned out to be significant. The pattern of results was, however, the same as in the WTP case. In particular, perceived justice had the highest coefficient (borderline significant at $p = .07$) whereas utility barely contributed to predict WTA. Unfortunately, owing to the small number of respondents indicating a sum for compensation, no significant regression model could be found for continuous WTA. Thus, no statement can be made about the overall power of the examined psychological variables to predict the specific amount of money people claim once they have decided to claim anything at all.

The experiment. The experimental priming of equity or equality as the “basic principle of justice” failed to produce any significant differences in the elicited WTA judgments. Mean z-scores were .06 for the equity condition and -.06 for equality ($t(29) = .34, p = .73$). There was no contingency between dichotomous WTA and experimental condition either ($\phi = .15$,

$p = .22$). Comparing justice ratings shows that the priming did not even successfully bias the perception of fairness in the predicted direction: with the equity condition, the mean justice rating (.31) was lower than for equality (.81). Limiting the analysis to subjects who had said “yes” to the treatment check item, turned this difference into the right direction (1.44 for equity and .50 for equality), to be sure, but it was not significant with $t(24) = .96$ and $p = .17$. Summarizing, a differential influence of competing norms of justice on WTA could not be demonstrated.

Comparing WTP and WTA

It was hypothesized that justice would be more important as a predictor for WTA than for WTP. Comparing the relevant correlation and regression coefficients does not support this assumption. On the contrary, both monetary valuation measures seem to have strikingly similar predictors. For the dichotomous case, correlations with justice are .60 for WTP and .62 for WTA. Regression models for both dichotomous measures correctly predicted about 80 % of the decisions and perceived justice was the most important predictor. For the continuous case, the comparability of both valuation methods is limited because of the small WTA sample size. However, correlations of predictors with WTA and the regression model for nonzero WTP point to the idea that for both measures, justice is less important than expected utility for determining the exact amount of payment that is either made or claimed. Logically, perceived behavioral control understood as budget restriction is only important for WTP. So, up till now WTP and WTA seem to be quite similar with respect to the potential psychological predictors used in this study.

The case is different, however, for the exact meaning of justice in both scenarios. First, the average absolute justice rating is higher in the WTA scenario (0.52) than for WTP (-1.38).

Second, it is surprising that biasing justice ratings by the experimental treatment worked in the WTP scenario (-1.28 for equity and -1.79 for equality), but failed for WTA. Moreover, the relationship between justice and utility was totally different in both scenarios: for WTP, there was no significant correlation between perceived benefit and perceived justice of payments ($r = .14, p = .10$), whereas the association of perceived disadvantage with fairness of compensation in the WTA scenario turned out to be strong ($r = .57, p < .01$), independently of the priming condition ($r = .59$ for equity and $r = .53$ for equality).

Summarizing, there was no quantitative difference in the impact of perceived justice on both monetary valuation measures, but apparently an important difference in the qualitative meaning of justice in both scenarios.

Discussion

The general purpose of the present study was to examine the impact of justice perceptions on contingent value judgments. Such influence could be clearly demonstrated. Contingent value estimates do not only (and perhaps not even primarily) depend on the amount of benefit provided by the public good in question, but they are also affected to a high degree by justice considerations. Perceived justice is an especially important predictor for the basic decision whether or not to pay (or claim compensation) in principle. However, it might be important to discuss some possible limitations on the generalizability of the present findings (see part 6.1). Further comments on WTA (6.2) and the significance of the Theory of Planned Behavior (6.3) are also necessary. Finally, we discuss some consequences of our findings on the application of contingent valuation within political decision processes (6.4).

Particularities of the present study

Two important factors might have led to an overestimation of the impact of justice on contingent valuation. The first is the specific questionnaire design and the second deals with the presented scenario itself.

In the questionnaire administered to Bookholzberg residents, items about justice appeared prior to the WTP/WTA question. From research about context effects in attitude measurement (for a review see Tourangeau, 1999) one learns that the mere expression of beliefs and attitudes can intensify them through processes of cognitive activation. Pouta (2004) demonstrated the importance of context effects in contingent valuation. In his study, inclusion of attitudinal items concerning the environment augmented WTP judgments significantly. A similar effect could have occurred in the present survey in Bookholzberg. Respondents were explicitly asked to think about norms of justice and their applicability to the financing of the bypass before expressing their WTP/WTA. Therefore, justice considerations are likely to have had heavier weight in the decision process than they would have had without being mentioned. Of course, such priming was intended in the present study to conduct the experiment. It remains interesting, however, to know if justice perceptions would be of the same impressive importance, if they were not brought into play by researchers.

It can also be assumed that fairness considerations are of particular relevance in the concrete case examined. That has to do with public discourse on infrastructure financing in Germany. Two aspects were prevalent in the political debate when the study was conducted, and both deal with justice. First, Germany recently introduced a toll for heavy goods vehicles using federal highways, which was primarily justified with the polluter-pays principle (we could

say, another competing norm of justice concerning payments). Second, enormous monetary transfers to the eastern German states (former GDR) have been called into question.

Politicians from economically underprivileged regions in western Germany (among them Lower Saxony, where Bookholzberg is situated) wanted to claim the same financial aid for infrastructure investments. Accordingly, the norm of equality was often referred to in the interviews which the authors conducted with spokesmen of the local administration and the citizens' initiatives in Bookholzberg: "The state gives all the money to the East, so why should we pay for the new highway ourselves? We have the same right to a good infrastructure." Probably, the unusually high rate of WTP zero responses in the present study reflects the fact that many people think the State is responsible for providing them with the same standard of infrastructure as the rest of the country. In their view, they have already paid for the bypass – through taxes.

So there is some indication that effects of perceived fairness were possibly overestimated in the present study. Perhaps, the psychological meaning of WTP (or WTA) is not the same in each scenario and with every good to be valued. In some cases like the Bookholzberg bypass project, fairness is of utmost importance, in others, it might be negligible. Further research should address this question.

One finding cannot be ignored, however: once there are considerations about the justice of a payment or compensation (wherever they come from), they impressively affect peoples' WTP or WTA. Remember that in the experiment, approval of an equity norm instead of equality more than doubled the respondents' average stated WTP. Consequently, economic valuation of a certain public good highly depends on the discourse about justice in a community. This must be kept in mind when interpreting the results of a CV survey.

The Meaning of WTA

Hardly any theory exists about the psychological meaning of WTA. We realize that our present findings are no more than heuristic and that the database of our study is far too small to test any hypotheses reliably. Nevertheless, the results contain some useful hints which could serve as a guideline for further research.

The similarities in correlations and regression analyses between WTP and WTA have already been mentioned. They nourish the hypothesis that a common psychological structure underlies both monetary measures. The role of justice had been assumed (hypothesis 2) to be crucial to the difference between both valuation methods. This could not be verified on a quantitative basis, using correlational analysis. However, there seems to be an important distinction in the qualitative meaning of justice. In the WTA scenario, fairness perception was highly dependent on perceived disadvantages connected with the new highway, and could not be biased by introducing equity or equality principles. Might not a third norm of justice have been dominant here?

The WTA measure was introduced as stemming from an economic *selling* logic. Perhaps this interpretation does not hold psychologically. Selling something in the marketplace usually happens voluntarily, whereas in a typical WTA scenario, respondents do not have the choice whether to give up a certain quality of the environment. In the present study, opponents of the new highway were asked about a compensation claim, given that the final decision about the project had been made and could not be altered. This has more of a *theft* logic, with the difference that the affected people are given a compensation afterwards. So, the relevant norm of justice might be neither equity nor equality but rather retaliation, more closely linked

to sustained damage - a very strong motive for eliciting considerably high WTA amounts, and, besides, leading many interviewees to refuse taking part in a CV study at all¹².

Comments on the Theory of Planned Behavior (TPB)

Apart from perceived budget constraint in the WTP scenario, the components of TPB did not yield incremental prediction of CV judgments. Perceived Justice, Attitude and Subjective Norm ratings were all highly intercorrelated (coefficients ranging from .69 to .91), so they all reflected more or less the same factor¹³, which is probably best identified with perceived fairness. Therefore, at least in the present study, the Theory of Planned Behavior is of no use for explaining WTP. This might be inherent in the questionnaire method which is always susceptible to stereotyped answering and, accordingly, high intercorrelations. Perhaps completely independent measures of attitudes and subjective norms could turn the tide in favor of a conceptualization of WTP as a behavioral intention. For the time being, however, the simplest and most persuasive explanation of stated WTP remains: people pay anything, if they think that doing so is fair and the amount they pay depends on the benefit they expect, limited by what they believe they can afford.

Consequences for the application of CV

Psychological research on contingent valuation shows, that judgments are prone to inconsistencies and framing effects to an important degree. This brings economic interpretations of measuring relatively stable preferences by WTP (or WTA) surveys into serious trouble. The present study takes the same approach. It could be shown that monetary amounts elicited are highly dependent on the discourse about justice. Slight changes in the predominating norm of justice while completing the questionnaire substantially altered CV results.

Does contingent valuation consequently have to be abandoned as a method for assigning environmental quality a monetary value? For a variety of reasons, we do not believe so. First of all, in the present study as in others, CV survey results were, after all, undoubtedly linked to perceived benefit from the good that should be paid for. Moreover, the concept of justice was associated with the concept of utility, at least in the WTA scenario. Such is also the case, generally, for the concept of attitude (see Kahneman et al., 1999). Accordingly, attitudes and perceptions of justice might be, among others, “psychological tools” for economic valuation¹⁴. And this is probably not too different for the valuation of more “classical”, tradable economic goods. The basic assumptions of microeconomic theory have often been criticized as being far from psychological reality (Kahneman et al., 1999). So perhaps there is no problem of CV violating the principle of stable preferences, but instead a problem with this principle in general. There is no reason why CV should meet higher standards than economic decisions in general. Results from psychological research on CV should be compared with the corresponding decision processes when purchasing or selling “real” goods in the marketplace. It could turn out that justice plays a similar role. The decision to buy or not to buy any good or service might quite often depend on a “fair price”, and not so much on a rational utility assessment.

But how to deal, then, with quite unstable CV results? We believe that the instrument should be understood more as part of the political communication process than as a static measure of some imaginary stable utility. WTP and WTA surveys can serve as a means for de-emotionalizing and objectifying environmental conflicts, as they instigate discourses on utility and, as in the present survey, justice. Understood in this sense, CV can be considered as a democratic instrument (see Wagner, 2000, on the similarities between CV and

plebiscitary elements in politics). As Fujii, Kitamura, & Suda (2004) have shown, CV can indeed enhance procedural justice and the acceptance of political measures. Of course, results of such surveys should not disappear into econometrical models in the federal ministry of transportation. Instead, they must be fed back to the affected public. This is an interesting area for further research: how would the contestants in environmental conflicts deal with CV results? Can CV contribute to more transparent and more democratic planning processes?

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Footnotes

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- ¹ Faced with the regular size of the WTP-WTA-Discrepancy, most economists would agree on that this effect cannot be fully attributed to a simple income effect.
- ² This is owing to the fact that in most German households, men appear in the phone directory. However, sex was not found to influence WTP nor WTA.
- ³ Of course, original items were in German.
- ⁴ Items assessing the Theory of Planned Behaviour variables (attitudes, subjective norms and perceived behavioral control) were adapted from research by Bamberg & Köhnel (1998) and Meyerhoff (2004).
- ⁵ In the WTA scenario, operationalisation of PBC was more difficult owing to the lack of a budget constraint for compensation claims. We considered another factor as crucial to the WTA results. The present study examined a real problem with outstanding political decisions, so the results can be presumed to have some impact on the ongoing debate in the community. Supposedly, the respondents are also aware of this fact. Thus, when answering the questionnaire they not only put a value on the environment but they also try to influence the outcome of the survey in order to strengthen their political position. Therefore, we expected many respondents not to answer the WTA question, fearing that to do so could be understood as their approval in principle of building the new road. We tried to measure this kind of reasoning by including the following items: (a) *“As long as the decision to build the new road has not been made, I cannot say if I approve of a compensation.”* and (b) *“I cannot decide offhand whether I approve of a compensation.”*
- ⁶ This scenario is quite realistic, matching the procedure for financing local public infrastructure according to German Law (personal communication with the local administration).
- ⁷ Lacking realistic scenarios is a general problem of measuring WTA.

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- ⁸ According to the research on anchoring effects cited above, we assumed the two different monetary scales not to be psychologically equivalent. Thus, there can be no simple integration of both answering options. N.B. responses ranged from 500 to 5000 €.
- ⁹ Regression models integrating demographic variables produced very similar results, but were not generally able to explain a larger part of WTP variance. Thus, demographics were omitted for simplicity reasons.
- ¹⁰ Multiple regression with continuous WTP *including* zero responses as the dependent variable was found to explain even 51% of the variance ($F(5, 120) = 24.9, p < .001$). Perceived justice was the only significant predictor. The model is not displayed here, however, because inspecting the distribution of residuals indicated that basic assumptions as normality and homoscedasticity are clearly violated (this is probably owing to the large number of zero responses).
- ¹¹ The physical distance (number of streets) to the marked-out route for the bypass was the only demographic variable to correlate significantly with dichotomous WTA. It can be understood as objective measure of utility. Indeed, there was a substantial correlation of $r = -.70$ between physical distance and perceived benefit.
- ¹² As one anonymous reviewer suggested, the “theft” character of the WTA scenario might account for the large number of “protesters” in many CV studies who refuse to put monetary value on the environment for ethical reasons (see Foster, 1997).
- ¹³ Indeed, for both WTP and WTA, principal component analyses of the predictors yielded 3 factors accounting for more than 90% of the variation. Justice, Attitude and Subjective Norm loaded on the first factor, whereas Utility constituted the second and Perceived Behavioral Control the third.
- ¹⁴ Of course, the norm of equity is explicitly based on economic concepts!

Table 1

Correlations of WTP with psychological variables

	Utility	Justice	Attitude	SN	PBC
WTP (cont.)	.22*	.60**	.50**	.53**	.35**
WTP (dich.)	.09	.63**	.61**	.53**	.23**
WTP > 0	.29*	.45**	.33**	.40**	.39**

* Significant at $p < .05$ ** Significant at $p < .01$

Table 2

Regression models for Willingness to Pay

	Dichotomous WTP (logistic regression, N = 135)		ln(WTP) for WTP > 0 (OLS regression, N = 61)
	Odds ratio	95% CI	β
Utility	1.03	.59-1.80	.25*
Justice	2.26**	1.32-3.89	.13
Attitude	1.35	.88-2.05	.12
Subjective	1.22	.73-2.02	.17
Norms			
Perc. behav.	.96	.66-1.40	.28*
Control			
	Nagelkerke's $R^2 = .56$		$R^2 = .33$
	$\chi^2 = 72.8^{**}$ (df = 5)		F = 5.3** (df = 5, 55)

* Significant at $p < .05$ ** Significant at $p < .01$

Table 3

Correlations of WTA with psychological variables

	Utility	Justice	Attitude	SN	(PBC)
WTA (dich.) N=68	-.34**	.62**	.56**	.54**	(-.06)
WTA (z-values) N=31	-.38*	.16	.30	.16	(.32)

* Significant at $p < .05$

** Significant at $p < .01$

Note: Correlations for Perceived Behavioral Control (PBC) should not be interpreted, as the scale was not reliable.

Table 4

Logistic regression model for Willingness to Accept

Dichotomous WTA (N = 66)		
	Odds ratio	95 % CI
Utility	1.07	.58-1.96
Justice	1.92	.94-3.91
Attitude	.79	.34-1.84
Subjective Norms	1.34	.83-2.18
Perc. behav. Control	.97	.68-1.37
Nagelkerke's $R^2 = .47$		
$\chi^2 = 28.8^{**}$ (df = 5)		

* Significant at $p < .05$

** Significant at $p < .01$

Note: The odds ratio for Justice was borderline significant ($p = .07$).