

Ethical Motives and Charitable Contributions in Contingent Valuation: Empirical Evidence from Social Psychology and Economics

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ABSTRACT

Contingent valuation of the environment has proven popular amongst environmental economists in recent years and has increased the role of monetary valuation in public policy. However, the underlying economic model of human psychology fails to explain why certain types of stated behaviour are observed. Thus, good scope exists for interdisciplinary research in the area of economics and psychology with regard to environmental valuation. A critical review is presented here of some recent research by social psychologists in the US attempting to explain stated behaviour in contingent valuation. Attitudinal scales have been used to analyse the role of ecocentric, biocentric and altruistic motives for giving. However, the research is shown to draw some potentially misleading conclusions and be unrepresentative of contingent valuation. Two recent economic studies using contingent valuation are then reported and shown to have identified non-economic motives for WTP. The complexity of value formation and expression is found to go far beyond that generally accepted by economic models. Greater consideration of the role played by attitudes and ethical considerations then becomes relevant to the interpretation of results being used in standard cost-benefit analysis and environmental policy.

KEYWORDS

Attitudes, behaviour, contribution model, contingent valuation, environmental ethics, rights, social psychology

1. INTRODUCTION

Malinvaud (1972) claims that neo-classical consumer theory does 'not exclude *a priori* any individual ethical system' and is 'philosophically and psychologi-

cally neutral', although simple refusals by some individuals to consume certain commodities in defence of ethical principles (e.g., being vegetarian or vegan, signing the pledge) are deemed incomprehensible or irrational behaviour. Far from being neutral, modern consumer theory can be seen as having a basis in a philosophy of preference utilitarianism and a restricted, largely hedonistic, model of psychological behaviour. Thus, non-utilitarian and more generally non-consequentialist reasoning have been excluded despite their relevance to environmental valuation (Spash, 1997). Environmental philosophers have attempted to raise awareness of the policy relevance of refusals to make trade-offs on ethical grounds (e.g., O'Neill, 1993; Holland, 1995). As Holland (1995, p. 22) notes '...to be asked to trade one's principles, even hypothetically, is likely to seem inappropriate and even morally disreputable'.

Recent interest in using the contingent valuation method (CVM), and close variants, to place monetary values upon aspects of the environment has confronted economists with the need to improve their model of human behaviour. The essence of a CVM is to obtain a statement of intended behaviour (e.g. a willingness to pay) for use in public policy about the provision of environmental goods and services. However, economists have been narrowly focused upon an unrealistic and misleading approach to individual behaviour which tends to leave them bewildered as to why people fail to act as they expect (e.g. protesting and bidding zero although they value the environment and can afford to pay for quality improvements).

This has created some controversy over the interpretation of results, particularly where litigation has been involved. In the US, monetary estimates are used as evidence in the courts to help decide the amount of compensation for natural resource damage. In 1989 the US Court of Appeals, District of Columbia, ruled, in the case of *Ohio vs. US Department of the Interior*, that 'option and existence values may represent "passive use" but they nonetheless reflect utility derived by humans from a resource and thus prima facie ought to be included in a damage assessment', so confirming the importance of the CVM. The most notable case since was that of the Exxon Valdez oil spill, which led Exxon Corporation to commission critiques of the CVM (collected together in Hausman, 1993).

One outcome of the Exxon litigation and its political fallout was for the National Oceanic and Atmospheric Administration (NOAA) to commission an expert panel, with a Nobel laureate economist from each side of the Exxon court case (Kenneth Arrow for Exxon and Robert Solow for Alaska), to produce a set of rules for conducting the CVM (Arrow et al., 1993). Some of the key requirements are random sampling, in-house interviews, a dichotomous choice format and questions using willingness to pay (WTP) instead of willingness to accept (WTA). However, all these 'rules' can be questionable and/or impractical depending upon study-specific circumstances. For example, totally random samples are the exception rather than the norm in socio-economic research.

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Personal interviews can be difficult or impossible to obtain in non-Western cultures and non-industrial economies. The dichotomous choice (yes/no) format for asking WTP can be inappropriate in some countries, such as the UK, and is itself controversial (Willis, 1995).

While US 'best practice' (even from Nobel laureates) is therefore often inappropriate for other countries, the search for a universal set of rules persists. A result of such imposed rules has been to reduce the room for original research about psychology and economics using the CVM. Variations in research design from 'best practice' are susceptible to attack as failing to conform to the rules and thus obviously poor practice. In this way the use of expert panels and their 'judgements' exemplify how a policy process can be controlled and the research agenda confined. A prime example from the NOAA Panel is their stance on WTA. Variations in WTP and WTA for the same 'good' can be large, both because the underlying motives relate to social norms and because there is a psychological difference between paying to obtain and being paid compensation to relinquish. Despite acknowledging that WTA was the correct theoretical measure for damage assessment the NOAA Panel recommended the use of WTP as a 'conservative' estimate. This has been strongly criticised by some notable practitioners (Knetsch, 1994), but without much impact on current peer practice. Administrative institutions tend to prefer inappropriate (and theoretically unjustified) small numbers because large numbers placed on environmental entities imply dramatic changes in policy.

In the UK this desire for being 'conservative' is also current within government. For example, the largest CVM survey ever conducted in the UK (total sample size 10,650) was completed in 1999 to provide evidence for a possible aggregates tax. Monetary estimates of environmental damages were obtained on the advice of a CVM expert panel (Ian Bateman, Nick Hanley, Michael Hanemann, Susana Mourato, Richard Ready and Ken Willis) using 'an approach that is more likely to produce conservative results' (Department of the Environment Transport and the Regions, 1999, p. 12). Amongst the design aspects was the incorrect welfare measure for local damages, i.e. WTP instead of WTA. These 'conservative' CVM estimates were further dramatically reduced in the final analysis by the use of a 25% discount rate (Department of the Environment Transport and the Regions, 1999, p. 36).

The NOAA rules, and other similar formulaic approaches, conceal the extent to which judgement is required in design of a survey and how the context determines the approach. However, while the approach of the NOAA Panel can be regarded as excessively prescriptive there are more general design features which are desirable in any CVM survey. These include clear description of the institutional context, explaining the consequences and expected benefits of payment, being aware of various ways (e.g., a contentious bid vehicle) in which survey design can lead to or stimulate a given response (e.g., protest bids), and

generally producing a realistic scenario. Without addressing such issues CVM research will fail to be relevant to the surrounding policy debate and may be judged inadequate or misleading with respect to analysis of public perceptions.

Within the context of these concerns research has been produced, by or in co-operation with psychologists, which claims to show a motivational basis for WTP that diverges from that being assumed by economists. Thus, WTP has been described as the purchase of moral satisfaction rather than a trade or exchange value (Kahneman and Knetsch, 1992) and this has been linked to a contribution model of WTP (Kahneman et al., 1993). In addition, there has been some interesting recent research into the motives behind WTP which incorporates environmental attitudes and/or norms (Stern, Dietz and Kalof, 1993; Guagnano, Dietz and Stern, 1994; Stern et al., 1995). One conclusion has been to support the idea that WTP may be no more than a measure of environmental attitudes (Kahneman et al., 1993; Guagnano, Dietz and Stern, 1994), and if so a better measure would be a multi-item psychological scale. Lockwood (1999) has also discussed the usefulness of work by Stern, Dietz, Kalof and Guagnano as a basis for expanding economic conceptions of value.

However, a contention of this paper is that there has been a failure in some of this work to construct a CVM study which provides a reasonable representation of the approach as used by economists. Foremost amongst these problems is the poor specification of both the method of payment and the environmental improvement for which individuals are being asked to pay. In particular, the paper by Guagnano, Dietz and Stern (1994) is used in the first section of this paper to give a detailed example of how resulting conclusions can be ambiguous and require reinterpretation. The aim is to show how research in this vein needs to be improved in order to address, and be taken seriously by, an economic audience.

Thus, the paper next turns to two economic case studies that investigated the relationship between ethical positions and WTP. This work attempts to extend and improve the analysis of refusals to trade in economic models. An individual's ethical stance is categorised to allow analysis of the motives behind a stated intention to pay for an environmental change. Despite the criticisms of the social psychologists' work, these economic case studies support the basic concerns over the motives underlying the CVM.

2. SOCIAL PSYCHOLOGY AND THE CVM

2.1. Willingness to Pay as a Contribution Model

Economists rely upon a model of behaviour where values result from a given pre-existing preference ordering and are merely articulated during a survey to reveal a 'true' value (see Kask, Shogren and Morton, 1997). In contrast, psychology currently favours a theory of constructed preferences which are formed as

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required e.g., during the survey process. While preferences may be constructed, stable attitudes towards objects and issues can still exist. As Kahneman et al. (1993 p. 310) state the approach 'emphasizes the lability of preferences and their susceptibility to framing effects and to variations in context and elicitation procedures'.

This difference in perspectives extends into the interpretation of WTP results. Kahneman et al. (1993) argue that, while economists interpret WTP responses as purchasing the supply of a public good, respondents are in fact making charitable contributions. Support for this conjecture can be found in the work of Schkade and Payne (1993) where 17% of CVM respondents associated their payment for a public good with other charitable donations. The contrast is between buying and expecting to receive a range of benefits as opposed to merely supporting a good cause. The WTP measure may then become a surrogate for attitudes towards an environmental problem and more conventional psychological measures of attitudes could be substituted, avoiding the misinterpretation of WTP as a purchase of benefits. In fact, if WTP under the CVM is an attitudinal measure it fails to represent a stated intention to undertake a specific action and is no longer a behavioural measure. Instead, under a reasoned action model, such an attitude would precede such an intention to act and be only one part of the reasoning about whether a specific behaviour should be undertaken (Fishbein and Ajzen, 1975). Other factors which would also determine the intention to act would include social norms and ethical beliefs. The economic debate about whether respondents answer truthfully or engage in strategic deception is then a distraction. Thus, Kahneman et al. (1993, p. 314) regard the economic focus on truth and deception to substantiate validity in CVM studies as calling upon inappropriate categorisations of behaviour.

The charitable contribution model also provides an explanation for why varying the scope of benefits can have little impact on the stated intention to pay. The respondents are concerned about the basic problem being presented which remains the same despite variations in the size of the issue. The most notable study putting this idea forward in the environmental economics literature was that of Kahneman and Knetsch (1992), which showed insensitivity of WTP for different scales of disaster emergency services. Desvousges et al. (1993) presented supporting evidence with their finding of no significant difference in WTP for preventing 2,000 birds dying from oil pollution compared with 20,000 or 200,000 birds dying.

In providing evidence for this scope insensitivity problem, termed embedding, Kahneman and Knetsch (1992) explain the behaviour as the purchase of moral satisfaction where payments may be invariant with respect to specific consequences because the concern of the individual is to make a charitable contribution to a good cause for the sake of their own benefit, i.e. a 'feel good' factor, and this type of behaviour has been termed a 'warm glow' effect (Andreoni, 1989). Other interpretations are also possible, including a non-

consequentialist ethical stance. However, research from these authors has to date left the underlying ethical motives unexplored and so open to speculative attack. In fact the NOAA panel regarded the idea that WTP for additional protection of the environment could fall to zero as ‘...hard to explain as the expression of a consistent, rational set of choices’, implying that such individuals are irrational and should be discounted or rejected from CVM results. Indeed, some economists regard the current challenge of non-market valuation as being the separation of ‘total value from warm glows’ (Kask, Shogren and Morton, 1997, p. 300).

In summary, under the psychological model, survey design and administration are regarded as helping to form contextual preferences. However, the requested payment is interpreted as a charitable contribution so that respondents are expected to be insensitive to factors which economists assume important, such as the scope of benefits and details of their provision. Instead, factors which economists assume to be unimportant prove central motivations – such as whether harm was intentional or accidental, or whether it was an expected natural event or an unexpected surprise event. Hence, individuals are willing to pay more to prevent damage caused by humans than the same damage caused naturally (Kahneman et al., 1993; Kahneman and Ritov, 1994); perhaps due to a sense of personal responsibility in the former case (Biel, von Borgstede and Dahlstrand, 1999). They may then reflect upon the relevance or absence of social norms for proper behaviour and act accordingly.

2.2. Testing the Contribution Model

Research by Kahneman et al. (1993, p. 314) concludes that if the aim is to obtain a rank-order of issues then ‘WTP is not the preferred way of doing so because it is psychometrically inferior to alternative measures of the same attitude’. However, they hold back from extending their results to the CVM because their survey design was unconventional in that regard (e.g., lacking information content and presenting multiple issues for valuation rather than one). Their work was followed up by Guagnano, Dietz and Stern (1994) who felt that the earlier work ‘did not specify nor directly test a contribution model’ (p. 411). They aimed to rectify this situation while engaging with the economists’ interpretation of CVM results. Their sample was 367 members of the general public in Virginia interviewed by phone.

The WTP questions employed by Guagnano, Dietz and Stern used various formats, as summarised in Table 1. Four environmental ‘goods’ can be identified in the study: reduced global warming, increased paper recycling, reduced deforestation, and cleaning-up chemical contamination of local drinking water. For two of these ‘goods’ there were two alternative payment mechanisms (i.e., trust or tax) giving a total of six WTP scenarios. They classified the ‘goods’ to be valued by whether the method of payment involved a consumer item (gasoline, paper towels), a tax (non-contributory frame) or a trust fund (contributory frame).

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Assumed Frame	Environmental 'Good'	Bid Vehicle	WTP Question
'Consumer good'	Greenhouse effect	Gasoline (implicit tax?)	'Burning fossil fuels is believed to be one of the main contributing factors to global warming, sometimes called greenhouse effect. It's been suggested that raising gasoline prices would substantially reduce the use of fossil fuels. Assuming that would work, how much extra would you be willing to pay for a gallon of gasoline to help reduce global warming?'
'Consumer good'	Paper recycling	Paper towels (?)	'At most grocery stores, paper towels cost about 85 cents per roll. How much extra would you be willing to spend for a roll of paper towels made from recycled paper products?'
'Contribution'	Biodiversity, deforestation	International trust fund	'Scientists are becoming increasingly concerned about the loss of many species of animals in Latin America due to heavy tree cutting in the rain forest. If the wealthier nations of the world, including the United States, were asked to establish a fund to preserve these forests, how much would you be willing to contribute to a one-time fund of this type?'
'Non-contribution'	Biodiversity, deforestation	National (?) tax	As above but with the wording 'What do you think would be a reasonable dollar amount for your taxes to increase to solve the problem?'
'Contribution'	Human health, water quality	Local (?) trust fund	'Some people are concerned that increasing amounts of toxic chemicals are making their way into our drinking water. In the event that one of these chemicals was found in the Fairfax County water supply and no responsible party could be identified, what would you be willing to contribute to a one-time fund to solve the problem?'
'Non-contribution'	Human health, water quality	National (?) Local (?) tax	As above but with the wording 'What do you think would be a reasonable dollar amount for your taxes to increase to solve the problem?'

TABLE 1. Analysis of the WTP questions in Guagnano, Dietz and Stern (1994)

In classifying the six scenarios as consumer, contributory or non-contributory problems arise. First, all scenarios have public goods characteristics making the consumer good category a misclassification. That is, the payment requested relates to environmental quality changes, which are public goods, in each and every case. Second, while the tax scenarios are supposed to represent a non-contributory frame this logic is not extended to the scenario for preventing global warming, where a tax could be inferred. Third, if the argument is accepted that the method of payment determines whether a contributory model is operative then taxes would appear to be misclassified. In as far as payment of taxes is spread throughout the community it can be regarded as a universal payment mechanism (e.g. all employed people are assessed for income tax), so this would be in line with the idea that payment depends upon contributions by others and the community as a whole will be paying. In fact income taxes have been recommended for use in CVM surveys being conducted in the US because they are regarded as neutral and so avoid a reaction to the method of payment (i.e. bid vehicle bias). In contrast, a trust allows people to opt in or out, and possibly free-ride. Thus, why a trust should represent a contributory frame and a tax a non-contributory frame is unclear.

More generally, the factors which Guagnano, Dietz and Stern discuss as driving the contribution model seem to diverge from the earlier work by Kahneman et al. and appear contradictory. Initially, the contribution model is equated with being WTP for a public good while a 'purchase model' is seen as relevant to buying a private good. Public goods are normally defined as non-excludable and non-divisible. Typically, WTP in CVM studies measures contributions to the provision of a public good, which by definition means that the WTP of others determines the final amount of the good provided to any one individual. However, equating contributory giving to the purchase of public goods reduces the subtle distinction made by Kahneman et al. (1993) who see the contribution model as operating where giving is to support a good cause. That is, they appeal to the respondents' interpretation of why they are giving rather than whether the good could be defined as public or private. Public goods may fail to be 'good causes', while the fact that the level of provision is determined communally does not prevent individuals from regarding benefits as being purchased, i.e. concurring with the economic purchase model.

In fact Guagnano, Dietz and Stern (1994, p. 412) go on to use what they term a 'contribution frame' for public goods with the aim of imposing the contribution model. This then implies that the public versus private good distinction is at best insufficient and, even given a public good, the context specified (more specifically the bid vehicle) can stimulate contributory giving. This ability of the analyst to switch the contributory model on or off seems a distinct divergence from the argument of Kahneman et al. Indeed, if such switching were possible the solution for CVM practitioners would merely be to always stimulate a purchase model. As will be explained, the results of the study fail to support this

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hypothesis and in contrast the type of environmental problem appears to be the central motivation. Thus, the assumption seems unfounded that switching the method of payment from a trust to taxes corresponds to a move in frame from contributory to non-contributory. The environmental problem being valued is, after all, still the same and the contribution model relates to respondents' regard for the type of object rather than the method of payment. As stated by Kahneman et al (1993): 'The impetus for charitable giving is the urgency of the problem, not the attractiveness of the solution. Accordingly, we expect participants in WTP surveys to focus on problems, and to show little sensitivity to interventions.'

2.3. Applicability of the Study by Guagnano, Dietz and Stern to the CVM

2.3.1. Information Provision. The authors claim the scenarios relating to the greenhouse effect and paper recycling are 'conventional WTP questions' (p. 414). In order to achieve this enough detail would be required to make an hypothetical market realistically operative, and respondents would need to be informed as to what they are purchasing, how it will be provided and how they will pay. However, the study presents gasoline as the bid vehicle by which the purchase of an unspecified reduction in global warming is to achieve unmentioned benefits, and paper towels are the bid vehicle to achieve a totally unspecified end (presumed here as related to paper recycling). The reason why gasoline prices rise also goes unspecified, but respondents might reasonably assume a Federal tax is intended.

The other four WTP scenarios also suffer a lack of detail on the environmental change purchased, the method of payment, and the institutional context, as explained by Table 1. A type of international fund and some form of unspecified tax can be identified as the bid vehicles for preserving an unspecified area of forest land in Latin America through an unknown institution. Similarly, an unspecified fund and tax are the bid vehicles for cleaning-up some kind of chemical waste somewhere in the local water supply; this chemical is heading towards drinking water with the implication of an unspecified health impact. This last case is perhaps the most clear in that there is a local context and, under the tax scenario, the implication that a government agency might be responsible for clean-up. Overall, the extent to which the study results are generally applicable to CVM is qualified, in the same way as recognised by Kahneman et al in their study, because of this lack of information.

2.3.2. Uncontrolled Scenario Differences. The authors stated, 'Two WTP items presented decision scenarios identical to those framed as a contribution but, instead, framed WTP response as willingness to pay extra taxes to achieve the desired environmental goal' (p. 414). However, unintentional variability is introduced into the various scenarios with regard to the type of institutions associated with payments, implicit risk levels and the phrasing of requests for

payment. The scenarios for deforestation involved a one-off payment to an international trust fund compared with an increased payment of taxes, which would presumably be a regular annual payment at the national level. The two water quality scenarios are unclear about the level of payment, so respondents could implicitly choose whether they thought the fund or tax was local or national and again the one-off versus regular payment variation occurs. Thus, the descriptions introduce various types of unmeasured variability into the scenarios and this extends to the implied institutional contexts and the responsibility for the environmental problems to which the scenarios allude.

The wording of the actual payment requests also could be viewed as a weakness. This changes from 'how much you would be willing to contribute' under the trust fund to requesting 'a reasonable dollar amount for your taxes to increase'. What is regarded as reasonable may bear little relationship to a maximum WTP and might be expected to encourage an altruistic response, e.g. as a reasonable person you should give something reasonable to help others. This switch in wording appears to be unintentional on the part of the researchers and further confounds differences between scenarios.

The variability invalidates some of the conclusions claimed in the study. The scenarios have become differentiated in several respects besides the switch from tax to trust, thus the motive for payment differences could be due to these other variations. In terms of the contribution model one test which remains possible is whether payments are motivated by the environmental problem regardless of other variability: the deforestation and the water pollution scenarios would then comprise anchors for testing rather than the framing as tax or trust.

2.4. Contributions and Altruism

At the core of the study by Guagnano, Dietz and Stern is a test for the relationship between altruistic motives and WTP, with the hypothesis that altruism should be related to contributory giving. The authors hypothesis was that 'Willingness to pay higher prices for environmental goods is viewed as altruistic behavior because the extra money people pay provides environmental benefits that are public goods' (p. 412). A test of this hypothesis would have required a comparison of the relationship between altruism and giving for a public good and a private good. That the type of good (public versus private) has a relationship to altruism cannot be tested because there are no clearly defined private goods in this study. As has been noted the two scenarios involving gasoline and paper towels were termed 'consumer goods' but the WTP scenarios are misclassified because the respondents were being asked to pay for reducing global warming and increasing recycling, respectively. All of the WTP scenarios related to an environmental public good, or a quasi-public good. Thus, there should be no surprise that in the case of the 'consumer goods' the authors found '...decisions about these goods incorporate an element of altruistic concern' (p. 414).

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Attitudinal scales addressing moral norms were based upon asking for agreement or disagreement with two or more statements or items. These items were aggregated into scales for use in statistical analysis of WTP. The study used a two item scale on ascribing responsibility (AR) to oneself for ameliorating environmental problems and a three item scale on awareness of negative consequences (AC) for others (human and non-human). Similar items have been employed in other studies but as part of biocentric and social-altruistic attitudinal scales (Stern, Dietz and Kalof, 1993; Stern, Dietz and Guagnano, 1995; Stern et al., 1995). In particular the AC scale contains two biospheric items and one social-altruistic, while one of the AR scale items also reflects the biospheric position and the other a social-altruistic position. A third attitudinal two item scale was employed to measure perceived personal costs (PC) as an indicator of 'self-interest calculations' (p. 412) and so represents an egoistic value orientation.

Analysis was carried out using bid curve regressions on the positive bids only, although the reasoning behind zero and non-response behaviours is of equal interest (especially given the typically high percentage under the CVM). The model for the tax payment vehicle in the case of chemical waste in drinking water fails the F-test, but is the only model where income is a significant predictor of WTP. The authors take the failure of income as a predictor to mean other factors are more relevant than ability to pay in all WTP cases, although this would also result from the general failure to specify what is being purchased.

The results showed AC significantly related to WTP under three scenarios and AR under four. The AC and AR scale were both related to WTP for the trust scenarios to clean-up chemicals and prevent deforestation. The AC scale was also positively and significantly found to determine WTP taxes to prevent deforestation, while the AR scale explained WTP for reducing global warming and increasing recycling. Both AC and AR were insignificant for clean-up of chemicals by paying taxes, where the model actually failed to be statistically significant. The PC scale was insignificant across all cases.

Given that all the environmental problems in the survey were public goods (as discussed earlier), some explanation is required as to why the positive influence of both AC and AR scales on WTP failed to occur across all six scenarios. As the authors state (p. 412): 'we expected that stated WTP would increase when moral norms were activated by two conditions: when individuals were aware of negative consequences for others (AC) and when they ascribed responsibility to themselves for preventing or ameliorating those consequences (AR).' This might imply respondents were unaware of the negative consequences of the greenhouse effect and failing to recycle paper (AC insignificant) but felt responsible in both cases (AR significant).

Altruism was expected to be an important determinant of WTP and so provide support for the contributory interpretation of giving. However, the study was unclear as to whether altruism was expected to determine WTP for all public

goods (as implied by the hypothesis quoted above) or only those framed as contributory. The authors concluded: 'Our findings show that stated willingness to pay extra taxes to achieve environmental protection does not follow a model of altruistic behaviour.' The fact that AC showed a positive significant influence on the (supposed non-contributory) scenario of taxes for forests contradicts this claim and also the claim that altruism was driven by the 'contributory frame'. In addition, as explained in the earlier critique, the theoretical case for altruism being excluded by the use of taxes as a bid vehicle seems weak.

2.5. Reflection Upon the Results

On the basis of this study Stern et al. (1995 p. 1631) have stated that:

When contingent valuation items were framed as contributions to a fund to support environmental protection, willingness to pay was strongly influenced by beliefs about consequences of environmental degradation, but the effects disappeared when the questions were framed as willingness to pay taxes for the same environmental protections (Guagnano, Dietz, and Stern, 1994).

This seems the wrong conclusion to draw from the study. As explained, and shown in Table 1, the scenarios were not strictly identical due to differences in and lack of specificity concerning payment, institutional context and level of decision-making (local, national, international). The conclusion ignores the fact that the AC variable remained highly significant for the tax to preserve forests in Latin America. In fact, if the most significant coefficients are considered ($p < 0.01$) then the relationship between AC and WTP is seen to be strongest for deforestation regardless of payment mechanism. This would seem to support the contention of Kahneman et al. that the environmental problem provides the focus under charitable giving. However, contrary to the claims of the studies' authors, support for the contribution model then comes from insensitivity to framing rather than being caused by the framing.

The results of Guagnano, Dietz and Stern (1994) also appear to contradict other studies while reinterpreting their attitudinal scales. The two item scale they employed on personally accepting responsibility (PC) was previously used as a part of a three item measure of egoistic beliefs about consequences by Stern, Dietz and Kalof (1993). In the 1993 study such egoistic beliefs were found to be a significant determinant of WTP. The two very general payment scenarios used were a request for WTP by an increase in income tax and a gasoline price rise in order to 'protect the environment'. Stern, Dietz and Kalof (1993, p. 336) stated:

Questions about willingness to pay draw respondents' attention to the things on which they spend money, and these things are more likely to pertain to their well-

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being than to social-altruistic or biospheric value. If this argument is correct, a willingness-to-pay question has the effect of focusing attention on the egoistic value orientation.

However, in Guagnano, Dietz and Stern (1994) the two item egoistic scale (PC) was insignificant across all six WTP questions, while the biospheric-altruistic AC item scale was significant for three WTP cases. In addition, the AR scale consisted of two items referring to the protecting of other species and other people, respectively, and is therefore representative of biospheric and social-altruistic positions. The AR scale was significant in four WTP scenarios. So together 5 out of 6 WTP scenarios related to biospheric and social-altruistic motives with statistical significance.

The unspecific nature of the WTP questions in Guagnano, Dietz and Stern (1994) may have encouraged altruism because there was no obvious or explicit direct personal gain to the respondent from payment. This would explain the failure of the egoistic measure, and the only surprise is then that a stronger relationship with AC across all six WTP questions was absent. In Stern, Dietz and Kalof (1993) the use of a student sample might explain the difference in results. However, the relationship between the students' egoistic attitude and WTP may also be due to their gaining a warm glow from the prospective payment (Andreoni, 1989). That is, the even greater generality of the WTP question in the 1993 study means mainly that those who gained directly from the moral satisfaction of giving, regardless of the consequences after payment, were stimulated to claim an intention to be willing to pay. In addition, a biospheric AC scale was also significant in one of the two WTP cases (payment by income tax) and so there does seem to be some consistency here with the role of non-egoistic motives.

The research across these studies from social psychology is itself of interest as an insight into charitable giving for the environment and the multiple motives underlying WTP and WTA. Overall the evidence provided needs reinterpretation and then does seem to support the role of non-egoistic attitudes as motives for WTP, and possibly some evidence of a contribution model. However, the results are weakened by the poor specification of the scenarios. This may encourage biospheric oriented individuals to bid positively if they can see some prospect of positive consequences for the environment (and believe in the institutional context). Egoistic attitudes may also be relevant where individuals gain moral satisfaction from giving to a good cause without regard to the specifics of what happens to the money afterwards, i.e., as long as they believe some unspecified general good will result. Either way the current research bears only a tangential relationship to CVM studies, which are grounded in the welfare theory of neo-classical economics. Contingent valuation requires a well specified environmental change and institutional context.

3. ECONOMIC STUDIES OF ETHICAL MOTIVES IN THE CVM

The research reported in the previous section has suggested that the CVM may be revealing a range of motives besides the purely egoistic consequential perspective normally assumed to be dominant in economic studies. The charitable contribution model and the embedding effect literature have alluded to moral satisfaction as a motive without specific investigation or elaboration. However, the range of work by social psychologists such as Dietz, Guagnano, Kalof and Stern as well as that by Kahneman and his co-authors has failed to incorporate hypothetical environmental trade-offs with sufficient detail to approach the practice in CVM studies.

This section reports on two recent sets of research which have pursued empirical analysis of ethical motives for WTP under a standard economic approach to CVM. The first was conducted for the World Bank and addressed coral reef biodiversity degradation (Spash, 2000). The second related to a wetland re-creation scheme in the UK (Spash et al., 1998) which was part of a larger European project (O'Connor et al., 1998). The surveys were designed in several sections which were delivered to respondents in the following order: framing and questions on background knowledge; the information pack and payment scenario (open-ended WTP); ethical and attitudinal questions; and socio-economic data. Relatively large samples of the general public were obtained in each case: two samples of 1152 and 1058 each for the coral reef study and 713 for the wetlands study.

3.1. Marine Biodiversity in Jamaica and Curaçao

This study investigated whether the CVM could be used to assess the benefits of maintaining and improving coral reef biodiversity for Curaçao, the Netherlands Antilles and Montego Bay, Jamaica (Spash et al., 1998). Among the methodological issues of concern was the refusal to trade by those giving zero bids as described by lexicographic preferences. The literature demonstrates that such preferences can be common and create problems for the interpretation of CVM results (Stevens et al., 1991; Stevens, More and Glass, 1993; Lockwood, 1996b; Lockwood, 1996a; Spash, 1997; Spash, 1998). In addition, positive bids proved of interest because they too can be consistent with lexicographic preferences, and the underlying motive for WTP may conflict with economic assumptions. The surveys took a rights based ethical position as signifying an ethical stance compatible with lexicographic preferences.

The Montego Bay Marine Park in Jamaica provided an actual institution with a record of marine ecosystem management and a realistic context within which a WTP scenario could be developed. In Curaçao a marine park along the whole southern coast was being planned and was used in the CVM survey. Environmental quality within the proposed parks was characterised to give a background

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picture and projected trends in coral biodiversity. A *status quo* scenario for the parks resulted from a review of the literature and expert advice. This was used to summarise the current situation in terms of coral reef quality and causes of degradation. Two states of the coral reef were then relevant: the current degraded condition and a healthy coral reef under management options. For example, the Jamaican quality change was characterised in the following manner.

The current marine biodiversity of the Montego Bay reef is at about 75% of its full potential, that is about one quarter degraded. If we 'do nothing', scientists estimate that it will soon fall to a level of 60%, that is two fifths degraded. Management strategies already planned should maintain the level of biodiversity at 75%. However, if contributions are adequate, a trust fund will be established by Montego Bay Marine Park for exclusive use on projects to increase biodiversity within the Park to 100% of its potential.

As coral reef degradation in the two countries was judged to be different the percentage change in coral abundance expected from the management options also differed. The proposed park for Curaçao was relatively much larger than that for Jamaica while the level of increase in biodiversity was lower – from 50% to 75%. Information on physical changes was summarised using colour maps, descriptions read aloud by the interviewer and show-cards. The identification of causes of reef degradation combined with knowledge of the powers and jurisdictions of institutions simultaneously determined the type of management options which could be included in the survey as being available to the managers of the marine Parks.

Samples for each study included both tourists and locals. Respondents were asked to contribute towards a trust fund managed by the marine park in order to increase marine biodiversity within the park boundaries. The payment was to be on a per annum basis for five years. The technique for elicitation of WTP was an open-ended question chosen as being straight forward and realistic. The environmental improvement being purchased was a rise in marine biodiversity within the areas by 25% which was contrasted with the no management scenario of a 15% reduction in biodiversity.

The results showed that 50% (574) of the Curaçao and 64% (680) of the Jamaican respondents had a positive WTP. Three reasons, normally regarded as consistent with economic theory (lack of income, improvement unimportant, other goods more important), accounted for 46% and 41% of zero bids respectively. A lack of income proved to be the largest category and was disproportionate in relation to the socio-economic profile of the samples. In addition, some tourists felt this was 'not my problem' but that they would contribute for a similar scheme in their own country (39% of tourists in Curaçao and 21% in Jamaica). This was classified as a zero bid for reason of zero value, although some respondents, when probed, did state they would be willing to pay a user fee for direct benefits. The remaining zero bids consisted of various protests: 'free

riders' (only 1–2%), those who felt paying was an inadequate solution, some who had a lack of faith in the proposed Marine Park and trust fund, and those who rejected the payment mechanism. In regard to the last category, stated reasons for Curaçao showed a general feeling that the Marine Park trust should be a government responsibility and that their government had already raised taxes considerably. Thus, even if the design had used a tax payment mechanism the protest bid would have persisted and may have been larger. Overall many of the respondents valued biodiversity but refused to give a positive WTP amount, which is of concern given that 32% and 27% of zero bids for Curaçao and Jamaica respectively fell into these four categories.

Respondents were asked to state the extent (absolute, circumstantial, irrelevant) to which they saw rights to protection from harm as operating in relationship to each of five categories (present humans, future humans, marine animals, plants and ecosystems). Almost all the sample were prepared to attribute absolute rights to current and future humans. Marine animals, plants and ecosystems were also attributed absolute rights by approximately 60% of the Curaçao sample and over 80% of the Jamaican sample. Respondents could answer that they just 'did not know' but only 0.2% in Jamaica and 2.1% in Curaçao found this necessary.

The respondents who had attributed any rights to one of the five categories were next asked whether, in the case of the relevant Marine Park, they believed the rights they had attributed meant a personal responsibility to prevent harm regardless of the cost. Approximately 79% of the Jamaican and 68% of Curaçao sample answered affirmatively. Those affirming that they had a personal responsibility regardless of the cost were asked whether they would accept harm to the relevant island's marine life and habitat if trying to prevent it would threaten their current living standard. The other group of respondents, who had denied rights in this case, were instead asked to reconsider given a more specific scenario including a threshold personal impact. That is, whether they would accept a personal duty to avoid harming the relevant island's marine life and habitat if their current standard of living would remain unaffected. The outcome of these questions was to enable the sample to be split into four categories. These groups were:

- those who attributed rights and accepted a strong personal responsibility to protect marine life and habitats from harm even when their standard of living was threatened;
- those who attributed rights and accepted a personal responsibility to protect marine life and habitats from harm only if their own current standard of living was unaffected;
- those who withdrew rights and any personal responsibility to avoid harm to marine life and habitats when the cost of doing so was in terms of their current standard of living; and

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- those who rejected rights and any personal responsibility to protect marine life and habitats from harm regardless of whether their own current standard of living was unaffected.

In addition, there were those who rejected rights in general, rather than in this particular case, who formed a minority fifth category.

The results showed a dramatic reduction in those attributing absolute or strong rights (category 1 above) from 79% down to 14% for Jamaica and from 68% to 27% for Curaçao. The two middle categories, 2 and 3 above show a threshold effect, which might be consistent with a modified lexicographic position – once a basic standard of living is obtained a stronger ethical position for other species is adopted (Spash, 1998). A readiness to consider the trade-off circumstances and the subjectivity of the relevant standard of living mean that individuals in these categories may be regarded as acting as consequentialists and weighing-up the trade-offs. This study left the distinction between the consequential and weak rights positions indistinct; this was rectified when the wetlands study was conducted, as discussed in the next section.

One hypothesis was that individuals' protesting against CVM and bidding nothing could be explained in part by their holding and defending rights and/or duties. The survey allowed for bids by both time and money which reduced the zero bid category beyond monetary WTP. The zero bidders as a sub-group of strong duty holders were then only 3.4–7.5%. Of these, respondents who gave a protest reasons for refusing to pay were 2.9% of the Curaçao sample and 1.7% of the Jamaican sample. The result was similar across tourists and locals. Thus, strong duties explained 15% and 11% of all the protest bids (i.e., refusals to pay for reasons of non-zero value).

All strong duty holders were asked how they expected environmental rights to be protected within the Marine Parks. In Jamaica 66% (10% of the total sample) and in Curaçao 48% (13% of the total sample) wanted either a legal approach or education, or a combination of the two. Some of those holding a strong duty position felt the trust fund was also a good idea and would help in the protection of the rights they had attributed to the marine environment. Those holding a strong duty position who protested in terms of a zero bid also favoured legal and educational approaches. In Jamaica 50% of these individuals opted for a purely legal approach, while in Curaçao 53% wanted either a legal and/or an educational approach. Thus, focusing on the issue was compatible with desiring specific institutional arrangements, somewhat contrary to the contribution model.

A set of variables measuring different aspects of the ethical stance being taken by the respondent were included in a bid curve analysis, using a semi-log linear form. For Curaçao determinants of WTP, as shown in Table 2, were a standard set of socio-economic variables (sex, age and education), knowledge and the positions taken towards rights. Income was correlated with age and

education, and suffered item non-response (only 642 responses). The knowledge of marine biodiversity (KNOWMBD) and direct use (BENUM) variables proved positive and significant determinants of WTP. A seven point scale was designed to capture attitudes towards the attribution of a right to be protected from harm to marine animals, plants and ecosystems (RIGHTSEA). Those attributing absolute rights to all three aspects of the marine environment were ranked highest, and those denying rights in all three cases ranked lowest, with a graduating scale between these two extremes. Rights for the marine environment were positively related to WTP. The role of ethical positions was further confirmed by the significance of dummy variables on the personal duty to protect the life and habitats of the Marine Park, i.e. respondents taking a strong duty perspective (STRDUTY) or rejecting any duty (NODUTY). As can be seen a strong personal duty regardless of the cost was positively correlated with WTP, while the rejection of this duty reduced WTP. A variable on the difficulty found with Section C, where the ethical questions were asked, proved significant and positively correlated with WTP. This may mean those concerned about biodiversity improvement struggled with their precise ethical position and the extent to which duties were for them weak (tradable) or strong (lexical).

	Coefficient	Significance
Strong Duty	0.733293	0.0378
No Duty	-1.159261	0.0113
RIGHTSEA	0.642659	0.0000
Knowledge KNOWMBD	0.210855	0.0003
Direct uses BENUM	0.776119	0.0000
Age	0.230927	0.0026
Education	0.697764	0.0000
Female respondent	-0.715510	0.0232
Difficulty with Section C	0.187783	0.0261
Preference change	2.718723	0.0000
(Constant)	-10.771568	0.0000
F-test	25.37	0.0000
R ²	0.21	
Adjusted R ²	0.20	
N	970	

TABLE 2. Bid function for coral reef biodiversity in Curaçao

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The overall results for Curaçao show a model of WTP being dependent upon standard socio-economic variables plus rights and duty based variables. The RIGHTSEA variable was a recognition at an aggregate level of rights in the marine environment. The STRDUTY and NODUTY variables were specific to the Marine Park itself and the extent to which individuals were prepared to prevent harm at the risk of a loss in terms of their own living standards.

A similar model was run for Jamaica including a set of variables covering socio-economic status, knowledge and the position taken towards rights. A dummy variable for tourists versus locals was strongly significant and negatively correlated with tourists. The knowledge and use variables again proved positive and significant determinants of WTP. In Jamaica the set of variables on ethical stance were less relevant. However the role of ethical positions was confirmed by the significance of the dummy variable rejecting any duty (NODUTY). This was also negatively correlated to WTP as was the case for Curaçao. The overall results for Jamaica were in line with those for Curaçao except in that the model lacked the range of significant rights and strong duty variables. In addition, the model was weaker in terms of predictive power, although all the variables in the model were significant at the 99% level with the exception of gender.

3.2. Species Rights in the UK

In this study, a small site (one square mile) in Eastern England, currently used for crop farming, was hypothesised as being purchased by an existing regional charity concerned with the conservation of wetlands, and a request made for a one-off payment to a trust fund established specifically for the project. An information pack was designed consisting of an area map, photographs of an actual site before and after conversion to a wetland, an artist's impressions of the two ecosystems, and brief descriptions. The wetlands and agricultural scenarios were referred to as different potential uses of the area without any specification as to which might be preferable.

Approximately a third of the 713 respondents gave a positive WTP. Three categories of people totalling 466 respondents gave no monetary valuation but might hold a positive value for the environmental change. These were zero bidders, refusals and don't knows. There were 36 respondents who refused to answer the WTP question and 182 who responded 'don't know'. Standard reasons regarded as legitimate explanations for bidding zero accounted for 286 respondents.

In order to categorise ethical positions respondents were told that: 'A major aim of re-creating wetland is to provide sanctuary for endangered species of birds such as Bewick's swan, the pintail and gadwall.' Respondents were then asked to match one of four motives (rights for animals, consequentialism in a preference utilitarian mode favouring either endangered species or humans, and

superiority of humans) with their reasoning for their response to the WTP question. Those attributing rights to bird species were then confronted with a scenario of a personal cost which reduced their standard of living to what they regarded as a minimum. Under such circumstances the respondent was asked whether they would still protect the birds' right to life, or accept that some bird species may become extinct. A strong category of rights is consistent with lexicographic preferences, and this connection is discussed in a more comprehensive report of the results (Spash, 2000). Those who backed down when confronted with the personal cost scenario were taken to hold a weak expression of rights. In both national and local samples a larger number maintained their position (strong rights) than accepted species extinction and the proportions in each category were similar. This process gave five ethical categories: strong rights-based, favouring endangered species even when personal living standard reduced to a minimum; weak rights-based, relinquishing rights if threatened with a personal cost reducing living standard to a minimum; consequentialist favouring species; consequentialist favouring humans; and a human priority position where humans come first regardless of the consequences.

Results for the entire sample, including 'don't know' answers to the ethical questions, showed 37% attributed rights to birds, 9% put humans first, and only 47% weighed up the consequences of the case (in accordance with economic theory). Among the 180 protest non-bidders 76 held the two rights-based positions, giving 11% of the total sample as showing behaviour consistent with a rights motive and protesting against bidding. Those who would be regarded as 'legitimate' non-bidders for the purposes of a standard CVM study, because they fail to give a suitable protest reason, should be recognised as potentially holding a position inconsistent with economic assumptions. This applies particularly to those claiming an income constraint. There were in particular 4% of the total sample who did so under weak rights and 5% under strong rights.

In addition to those classified as holding strong rights who were non-bidders, 15% of the total population sample held either strong or weak rights while they bid positively. Such positive bidding could represent consistent behaviour for those with a weak right where they contribute a fixed amount which they regard as meeting a threshold. Alternatively the behaviour may be regarded as inconsistent with stating that endangered bird species have the right to protection, because a money value is now being placed upon the project to achieve that protection. Either way the motivation behind the WTP seems to conflict with regarding the monetary value as an exchange price or compensatory payment.

Bid curve analysis using a semi-log linear function showed the significance of all ethical positions, including the consequentialist. There were 495 positive and zero bidders in the sample which is reduced to 458 by item non-response. Education and gender were used as surrogates for income data due to refusals to answer and under-reporting. Likelihood of visiting the wetland site in the future, environmental awareness and education to 16 years of age all proved highly

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significant. The model was significant on the F-test and had an adjusted R^2 of 23.5%, which is high for CVM studies where a value of 15% is an acceptable level (Mitchell and Carson, 1989). As shown in Table 3, all the variables were significant at the 90% level and the ethical variables at the 95% level. One of the most highly significant variables was the strong rights position. Both the variable for consequentialists favouring birds in the case of the wetlands project and that for those who placed humans first regardless of the circumstance were significant at the 98% level.

	Coefficient	Significance
Strong Rights	2.534754	0.0000
Weak Rights	1.176216	0.0435
Consequentialist birds	1.344046	0.0115
Consequentialist humans	-1.578690	0.0207
Environmental awareness	2.337026	0.0000
Future visitor	0.331766	0.0216
Education to 16 years	-1.060778	0.0055
Local resident	0.860050	0.0566
Female respondent	0.638577	0.0960
(Constant)	-5.876637	0.0000
F-test	16.60	0.0000
R^2	0.25	
Adjusted R^2	0.23	
N	458	

TABLE 3. Bid function for wetlands in the UK

CONCLUSIONS

Information provision is regarded as a key aspect of contingent valuation design. This includes framing of the actual question and scenarios, but also the overall design of the survey. In this regard there is a potential problem for any study combining behavioural and attitudinal measurement in the same survey. If the attitudinal questions precede the questions on behavioural intentions this could

effectively load respondents expectations. The impact of initial survey information on stated WTP has been noted in contingent valuation (see for example Ajzen, Brown and Rosenthal, 1996). This means being aware of and explaining approaches to both framing and overall survey design. The social psychology research reported here seemed inadequate in some of these respects. The hypothesis that a contribution model means insensitivity to certain aspects of framing, such as payment mechanism, has mixed empirical support. In the study by Guagnano, Dietz and Stern there was some evidence of insensitivity to payment mechanism. However, there did appear to be concern amongst the respondents to the coral reef survey for the institution and mechanism of payment. Thus they were apparently focusing upon the environmental entity, possibly as a reason for a charitable donation, but also concerned about the 'attractiveness of the solution'.

The research across the studies giving a psychological perspective on CVM surveys provides some insight into charitable giving for the environment, but the results are mitigated by the poor specification of the scenarios. This may encourage biospheric oriented individuals to bid positively if they can see some prospect of positive consequences for the environment (which includes their belief in the institutional context). Simultaneously, an individual's egoistic attitudes may produce a positive intention to pay, if the individual gains moral satisfaction from giving to a good cause, and this may be largely independent of what happens to the money afterwards.

The ethical motive for giving can be regarded as running in parallel with attitudes and social norms in determining a stated intention to pay. All three aspects would then combine in reasoning over whether an action or behaviour should be undertaken. The research reported here can be related to lexicographic preferences (see Spash, 1998), although this connection is unnecessary for the present purpose of providing evidence of an ethical motive in economic valuation of the environment. The main concern is whether there is any evidence of non-consequentialist, and potentially biocentric, reasoning in answers to WTP under the CVM.

In the wetlands survey, there was a positive correlation between the rights positions and WTP and a negative one for those favouring humans. Half those who gave a positive bid were in fact among those attributing rights to endangered bird species and so readily identified their motives with non-consequentialist reasoning. This extends the concern over the values being derived by the use of CVM surveys, from the misclassification of protest bidders, who may hold non-compensatory preferences, to the motives behind and meanings of the positive bids. The result is that the monetary values being obtained fail to represent the exchange prices and welfare changes which economists are trying to derive.

On the methodological side of the issue, the findings of the research on coral reef biodiversity showed both local individuals and tourists were prepared to give a stated intention to pay for coral reef biodiversity improvements which was

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related to their ethical position on rights. A positive bid for an environmental improvement proved to be positively related to the belief in duties towards environmental entities. The rights based position and implied duty were found to influence bids significantly as shown by the bid curve analysis. This result was particularly strong for Curaçao. The monetary values being stated included expressions of multiple values some of which were unrelated to the specific environmental change in that they related to the moral concern to protect marine animals, plants and ecosystems. Pricing all aspects of the marine environment as another commodity would then fail to reflect the rich range of values individuals associate with their environment and the meanings they associate with their bids. This has implications for the design of any policy attempting to protect coral reef biodiversity, because support will be partially based upon the extent to which such ethical concerns are respected and addressed.

The results concerning the income-constrained rights-based categories are important because of the way CVM practitioners tend to differentiate their treatment of non-bidders by whether they fall into a protest category. The UK case shows this can be a significant group. Protest non-bidders may be treated identically to zero bids or they may be given an imputed bid (e.g., the mean WTP of positive bidders). Thus drawing the boundary line between these categories can be crucial to the resulting WTP estimate when data is aggregated. Either of these standard treatments of protest non-bidders if applied to the rights respondents would seem inconsistent with the values being expressed.

A cross-comparison of key results from the Jamaica and Curaçao coral reef surveys and the UK wetland survey is given in Table 4. This table shows the total frequency of rights responses, some key sub-categories for the zero bids, and the respondents holding rights but bidding positively in terms of money. The wetlands survey provided greater refinement in the classification of ethical positions by separating weak rights from consequentialist motives. The strong rights/duty position does prove to be significant with 15%–27% of respondents falling into this category. The position also proves internationally relevant as an explanation of different categories of WTP response. The surveys show 2%–6% of the total sample (or 15%–23% of protest bidders) giving a zero bid for a protest reason while holding a strong rights/duty position. Weak rights/duties would increase this, perhaps doubling the percentage (on the basis of the UK study). In addition, up to a third of respondents giving a positive WTP do so on the basis of a belief in the relevance of strong rights/duties. Again, weak rights increase the percentage who reject consequential reasoning e.g. 51% in the UK sample.

The position taken by the weak rights or, termed elsewhere (Spash, 2000), modified lexicographic position may be criticised by both consequentialists and deontologists. The former will regard any sign of a trade-off, even subject to a threshold, as basically some kind of consequential position. The latter will regard the threshold as absolute so that there is no circumstance under which it can be abandoned and therefore agree with the consequentialist argument. However,

	Curaçao		Jamaica		UK	
	%	N	%	N	%	N
Total Sample Size		1152		1058		715
Rights, all categories						
Proportion of total sample						
Strong rights/duty	27	308	15	158	21	150
Weak rights	na		na		16	116
Rights, no money bid, protest reason						
Proportion of total sample						
Strong rights/duty	4	51	2	25	6	41
Weak rights	na		na		5	35
Proportion of protest bids						
Strong rights/duty	22	51	15	25	23	41
Weak rights	na		na		20	35
Rights, no money bid, income constrained						
Proportion of total sample						
Strong rights/duty	3	36	2	18	5	31
Weak rights	na		na		4	27
Rights, positive money bid						
Proportion of total sample						
Strong rights/duty	16	189	10	107	10	68
Weak rights	na		na		5	35
Proportion of positive bids						
Strong rights/duty	33	189	16	107	34	68
Weak rights	na		na		17	35

TABLE 4. Cross-comparison of ethical motives behind WTP

Figures subject to rounding errors

na = not available for this study

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Kagan (1998) has clearly shown how a moderate deontologist acts exactly as the weak rights/modified lexicographic position describes. Thus, harming an innocent human or non-human can be forbidden up to a certain threshold defined in terms of the good which results from the act. For example, killing an innocent person to save five lives may be rejected but not so if a thousand or a million lives would be saved. As Kagan (1998, p. 78–84) explains, the moderate deontologist holds a position distinct from the consequentialist because the latter believe that goodness of results is the *only* factor with intrinsic significance and therefore they must *always* regard as permissible the act which leads to the best results. In contrast moderate deontologists are pluralists who believe in the intrinsic significance of acts of doing harm as well as good and will therefore forbid harming someone regardless of the best results overall, as long as they are within the threshold for the constraint. ‘Moderate deontology is thus a genuine alternative to consequentialism’ (Kagan, 1998, p. 80).

Overall, the results from the standard CVM survey approach to WTP question design support the concerns in the social psychology literature for the importance of a range of motives for giving. The studies reported here show the importance of different ethical positions besides the consequentialist which environmental economists assume to be universal. One result is that WTP reflects non-exchange values and cannot therefore be regarded as commensurate with market prices in a CBA. Human value formation with respect to the environment appears to be far more complex than most economists have previously assumed and combines attitudes, ethical and economic values. Interactions between causes, motives, and behaviour will then help explain the variety and meaning of responses. This need for explanation is necessary to counter claims that respondents who act outside the economic model are ‘irrational’ and their stated (or actual) behaviour inexplicable. Rather than seeing the challenge as how to downplay, separate and remove their values from the policy process the aim should be to consider how apparently ‘non-economic’ values can be included.

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