**FIRST IMPRESSIONS COUNT – ALMOST
DOUBLE!   A STUDY OF THE INTERACTION
OF INTERVIEWER APPEARANCE AND
INFORMATION EFFECTS IN STATED
PREFERENCE STUDIES**

by

Ian J. Bateman and James Mawby

**Centre for Social and Economic Research
on the Global Environment
School of Environmental Sciences
University of East Anglia
Norwich, NR4 7TJ, UK.**

**Contact author:
email: i.bateman@uea.ac.uk**

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Abstract

A simple but novel experiment is described examining the impact of interviewer appearance upon stated willingness to pay (WTP) for an environmental good. This test consists of an interviewer wearing either formal or more casual clothing. This analysis is interacted with a cross cutting treatment examining the more familiar impact of adding information on certain of the less familiar attributes of the good in question. Face to face interviews are employed to collect a sample of respondents who are randomly allocated to one of the four treatment permutations described by our interviewer appearance and information change study design. Our analysis suggests that both altering the appearance of an interviewer and changing the degree of information provided can have significant impacts upon stated WTP. Furthermore this effect is heightened when both effects are running in parallel. We argue that such findings are to be expected given the highly interactive nature of face-to-face interviewing but note that this serves to provide a cautionary note regarding the complex array of influences at work when members of the public are asked to express preferences regarding goods for which they have not previous provided monetary values.

Keywords: Stated preference; Contingent valuation; Willingness to pay (WTP); Interviewer effect; Appearance; Information effect.

1. Introduction

Stated preference techniques such as contingent valuation (CV) and choice methods (CM) dominate empirical research into the monetary valuation of preferences for non-market goods such as those provided by the environment. Indeed the use of such survey based methods is increasingly becoming an accepted and widely incorporated element of practical decision making processes (Champ, *et al*., 2003; Bateman *et al*., 2002). However, there remains substantial differences of opinion (and a considerable lack of understanding) regarding the extent to which contextual issues may influence the ways in which survey respondents formulate answers to the questions posed in such valuation surveys. While economic theory tends to say little regarding such contextual influences, psychologists make considerable play of the affective heuristics which may be brought into play in such situations. This paper presents evidence of a significant, yet previously unstudied, phenomena within valuation surveys; the impact which an interviewers appearance may have upon willingness to pay (WTP) estimates. This is combined with an analysis of a relatively frequently observed effect; that arising from varying the information given to respondents concerning the good under evaluation.

The paper is organised as follows. In the next section we examine that evidence which is available regarding the impact of interviewers within the valuation elicitation process and consider selected previous studies of information effects. Hypotheses regarding the effects under consideration are formulated in the following section which also considers the joint impact of these effects. Details of our empirical study are then presented after which results are provided. These are then discussed and final conclusions drawn.

2. Interviewer Effects

From the perspective of economic theory there is no clear reason why the same question posed by differing interviewers should elicit differing responses from a survey respondent. Perhaps as a consequence of this expectation, few CV studies have tested for interviewer effects. However, of those which have a number report at least some evidence of significant effects[1]. In one of the earliest of these tests, Desvousges *et al*., (1987) find significant impacts upon stated WTP associated with two of the eight interviewers employed in their seminal CV study of water quality in the Monongahela River[2]. Similarly, Boyle and Bishop (1988) observe significant interviewer effects upon mean WTP to avoid degradation of scenic beauty elicited from both payment card and dichotomous choice response formats. In an interesting variant of such analyses, Walsh *et al*., (1990) compared WTP responses gathered by four interviewers with varying degrees of experience in economics. They found that the WTP responses elicited by an interviewer with no economics experience were on average 24% lower than those obtained by other interviewers, all of whom had some training in economics. Even these substantial effects are dwarfed by those reported by Mannesto and Loomis (1991) who compare stated WTP sums elicited by experienced and less experienced interviewers for two recreational boating goods. For both goods mean WTP was substantially higher when elicited by experienced interviewers ($69.80 and $59.27) than when obtained by less experienced interviewers ($37.12 and $39.47 respectively). Testing revealed these differences to be statistically significant (p=0.012). It is interesting to note that the direction of these effects is consistent for both goods with higher WTP amounts being offered to more experienced interviewers**.

The above tests of interviewer effects all focus upon potential impacts arising between differing interviewers. However, the Mannesto and Loomis findings suggest that, given that interviewers implementing a given study treatment ask the same questions within identical formats, there may be something about the demeanour of an interviewer which triggers certain, possibly affective (Slovic *et al.,* 2002), responses in survey respondents. The likelihood of such effects arising in the survey situation, particularly within in-person interviews, has long been recognised by psychologists (Orne, 1962). However, it has only been more recently that such psychological insights have been brought to bear within the

design and execution of CV studies (Harris *et al*., 1989; Schkade and Payne, 1994).

The present study considers a single, readily controllable aspect of the interviewer-respondent interaction by simply varying one element of the interviewer's affective impact upon the respondent; namely what the interviewer is wearing during the time the survey is undertaken. While this may at first seem trivial, there is a serious methodological issue under investigation here. Psychological insights into the survey process suggest that, when faced with a task which is unfamiliar, an individual will seek to gain clues regarding the purpose and consequentiality of that task (Orne, 1962). A variety of heuristics may be used to assess this situation including an individual's subjective assessment of the interviewer. In cases where the interview is deemed to be of high esteem then it is likely that the perceived consequentiality of CV survey responses may be enhanced (Harris *et al*., 1989). The visual appearance of the interviewer, as perceived by the respondent, may well be a factor in this affective assessment. Given this account of the subjective formation of CV responses, we might hypothesise that changes in that appearance could, feasibly, impinge upon the perceived consequence of those responses and hence upon elicited WTP estimates.

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[1] This is not always the case. Loomis *et al*., (2000) fail to find significant interviewer effects in WTP bids for restoring ecosystem services within an impaired river basin.

[2] It should be noted that this effect cannot be unambiguously attributed to the interviewers involved as they were allocated to different survey areas, i.e. this could reflect an omitted variables issue.

3. Information Effects

Unlike appearance effects, theory recognizes that changes in the level and type of information supplied to individuals in a valuation exercise may, in certain circumstances, quite reasonably be expected to have some impact upon resultant values for the good in question (Mitchell and Carson, 1989; Munro and Hanley, 1999). This effect is quite separate from any psychological impact which that information may have upon the perceived framing of the question.[3] Cameron and Englin (1997) find that differing degrees of respondent experience and understanding were associated with significantly differing levels of WTP. This suggests that information effects are likely to be strongest for goods for which respondents do not have clear prior preferences (e.g. goods with significant non-use elements). In such cases, positive information (i.e. that which emphasizes desirable attributes) regarding a good is likely to significantly increase stated values for that good (as demonstrated by Bergstrom and Dillman, 1985; Bergstrom *et al.*, 1989)[4]. Similarly, while positive information concerning complements may raise WTP for goods, informing respondents about desirable attributes of substitutes can lower stated values for the good in question (as shown by Whitehead and Blomquist, 1991)[5]. However, by the same logic, such information effects are likely to be more muted for predominantly use-value goods with which the respondent is highly familiar and hence holds prior values (see, for example, Boyle 1989; Boyle *et al.*, 1991)[6]. In effect therefore, the presence or absence of significant information effects is likely to be an empirical matter peculiar to the type of good, respondent and information characteristics of each application. More substantial effects are to be expected for goods or attributes regarding which the respondent does not have extensive previous knowledge or prior formulated values.

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[3] See, for example, Thaler (1980) or Slovic *et al.*, (1982).

[4] Bergstrom and Dillman (1985) employ a split sample approach to test the impact upon stated values for prime-land preservation of adding information on environmental and visual amenity impacts. A sub-sample presented with such information provided significantly higher WTP responses than a control group which was not exposed to this information. Bergstrom *et al.*, (1989) note that compared to a control group, significantly higher WTP sums were stated by subsample presented with additional information concerning (amongst other items) the scenic and isolation attributes of a recreational fishing experience. Note that not all tests of such non-use value elements yield significant information effects. Samples *et al.*, (1986) compare responses found that adding positive information regarding an endangered species (the humpback whale) increased sample mean WTP by between 20-33%. However, statistical tests showed that while this difference was not significant at the 10% level.

[5] This study also concerns a primarily non-use good; wetlands in Kentucky.

[6] Boyle (1989) examines anglers WTP for brown trout fisheries in Wisconsin finding no significant difference between mean WTP statements for three levels of information (although bid variance fell significantly as information increased suggesting that scenario uncertainty was reduced across these treatments). Similarly, Boyle *et al.*, (1991) in a study of hunting in Maine, found that the addition of information concerning other use-value attributes (prices of substitute species) did not significantly impact upon stated WTP sums.

4.   Hypotheses

The above discussions may be formalised into a set of readily testable hypotheses. With respect to the effects of interviewer appearance upon stated WTP we can formulate the following:

H_0^a : Interviewer appearance will have no impact

H_1^a : Interviewer appearance will have an impact.

As noted above, prior investigations of interviewer effects within CV studies have focussed exclusively upon effects observed between interviewers. In this study we present a first analysis of the possibility of within-interviewer effects arising solely from changes in the appearance of an interviewer. As highlighted by Hanemann (1996), economic theory often fails to provide a clear guide to expectations. Nevertheless, we will start with the 'straw-man' expectation that basic economic intuition might lead us to expect that H_0^a should not be rejected and return to this issue in our discussions and conclusions to this paper where we reconsider whether such an expectation is indeed appropriate. Psychological accounts of the affective properties of interviewer-respondent interaction within a survey setting also mean that expectations are not clear-cut. However, we might expect that, if changes in appearance can enhance the esteem within which the interviewer is held by the respondent then this may increase perceived consequentiality of the CV exercise and result in higher WTP bids.

Turning to consider information effects, again a null and alternative hypothesis may be formulated as follows:

H_0^i : Information will have no impact upon WTP

H_1^i : Information will have an impact upon WTP.

Following our discussion of pertinent literature given above, we can see that economic theory again fails to yield unequivocal guidance regarding the expected outcome of any test of these hypotheses. However, empirical evidence suggests that significant information effects can occur. More specifically, where that information is non-negative (i.e. it does not highlight disutility aspects of the good) then it is likely to raise WTP particularly for less familiar, non-use goods. However, rather than pre-empt the direction of any effects we retain a two tail approach to testing throughout this paper.

Finally we can formulate a hypothesis concerning the joint impact of interviewer appearance and information effects as follows:

H_0^j : There will be no joint interviewer appearance and information effects upon WTP

H_1^j : There will be joint interviewer appearance and information effects upon WTP.

Given our discussion of preceding null hypotheses, theory provides no clear prior expectations regarding H_0^j which remains an open empirical question. However, our previous speculations regarding the direction of interviewer appearance and information effects should they be observed, it seems reasonable to hypothesise that when the interviewer is dressed more formally and additional information is provided these combined effects will result in WTP amounts which are higher than under any of the single effect scenarios outlined above. Conversely, when the interviewer is dressed informally and additional information is not provided then we might expect that lower WTP amounts will be recorded.

4.1   Study design

The hypotheses under investigation were assessed through a CV survey of visitors to a Forestry Commission (i.e. State operated) multipurpose woodland at Grizedale, England. The survey instrument was a simple adaptation of a previously tested woodland visitor CV questionnaire developed by Bateman and Langford (1997). Survey respondents were asked to state their WTP per annum for a woodland conservation scheme to be paid via an annual taxation payment vehicle. Given the exploratory nature of this experiment a simple open-ended (OE) elicitation format was used. Such a format has been criticised in terms of its incentive compatibility properties which critics argue are liable to result in problems such as free-riding (Carson et al., 1999). We have argued elsewhere that, because of possible problems such as free-riding, OE formats would not be desirable for yielding estimates for incorporation within CBA or similar economic appraisals (Bateman et al., 2002). However, incentives remain constant across the various experimental treatments outlined below. Given this, the highly efficient nature of the OE question makes such formats particularly attractive for experimental purposes where tests concern comparisons between groups. Given that all tests concern relative rather than absolute WTP values such a format seems defensible for such experimental investigations. Details of the information given to respondents are provided subsequently and the full questionnaire is reproduced in the Appendix to this paper.

The unique nature of our interviewer effect hypothesis H_0^a means that, unlike preceding studies in this area, we are not concerned with effects arising between interviewers. Consequently we undertook all of the sampling for the present study using a single interviewer. The change in appearance was affected using a

simple but striking change in dress on alternate days throughout the entire survey period. For half of the survey days the interviewer (who was a 23 year old male) wore a well tailored navy blue business suit, white full length shirt, tie and black leather shoes. For alternate days the same interviewer wore a T-shirt, knee length denim shorts and white trainers. All items of clothing were clean and well pressed throughout the survey.

The interviewer was given extensive training in CV survey techniques including repeated pilot interviews (accompanied by the lead author). While the interviewer was told that the study was obviously examining the effect of appearance[7] and information changes, the training process strongly emphasised the need to ensure that, in all other aspects, all interviews should be absolutely identical. While the interviewer had prior experience of survey research, he had not previously gathered information for a CV survey. It was felt that this would enhance the neutrality of other aspects of the interview experience, ensuring it was professionally carried out without reference to the study dimensions laid out above.

In order to address H_0^i, two sets of information were prepared. Given the evidence of the papers reviewed previously, it seems most likely that significant information effects would be observed with respect to the less familiar, non-use aspects of a good rather than regarding more familiar, use value items. Consequently, in describing the woodland, while one group of respondents were not informed about the various species for which the area provided habitat, the information provided to other respondent specifically mentioned that Red Squirrel, Badgers, Red Deer and Tawny Owl all lived in the wood and showed respondents pictures of all of these species. This latter 'High Information' group was also shown a map of walks in the wood and told of a Woodland Art Gallery, details of which were withheld from the other 'Low Information' group[8]. Given our literature review, the addition of both use and non-use value

information was expected to induce an elevation in the values stated by the former group.

From the above it can be seen that we have a typical four cell study design, with two interviewer appearance treatments overlaid upon two information type treatments. Respondents were randomly allocated to one of these four treatment permutations which for convenience we can label as follows:

FLO information scenario	= Formal appearance (suit worn), low
CLO information scenario	= Casual appearance (suit not worn), low
FHI information scenario	= Formal appearance (suit worn), high
CHI information scenario	= Suit not worn (suit not worn), high

Sampling was undertaken through a face-to-face interview with visitors to Grizedale Forest, with respondents being selected upon a next-to-pass basis. Aside from the information statements and WTP question, the survey instrument elicited a typical range of standard socio-economic and demographic data as detailed in the questionnaire reproduced in the Appendix to this paper. This was primarily used to ensure that the random allocation of respondents to treatments had produced sub-samples which were not significantly different from each other along lines other than those induced by study design. We now turn to consider findings derived from the resultant responses.

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[7] However, note that the interviewer was not told about the expected direction of effect. Instead he was told that either direction was plausible (respondents may react positively or negatively to more formal dress) or that no effect might be observed. The stress throughout was upon ensuring that, in all other respects, interviews should be identical. Of course it would be difficult to categorically rule out the possibility of some subconscious change in interviewer behaviour in line with changes in appearance.

[8] Note that, in an ideal experimental framework the quantity of information given to both groups should be made identical by providing the Low Information group with sufficient irrelevant information to ensure that the questionnaires are identical in length (as per Samples *et al.*, 1986). However, irrelevant information may of itself have some impact upon resultant valuations (e.g. respondents may become annoyed by the process) and such devices are difficult to operationalise in the field.

5. Results

A total of 306 visitor parties were interviewed. Random allocation of these respondents across our four treatments resulted in sub-sample sizes of 77 each for groups CLO, FHI and CHI with group FLO consisting of 75 respondents. Testing suggested that all groups were homogenous across a variety of socio-economic and demographic variables as well as a range of visit characteristics and related preferences[9].

Table 1 presents summary WTP statistics for the four treatments considered, together with parametric bootstrap confidence intervals. Cursory inspection suggests that changes in interviewer appearance have a substantial impact upon stated WTP. The direction of this effect runs as expected with higher values being recorded when the interviewer was dressed more formally. The magnitude of this effect is substantial with responses to the interviewer when formally dressed being between two-thirds and more than three quarters larger than those given to that same interviewer when more casually dressed. Table 1 also indicates substantial information effects, again in the expected direction with increased information being associated with higher WTP sums. However, here the uplift is more modest, being in the range of 30-40%. Given these magnitudes, it is unsurprising that the most dramatic difference occurs when both effects work in parallel (i.e. formal dress with increased information) to more than double WTP. Conversely, when these effects operate in opposite directions (as per the comparison of cells CHI and FLO) changes are modest and indeed median values are identical.

The parametric bootstrap confidence intervals reported in Table 1 are somewhat dubious given that, as can be seen from summary statistics, the underlying distributions are not normal. Consequently Table 2 contrasts these with a series of non-parametric tests of difference between the various treatments.

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[9] Non-parametric testing confirmed that no significant association could be found at even a 20% confidence interval between group and the following variables: Respondents annual household income; Whether the respondent was a tax-payer; Respondents age; Number of household members aged 16 and over; Number of household members aged under 16 years old; Number of other recreational sites visited during the day of interview; Visitor type (daytripper, on holiday, working, living at site); Whether the respondent was on his/her first visit to Grizedale Forest; How many previous visits had been made to Grizedale Forest; Whether the respondent would visit Grizedale Forest again; The respondent's rating of the scenery at Grizedale Forest.

Table 1: Summary WTP results and parametric tests

Information level	Interviewer appearance	
	Casual (C)	Formal (F)
Low (LO)	**£ 13.66** {10.00} *12.27* (10.56 – 16.04) <77>	**£ 24.47** {15.00} *27.96* (18.99 – 31.54) <75>
High (HI)	**£ 19.36** {15.00} *19.62* (15.73 – 23.73) <77>	**£ 32.29** {25.00} *29.42* (27.14 – 39.69) <77>

Bold = Mean WTP (OE) per household per annum (including non-payers as zeros: Exclusion of non-payers makes no difference to the significance of differences between cells)

{ } = Median

Italics   = Standard deviation

( ) = Bootstrapped 95% confidence intervals around mean WTP derived from parametric bootstrap with 500 iterations

< >   = sample size

Considering Table 2 we can see some considerable difference between parametric and non-parametric tests. Given the nature of the data reported in Table 1 we therefore focus upon non-parametric testing as a more valid assessment of our findings. Considering our tests of appearance effects (H_0^a), we can see that, while holding information at its lower level our comparison narrowly fails to be significant (at p = 0.10), when information is held at its higher level interviewer appearance exerts a strongly significant impact upon stated WTP. As expected, more formal dress is associated with higher WTP sums. Turning to consider information effects (H_0^i), here both of our comparisons prove statistically significant with, again as expected, higher information being associated with increased levels of stated WTP. Finally, when both appearance and information effects work to increase WTP (i.e. formal dress plus higher information) stated WTP increases by its most significant

amount. Again when the interviewer appearance and information effects work in opposing directions they tend to cancel each other out and are clearly insignificant.

Table 2: **Comparison of parametric and non-parametric hypothesis tests**

Test	Parametric bootstrap test of significance at $p<0.05$	Non-parametric Mann Whitney test (p value)
Appearance effects (H_0^a):		
FLO vs. CLO	significant	0.118
FHI vs. CHI	significant	0.003
Information effects (H_0^i):		
FLO vs. FHI	not significant	0.021
CLO vs. CHI	not significant	0.098
Combined appearance & information effects (H_0^j):		
CLO vs. FHI	significant	0.000
CHI vs. FLO	not significant	0.863

6. Discussion and Conclusions

This paper adopts an experimental approach to the assessment of the impact which two elements of the interview process might have upon stated WTP in CV studies. As noted previously, we observed that additional information, particularly concerning the less familiar and non-use aspects of a good, can be associated with increases in stated values. In addition to this we conducted a simple, yet novel, test to examine one aspect of the influence which interviewers may have upon responses. Our test of appearance effects, articulated through the medium of altering an interviewers' dress, shows that even this apparently minor change may have considerable effects upon stated WTP.

How then should we interpret these findings? We can identify a number of competing views here one of which might be to dismiss this study on the grounds that it utilises an open-ended elicitation format which, as we have ourselves noted elsewhere, is the subject of critical debate regarding its incentive compatibility characteristics (Bateman *et al*., 1995, 2002 and forthcoming). Certainly it would be interesting to consider the impact of elicitation format and consequent incentive compatibility upon these results, for example by repeating this study using a single-bound dichotomous choice or referendum elicitation format (although such an extension would entail a very substantial expansion in sample size in order to maintain the statistical power of any test). However, the pattern of results, found in the present study, do not seem to be consistent with this critique. Incentive compatibility problems might result in two types of behaviour. First, respondents might treat the valuation question as entirely inconsequential. However, in such a case the significant differences observed in our study would not be expected. Second, respondents might behave strategically. Yet again such behaviour does not seem to be the root of the effects observed as it is unclear why a respondent who decides to act strategically should be either more or less strategic depending upon what the interviewer is wearing. We conclude therefore that the incentive compatibility critique is not persuasive here.

An alternative view is that (contrary to our 'straw-man' intuition) such results might be interpreted as directly compatible with economic theory if the wearing of a suit was interpreted as providing pertinent information regarding the good on offer. For example, we can imagine respondents thinking that 'the man in the suit can deliver'[10]. In such a case it is plausible that this might be subjectively (possibly even subconsciously) interpreted as providing an indication regarding the

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[10] Note that other circumstances, such as alternative goods or different sample populations may result in differing relationships being observed. One could imagine some populations who would see formal dress as a negative feature of the interviewer resulting in a lowering of WTP.

probability of provision of the good. We have shown elsewhere that there is a significant and positive relationship between perceived provision probability and stated WTP (Powe and Bateman, 2003) and such an effect would be consistent with the pattern of responses observed in the present study.

While we accept that the above argument is coherent, the findings reported in this paper are also entirely consistent with a psychologically-based critique which argues that the WTP values stated in this CV study (and many other) are only very fuzzily related to formal economic preferences and are constructed in the course of the valuation exercise with reference to a variety of frames and heuristics provided by the design, implementation and myriad other characteristics of the survey (indeed, under such a critique, this study merely serves to illustrate the diversity of psychological triggers which may be activated during the survey interview, many of which may be difficult to anticipate). So, for example, the interviewer appearance effect could be due to a host of respondent interpretations such as being more concerned about what a well-dressed interviewer might think of them, or considering that such a person is more likely to be a tax-payer and therefore one of those likely to also be paying for the good, etc. The diversity of such influences would mean that studies would fail many simple tests of procedural invariance and would therefore be considered unsuitable for use in economic decision making.

In fact it is a generally agreed position that, where some non-market good is under investigation, an individual respondent will often commence a CV survey without a clear, prior conception of their WTP for that good[11]. Respondents then 'discover' or 'construct'[12] their preferences and corresponding WTP during the course of the valuation exercise. A central issue of debate is whether these preferences are constructed in a consistent manner[13] or whether information which, from an economic-theoretic perspective, is irrelevant influences the resultant stated preferences. As demonstrated above it is often difficult to categorically state whether a given impact is or is not consistent with such theory (and by extension, whether a given facet of a study is irrelevant or not). This arises primarily because, in many circumstances, economic theory fails to provide us with clear expectations (Hanemann, 1996). This is a real problem both from an academic perspective, in

that it inhibits the construction of definitive tests, and from a decision making perspective in that it limits the predictive power of theory to a narrower range of circumstances than might be encountered in the real world (typically being applied only through the imposition of often strict assumptions). Given this, the authors believe it is vital to extend the remit of theory to embrace such complexity. If economic theory fails to address this issue it will remain trapped within the necessity of assumption and the subject of critiques which cannot be definitively rejected.

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[11] As Carson *et al.*, (1999) point out, it would be both inefficient and irrational for an individual to have previously spent time considering their WTP for the plethora of all non-market goods on the off-chance that they may one day be asked to state such an amount.

[12] The use of either of these terms is somewhat value laden, with theoretically consistent preferences typically being described as 'discovered' (or similar terms, see Binmore, 1999; List, 2001, 2003; Plott and Zeiler, 2002) while anomalous preferences are most frequently termed 'constructed' (Tversky and Thaler, 1990; Slovic, 1991). However, these are not hard and fast rules for terminology.

[13] Of course a deeper issue concerns the validity, rather than just the consistency, of these preferences. This is not addressed in this paper.

References

Bateman, I.J., Carson, R.T., Day, B., Hanemann, W.M., Hanley, N., Hett, T., Jones-Lee, M., Loomes, G., Mourato, S., Ozdemirogla, E., Pearce, D.W., Sugden, R. and Swanson, J. (2002). *Guidelines for the Use of Expressed Preference Methods for the Valuation of Preferences for Non-market Goods*, Edward Elgar Publishing, Cheltenham.

Bateman, I.J., Cole, M., Cooper, P., Georgiou, S., Hadley, D. and Poe, G.L., (forthcoming) On visible choice sets and scope sensitivity, *Journal of Environmental Economics and Management*, in press.

Bateman, I.J. and Langford, I.H. (1997). Budget constraint, temporal and ordering effects in contingent valuation studies, *Environment and Planning A*, 29(7): 1215-1228.

Bateman, I.J., Langford, I.H., Turner, R.K., Willis, K.G. and Garrod, G.D. (1995). Elicitation and truncation effects in contingent valuation studies, *Ecological Economics*, 12(2):161-179.

Bergstrom, J. and Dillman, B., (1985). Public environmental amenity benefits of private land: the case of prime agricultural land, *Southern Journal of Agricultural Economics*, 17: 139-150.

Bergstrom, J., Stoll J. and Randall, A., (1989). Information effects in contingent markets, *American Journal of Agricultural Economics*, August, 685-691.

Binmore, K. (1999). Why experiment in economics?, *The Economic Journal,* 109, F16-F24.

Boyle, K.J., (1989). Commodity valuation and the specification of contingent valuation questions, *Land Economics*, 55: 57-63.

Boyle, K.J. and Bishop, R.C. (1988). Welfare measurement using contingent valuation: A comparison of techniques, *American Journal of Agricultural Economics*, 70: 20-28.

Boyle, K.J., Reiling, S. and Philips, M., (1991). Species substitution and question sequenceing in contingent valuation surveys, *Leisure Sciences*, 12: 103-118.

Cameron, T.A. and Englin, J. (1997). Respondent experience and contingent valuation of environmental goods, *Journal of Environmental Economics and Management*, 33: 296-313.

Carson, R.T., Groves, T. and Machina, M.J., (1999). Incentive and informational properties of preference questions, *Plenary Address, Ninth Annual Conference of the European Association of Environmental and Resource Economists (EAERE),* Oslo, Norway, June 1999.

Champ, P.A., Boyle, K. and Brown, T.C. (eds.) (2003). *A Primer on Non-market Valuation,* Kluwer, Dordrecht.

Desvousges, W.H., Smith, V.K. and Fisher, A. (1987). Option price estimates for water quality improvement: A contingent valuation study for the Monongahela River, *Journal of Environmental Economics and Management*, 14: 248-267.

Hanemann, W.M. (1996). Theory versus data in the contingent valuation debate, in Bjornstad, D.J. and Kahn, J.R. (eds.) *The Contingent Valuation of Environmental Resources: Methodological Issues and Research Needs*, Edward Elgar, Cheltenham, pp.38-60.

Harris, C.C., Driver, B.L. and McLaughlin, M.J. (1989). "Improving the Contingent Valuation Method: A Psychological Approach", *Journal of Environmental Economics and Management* 17:213-229.

List, J.A. (2001). Do Explicit Warnings Eliminate the Hypothetical Bias in Elicitation Procedures? Evidence from Field Auctions for Sportscards, *American Economic Review,* 91[5], pp. 1498-1507.

List, J.A. (2003). Does market experience eliminate market anomalies?, *Quarterly Journal of Economics,* (February): 41-72.

Loomis, J.B., Kent, P., Strange, L., Fausch, K and Covich, A. (2000). Measuring the total economic value of restoring ecosystem services in an impaired river basin: results from a contingent valuation survey, *Ecological Economics*, 33: 103-117.

Mannesto, G. and Loomis J.B. (1991). Evaluation of mail an in-person contingent value surveys: Results of a study of recreational boaters, *Journal of Environmental Management*, 32: 177-190.

Mitchell, R. and Carson, R.T., (1989). *Using Surveys to Value Public Goods: The Contingent Valuation Method*, Resources for the Future, Washington D.C.

Munro, A. and Hanley, N. (1999). Information, uncertainty and contingent valuation, in Bateman, I.J. and Willis, K.G. (eds.) *Valuing Environmental Preferences: Theory and Practice of the Contingent Valuation Method in the US, EU, and Developing Countries*, Oxford University Press, 258-279.

Orne, M.T. (1962). "On the Social Psychology of the Psychological Experiment", *American Psychologist* 17:776-789.

Plott, C.R. and Zeiler, K., (2002). The willingness to pay / willingness to accept gap, the 'endowment effect' and experimental procedures for eliciting valuations, Social Science Working Paper 1132, Division of the Humanities and Social Sciences, California Institute of Technology, Pasadena.

Powe, N.A. and Bateman, I.J. (2003). Investigating insensitivity to scope: A split-sample test of perceived scheme realism, *Unpublished manuscript*, CREAM (University of Newcastle) and CSERGE (University of East Anglia).

Samples, K., Dixon, J. and Gower, M. (1986). Information disclosure and endangered species valuation, *Land Economics*, 62: 306-312.

Schkade, D.A. and Payne, J.W. (1994). How people respond to contingent valuation questions: a verbal protocol analysis of willingness to pay for an environmental regulation, *Journal of Environmental Economics and Management*, 26: 88-109.

Slovic, P. (1991). The construction of preferences, American Psychologist, 50(5): 364-71.

Slovic, P., Fischoff, B. and Lichtenstein, S., (1982). Response mode, framing and information processing effects in risk assessment, in Hogarth, R. (ed.) *New Directions for the Methodology of Social and Behavioural Science: Question Framing and Response Consistency*, Jossey-Bass, San Francisco.

Slovic, P., Finucane, M., Peters, E., and MacGregor, D.G. (2002). The affect heuristic, in Gilovich, T., Griffin, D., and Kahneman, D., (Eds.), *Intuitive Judgment: Heuristics and Biases.* Cambridge University Press, in press.

Thaler, R., (1980). Towards a positive theory of consumer choice, *Journal of Economic Behaviour and Organization*, March, 1: 39-60.

Tversky, A. and Thaler, R. (1990). Anomalies: Preference reversals, Journal of Economic Perspectives, 4(2): 201-211.

Walsh, R.G., Bjonback, R.D., Aiken, R.A. and Rosenthal, D.H. (1990). Estimating the public benefits of protecting forest quality, *Journal of Environmental Management*, 30:175-189.

Whitehead, J. and Blomquist, G. (1991). Measuring contingent values for wetlands: Effects of information about related environmental goods, *Water Resources Research*, 27: 2523-2531.

APPENDIX : SURVEY QUESTIONNAIRE

Notes
- The questionnaire is as it was when used for the surveys with both information statements included
- The framed areas indicate where a card was used to show information to the respondent
- For convenience responses were entered onto a separate coding sheet

UNIVERSITY OF EAST ANGLIA
GRIZEDALE FOREST RECREATION SURVEY 1997

LOCATION .... INTERVIEW NUMBER ....

DATE ...../...../1997

DAY   Mon = 1   Tue = 2   Wed = 3   Thu = 4   Fri = 5   Sat = 6   Sun = 7

CIRCLE: **APPEARANCE:** SUIT / NON-SUIT   **INFORMATION:** HIGH / LOW

WEATHER CONDITIONS

(a)	Sunny.........................	= 1	(c)	Dry............................	= 1
	Broken Cloud.............	= 2		Drizzle/Showers........	= 2
	Overcast.....................	= 3		Persistent Rain...........	= 3
(b)	Hot.............................	= 1		Calm..........................	= 1
	Warm.........................	= 2		Breezy.......................	= 2
	Cool...........................	= 3		Windy........................	= 3

TIME INTERVIEW STARTED (24 hour clock) ....
TIME INTERVIEW ENDED (24 hour clock)   ....

INTERVIEWER INSTRUCTIONS

1. You should not normally interview those under 18
2. Put all answers on the answer sheet not the questionnaire
3. Read out all text in bold type:

Hello, I am (name, show identification) **from the University of East Anglia. We are carrying out a survey of people visiting Grizedale Forest and I would be grateful if you would answer a few questions. Any information which you provide will be strictly confidential and only used for statistical analysis. I shall not be asking your name.**

If A = Yes, then proceed
If A = No, then withdraw politely
First, I would like to get some basic information regarding your visit.

1.   **Are you on holiday for more than one day or is this just a day trip from home, or are you working here?** (circle answer on sheet)

Holiday =	1
Day trip =	0
Working=	2 (go to Q.6)
Live here=	3 (go to Q.6)

2. **Is this your first visit to Grizedale forest**
   Yes = 1 (go to Q.3)
   No = 0 (go to Q.6)

3. **Will you visit again?**
   Yes = 1 (go to Q.4)
   No = 0 (go to Q.5)
   Not sure = 2 (go to Q.4)

4. **How often do you think you will visit in the next 12 months?** (include today's visit as one)
   (now go to Q.7)

5. **Why will you not be visiting again** (now go to Q.7)

6. **a. How many day trips have you taken to Grizedale forest in the past 12 months?** (include today's trip as one)

   b. How many holidays (more than one night) have you taken at Grizedale forest during the last 12 months?

   c. On average how long are these holidays (in days)?
   (zero if no holidays at Grizedale)

7. **How many of the people in your party today are (including yourself):**
   a. 16 or over?   b. Under 16?

8. **How many people in your individual family household including yourself and any who are not with you today are**
   a. 16 or over?   b. Under 16?

9. **We are interested in finding out where people live who visit this forest. Could you tell me either your full postcode (preferred) or approximate address (local area and town/city)**

10. **How far away is that** (miles)?

11. **Is this** (location above) **where you began your journey from today?**
    Yes = 1 (go to Q.14)
    No = 0 (go to Q.12)

12. **Where did you set out from today?**

13. **How far away is that** (miles)**?**

14. **How did you travel here today?**
    Car = 0
    Local Bus = 1
    Coach = 2
    Walk = 3
    Cycle = 4
    Other = 5 (please specify)

15. **How long did your journey take?**

16. **How much did your journey cost?**
    (If a passenger in a car please give cost of car journey irrespective of who paid)

17. **How many other sites will you visit during today?**
    None = 0
    One = 1
    Two = 2
    More = 3

18. **How long in total do you expect to stay at Grizedale forest today?**

I would now like to ask you some more specific questions about what you value at Grizedale forest.

19. **From the list below please select your <u>main</u> reason for coming here today.**
    Choose <u>one</u> only. (show card 1)

Walking less than 2 miles	01
Walking more than 2 miles	02
Walking the dog (any distance)	03
Relaxing/enjoying scenery	04
Picnicking	05
Bird Watching	06
Nature watching	07
Cycling	08
Visitor Centre	09
Gallery in the forest	10
Other (please specify)	11

20. **Now for each of the activities shown on this card** (show card 2) **in turn please state whether you participate in them "often" or "sometimes" (at least once but not often) or "never" either at Grizedale forest or elsewhere.**

	OFTEN	SOMETIMES	NEVER
a. Walking less than 2 miles	2	1	0
b. Walking more than 2 miles	2	1	0
c. Walking the dog (any distance)	2	1	0
d. Relaxing/enjoying scenery	2	1	0
e. Picnicking	2	1	0
f. Bird watching	2	1	0
g. Nature watching	2	1	0
h. Cycling	2	1	0

21. **Which of the following would you say describes the scenery at Grizedale Forest?**
    1. Unattractive
    2. Average scenic value
    3. Attractive
    4. Superb

<div align="center">Low Information</div>

(Information given to 'Low information' treatment).

Grizedale forest is managed as a multipurpose forest, this means that management is orientated towards more than just the production of timber. In particular the forest is managed so as to protect biodiversity and provide recreation facilities for visitors. The facilities provided at Grizedale are currently paid for by the public via taxes. The government are considering if it is worth investing additional money in forest recreation, it is therefore important to find out how much forest sites such as Grizedale are worth to the people who visit.
To get an idea of this we are asking people a few questions about the amount of money they might be willing to pay to ensure the conservation of this particular site.

<div align="center">High Information</div>

(Information given to 'High information' treatment).
Before reading circle high info on the answer sheet.

Grizedale is managed as a multipurpose forest. This means that management is orientated towards more than just the production of timber. In particular the forest is managed so as to protect biodiversity and provide recreation facilities for visitors.
This board (show picture board) **shows some of the species that live here at Grizedale** (point to animals as mentioned). **For instance, Red Squirrel, Badgers, Red Deer, and Tawny Owl can all be found in the forest because of the management. The Red Squirrel is a particularly welcome resident as it is an endangered species. This map** (Show map) **shows the extent of the facilities provided here at Grizedale. There is miles of waymarked path and track for visitors to explore the forest and possibly catch site of some of the animals just mentioned. As well as the cafe and shop the visitor centre has a large display with much interesting information on the past, past and future of Grizedale and the surrounding area.**
The Gallery, as well as displaying art, maintains the sculptures which can be found dotted around the forest trails.
All this is currently paid for by the public via taxes. The government are considering if it is worth investing additional money in forest recreation, it is therefore important to find out how much forest sites such as Grizedale are worth to people who visit.
To get an idea of this we are asking people a few questions about the amount of money they might be willing to pay to ensure the conservation of this particular site.

22. **Would you be in favour of some increased government spending and thereby an increase in your taxes in order to ensure conservation of this site?**
    Yes = 1 (go to Q.23)
    No = 0 (go to Q.24)
    d/k = 2 (go to Q.23)

23. **How much extra in taxes would you be willing to pay in the coming year to conserve Grizedale forest, any amount offered will be spent on Grizedale only.**
    (now go to Q.25)

24. (if refused to pay) **What is your main reason for your reply?**
    (show card 3)

1	=	I cannot afford to pay but would do so otherwise
2	=	I do not like the site
3	=	I prefer the natural state of the site
4	=	I refuse to value the site (why?)..
5	=	I feel that this is someone else's responsibility (government, etc.)
6	=	I pay too much tax already
7	=	Other reasons (please specify)

    (now go to Q.26)

25. (if agreed to pay) **What is your main reason for your reply?**
    (show card 4)

1	=	Feels that that is a reasonable amount to pay
2	=	Live close to this site
3	=	Visit this site often
4	=	Very keen on countryside in general
5	=	Very keen on forests in particular
6	=	Very keen on wildlife/the environment
7	=	Feel we should preserve areas for future generations
8	=	Other (please state)

Finally, I need to ask some details so that we can characterise your household. This is to ensure at the end of our survey that we have interviewed a cross section of the population.

26. **Could you please tell me which of these letters, a to i, best describes your total household income (pre-tax, including state benefits, pensions, interest on investments, etc.)** (show card 5)

	£ per year	£ per week
a.	0-4,999	0-96
b.	5,000-7,499	97-144
c.	7,500-9,999	145-192
d.	10,000-14,999	193-288
e.	15,000-19,999	289-384
f.	20,000-29,999	385-577
g.	30,000-39,999	578-769
h.	40,000-50,000	770-962
i.	Over 50,000	Over 962

[Please stress:
a. All answers are completely anonymous and confidential
b. The importance of getting an accurate reply to this question – we need to account for the fact that ability to pay clearly influences responses to tax questions]

27. Are you currently a tax payer?

    Yes   = 1
    No   = 0

28. **Could you tell me into which of these broad groups, a to h, your age falls?** (show card 6)

a.	Under 18	b.	18 – 24
c.	25 - 34	d.	35 – 44
e.	45 - 54	f.	55 – 64
g.	65 - 74	h.	Over 75

29. **Lastly, are you a member of any of the following?**

(Show card 7 and circle all relevant numbers)

01	RSPB
02	National Trust
03	Any Local or County Nature Trust/Volunteers etc.
04	Any sports club
05	Any church/religious/charity group
06	Lions/Rotary etc.
07	Greenpeace/Friends of the Earth etc.
08	World Wide Fund for Nature
09	Women's Institute
10	Other not covered above (please specify)

THANK YOU VERY MUCH FOR YOUR HELP