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## RESPONDENTS TO CONTINGENT VALUATION SURVEYS: CONSUMERS OR CITIZENS? — REPLY

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Before responding to the specific points raised by Rolfe and Bennett, it is useful to recall some of the findings of Blamey, Common and Quiggin (1995). Table 2 gave the logistic regression results for the data generated by the Resource Assessment Commission's Contingent Valuation (CV) study of preservation values for the South-Eastern forests in which the explanatory variables are: the cost of preservation put to the respondent, respondent income, and respondent age. Results were reported for 10 per cent, 50 per cent and 100 per cent preservation. The interesting features of these results are: low price responsiveness; estimated willingness to pay decreasing as preservation increases; and only 62 per cent of responses correctly predicted.

We considered the effect of including in the regressions dummy variables defined on responses to two additional questions from the Resource Assessment Commission CV survey. The first concerned whether or not 'Australia' had the right balance between 'protecting the environment' and 'developing the economy'. The second concerned whether 'Governments should do more to protect the environment, even if this sometimes leads to higher taxes for everyone'. We found that including these variables improved the explanatory power of the model, and that they accounted for most of the extended model's explanatory power. Relfe and Bennett do not dispute this.

Some commentators have suggested that, where environmental preservation is at issue, individuals do not typically behave as if they make trade-offs on the basis of a well-behaved utility function, as is required if CV results are to be included in the usual way in cost benefit analysis. Particularly, Sagoff (1988) has suggested that such issues are treated by individuals as matters for them to consider as citizens rather than consumers. Relatedly, others have argued that ethical concerns will give rise to lexicographic preference orderings: see Edwards (1986) for example. We interpreted our results as consistent with such hypotheses, and referred to the variables that we introduced as 'citizen' variables.

The main point made by Rolfe and Bennett is that an alternative interpretation is possible, in that these variables could be picking up different tastes among respondents with well-behaved utility functions. We agree. Indeed, the comment simply confirms an observation in our original paper, which we restate:

For at least some users of CVM the postulate that stated choices represent consumer preferences has the status of a maintained, rather than a testable hypothesis. In the terminology of Lakatos, this postulate is part of the 'hard core' of the CV research program. Thus, for example, it might be argued that what appears as a statement about Australian policy may be reinterpreted as a proxy for particular consumer preferences, or may even be interpreted directly as a statement about individual consumer preferences

... [From] these methodological perspectives, the task of attempting to distinguish empirically between citizen and consumer models is fundamentally misguided. Empirical analysis permits the application of the preferred model to a particular problem, but the model itself is immune from empirical testing (pp. 272-73).

It would appear that the comments made by Rolfe and Bennett share the methodological perspective described here. Using a methodological framework that allows for a distinction between consumer and citizen motivations we find our results supportive of an understanding of CV respondent behaviour different from the pure consumer model normally assumed in the literature. Rolfe and Bennett reject any deviation from the consumer model, but do not consider the plausability of the results in the context of that model. We would point out that whereas our interpretation of the role of the introduced variables offers some explanation of the lack of price sensitivity, and embedding, it is not clear that interpreting them as taste variables does. Since it seems unlikely that 'consumers' would be so price unresponsive, and insensitive to the scope of the good, a consumer taste interpretation would appear to imply a flaw in the survey instrument used by Bennett and Carter (1993).

Rolfe and Bennett make several other points. The first is that preferences are influenced by held ethical views, and that "there is no simple classification of preferences with respect to ethical concerns". We agree. Blamey (1996), for example, argues that it is more appropriate to refer to the *degree* to which individuals invoke ethical considerations when formulating preferences. This is not, however, the point at issue here concerning alternative interpretations of CV respondent behaviour, which is that some responses are made on the basis of citizen/ethical considerations rather than preferences consistent with the existence of a well-behaved utility function.

The second concerns altruism. We find their remarks here difficult to understand in the context of our arguments. We note that several studies have now shown that altruistic motives can lead to Pareto inefficient cost-benefit outcomes (Crowards 1996, Johansson, 1992, Quiggin, 1996). This can be contrasted with studies in which the objective is to predict movements along a demand curve, where motives do not generally matter. We do not suggest that "valid CV responses reflect only narrow self interest". Rather, we argue that only a *subset* of altruistic and ethical considerations are desired for the purposes of estimating consumer surplus for use in CBA (Blamey, 1996).

We also note that Samuelson appears to be quoted out of context. The claim Samuelson is criticising is that any action, no matter how apparently altruistic, may be interpreted as being motivated by self-interest, hence involving maximisation of a utility function. This is in essence the position of Rolfe and Bennett, who argue that any action, no matter how much it appears to be motivated by citizen considerations, must be interpreted in terms of consumer preferences. Samuelson's description of such a view as a 'face-saving tautology' is in our view appropriate.

We also find Rolfe and Bennett's remarks on 'The Referendum Model' hard to understand in the context of our arguments, which were simply that CV practice increasingly uses some variant of that format, and that it seems likely to encourage, rather than discourage, citizen type responses (given that the possibility of such is entertained). It is not clear how Rolfe and Bennett reach their conclusion that "In a referendum setting . . . people feel relieved of their personal income constraint". This would appear to contradict their consumer interpretation, and raise serious concerns about the validity of CV as commonly practised. Blamey (1996) has provided a decision-theoretic model with which to view the different incentive structures individuals face in market versus referendum settings, and shown that the latter can result in discounting of bid values in preference for more citizen-expressive considerations.

Finally, we note that Rolfe and Bennett's rejection of our use of attitudinal measures as independent variables when estimating valuation functions is in stark contrast to decades of accepted CV practice, and appears to contradict some of their other statements.

In conclusion, we note Rolfe and Bennett's claim that 'the concept of citizen values is meaningless in an economic context'. If by 'an economic context' they mean the maintained hypothesis that all individual behaviour can be interpreted in terms of the constrained maximisation of a single well-behaved utility function, this is, of course, true. However, we do not consider that such an approach to the analysis of individuals' behaviour is likely to improve our understanding of what they are doing when they respond to CV survey questions, or to the use of the results arising in public policy debate. That, we think, requires a more open-minded approach to competing hypotheses.

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