STATED PREFERENCE METHODS

An Introduction

By Eric P. Kroes* and Robert J. Sheldon†

This article is concerned with stated preference methods and their use in the transport sector, particularly within the areas of preference evaluation, demand analysis and forecasting. Drawing upon their collective experience from the past eight years, the authors set out to introduce stated preference methods and to discuss how they differ from more conventional revealed preference approaches. The paper goes on to discuss some of the key issues in the design of a stated preference study, the use of alternative survey methods, and the main analysis techniques which are available. A summarised account of some important transport research areas in which stated preference methods have been successfully applied is illustrated by short descriptions of four different applications. The paper concludes by referring to some recent trends in the use of stated preference methods in transport research, providing an insight into what can be expected for the future.

What are stated preference methods? Without trying to give a rigorous definition, we can say that the term “stated preference methods” refers to a family of techniques which use individual respondents’ statements about their preferences in a set of transport options to estimate utility functions. The options are typically descriptions of transport situations or contexts constructed by the researcher. By their nature, stated preference methods require purpose-designed surveys for their collection of data.

Different stated preference methods are available under a wide variety of names. The best known methods are:

Conjoint analysis
Functional measurement
Trade-off analysis
The transfer price method.

Though there is some confusion about the names of these methods, the first three refer to a single general approach which uses experimental design pro-

† Steer Davies and Gleave, Ltd., Richmond, Surrey.
cendures to generate transport options for appraisal by respondents. The fourth, the transfer price method, is different in a number of respects, and less widely used. We therefore concentrate in this paper on the three first mentioned methods. Readers are referred to Gunn (1984) and Bonsall (1983) for a discussion of the transfer price method.

Stated preference methods were originally developed in marketing research in the early 1970s, and have become widely used since 1978. A very good overview of the methods is provided by Green and Srinivasan (1978), who also give a more formal definition of what they call conjoint analysis:

Any decompositional method that estimates the structure of a consumer’s preference . . . given his/her overall evaluation of a set of alternatives that are pre-specified in terms of levels of different attributes.

Cattin and Wittink (1982) describe the rapid growth in the commercial use of conjoint analysis in marketing research in the United States, where the authors estimate that some 1000 commercial projects were completed between 1981 and 1982 (no more up-to-date figure is available).

In transport, stated preference methods received increasing attention in the United Kingdom from 1979. Some of the first publications on the subject were by Steer and Willumsen (1981) and Sheldon and Steer (1982). Since 1982 the popularity of stated preference methods is illustrated by the availability of a growing number of conference papers, as well as more formal journal articles.

More recently, techniques have been developed which allow stated preference analyses to move beyond the examination of preference structures to a direct examination of choice processes (for example, choice of mode of transport: Kroes et al., 1986). This can be seen to represent a new generation of stated preference research. Not only do these techniques put different questions to respondents (asking for discrete choices, rather than preferences expressed by rank ordering or scaling), but (more important) these questions are put in a behavioural choice context (“if you were to have these alternatives available to you, which one would you choose?”).

STATED PREFERENCES VERSUS REVEALED PREFERENCES

Models of travel demand have traditionally been based on data obtained by direct observation of travel behaviour or obtained in surveys asking for actual travel behaviour. A comparison of the chosen travel alternatives and the rejected alternatives reveals the preferences of the travellers. By the use of appropriate statistical techniques the implicit utility functions of the travellers can be inferred.

Clearly, these revealed preference methods are a most appropriate tool for deriving utilities and estimating models of travel demand. However, they have some limitations which restrict their general suitability. The main ones are:

It can be difficult to obtain sufficient variation in the revealed preference data to examine all variables of interest.
There are often strong correlations between explanatory variables of interest (particularly travel time and cost). These make it difficult to estimate model parameters reflecting the proper trade-off ratios.

Revealed preference methods cannot be used in a direct way to evaluate demand under conditions which do not yet exist.

Revealed preference methods require that the explanatory variables can be expressed in "objective" or "engineering" units; therefore they are normally restricted to primary service variables (such as journey time and cost) and can in practice rarely be used to evaluate the impact of changes in secondary travel variables (such as seat design and station facilities).

It is against the backdrop of such problems that the use of stated preference methods became an attractive option in transport research. Broadly, these methods are easier to control (because the researcher defines the conditions which are being evaluated by the respondents); they are more flexible (being capable of dealing with a wider variety of variables); and they are cheaper to apply (as each respondent provides multiple observations for variations in the explanatory variables which interest the analyst).

Against these advantages there is the significant disadvantage that people may not necessarily do what they say. This is the main criticism levelled against the use of stated preference methods; but it will only become serious under conditions where research undertaken to estimate demand levels uses only stated preference data.

Estimates of absolute demand levels derived in this way do require careful interpretation, since it is known from other marketing research sources that people in the western world do tend to overstate their responses under experimental conditions (see, for example, Lin et al., 1986). Indeed, similar observations have been made in the transport area when people's stated intentions have been compared with realised behaviour (van der Hoorn et al., 1984).

However, most applications of stated preference in transport research are intended to identify estimates of relative utility weights rather than absolute values (an example is the value of time research reported in Roberts et al., 1986). Stated preference methods have proved to be particularly useful in this context, and under these conditions worries about potential over- or indeed understatement are not relevant. The only doubt is whether a respondent to whom a set of alternative options has been described can adequately evaluate them by expressing his/her preferences properly on the measurement scale being used.

Where estimates of absolute demand level are required, the use of stated preference methods in conjunction with revealed preference methods offers an attractive solution which avoids the problem of stated intention/revealed behaviour. Typically, with this type of approach, stated preference methods are used initially to estimate the trade-off ratios in the utility function, and then aggregate revealed preference data (for example, overall levels and shares) are used to scale the utility function and obtain a model which is consistent with the revealed preference data.¹

¹ For further discussion, see the papers by Bates and Bradley in this issue.
DESIGN ISSUES

The first step in the design of a stated preference exercise is the definition of the variables ("factors") of interest and the values ("levels") of the factors that need to be evaluated by the respondents. An associated issue is the specification of the mathematical form of the utility function, expressing the analyst's hypothesis about the way in which individual respondents combine their part utilities into an overall evaluation or preference. As in revealed preference modelling, it is usual to assume linear additive compensatory models of the following form:

\[ U = \alpha_1 x_1 + \alpha_2 x_2 + \ldots + \alpha_n x_n \]

where

- \( U \) = total utility
- \( x_1 \) to \( x_n \) = values of factors 1 to \( n \)
- \( \alpha_1 \) to \( \alpha_n \) = utility weights for factors 1 to \( n \)

The factors can be specified in the model as continuous variables or as a set of discrete dummy variables. An interesting feature of stated preference models is that they are particularly well suited, by their experimental nature, for testing alternative hypotheses about the functional form of the utility function (Lerman and Louviere, 1978). Tests can be conducted for quadratic and higher order term specifications to approximate non-linearities in continuous factors, and for interactions where interrelationships are suspected between the utilities of two (or more) factors.

Another important issue in the design of stated preference experiments is the choice of the context of the experiment and the measurement scale for the dependent variable. "Traditional" stated preference methods provide respondents with a set of descriptions of alternatives and ask them to express their preferences by sorting the alternatives in decreasing order of preference, or by giving a rating value for each. In the more recently developed choice experiments, respondents are offered combinations of a few alternatives (typically two to five) and are asked to express their choices either by indicating one chosen alternative or by assigning subjective choice probabilities to each of the alternatives.

The choice of a particular experimental design is the next step in the design of a stated preference study. In principle, the experimental design is defined by the choices made for the previous design issues described in this section. When the numbers of factors and factor levels are known and the utility function and the evaluation context (preferences or choices) have been specified, the experimental design is more or less given.

The purpose of an experimental design is to define the combinations of the levels of all the factors included in the experiment in such a way that they are completely uncorrelated between the alternatives. Given this objective, the total number of alternatives which could be defined is a function both of the number of factors and of the number of factor levels incorporated into the exercise. However, respondents can only evaluate a fairly limited number of alternatives at a time, typically some 9 to 16, so a design incorporating all possible combin-

---

2 See also the paper by Hensher et al. in this issue.
TABLE 1

Example of Experimental Designs

<table>
<thead>
<tr>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative 1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Alternative 2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Alternative 3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Alternative 4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Alternative 5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Alternative 6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Alternative 7</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Alternative 8</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

(ii) Fractional Factorial Design

| Alternative 1 | 1 | 1 | 1 |
| Alternative 2 | 1 | 2 | 2 |
| Alternative 3 | 2 | 1 | 2 |
| Alternative 4 | 2 | 2 | 1 |

ations of all levels of each factor (a "full factorial design") can only be used if there are very few factors and levels.

When a full factorial design generates too many alternatives the number can be reduced by adopting a "fractional factorial design", so that only a selection of all possible combinations is presented to the respondents, analytically at the expense of the number of interactions that can be estimated. Simple examples of full factorial and fractional factorial designs, both including three factors at two levels, are given in Table 1. It should be noted that both designs can be used to estimate the direct ("main") effects, but that any interaction effects can only be estimated if the full factorial design is used.

If the number of alternatives specified by a fractional factorial design is still too large, the exercise can be broken down into a set of smaller separate exercises. One possible procedure is described in Andersen et al., 1986. With this approach, one common factor has to be included in all the separate exercises, to enable the utilities from each to be linked. Alternatively a blocked design can be used, in which systematically different exercises are given to different groups of respondents. When the results from all respondents are analysed together all utilities can be estimated, but for individuals only some of the utilities can be identified.
A catalogue which gives fractional experimental designs meeting specific requirements is given by Hahn and Shapiro (1966), and Hahn (1980) provides a review and assessment of statistical textbooks on experimental design. Recently computer software has become available which assists in specifying and testing custom-made experimental designs (Hague Consulting Group, 1986).

SURVEY METHODS

An important issue in the use of stated preference methods is the quality of the survey and the context in which the survey questions are asked. It is the view of the authors that, if useful results are to be obtained from stated preference methods, the survey needs to be of the highest possible quality and the context in which the stated preference questions are asked should be as realistic as possible. For this reason the authors have a strong preference for face-to-face interviews, conducted by experienced interviewers and also structured to ensure:

That the background to the respondent’s evaluation process (for example, situational constraints, demographic characteristics, planning processes) is fully understood by the researcher;

That the respondent is not “educated” about any misperceptions he/she might currently hold about a particular product or service, say, or led by “enticing” stimuli (such as a new station photographed on a very sunny day) to react more (or less) positively to change than he/she might otherwise have done;

That complete alternative specifications are provided, since individuals perceive concepts as a whole (that is, as products) rather than as the sum of a number of separate factors.

Typically, the information is provided to respondents by way of option cards. For instance, a preference-based approach might well require a respondent to appraise some eight or nine colour-coded cards, each comprising one option made up of differing levels of the variables being examined. In a simple example, assuming that there are only three variables each with two levels, three of the options for a particular bus service might be:

Option 1 Card
30 minute journey time
no seats available
20 pence fare

Option 2 Card
40 minute journey time
seats available
20 pence fare

Option 3 Card
30 minute journey time
seats available
30 pence fare
TABLE 2

Presentation of Options

<table>
<thead>
<tr>
<th>Option Set</th>
<th>FERRY</th>
<th></th>
<th></th>
<th>PLANE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fare</td>
<td>Time</td>
<td>Frequency</td>
<td>Fare</td>
<td>Time</td>
<td>Frequency</td>
</tr>
<tr>
<td>1</td>
<td>£30</td>
<td>3hrs</td>
<td>bi-hourly</td>
<td>£60</td>
<td>1hr</td>
<td>hourly</td>
</tr>
<tr>
<td>2</td>
<td>£30</td>
<td>3hrs</td>
<td>hourly</td>
<td>£60</td>
<td>45 mins</td>
<td>half hourly</td>
</tr>
<tr>
<td>3</td>
<td>£30</td>
<td>2hrs</td>
<td>bi-hourly</td>
<td>£40</td>
<td>45 mins</td>
<td>half hourly</td>
</tr>
</tbody>
</table>

Some of the information is normally preprinted on to the cards; other items may well need to be filled in by the interviewer in line with the experience of the respondent (related, for example, to fare actually paid), providing a “customised” approach. Figure 1 contains a diagrammatic representation of a typical option card display: the respondents would be requested either to place the set in order of preference, or to provide a rating for each on the basis of the journey they were making at that time.

For a choice based approach, the appraisal relates to a choice decision between alternative available choices presented within each designed option. For instance, if the focus was upon a choice between travel by ferry and by plane, three of the options could take the form shown in Table 2. The respondent would be asked to select his/her preferred choice (air or ferry) for a particular journey from option set 1, and then from option set 2, and so on. A diagrammatic array of a typical choice set display is provided in Figure 2.

Though face-to-face interviews are preferable, this does not mean that other survey methods cannot be used. Mail-back surveys can be used for stated preference methods provided that the task for the respondents is fairly easy and well explained; for straightforward choice tasks, for instance, they appear to give good results. An important disadvantage of mail-back surveys, however, is that they do not allow the stated preference alternatives to be specifically adapted to each respondent’s situation. Face-to-face interviews allow for that flexibility.

Stated preference interviews undertaken solely by telephone are rare, simply because the task of evaluation is likely to be too difficult to explain and conduct over the telephone. But a combination of telephone and mail-out procedures can work well; here a set of alternatives and some preliminary instructions are sent to the respondent in advance, and the answers are obtained over the telephone. However, this method has the same disadvantage as the mail-back approach, that it cannot be adapted to each individual respondent.
FIGURE 1
Example of Preference Option Cards
FIGURE 2
Example of Choice Option Cards
A more recent development is the use of portable computers to undertake computer-assisted interviews at the respondent’s home. This approach, which is generally very enthusiastically received by respondents, is now generating a lot of interest. One of its main advantages is that it allows for a completely customised stated preference interview, following complicated designs which are invisible for the respondent and easier for interviewers to administer.

The article by Bradley in this issue provides a description of this development.

TECHNIQUES OF ANALYSIS

Different statistical techniques are available to decompose the overall preferences or choices as provided by the respondents into utility weights associated with the factors. Which to use is typically determined by the measurement scale of the response variable, the form of the utility function, the availability of the software and the purpose of the research.

For preferences expressed in the form of a rank ordering, MONANOVA can be used. MONANOVA is an iterative optimisation technique for estimating utility weights which reproduce the given rank order as closely as possible. It gives separate estimates for each individual respondent, and is restricted to the use of separate dummy variables for each level. A MONANOVA estimation program is available in the PC-MDS package (Smith, 1986).

Maximum likelihood LOGIT can also be used to analyse ranked responses after “exploding” the data (Chapman and Staelin, 1982). Here the rank order is “exploded” into a larger series of comparisons. The LOGIT program uses these to estimate the utility weights. Various packages offer standard LOGIT estimation programs, and there is also a LOGIT package designed specifically to analyse stated preference data (Hague Consulting Group, 1987).

Non-metric regression is another technique which can be used to analyse rank order data. A non-metric regression program written specifically for conjoint analysis is available in the PC-MDS package mentioned above. Alternatively, ordinary metric regression can be used for analysing ranked data, after the rankings have been transferred (see Hensher and Louviere, 1983). Regression packages are, of course, widely available, and most standard statistical programs contain a regression module.

Finally, we mention briefly one issue which complicates the statistical analysis of stated preference data. This is normally referred to as the “repeated measures problem”; it arises when results of groups of respondents are analysed, and there are potential differences between the variability in respondents’ preferences within groups and the variability between groups. This problem affects the estimation and interpretation of pooled analysis results, but it is often ignored, as no practical statistical solution seems to be available yet.

In this section the emphasis has been on analysing rank order data, because such data are not as frequently encountered in other analytical situations. For metric dependent variables such as preference ratings, however, traditional regression techniques can be used, and for discrete choice data the usual LOGIT estimation models are applicable.
An interesting difference between the analysis of stated preference data and the analysis of revealed preference data is that with SP data it is possible to estimate a separate model for each individual respondent. This is possible because each respondent provides enough information to identify all the parameters of interest. This facility is particularly useful for segmentation purposes, and allows the analyst to identify market segments with homogeneous preferences.

APPLICATION AREAS

Stated preference methods have proved useful in a variety of transport research contexts, including:

- Evaluating passenger priorities for the development of various characteristics of public transport systems, with a special emphasis on qualitative factors (marketing audits);
- Estimating demand elasticities for various service attributes, including fare, frequency and journey time;
- Developing market share analyses and forecasts for transport operators and for managers of airports and coach termini;
- Undertaking route choice studies (for example, for cars and bicycles);
- Researching and developing new products for transport operators;
- Conducting planning studies for government bodies (for example, value of time studies).

To illustrate the different uses that have been made of stated preference methods, we give below descriptions of four case studies. These have been drawn from over fifty studies in which the authors have been involved. Each has been described elsewhere, and references to other sources are provided.

1. *Derivation of demand Elasticities amongst InterCity Passengers.* Conducted on behalf of British Rail (see also Sheldon and Steer, 1982).

This study, which began in 1979, was primarily concerned with establishing a frequency demand elasticity for InterCity rail travel in Britain. The study was primarily undertaken because the revealed preference models in existence at the time were unable to distinguish between frequency and journey time, as both variables were subsumed within the same generalised cost formulation. Three variables were included in the research: journey time, frequency and fares. A worsening and an improvement for each of the variables were appraised by respondents, who were all interviewed on the train while they were travelling.

Elasticities were derived by relating the estimated utility weight ratios to a “known” journey time elasticity obtained from revealed preference data previously analysed. The use of stated preference research in this way requires such external information to provide a starting point. Some five hundred face-to-
face interviews were conducted with passengers travelling on three InterCity routes. The analysis was carried out on a disaggregate (individual person) basis, using MONANOVA, and market group results were obtained through summation. Remarkably consistent measures of aggregate elasticity were obtained across the three routes.

The conclusion from the research was that it was most useful to break down elasticities by distance (over and under 125 miles) and purpose. For instance, short trips were found to have higher frequency and lower time elasticities than longer trips. The elasticities split by purpose were calculated as follows:

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Fare</th>
<th>Time*</th>
<th>Frequency (trains/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>-0.7</td>
<td>-0.7</td>
<td>+0.2</td>
</tr>
<tr>
<td>Optional</td>
<td>-1.4</td>
<td>-0.5</td>
<td>+0.2</td>
</tr>
</tbody>
</table>

* These estimates were "given" (provided from revealed preference models).

2. Examination of Passenger Investment Priorities. Conducted on behalf of Danish State Railways (see also Andersen et al., 1986).

The primary objective was to establish and quantify the relative importance that passengers attach to changes in various features of rail travel. The information was required for the development of future action plans for railway development.

Some 32 features of rail travel were examined by "linked" exercises (six in total); fares were included as a common variable in all exercises. Features examined included:

- Fares, frequency, time, punctuality.
- Station/train environmental conditions.
- New products (limousine services, baggage conveyance).
- Catering facilities (station/train ferry).

Six hundred passengers were interviewed altogether, and three out of the six exercises were applied in rotation to each individual. Data collection and analysis focused on specific market segments to assist in the marketing process.

As an example of the sorts of results which emerged, it was concluded that the market as a whole appeared to be prepared to pay around £2.203 (on an average fare of just under £10) for a 20 per cent improvement in journey time.

On catering, passengers showed a preference for basic facilities. The provision of drinks and cold meals on the train had a value of £1.35, compared with an additional value of only 35 pence for the provision of hot meals as well. Similarly, the preference was for cafes at stations (50 pence); the value attached to a station restaurant rather than a cafe was only 14 pence.

These results were also presented for various market segments, as required. The

3 Converted at the rate of 14kr to £1.
main advantage of breaking the market down into its component parts is that it allows one to identify which aspects of the service (existing or newly developed) would benefit from being given a higher profile for different target markets.

If we look at journey purpose, for instance, higher than average monetary values were attached by business passengers to all three primary characteristics featuring at the top of the hierarchical list (time, timetable format and punctuality). On the other hand, convenience appeared to be of most concern to optional passengers. The two highest monetary values for the optional market segment were attached to the train/ferry direct link and the avoidance of an interchange at a major station along the route.

3. Air Traffic Predictions for Manchester International Airport Authority (also presented orally to the Royal Aeronautical Society, 1986).

This study was undertaken to provide forecasts of traffic five and ten years ahead for Manchester International Airport, taking into account competition from London and regional airports and under varying assumptions about future airline activities. Stated preference methods were used to measure passengers' reactions to airport access times, the price of a flight and flight frequency, and their underlying preferences for Manchester, London or (if appropriate) other regional airports.

Interviews were held with 290 people in four different regions of Northern England. All subjects had travelled by air within the previous year, and they were selected to cover eight trip categories defined by the following dimensions: business/leisure, UK/overseas residents, long/short haul trips. Interviewees were offered alternative ways of making their most recent air trip, and asked to rank them in order of preference.

Revealed preference data were available, from other sources to show the distribution over the country of existing demand for air travel, with estimates of surface access time to each UK airport from each UK county. The data were then used to calibrate a model of market shares; the ratios between the utility weights were constrained to take the values obtained from the stated preference exercises, while the actual values were scaled to be consistent with the revealed preference data on market shares. The model was incorporated into an interactive computer program which allowed the user to explore the impact on traffic levels at Manchester Airport of changes in the services offered at Manchester and at competing airports.

The output of the stated preference exercise can be illustrated in a number of ways. For instance, the values of time derived from an examination of the weightings of fare and surface access time ranged from £16.20/hr for short-haul optional passengers to £42.00/hr for long-haul business passengers.

When we turn to specific market groups, the results showed that a UK resident business traveller would be indifferent between an increase in frequency from one/day to two/day, a fare decrease of £22.38 and an access time decrease of 33 minutes. Likewise, a non-UK resident leisure traveller would be indifferent between an increase in frequency from one/day to two/day, a fare decrease of £9 and an access time decrease of 33 minutes.
4. Derivations of Long Distance Travel Demand Elasticities Directly through Choice Modelling Techniques. Conducted on behalf of British Rail (see also Kroes et al., 1986).

The broad objective of this project was to extend the conjoint analysis framework into a method which could enable elasticity values to be derived directly for long-distance InterCity travel by rail. The method was developed over a fairly extensive time period, and piloted on a number of routes. Subsequently it was used to estimate the changes in the market share of rail and coach which would be expected to follow from the introduction of an experimental system of cheap rail tickets, taking due account of any potential competitive response by other operators along the same corridor.

Detailed interviews were conducted with current users of all modes for a journey between Plymouth and London – air, car, coach and rail. Respondents were asked to reconsider that journey in the light of changed circumstances for the alternative modes available and to indicate whether/how their choice of mode might change.

Standard linear logit models were calibrated, from which a micro-simulation model was developed to examine changes in market shares under different marketing (rail and competitive) scenarios.

The model was used to explore a variety of scenarios, and the results were considered very plausible. For instance, the effect of a 10 per cent decrease in the rail fare was predicted to result in a 16 per cent increase in the rail market, implying a fares' elasticity of -1.6. This high value corresponded well with other evidence for long-distance InterCity travel where a fairly large share of the travellers were also optional travellers. The new rail passengers were predicted to be mainly attracted from coach (60 per cent) but also from car (40 per cent).

An example where a competitive response was also taken into account comprised a 10 per cent decrease in rail fare, followed by a 10 per cent decrease in the coach fare. The combined net effect was predicted to be a 10 per cent increase in rail patronage. The coach share was predicted to remain static, but the car share decreased by 10 per cent.

CONCLUSIONS

Our purpose in this paper was to introduce the use of stated preference methods in transport research and to demonstrate their value in both complementing and supplementing revealed preference research methods. We conclude by looking at likely areas of future development.

A primary development is likely to be the increasing role that personal computers will play in the design and administration of stated preference studies, as well as in the interview process itself. In the interview, there is likely to be increased use of customised conjoint analysis techniques, by which the interview is specifically adapted to each respondent's unique set of conditions. The choice tasks thus created will become more and more relevant for the respondent as the program "captures" his/her utility function during the course of the survey.
It is also likely that the trend towards choice-based stated preference exercises will continue. Since they are typically easier for respondents to understand, and so more suitable for mail-out surveys, the huge potential of this type of approach will be more cost-effectively realised.

REFERENCES


