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## ANALYSIS

# Analysing decision behaviour in stated preference surveys: A consumer psychological approach

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## ABSTRACT

This paper applies a typology adapted from the consumer psychology literature to a Contingent Valuation Method (CVM) survey. We argue that the typology is helpful as a way of identifying responses that contain useful information on preferences for the environmental good in question, relative to those which are unlikely to contain such information. Applying this framework to a CVM study of agri-environmental payments in Germany, we find that some 90% of responses are preference-revealing; this distribution changes when the framing of the good is changed. The typology may be of most use during the design stage of future CVM studies, since it enables researchers to increase the fraction of responses that are useful.

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## 1. Introduction

The Contingent Valuation Method (CVM) developed as a means of providing estimates of the value of changes in non-market environmental goods and services (Randall et al., 1974; Brookshire et al., 1976). One of the main reasons why such values are of interest is that by this means, changes in environmental quality can be included in welfare economic analysis, in particular within Cost–Benefit Analysis (CBA), so that gains and losses in environmental quality can be compared with market-valued gains and losses elsewhere in the economy. For such comparisons to be valid from the

viewpoint of welfare economics, it needs to be the case that both the nature of environmental values and the methods used to elicit these are consistent with neo-classical demand theory. Many challenges have emerged since the introduction of CVM with regard to both of these issues: for instance, in terms of environmental values as being non-commensurable (Rekola, 2003; Spash and Hanley, 1995), in terms of preferences for the environment being incomplete and subject to construction during a CVM exercise (Payne et al., 1999; Gregory and Slovic, 1997), and in terms of the hypothetical market inflation of values elicited with CVM (Boyle and Bergstrom, 1999).

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In this paper, we are concerned with investigating how well CVM responses match up to what might be called a fundamental requirement: that they provide information on preferences, whether pre-existent or constructed (Gregory et al., 1993; Bettman et al., 1998). A reasonable proposition is that individuals construct preferences, rather than retrieving them, when asked to evaluate a good they are not familiar with (e.g., Payne et al., 1999). Still, constructed preferences have to be relatively persistent over time to provide a basis for a reliable and feasible valuation of non-market goods (Hannemann, 1994). For this to be so, CVM studies need to be designed in a way which minimises responses which are not based on a careful consideration of preferences, whether constructed or pre-existent: for example, which are motivated by warm glow effects (Andreoni, 1989; Nunes, 2002), or which are impulsive reactions to provocative verbal or visual cues within the survey instrument. To investigate this issue, we make use of a system of classifying responses adopted from consumer psychology, which was developed in the product life cycle literature (e.g., Howard, 1994) and which is now widely used in consumer research (e.g., Koester, 1992; Kearsley, 1995; Antonides and van Raaij, 1998). This allows us to identify response categories which lie either side of the neo-classical behavioural ideal of agents carefully considering their preferences subject to a budget constraint. It also provides a means of designing CVM surveys to minimise the prevalence of problematic responses which are unreliable or invalid from a CBA perspective.

To preview, we find that around 90% of responses to a CVM survey on the conservation of landscape features on farmland in Germany could be placed in either of two response categories (“extensive” and “limited” responses) which we argue correspond to a careful consideration of preferences, with only 10% belonging to two categories which we argue do not meet this requirement (“habitual” and “impulsive” responses). This division changes when different verbal cues are introduced.

## 2. A typology of decision behaviour

The classification model of consumer decisions applied in this paper is one which appears to have wide acceptance in the consumer psychology literature (see for example Howard, 1994; Antonides and van Raaij, 1998). Here, we use a version elaborated by Weinberg and co-authors (Weinberg, 1981; Kroeber-Riel and Weinberg, 1996) that postulates four different types of decision making, called the extensive, limited, impulsive and habitualised decision types. These derive from three underlying psychological processes, namely cognitive control, emotional involvement and reactive, spontaneous behavioural responses. Depending on the relative weight given to each of these three processes, a decision type is selected by consumers to decide whether a good will be purchased. In the following paragraphs, these strategies are briefly outlined: Table 1 summarises the typology.

Extensive and limited decisions are both described by Weinberg as “cognitively controlled”, in that consumers consult their preferences towards a good, and acquire new information as necessary, before deciding whether to buy this

**Table 1 – Characteristics of decision behaviour types (Kroeber-Riel and Weinberg, 1996)**

Decision behaviour type	Dominant processes		
	Cognitive	Emotional	Reactive
Extensive	×	×	
Limited	×		
Impulsive		×	×
Habitualised			×

good. The types differ both with regard to the emotional involvement of the individual and the amount of new information collected during decision making.

Extensive decisions are characterised by relatively strong emotional involvement and a strong demand for additional information. Consumers decide extensively when the choice of an appropriate product appears important to them and when they have no experience of purchasing such an item. In such cases, they invest time and money making a sound decision based on their newly acquired knowledge and their subjective valuation. Some people tend to apply this strategy for example when buying a new bicycle or motorbike, or a new tent for their hiking trips.

Limited decisions, in contrast, require less new information, as the consumer has typically gained some prior experience concerning the purchase of this good and is able to decide on the basis of existing data. According to Weinberg, the degree of involvement towards the good, i.e., the personal relevance of the object as perceived by the individual, tends to be low in limited decisions. An example of a limited decision would be choosing a new pair of trousers or smaller durables such as a new kettle for your office.

Cognitive control and elaboration, however, are not constituent attributes of the impulsive and habitualised decision behaviour types. Impulsive decisions are based on spontaneous reactions to a stimulus: information demand regarding the attributes of the good itself are low, since the stimulus for purchasing is not necessarily related to the good’s characteristics. Thus impulsive decisions reveal little about the consumer’s preferences for the good itself. Habitualised decisions are routine choices requiring neither cognitive efforts nor emotional involvement, e.g., purchasing everyday food items. Information demand is low.

Classifications like the Weinberg model provide helpful explanations for explaining and predicting consumer decisions in the market place, and for studying advertising and marketing issues related to product lifecycles. However, we argue that this typology is also useful for thinking about responses to a CVM study. In order for CVM to generate value estimates that are meaningful in a welfare context, we require respondents to formulate their responses to Willingness to Pay (WTP) questions in a manner consistent with demand theory: in other words, that they consult their preferences, and then provide a response consistent with utility maximising and subject to their budget constraint. Both of the response modes which Weinberg describes as “cognitively controlled” — i.e., both extensive and limited decision making — would seem to fit this paradigm. How much information respondents demand, and their degree of

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