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Workshop synthesis: Stated preference surveys and experimental design, an audit of the journey so far and future research perspectives

Elisabetta Cherchi ^{a*} David A. Hensher ^b

^a Technical University of Denmark - Department of Transport, Bygningstorvet 116 Vest - 2800 Kgs. Lyngby, Denmark

^b The University of Sydney Business School University of Sydney, NSW 2006, Australia

Abstract

This paper is a synthesis of the discussions and ideas that were generated during the workshop on “Stated preference surveys and experimental design” at the 2014 Travel Survey Methods Conference in Leura (Australia). The workshop addressed the challenges related to the design and implementation of stated preference surveys as a way to capture richer behavioural information on the preferences of individuals and groups. The discussion began by reviewing the current state of stated preference surveys and whether and what we have been doing correctly. We then analysed the areas where improvements are still needed, how we can achieve them, and some pros and cons of each improvement.

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1. Introduction

Stated preference (SP) or stated choice (SC) surveys have been extensively used in the last decades in many different fields such as marketing, transport, health economics, agricultural and environmental economics. There now exists a very rich literature showing the ability of SP studies to elicit behavioural responses and to allow

* Corresponding author. Tel.: + 45 45256549; fax: +0-000-000-0000.
E-mail address: elich@transport.dtu.dk

identification through estimation of the preferences of a single individual or a group. The ability of SP surveys to support identification of individual preferences in a context that efficiently reduces the cognitive effort and fatigue of the respondent has made them a dominant data paradigm to study individuals' behavioural market decisions.

One of the foremost problems generally recognised in SP surveys is that although they have the capability through careful design to mimic the real world, this does not ensure that such experiments represent it (lack of realism). A similar comment could be made about revealed preference (RP) surveys which have a number of challenges associated with non-chosen alternatives and measurement error more generally. The issue of realism has been predominantly related to the use of SP data in prediction, where the alternative specific constants and scale need to be adjusted to the real market shares or some assumption needs to be made to forecast new alternatives, not currently available in the market (Cherchi and Ortúzar, 2006; Glerum et al., 2013, Hensher et al., 2015). When the focus of SP studies is on the derivation of marginal rates of substitution between attributes (i.e., willingness to pay measures) their validity is generally supported although the matter of hypothetical bias still remains; the concern exists however when researchers use SP data almost unconditionally. The use of such data in deriving (direct and cross) demand elasticities of the alternatives is somewhat more problematic since it is calculated using knowledge of predicted choice probabilities, and unless the SP model has been calibrated to reproduce true market shares, the elasticities may be unreliable.

However, the question to what extent the preferences elicited in SP surveys reflect real market observed preferences of the respondent, or to what extent are we manipulating these results, has been raised on a number of occasions, igniting renewed interest in the role of RP data. Problems of reality (or far from reality) are indeed present in both RP and SP data, for different reasons (at least in transport and some other contexts). Some shrewdness to improve realism applies equally to both types of data. For example, in both types of data, realism can be jeopardised by contacting respondents who are not the right persons to interview (a very real issue in, for example, freight studies where the driver of a truck may have some ownership of the travel time but not the travel cost), by not precisely defining the context or by using attributes not measured correctly, such as for example disregarding trip frequency when measuring travel costs. These are all well-known problems, and there are several studies where these issues have been carefully accounted for (e.g., Hensher and Bradley, 1993; Hensher and Raimond, 1995; Cherchi and Ortúzar, 2002; Iragüen and Ortúzar, 2004; Ehreke et al. 2014).

The issue of realism (linked to hypothetical bias, i.e. "the potential error induced by not confronting the individual with an actual situation" Schulze et al. (1981); see also Hensher (2010)) is especially relevant because the SP survey is based on constructed hypothetical scenarios designed to elicit individuals' preferences for specific attributes. The scenarios consist of a set of alternatives defined as a combination of a number of attributes at specific levels. Alternatives, attributes and attributes levels, as well as their combinations presented to the respondents, are defined in advance by the analyst. Keeping the balance between realism (i.e., relevance) and complexity represents probably the major challenge in building a stated preference survey. This is not a new problem. A "to do" list to achieve realism containing complexity is reported in Ortúzar and Willumsen (2011, page 114). However, this is a serious problem that still affects many SP experiments. During the workshop, several points included in that list and new points were discussed in the light of the most recent experiences and advances in the field.

2. Tasks complexity and respondents engagement

In order to ensure realism and reduce potential hypothetical bias, analysts may need to build rather complex survey tasks which respondents are asked to process in a short time, potentially exerting high burden and risking damaging the quality of response. Individuals have limitations in their capacity to process information, and are not always willing to invest the required degree of effort in evaluating alternatives. When presented with a complex task, it is then likely that they show disengagement, adopting simplifying strategies to reduce the mental effort required to solve the problem. On the other hand, simplifying the survey tasks to reduce the cognitive burden for respondents is also risky. Simplified survey tasks are often too simplistic and they can be seemingly perceived as unrealistic by the respondents, leading to problems with respondents' engagement, or respondents choosing based on other attributes

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