



# Behavioral implications of providing real incentives in stated choice experiments



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## ABSTRACT

This paper explores the potential impacts of introducing real economic incentives in choice experiments (CE). While many others have investigated such impacts before, the majority of the literature has focused solely on mitigation of hypothetical bias. We contribute to this literature by widening the scope of research to other behavioral aspects where consumers in CE are often found to deviate from *homo economicus*. We develop a theoretical model where not only Willingness to pay (WTP) measures but also decision processing can be affected by the introduction of an economic incentive. Specifically, our model allows for differential impacts on attribute processing, depending on the character of the attribute as well as self-image effects. In an empirical CE survey, we find some, though not unequivocal, support of our model. Even though we find no impact on WTP from introducing an economic incentive, we find marked benefits in relation to a number of behavioral aspects that together would favor the use of an economic incentive regardless of hypothetical bias being present or not.

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## 1. Introduction

The credibility of stated preference surveys has been questioned substantively in the literature for many years. At the same time, research aiming to investigate and increase the credibility of stated preference methods has emerged parallel to the criticism. One central criticism concerns the hypothetical nature of the methods which has been claimed to instigate respondents to overstate their 'true' willingness to pay (WTP) (see e.g. List, Sinha, & Taylor, 2006; Lusk & Schroeder, 2004; Murphy, Allen, Stevens, & Weatherhead, 2005). Behavioral explanations offered for such overstatements relate to the fact

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that since respondents are not asked to actually pay the stated amounts out of their pockets, they have no incentives to answer truthfully – in accordance with their real preferences that is. Hence, respondents may exert free-riding or strategic behavior in their responses or they may be susceptible to yea-saying or warm glow effects (Carson, Flores, & Meade, 2001; Mitchell & Carson, 1989). Covering these different types of behavior, the term ‘hypothetical bias’ has been coined and is often referred to as an overarching, all-encompassing label. The issue of hypothetical bias has been investigated and treated in a number of ways in the literature, for instance by introducing budget reminders and cheap talk scripts or by seeking to decrease interviewer effects or by increasing scenario realism (e.g. Carlsson, Frykblom, & Lagerkvist, 2005; Cummings & Taylor, 1999). The latter has been accomplished by introducing valuation techniques where real economic incentives are incorporated. As a result, a number of choice experiment (CE) applications have incorporated real economic incentives in the experimental setup (e.g. Alfnes, Guttormsen, Steine, & Kolstad, 2006; Carlsson & Martinsson, 2001; Chang, Lusk, & Norwood, 2009; Gracia, Loureiro, & Nayga, 2011; Grebitus, Lusk, & Nayga, 2013; Johansson-Stenman & Svedsäter, 2008, 2012; List & Shogren, 1998; Loomis, Bell, Cooney, & Asmus, 2009; Lusk & Schroeder, 2004; Mentzakis & Zhang, 2012; Neill, Cummings, Ganderton, & Harrison, 1994; Sinden, 1988; Volinsky, Adamowicz, Veeman, & Srivastava, 2009; Yeu & Tong, 2009).

Because of this increased interest in and the broader acceptance of valuation methods with real economic incentives, there is a need for investigation of potential differences between methods with real incentives and the more traditional purely hypothetical stated choice experiments. Up until now, such differences have mainly been concentrated on hypothetical bias in terms of WTP differences (an exception is found in Scarpa, Zanolli, Bruschi, & Naspetti, 2013, who examines attribute non-attendance), where findings have been ambiguous. For example, Carlsson and Martinsson (2001) find no differences in WTP<sup>1</sup>, whereas Grebitus et al. (2013), Johansson-Stenman and Svedsäter (2008), Taylor, Morrison, and Boyle (2010), Broadbent, Grandy, and Berrens (2010) and Ready, Champ, and Lawton (2010) all find differences between hypothetical and incentivized WTP estimates. At the same time Cameron, Poe, Ethier, and Schulze (2002) and List et al. (2006) only find differences to some extent. For a more thorough overview of studies see e.g. Ready et al. (2010). Based on meta-analysis of 28 studies of which the majority are CVM studies, Murphy et al. (2005) find that hypothetical bias tends to be higher for public goods than for private goods. This is partly supported by Mjelde, Jin, Lee, Kim, and Han (2012) who conclude that familiarity with the good being valued seems to decrease hypothetical bias and that bias is lower among older and higher educated respondents. Johansson-Stenman and Svedsäter (2012) further explain this difference by relating it to different impacts of self-image concerns, while Grebitus et al. (2013) show that respondents’ personality traits have different impacts on choice behavior depending on whether it is a hypothetical or a non-hypothetical choice experiment. Of possible equal importance are other potential differences in the underlying behavioral decision mechanisms between the two survey methods, such as for instance the use of different decision making processing rules and the incidence of protesting and strategic behavior. While it is implicitly assumed in hypothetical CEs—as well as CEs with real incentives—that respondents are able to process all information in a fully rational manner, it is by now widely accepted that there are limits to how much information respondents can actually process. While many different attribute processing strategies have been identified in the literature of hypothetical choice behavior (see e.g. Hensher (2007) and Hensher (2010) for overviews), one that has received increasing attention within the recent hypothetical choice behavior literature is attribute non-attendance, i.e. where respondents ignore one or more attributes of the alternatives when making their choices (e.g. Alemu, Mørkbak, Olsen, and Jensen (2013), Balcombe, Burton, and Rigby (2011), Hole, Kolstad, and Gyrð-Hansen (2012), Hensher, Rose, and Greene (2005), Campbell, Hutchinson, and Scarpa (2008), Hensher and Rose (2009) and Hensher (2010)). As examples of the extension of this behavior, Balcombe et al. (2011) find full attribute attendance by just above 70% of the sample while Hensher and Rose (2009) report that only 55% of the sample attended all attributes. This implies that individuals do not make the assumed trade-offs between attributes and attribute levels (Rosenberger, Peterson, Clarke, & Brown, 2003; and Gowdy & Mayumi, 2001) which may result in misleading WTP estimates. Hensher and Rose (2009) thereby conclude that WTP for travel time saving is higher when attribute non-attendance is implemented in the model specification. With respect to choices with real incentives, to the authors’ knowledge, this behavioral aspect has only been explored partly by Scarpa et al. (2013). They employ a split sample design using two different goods—a beef product (without real incentives) and a chicken product (with real incentives). They find a higher degree of non-attendance in the survey with no real incentives, but unfortunately the results are confounded with the type of meat, since only the chicken sample received such real incentives. In the present paper we address this specific issue by examining the effect of providing real incentives holding the good in question constant. We examine potential differences in preferences as well as potential differences in respondents’ decision making strategies including differences in protest behavior as well as different degrees of non-attendance strategies both with respect to which attributes are ignored and the degree of non-attendance within each attribute, the latter is done by employing both a stated and an inferred approach, respectively. More specifically the paper explores potential differences in a choice experiment with real incentives and a hypothetical choice experiment with respect to general preference structure, error variance, willingness-to-pay, attribute non-attendance, using a case study on consumers’ preferences for apple characteristics.

The paper is organized as follows: In section two we present the theoretical model as well as a range of hypotheses to be tested. This is followed by a presentation of the experimental setup and the data used. In section four a brief overview of the econometrics is provided, while section five reports the results and section six discusses and concludes.

<sup>1</sup> It should be noted, though, that Carlsson and Martinsson (2001) is not a multi-attribute study, and this could possibly influence their results.

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