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Title

Do consumers consider all information? The role of attribute non-attendance in wine choice: contrasts between mixed logit and latent class models

I want to submit an abstract for:

Conference Presentation

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Keywords

Consumer preferences; attribute non-attendance; discrete choice experiments; latent class models; mixed logit models; wine choice.

Research Question

What effect does attribute non-attendance have in predictive capability of choice models and welfare measures?

Methods

Discrete choice models accounting for non-attendance. Respondents' stated non-attendance is incorporated in the specification of mixed logit model and inference of non-attendance based on latent class models.

Results

Higher levels of non-attendance for some attributes. When this is taken into account, model fit is significantly improved and welfare estimates are different. Latent class approach performs better.

Abstract

Discrete Choice experiment (DCE) is a quantitative approach widely used to elicit consumer preferences. This approach simulates a purchase situation by presenting a sequence of choice sets with two or more alternatives, differing in terms of attributes and levels. It asks respondents to select their preferred alternative, with the possibility of choosing to "not buying" or to choose the current situation (status quo). This framework considers

that individuals make trade-offs among all the product's attributes, in light of the continuity axiom of the neoclassic model of consumer choice.

However, some individuals only attend a subset of attributes, ignoring others, while making a choice. This situation characterizes what is commonly referred to as attribute non-attendance (ANA), as a result of using simplifying decision rules. There are some reasons for this behavior, cognitive burden, unfamiliarity with the good, or simply because an attribute or its levels are not relevant in the choice process (Alemu, Mørkbak, Olsen, & Jensen, 2013). In recent years a growing body of literature from transportation, health and environmental economics (e.g. Campbell, Hensher, & Scarpa, 2011; Hensher, Collins, & Greene, 2013; Scarpa, Gilbride, Campbell, & Hensher, 2009) seeks to understand the implications of a model specification that assumes all attributes as relevant and also the role that ANA might play in improving the predictive capability of discrete choice models. More recently, some studies on food choice arise (Caputo, Van Loo, Scarpa, Nayga, & Verbeke, 2018; Chalak, Abiad, & Balcombe, 2016; Scarpa et al., 2013), but when applied to wine, several applications still not accounting for this behavioral phenomena. These studies show the importance of the extrinsic cues in wine, such as labelling style (e.g. Combris, Bazoche, Giraud-héraud, & Issanchou, 2009; Mueller, Lockshin, Saltman, et al., 2010), wine origin (Mueller & Szolnoki, 2010; Platania, Platania, & Santisi, 2016), grape variety (Corsi, Mueller, & Lockshin, 2012; Kallas, Escobar, & Gil, 2013; Tang, Tchetchik, & Cohen, 2015), wine ageing (Mtimet & Albisu, 2006), awards or medals (Combris et al., 2009; Corsi et al., 2012; Tang et al., 2015), brand and price (Mueller, Osidacz, Francis, & Lockshin, 2010; Palma et al., 2016; Xu, Zeng, Song, & Lone, 2014). However, the number of studies accounting for ANA is very limited (see Thiene et al. 2013 for an example).

To capture this behavior, two main approaches are used, the stated ANA and inferred ANA. The first method relies on self-assessment, and respondents are directly asked whether or not they ignored one or more attributes (e.g. Alemu et al., 2013; Carlsson, Kataria, & Lampi, 2010; Hensher et al., 2005; Rose, Hensher, Greene, & Washington, 2012). On the contrary, it is possible to infer non-attendance through analytical modeling techniques, without additional data (e.g. Greene & Hensher, 2003; Hess, Stathopoulos, Campbell, O'Neill, & Caussade, 2013; Scarpa, Zealand, Gilbride, Campbell, & Hensher, 2009). Some studies compare both methods and some of them have found divergences on which method to undertake (e.g. Kragt, 2013; Scarpa et al., 2013; Weller, Oehlmann, Mariel, & Meyerhoff, 2014). The findings also suggest that respondents may not truthfully reveal their behavior, making wrong statements about attribute attendance.

Given the evidence, the issue of ANA may be critical in understanding agents' behavior and getting accurate estimates of utility parameters. We believe that due to its complexity, the choice of wine may be a result of simplifying strategies, such that consumers make a purchase decision based on a subset of attributes. So, we propose to investigate consumers preferences for wine, exploring the violation of continuity axiom through ANA. We are particularly interested to capture ANA not only due to its relevance in the recent literature, but also because failure to account for non-attendance has resulted in biased parameter estimates and poor model performance. We infer ANA using a latent class framework and contrast it with the respondent's self-statements about non-attendance, through a mixed logit model. We also measure the effects on willingness to pay measures and model fit when compared to a model where all attributes are assumed to be relevant.

To this aim, we conducted a discrete choice experiment on consumers preferences for wine in Europe (Portugal, France, Germany). Each participant was presented with ten choice tasks, and each choice task includes three experimentally-designed wine profiles and a no-buy option. Six wine attributes were used: price, country of origin, landscape, alcohol content, grape variety and medals awarded, as a result of an extensive literature review, advice from stakeholders and a pilot study. The stated choice exercise was generated by a D-efficient design, using the Ngene software. To make the wines more realistic, we fixed 5 attributes in all wines: a fictional brand, an arbitrary vintage, volume, and bottle style. Wine bottles are Bordeaux style with the standard size (750ml). All wines have an appellation equivalent to the "Protected Designation of Origin". We controlled for situation by stating for each choice task "Imagine you are standing in front of a shelf of wine. You have 3 different bottles of wine available. Which of the following wines would you buy to enjoy over a dinner with guests at home?". A sample of 600 wine consumers with 21 years old or more was obtained. The stated identification of what attributes were ignored resulted from supplementary ANA questions after the choice tasks.

Preliminary results indicate higher levels of non-attendance for some attributes. When contrasting both methods, there is difference between stated and inferred non-attendance, suggesting that respondents may not report attendance truthfully. We also found differences in model fit and welfare measures when compared to models where all attributes are considered as relevant. In this study, the latent class model has the best performance in capturing consumer preferences for wine.

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choice: contrasts between mixed logit and latent class models**

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