Reviewer’s report

Title: An Empirical Comparison of Methods for Analyzing Correlated Data from a Discrete Choice Survey to Elicit Patient Preference for Colorectal Cancer Screening

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Reviewer: Martina Vandebroek

Reviewer’s report:

The authors compare the results of different models that were fitted based on data from a large discrete choice study about patient preference for colorectal cancer screening. The results are interesting but I believe the paper needs some rewriting to explain better the results and the differences between the models and estimation techniques.

Major remarks:

• Although the journal does not aim to publish articles describing scientific methods or techniques, more details about the different models and estimation procedures are needed to fully understand the paper.

• Nothing is said about the correlation structure in the random effects probit model. Especially the difference between the correlation among the 3 categories in the multinomial probit model and in the binary probit model deserves some attention (this should become clear if the models are described better).

• I suggest to include simple ML estimation of the conditional logit and the multinominal model as the results will very likely be similar and it is much easier to apply.

• It is not clear how exactly the “relative importance of choice between test A and test B”? is defined in case the attributes have more than 2 levels. It also seems strange to me to talk in terms of test A and test B as these are generic profiles, wouldn’t it be better to talk about paired comparisons?…

• It must be made clear that the interest is in average preference levels only, as even when a random effects model is fitted and individual preferences can be obtained, the main focus seems to be on the means.

• The references should be checked carefully (for instance the page numbers of reference 25 are wrong) and the references should be more relevant (for instance for the clustered robust standard error, the only references that are given are to a not related paper in the American Statistician and one to a technical report of the software used).

Minor remarks:

• As a binary response is also a categorical response, it is not always clear what data are modeled in which way.
• As there is not just one way to check the rationality of the observed choices, more details are needed about this.

• Nowadays, a lot of researchers focus on optimal designs for discrete choice experiments taking into account some prior knowledge of the parameters which leads to much more efficient designs. As for several of the attributes in the study, it is very well known what the sign of the parameters will be, better designs can be found. A remark about this would be welcome.

• It is would be useful to give the 4 designs that were used in the appendix. Were no differences found between the results of the different designs?

Minor issues not for publication: first line of second paragraph in discussion: verb missing

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

'I declare that I have no competing interests'