Predict 450 Marketing Analytics Section 55

Solo 2 Assignment: Discrete Choice Experiment "Star Technologies prepares to enter the Tablet Wars"

Star Technologies Company (STC) has been in the business of manufacturing remote controllers for televisions and audio systems for two decades. It is now planning on entering the computer tablet market with a new product which they hope to have ready to launch in Q1 or Q2 2015. (They'd better hurry!) They have the technical expertise and the productional capability to produce and distribute various tablet configurations, but they'd prefer to go to market with just one, the one that is most preferred by their targeted user segment.

Obee Juan, Star's product development manager, has done qualitative research to better understand the attributes that impact tablet preferences. He has narrowed them down to what he believes are the four most important: retail unit price, screen size, processor speed, and RAM. His qualitative results suggest that brand is also important to purchase consideration. STC is a recognized consumer brand, but it is not known as a mobile computing manufacturer.

Obee's next step was to commission quantitative survey research that included a choice-based conjoint (CBC) task, a kind of a discrete choice experiment(DCE). He engaged the services of Neverending Marketing Insights, a global marketing research services provider, to obtain a sample of tablet owners and likely buyers, to program and host an online questionnaire, and to deliver a data set of results. Neverending helped Obee develop a CBC task with the following five attributes:

Brand- 4 levels: STC, Somesong, Pear, Gaggle (level codes: 0,1,2,3)
Price- 3 levels: $199, $299, $399 (levels: 0,1,2)
Screen- 3 levels: 5 inch, 7 inch, 10 inch (levels: 0,1,2)
RAM- 3 levels: 8 Gb, 16 Gb, 32 Gb (Gb = "gigabytes") (levels: 0,1,2)
Processor- 3 levels: 1.5 GHz, 2 GHz, 2.5 GHz (GHz = "gigahertz") (levels: 0,1,2)

The task was designed to allow estimation of the two-way interaction between brand and price. It has 36 choice sets. Each choice set presented three alternatives, each described as specific combinations of attribute levels. Respondents picked from each choice set the alternative they most preferred, Alternative 1, 2, or 3.

You will find Obee's respondent data in the R data file **stc-cbc-respondents-v3.RData**.

The file **stc-v3-datamap.txt** documents the variables in the R respondent data file. The file **stb-dc-task-cbc-v3.csv** provides the choice task plan. The attribute levels are coded as indicated above in parentheses for each of the attributes.

Obee wants you to estimate preference shares for two different choice scenarios that are not part of the choice task. A description of the alternatives in these two scenarios are in the file **stc-extra-scenarios-v3.csv**.

Obee needs you to analyze his choice data and interpret your results. You'll fit Hierarchical Bayes (HB) Multinomial Logit (MNL) models that allow for the price sensitivity of respondent choices to be brand specific. You'll also take into account the possible effects of prior STC product ownership.

For this assignment you will do the following.

1. Read the respondent data and the choice task information into R, and configure it so that you can estimate HB MNL regression models using the rhierMnlDP() function in the R package *bayesm*.
2. You'll estimate your models using Markov Chain Monte Carlo simulation. Your models will provide respondent level estimates of the effects of attribute levels on choices (these will be regression coefficient estimates). One of your models will also estimate the effects of having owned an STC product. (rSee below.*)
3. Interpret your model results in regard to the attributes' effects on stated preferences.
4. Answer Obee's question about whether price sensitivity varies over brands.
5. Assess what impact, if any, ownership of a STC product has on the effects of attributes on preferences.
6. Using your HB model results, predict choices for Obee's two additional scenarios.
7. Describe how you would calculate attribute level partworths for Obee's respondents using your model results. Your description should be detailed enough for a programmer unfamiliar with conjoint measurement to code the calculations.
8. Describe how you'd calculate attribute importances for the respondents with enough detail for your hypothetical programmer.
9. In your report for this assignment, be sure to address each of the above items. Include in your report descriptions of how you prepared your data for modeling, and your modeling procedure. Include any factors or limitations that Obee and STC should consider in using your results to decide what tablet to produce. *What tablet do you think STC should go to market with?*
10. Do 2 by estimating two (2) MNL models, one that includes a covariate indicating previous ownership of a STC product, and one without this covariate. How do the results compare? Is the covariate a significant predictor of anything?

See the Assignment information on Canvas for information about report format and other 85 things.