Introduction to Data Analytics in Marketing
Daria Dzyabura

Homework 1

Conjoint Analysis
Due: November 10

Submission.

Submit a PDF file that includes code and results. Please take the time to format the homework!

- axes should be labeled
- tables should be formatted so we can read them
- every result should be explained in words.

Data Description.

These data are results of a conjoint study on messenger bags. 122 participants rated the same 20 bags, first online then offline. The bag profiles (attribute configurations) are contained in the file "design" for the 6 attributes (exterior, size, strap pad, price, water bottle pocket, and interior compartments), with the following levels:

Exterior design (4 options): Black, Blue, Reflective, Colorful

Size (2 options): Small (10 x 19 x 14 in), Large (12 x 22 x 15 in)

Price (4 levels): $120, $140, $160, $180

Strap pad (2 options): No, Yes

Water bottle pocket (2 options): No, Yes

Interior compartments (3 options): Empty bucket with no dividers, Divider for files, Padded laptop compartment

All participants rated the bags on a 5 point scale, with 1 being "definitely would not buy" and 5 being "definitely would buy". The ratings are contained in "responses_online", and "responses_offline", respectively. 1 corresponds to the lowest (definitely would not purchase) and 5 corresponds to the highest rating (definitely would).

Compute the following, and discuss the obtained results for each:

1. Dummy code all the attributes except price. Price should be coded as a continuous attribute, taking values $120-$180. Estimate the population average partworths using OLS.

2. Estimate individual online partworths by running a separate regression on every user. Summarize the population-level preference heterogeneity for each attribute.

3. Find the revenue-maximizing configuration using the numerical approach discussed in class.

4. OPTIONAL (EXTRA CREDIT): Find the revenue-maximizing product line of two bags.

5. Repeat steps 2-3 for the offline data. Compare the results obtained for online and offline data.