SWP 4

Summary

The purpose of this document is to describe and analyze the survey data gathered from 593 people regarding different Bluetooth speakers. The main task is to understand the preferences of the respondents as good as possible. To achieve this goal we use the method of choice-based conjoint analysis (CBC). In the previous paper (SWP 3) the users were directly asked about their preferences in the Bluetooth speakers market. Compared to this approach the CBC is the more appropriate, because the task of choosing a preferred concept is more similar to what buyers actually do in the marketplace and can give more insights over the direct survey. Each participant is give 12 sets of choices. Each choice set consists of 4 options (three conceptual ones created from different variations of attributes from the table below) and the respondent is required to choose only one of them.

|  |  |  |  |
| --- | --- | --- | --- |
| **Price** | **Battery** | **Sound** | **Weight** |
| 70 | 8 hours | 3.5 stars | 400 grams |
| 90 | 10 hours | 4 stars | 500 grams |
| 110 | 12 hours | 4.5 stars | 600 grams |
| 130 | 14 hours | 5 stars | 700 grams |
| 150 | 16 hours |  |  |

**Data cleaning**

Before using the data for the CBC it is useful to try to clean and find outliers who could probably influence the results. There are, for example, 11 people that have chosen “None” for each choice set they were given. It seems that those respondents were choosing the “None” option on purpose or were not interested at all in this kind of product. For this reason we can exclude them from our data set.

Descriptive prediction

We have computed the choice counts for each attribute before estimating the choice model. Analyzing this way gives a basic idea about the choices people have made as part of the survey. This could be helpful to make sure the model predictions match the basic logic of the data and the raw choice counts of the respondents.

Looking at the price, there are substantial differences between the different price levels. The option “70” was chosen 5 times more than option “150”. The same pattern is observed on the “sound” attribute, where “sound3” is chosen around 2000 times and “sound1” only 500. On the other hand, the different levels of the “weight” attribute were much more balanced and were chosen almost the same amount of times. This leads to the conclusion that price and sound play a much more important role in the decision making than the weight. This conclusion matches the direct survey results from previous paper.

Analysis

Using a logistic regression we are able to extract from the data the dependencies of the different variables and how they influence the choice of the consumers.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Estimate** | **Parth Worth** | **Range** | **Importance** | **WTP in Euro** |
| **Intercept** | -5.2940 |  |  |  |  |
| **price** | -3.1053 |  | 3.1053 | 47% |  |
|  |  |  |  |  |  |
| **Battery16h** |  | 0.5382 | 1.1287 | 17% |  |
| **battery8h** | -1.3357 | -0.7975 |  |  | 43.01 |
| **battery10h** | -0.7250 | -0.1868 |  |  | 23.35 |
| **battery12h** | -0.4234 | 0.1148 |  |  | 13.64 |
| **battery14h** | -0.2070 | 0.3312 |  |  | 6.67 |
|  |  |  |  |  |  |
| **sound5.0s** |  | 1.1793 | 1.8912 | 29% |  |
| **sound3.5s** | -2.5347 | -1.3554 |  |  | 81.62 |
| **sound4.0s** | -1.5388 | -0.3596 |  |  | 49.55 |
| **sound4.5s** | -0.6435 | 0.5358 |  |  | 20.72 |
|  |  |  |  |  |  |
| **weight700g** |  | -0.3989 | 0.4384 | 7% |  |
| **weight400g** | 0.7566 | 0.3577 |  |  | -24.36 |
| **weight500g** | 0.5210 | 0.1220 |  |  | -16.78 |
| **weight600g** | 0.3182 | -0.0807 |  |  | -10.25 |
|  |  |  |  |  |  |
| **Sum Range** |  |  | 6.5636 |  |  |

Table Nr.

The Table 2 gives us the most important coefficients that are needed for the analysis of the conjoint analysis. Looking at the importance, we conclude the price is obviously the variable that is most influential with 47% importance in the distribution of the variance. It is followed by the sound, leaving the battery and the weight as the most unimportant in the decision making process. This completely fits our prediction before implementing the model.

The most practical value derived in the Table 2 is the WTP (willingness to pay). This means for example that to go from the base value of the “battery” variable – 16h – to 8h, we should reduct the price of the product by 43,01 euros. Interpreted differently this means the consumers are willing to pay 43,01 euros to move from a product with an 8-hour durable battery to a product with a 16-hour durable battery.

Probably logical for a Bluetooth speaker, but it can be observed that sound plays un important role for the customers – they are willing to pay an additional price of 81,62 euros to jump from the worst quality of sound to the best one possible in the survey – 5-star sound quality.

Regarding the weight not surprisingly the lightest speaker costs the most and it is also confirmed by the willingness of the participants to pay 24,36 euros more to buy a speaker that is 300 grams lighter than the heaviest one.