

Assignment 8 - Conjoint analysis

INSTRUCTIONAL DETAILS

Conjoint analysis is a statistical technique used in market research to determine how people value different features that make up an individual product or service. It is a useful tool for businesses to use when trying to understand consumer preferences and make informed decisions about product design and pricing.

Here is an example of how conjoint analysis can be used in Python:

Suppose we are a company that sells laptops, and we want to understand how consumers value different features such as the processor type, the amount of storage, and the size of the screen. We can use conjoint analysis to create a survey that presents consumers with different combinations of these features and asks them to choose their preferred option.

First, we need to define the features and levels for each feature. For example, we might define the following features and levels:

Processor type: Intel Core i3, Intel Core i5, Intel Core i7

Storage: 256GB, 512GB, 1TB

Screen size: 13.3 inches, 15.6 inches, 17.3 inches

Next, we need to generate all possible combinations of these features and levels. In Python, we can use the `itertools` library to do this. For example:

```
import itertools

features = [["Intel Core i3", "Intel Core i5", "Intel Core i7"],
            ["256GB", "512GB", "1TB"],
            ["13.3 inches", "15.6 inches", "17.3 inches"]]

combinations = list(itertools.product(*features))

print(combinations)
```

This will generate a list of all possible combinations of features and levels:

```
(('Intel Core i3', '256GB', '13.3 inches'), ('Intel Core i3', '256GB', '15.6 inches'), ('Intel Core i3', '256GB', '17.3 inches'),
('Intel Core i3', '512GB', '13.3 inches'), ... ('Intel Core i7', '1TB', '15.6 inches'), ('Intel Core i7', '1TB', '17.3 inches'))
```

Now that we have all possible combinations, we can create a survey that presents these combinations to consumers and asks them to choose their preferred option. We can then use statistical techniques, such as conjoint analysis, to analyze the survey results and understand how consumers value different features.

For example, we might use conjoint analysis to determine the relative importance of each feature (e.g. processor type, storage, screen size) and the relative attractiveness of each level for each feature (e.g. Intel Core i3 vs. Intel Core i5 vs. Intel Core i7). This can help us understand which features and levels are most important to consumers and inform our decisions about product design and pricing.

BACKGROUND

Conjoint analysis is a valuable tool for businesses because it allows them to understand how consumers value different features and attributes of a product or service. This information can be extremely useful in a variety of business contexts, including product design, pricing, and marketing.

For example, conjoint analysis can help businesses understand which features and attributes are most important to consumers and how much they are willing to pay for them. This can inform decisions about which features to include in a product and how to price it.

Conjoint analysis can also be used to understand how consumers perceive and compare different products or services in the market. For example, a company might use conjoint analysis to compare its own product to a competitor's product in order to understand how consumers value the different features and attributes of each.

Overall, conjoint analysis is an important tool for businesses because it helps them understand consumer preferences and make informed decisions about product design, pricing, and marketing. This can ultimately lead to increased sales and profitability.

RESEARCH QUESTION

Data analysis is a valuable tool in pricing and packaging, as it can help organizations better understand their customers and identify trends and patterns in their behavior. This can help organizations set prices and design packages that are more attractive to their target market and that better meet the needs of their customers.

Here are a few ways in which data analysis can be used to inform pricing and packaging decisions:

Customer segmentation: Data analysis can be used to segment customers based on factors such as their demographics, needs, and preferences. This can help organizations tailor their prices and packages to better meet the needs of different customer segments.

Market research: Data analysis can be used to analyze market research data, such as survey results or customer feedback, to identify trends and patterns in customer behavior and preferences. This can help organizations understand what their customers are looking for and what they are willing to pay for.

Sales data: Data analysis can be used to analyze sales data, such as data on the prices and packages that customers have chosen in the past, to identify trends and patterns in customer behavior. This can help organizations optimize their pricing and packaging strategies.

Competition: Data analysis can be used to analyze data on the prices and packages offered by competitors, which can help organizations identify opportunities to differentiate their offerings and set competitive prices.

In order to complete this assignment you must - -

First, review the “pricing” dataset. This dataset was generated through a conjoint survey delivered to the customers of a major league baseball stadium. The survey asked respondents to rank their intent to visit a food area based on food type, beverage type, and atmosphere type. Age and gender were also collected for each respondent. The survey was delivered as a partial profile instrument.

Next, review this research question: which independent variable (either individually or in terms of their interactions) are the best predictors for a high likelihood to visit the food area?

Then, based on this question and the nature of the data, select the appropriate methodology. Your choices are: multiple regression, logistic regression, or analysis of variance (ANOVA).

Finally, perform the analysis necessary to answer the research question.

REQUIREMENTS FOR SUBMISSION

See “Assignment 1 - Descriptives” for a detailed list of submission requirements.

FORMATTING

See “Assignment 1 - Descriptives” for a detailed list of assignment formatting guidelines. Also, assignment formatting guidelines can be found in the course document cache.

DATASET DETAILS (all data sets can be found [here](#) or [here](#))

pricing.csv

DATASET FIELDS

respondent_id

intent_to_visit

respondent_gender

respondent_age

food_type

beverage_type

atmosphere_type