# Conjoint analysis what is it for and what does it involve?

Conjoint analysis is a set of techniques that produce marketing information about a product or a service. It can be applied in a wide variety of situations; for new products before it is manufactured, for existing products already on the market, and everything in between.

Conjoint analysis is used to determine what product is preferred by consumers, given a range of options the product might have. In experiments, all possible configurations do not have to be presented to the respondent, only a limited set is needed and statistical methods can estimate utility/importance of an attribute from customer evaluations.

There are three assumptions that CA studies make:

1. That each product is a composite of different attributes (price, screen size, etc) and each attribute is specified by a number of levels (price: $150, $250, $350 screen size: 32”, 42”, 52” etc ).
2. Respondents have unique values, or ***Utilities,*** for each attribute level
3. Subject’s value for a specific product can be calculated by combining (adding) the discrete utilities associated with each attribute.

# Conjoint analysis involves three steps:

Design the experiment: Decide on the attributes about the product that will come under study and then the experimenter must decide the levels (or values) for each attribute.

Choose conjoint analysis method and collect the data: There are three ways of collecting data for CA. One is called ***full profile CA***, in these surveys respondents are presented with the *complete set*of profiles of hypothetical products that include a specified level for each attribute. Preferences are elicited by asking subjects to rate each profile or rank a set of profiles. Another method used is called ***choice-based CA*** (CBC), which is currently the most popular. These studies require respondents to be shown a *set of choices*, usually composed of three or four profiles, and asked which ones they preferred. ***Adaptive conjoint analysis*** collects and analyses preference data using an interactive computer program. This method is unique in that it uses individual respondents’ answers to update and redefine the questionnaire through a series of graded pair comparisons.

After the method is decided, the experiment proper needs to be designed.

Analysis of data: CA studies generate a utility or part-worth value for each level of each attribute. Part-worths (Utilities for each attribute level) can be calculated using several approaches. A widely used method is ordinary least squares regression. CA part-worths are scaled to an arbitrary constant within each attribute and are interval data. The significance of the part-worths is found within relative differences between levels; because the scales are arbitrarily set the absolute value of any specific level has no meaning. For example if **screen size = 52”** has a part worth of 5.5 and **screen size = 42”** has a part worth of 2. 75 one cannot say that **screen size = 52”** has twice the utility of **screen size = 42”**.

Afterwards, market simulation, which determines market share of a range of products, and revenue maximization analysis, can be performed on additional manipulation of the data.

**Sources:** Conjoint Analysis Encyclopedia of Medical Decision Making, Joint Satisfaction