Chapter 5

Conjoint Analysis

In the previous chapter the ongoing research in the estimation of willingness-to-pay (WTP) was reviewed, providing an overview of the different methods and discussing advantages and disadvantages. Also, reviewed were the different methods in respect of their ability to estimate consumers' preferences at the individual level.

In Chapter 7 a new procedure to estimate consumers' willingness-to-pay for different products will be presented. This procedure works as an additional interview scene in combination with conjoint analysis, and we named it PE scene. This new approach uses previously elicited preference structure at the individual level as input.

Because the PE scene is an extension of conjoint analysis an introduction to conjoint analysis is given in this chapter. The intention of this chapter is not to give the reader a comprehensive overview of conjoint techniques. The interested reader is referred to Gustafsson et al. (2000). Instead the reader is given an idea of how different conjoint techniques work. The goal is to show how conjoint analysis can be combined with the PE scene. In view of this different techniques are discussed especially focusing on adaptive conjoint analysis (ACA), because in our empirical investigation the PE scene was combined with ACA.

5.1 Introduction

Conjoint Analysis is a decompositional method in which the probands are presented a selection of stimuli consisting of different attributes or components and state their preferences. These attributes have different levels. From these preferences utilities of the levels of the attributes are derived. The utilities can then be used to predict future preferences.

MarketVision Research describes this process as follows:

> ...conjoint methods, though, share the basic tenet of decomposing products into their component parts to *analyze* how decisions are made and then *predict* how decisions will be made in the future. That is, conjoint analysis is used to understand the importance of different product components or product

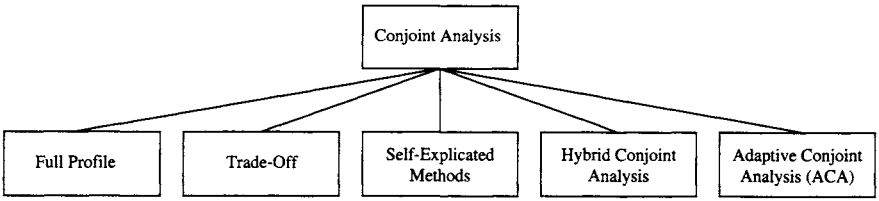

Figure 5.1: Classification of conjoint methods based on data gathering techniques.

> features, as well as to determine how decisions are likely to be influenced by the inclusion, exclusion, or degree of that feature.
>
> (MarketVision Research, 2002, p. 1)

The first paper in a scientific journal on the applicability of conjoint analysis to consumer behavior was published by Green and Rao (1971). In the following years many papers were published on the topic discussing different algorithms and applications. Conjoint analysis quickly became widely used and is today an integral part of market analysis in marketing as can be reviewed in various papers about applications of conjoint analysis (e.g., Wittink and Cattin (1989), Wittink and Burhenne (1994), Voeth (1999), Hartmann and Sattler (2002a), and Hartmann and Sattler (2002b)).

Green and Srinivasan (1990) define conjoint analysis to be "any decompositional method that estimates the *structure* of a consumer's preference (i.e., estimates preference parameters such as part-worths, importance weights, ideal points), given his or her overall evaluations of a set of alternatives that are prespecified in terms of levels of different attributes". As Green and Srinivasan here we will narrow this definition to methods that estimate the preference structure of the respondents at the individual level. This is done, because individual level preference data is utilized in the PE scene.

Conjoint methods can be distinguished in terms of their data gathering and presentation techniques. A taxonomy of different conjoint methods based on this is presented in Figure 5.1. In this taxonomy the methods are restricted to pure conjoint methods. Other authors, for example Carroll and Green (1995), suggest a broader taxonomy for conjoint methods regarding all methods that have the ability to estimate part-worths.

Throughout this dissertation we do not consider discrete choice analysis to be a conjoint method. The main similarity between discrete choices and conjoint analysis lies in the presentation technique to the probands and that decompositional part-worths are being estimated. Because of this similarity discrete analysis is also referred to as choice-based conjoint (CBC). Nevertheless, the underlying preference model and the parameter estimation techniques are different. Furthermore, the approach estimates part-worths only at the aggregate level, in contrast to the main advantage of conjoint analysis which is part-worth estimation at the individual level (Balderjahn, 2003, pp. 400-401). Therefore, we will not discuss discrete choice analysis in the context of conjoint analysis. For an overview of discrete choice analysis see Section 4.5.2.