



Consumers' willingness-to-pay for mobile telecommunication service bundles



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ABSTRACT

With the advent of 3G and LTE networks, bundled packages that contain free minutes, unlimited text messaging, Internet flat rates and the like became prevalent among telecommunication companies. The paper examines user's perception of the utility of mobile service bundles. Based on a conjoint analysis of 116 respondents (out of a total of 355 surveyed), findings are reported and the structure of customers' willingness-to-pay is analyzed. The rank order of relative importance of the presented attributes reveals the pricing aspect as the most important criterion. Nevertheless, minutes included and Internet access also play a vital role in the consumers' evaluation of mobile telecommunication offers. In contrast, text messaging is displayed as the least important attribute. Further, changes in the predictive validity of the conjoint analysis are investigated. The results show that changing the price parameter from linear to curve fitting for more fine-grained analysis does not thoroughly improve the measurement of consumers' willingness-to-pay. Overall, results support the recent product bundling strategies followed by the main players in the German mobile market regarding voice calling, Internet access and text messaging. The paper helps marketing managers to create optimal bundles of mobile telecommunication services based on willingness-to-pay data retrieved from conjoint analysis.

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1. Introduction

The wide range of bundling literature starts either from an economic modeling perspective or from a marketing-oriented perspective (e.g., Eppen et al., 1991; Johnson et al., 1999; Martin, 1999; Venkatesh and Kamkura, 2003; Gal-Or, 2004; Crane, 2006; Elberse, 2010). Following Guiltinan (1987), "bundling is the practice of marketing two or more products and/or services in a single 'package' for a special price". Moreover, Stremersch and Tellis (2002) highlight the difference between *product bundling*—selling integrated products at the same time for one price, and *price bundling*—combining two separate products at the same time under one price. Nevertheless, the basic idea behind all bundling schemes consists of tapping individual customer's surplus out of a product or service purchase. Sellers are also able to increase their profit by using customers' preference heterogeneity within different market segments (Yadav, 1995).

In addition to the margin optimization described above, providers of mobile telecommunication services aim to increase revenues or market share, enhance customer service, and lower churn rates through bundling (Bouwman et al., 2007; Yang and Ng, 2010). It is common for mobile telecommunication service providers to bundle a service plan with a cellular phone to attract customers' attention for their mobile services (see e.g., Tallberg et al., 2007). The customer is offered a free or

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discounted cellular phone with the service plan (containing e.g., free minutes, text messages or Internet services) under one price, whereas the signed contract regularly lasts for 24 months to refinance the subsidized phone. [Stremersch and Tellis \(2002\)](#) term this a product/service bundle.

[Ranganathan et al. \(2006\)](#) find that frequent and continued users develop a strong and positive attitude about a service (see also [Bolton and Lemon, 1999](#)). Further, the duration of the user-provider relationship as well as service bundling is negatively related to the switching behavior of mobile users. [Hoch and Deighton \(1989\)](#) argue that a customer who uses a large bundle of services accumulates provider-specific skills and knowledge that would be difficult to transfer in case of switching respectively discourage users to defect. In addition, [Yadav and Monroe \(1993\)](#) suggest that having the opportunity to purchase products in a bundle reduces search and acquisition costs. They also provide evidence that customers gain transaction utility from discounts associated with either the individual items in the bundle or the bundle itself (see also [Thaler, 1985](#)). Based on these suggestions, mobile operators would do well to try every effort to attract new customers and tie them to their offering with appealing telecommunication bundles. Useful and valuable mobile service bundles that fit the customer's needs clearly support this effort.

Mobile telecommunication providers sell services that exhibit characteristics of information goods (e.g., [Chae, 1992](#); [Chuang and Sirbu, 1999](#); [Bakos and Brynjolfsson, 1999](#); [Bakos and Brynjolfsson, 2000](#)). Their service has a very low marginal cost compared to the fixed cost they spend on network infrastructure, IT-systems, and other equipment (e.g., [Wirtz et al., 2003](#); [Yang and Ng, 2010](#)). Once the telecommunication provider has invested into infrastructure and the like, the marginal service costs of creating and offering attractive service plans to the customer are insignificant. Nevertheless, it is critical for the telecommunication company to not only determine the services that should comprise the bundle from the customer's preference perspective ([Kim, 2005](#)), but to also charge the optimal bundle prices under a long-term profitability strategy ([Le Cadre et al., 2009](#)). Taking these aspects into consideration should enhance both the number of customers and their satisfaction with the service and simultaneously guarantees higher profits. [Paun \(1993\)](#) argues that customer loyalty might as well increase. Furthermore, [Lawless \(1991\)](#) states that if a company includes more products into the bundle, the difficulty for competitors to duplicate the offer increases.

The previous discussion emphasizes the question of the optimal number of items a company should integrate into the bundle offer as well as the functional relationship among bundle components (see also [Gaeth et al., 1990](#)). For that reason, creating attractive bundles should be guided by the customers' need rather than by competition and internal necessities only. Nevertheless, research in mobile or telecommunication services' bundling in general is limited. Especially studies on the customer's adoption and use of service bundles for a specific price are scarce. There are only few studies that discuss the bundling of different kinds of telecommunication services (e.g., [Ben-Akiva and Gershensfeld, 1998](#); [Papandrea et al., 2003](#); [Tallberg et al., 2007](#); [Yang and Ng, 2010](#)). Moreover, none of the existing studies analyzes the consumer's willingness-to-pay for mobile telecommunication services.

To reduce this research gap, the present study focuses not only on the measurement of consumers' willingness-to-pay for mobile telecommunication service bundles based on a small German sample, but also on the accuracy of how the individual conjoint measurement is performed. The study provides supporting practical guidance for the methodological use of conjoint analysis for bundling phenomena in the telecommunications field and across various industries. From a practitioners' perspective the study sheds light on the relative importance of different product attributes, which are considered by customers as relevant factors in their buying decision.

The authors use a widely adopted bundling strategy in mobile telecommunication business within which customers have to subscribe to a service plan on a long-term basis (i.e., a 24-month contract with monthly payments). The data was collected online and is based on a limit conjoint analysis, which allows for the calculation of reservation prices. An individual buying choice that divides offers worth buying and offers not worth buying was therefore integrated in the classic conjoint procedure ([Voeth and Hahn, 1998](#); [Sichtmann and Stingel, 2007](#); [Klein et al., 2010](#)). Moreover, respondents had to issue two independent yes- or no-statements about buying or not-buying an additional set of two offers that were not integrated into the calculation of the part-worth utilities (hold-out cards). These statements were used for calculating the predictive validity of the analysis ([Voeth, 2000](#)). Attributes that were possible market offerings when the study was conducted and that have been tested were minute packages, included text messages, Internet access flat rates, type of handset, and monthly basic fee. To account for the accuracy of the measurement of consumers' willingness-to-pay, both a linear calculation as well as a curve fitting for the price parameter was conducted. Changes in the predictive validity measurement are reported and discussed. Furthermore, general information about attitudes toward mobile telecommunication services in the German market was gathered. Results are discussed and managerial implications are given. Eventually, limitations of the study are carved out and future research questions are put forward.

2. Literature review

The discussion about bundling starts with an article of [Stigler \(1963\)](#) and has been widely recognized in economics as well as in marketing since that time. [Guiltnan \(1987\)](#) offers a broad definition of bundling as the practice of marketing products and/or services in a single package under a specific price. The article extends the economic theory of bundling, which was historically applied to tie-in sales (pure bundling) as for example discussed in [Stigler \(1963\)](#), onto mixed bundling situations. Whereas [Yadav \(1995\)](#) discusses the phenomenon as a segmentation of markets and the exploitation of consumer

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