

Biased choice of a mobile telephony tariff type: Exploring usage boundary perceptions as a cognitive cause in choosing between a use-based or a flat rate plan

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Abstract

Most mobile network operators provide newly acquired or existing customers with the possibility to choose between a monthly flat rate for unlimited voice calls and pay-per-minute price schemes. Consumers who maximize their utility should select the tariff type that leads to the lowest invoice amount given their anticipated service usage volume. However, previous research looking at users of fixed network telephony, broadband Internet access and other services suggests that a significant share of consumers prefers a flat rate to use-dependent price plans even though their invoice will be higher. One cognitive explanation for such biased choices is that consumers consider the ratio of the likelihood of calling enough to justify a flat rate to the probability of not calling enough to save money with a fixed price (= “ratio rule”) when choosing between the two tariff types. In this assessment they overestimate the first likelihood in proportion to the second one. Drawing on a sample of 203 mobile telephony customers in Germany the present study shows that mobile users are biased in favor of a flat rate because they overestimate their future call usage and behave in line with the “ratio rule” when choosing a tariff type. Correlates of cognitively biased tariff choices are explored. With regard to pricing practices it is concluded that managers should not follow the temptation to exploit the overestimation bias in designing pricing and advertising policies pushing customers into fixed price schemes, which do not fit their actual calling patterns.

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1. Setting and purpose of the present study

Telecommunications management practitioners and scholars agree that pricing of the access to a mobile communications network and of the usage of such an infrastructure for voice calls is a key driver of

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mobile network operators' (MNO) market success (Becker and Fähse, 2007, pp. 10–11; Leung, 2007; Kim and Kwon, 2003, pp. 24–31). MNO offer a broad range of pricing schemes to attract consumers with diverging communication patterns and price sensitivities (Kreye, 2005, pp. 43–48). Given the abundance of mobile tariff types it is striking that empirical evidence on customers' choices among various tariff options and on factors influencing tariff type selection decisions is scarce for the mobile telephony service industry.

One reason for this research gap could be that there is simply no need for this type of investigation since a person's tariff choice is just the outcome of a rational decision making process in which she forecasts her future usage of mobile calls to various target networks and selects the price plan which leads to the lowest invoice for the expected profile of future consumption. However, a number of recent studies indicate that this rational choice model is not sufficient to capture consumers' mobile tariff type selection behaviors. Findings of Iyengar et al. (2007), Bolle and Heime (2005), Huang (2005) and Kreye (2005) suggest that for a significant proportion of mobile users the tariff plan they chose is not the cost-minimizing scheme. This observation is in line with results obtained for other (telecommunication) services where customers are asked to opt for a tariff plan before they actually start to use a service such as voice calls from fixed telephony networks (Narayanan et al., 2007; Miravete, 2005; Backhaus et al., 1998; Kridel et al., 1993; Kling and van der Ploeg, 1990; Train et al., 1989; Hobson and Spady, 1988; Train et al., 1987), Internet access (Lambrecht and Skiera, 2006a), online news provision (Schulze and Gedenk, 2005; Stahl, 2005) or health club exercise possibilities (Della Vigna and Malmendier, 2004).

The inability or unwillingness to select the tariff type leading to the lowest price for an individual's consumption level is generally referred to as a "bias" in favor or against a tariff type or, more concisely, as "tariff-choice bias" (Lambrecht and Skiera, 2006a, p. 212; Schulze and Gedenk, 2005, p. 158; Nunes, 2000, p. 397; Kridel et al., 1993, p. 134; Train, 1991, pp. 211–213). Specifically in mobile voice telephony, it is presently common that consumers can select from two general categories of tariffs: (1) "measured" or "metered" plans where subscribers pay per unit (= minute) for outgoing calls actually made and which can but do not necessarily have to entail a usage-independent monthly fixed access charge and (2) flat rate plans. Under flat rate plans the customer is entitled, for a fixed monthly fee, to call into specified target networks without any impact of the number and the duration of his calls on his monthly price (Narayanan et al., 2007, p. 1; Miravete, 2005, pp. 1321–1322; Miravete, 2002, p. 945; Train et al., 1987, p. 109).

In many countries, flat rate variants for calls originating from mobile radio devices were introduced not long ago. For instance, in Germany *E-Plus* was the first competitor starting to offer a fixed price plan in August 2005. It included unlimited calls of its customers to other *E-Plus* users (= mobile on-net connections) and to fixed telephone network access subscribers within Germany. Given the relative newness of mobile flat rates previous scholarly empirical work has not focused on choices between flat and use-dependent price schemes but rather on whether and why consumers choose different kinds of use-based tariff plans (e.g., Iyengar et al., 2007; Bolle and Heime, 2005; Huang, 2005). Therefore, the purpose of this study is to contribute toward closing this research gap by providing empirical evidence on the existence of flat rate or use-based tariff-choice biases among residential mobile telephony customers in Germany and on the extent to which a cognitive explanation, namely a faulty estimation of one's demand for mobile calls, can account for why people tend to buy more (mobile connection usage rights) than they use.

2. Theoretical background for the empirical analysis

According to Nunes (2000, pp. 397–398, 407) causes for tariff-choice biases can be classified into cognitive and motivational explanations (for similar views see Lambrecht and Skiera, 2006a, p. 213; Lambrecht and Skiera, 2006b, p. 594; Schulze and Gedenk, 2005, pp. 162–164). *Cognitive* considerations argue that individuals *unintentionally* buy more than they use because they overestimate the likelihood of consuming enough to justify a flat fee instead of a pay-as-you-go plan. *Motivational* explanations argue that "people often *intentionally* buy more than they expect to use" (Nunes, 2000, p. 397; italics added) since they derive some kind of non-monetary benefit from choosing a tariff which entails the payment of one fixed fee for limitless access to services or products or one which is strictly use-dependent.

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