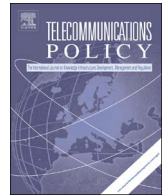




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Analysis of consumer preferences for mobile telecom plans using a discrete choice experiment[☆]

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ABSTRACT

In this paper, we present a study of consumer preferences for mobile telecommunications plans and operator characteristics. The objective of the study was to identify consumer preferences for the following characteristics of mobile plans: the importance of using the same provider as friends and family (calling club network effects), the market share of the provider (pure network effects), the length of the commitment period, monthly fee/recharge obligations and per minute call charges for calls made within and outside the provider network. A discrete choice experiment was used as a preference elicitation method and implemented in face-to-face interviews. We present results regarding willingness to pay for the described features as well as their relationship to socio-demographic variables. Consumers are willing to pay 1.3 Euro per month more to reduce the commitment period from 1 year to 6 months and willing to pay 2.5 euros per month more to be part of a larger network. Consumers are also twice as much more sensitive to within-network price variations than extra-network price variations. These results remain unchanged in the sub-sample of those that have internet access suggesting that a web-based surveys are capable of producing unbiased results. The implications of these results for regulatory policy are discussed.

1. Introduction

In this paper, we present a study of consumer preferences for mobile telecommunications plans and operator characteristics, making use of data collected through a state preference survey which is representative of the entire Portuguese population.

The objective of this study is two-fold. First, it explores the importance of network effects in consumers' choices in mobile telecommunications markets. To this end, we empirically test whether consumers take into account global and local network effects when selecting their tariff-plans. Relatedly, we also investigate whether there are network effects that are induced by mobile operators' rate differentiation between on-net and off-net calls, by testing how do consumers react to changes in the price of the calls to the same network (on-net calls) as opposed to changes regarding the prices of calls to other networks (off-net calls). Second, this

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study aims at analyzing the role of switching costs in mobile telecommunications. In particular, it investigates the importance of the minimum length of subscription duration (the so called commitment period), the existence of which is usually indicated as a source of (static) market power and as an important restriction to the “natural” evolution of market dynamics as it tends to give rise to lock-in effects.¹

With these two main objectives in mind, we identify consumer preferences for the following characteristics of mobile plans: the importance of using the same provider as friends and family (the so called calling club network effects or local network effects), the market share of the provider (so as to measure as pure or global network effects), the length of the commitment period, monthly fee/recharge obligations and per minute call charges for calls made within and outside the provider network.

A novelty of this paper is then to empirically investigate the *joint* effect of switching costs and network effects (both local network effects and global network effects) in determining consumers' preferences when selecting their mobile telecommunication plans.

Despite their increasing importance in the literature, switching costs and network effects have mainly been empirically studied separately. However, as the existing theoretical literature shows, it is the interaction between these two factors that reinforces the well known lock-in effect (Farrell & Klemperer, 2007). Hence, in markets where both are present, as it is clearly the case in the mobile telecommunications industry, a separate analysis of these two factors may well bias in a substantial way the estimation and the interpretation of their induced effects on individual choices regarding mobile plans.

To the best of our knowledge, the two exceptions studying the joint effect of network effects and switching costs in the mobile telecommunication industry are Fuentelsaz, Maicas, and Polo (2012) and Maicas, Polo, and Sese (2009).² These studies are, however, concerned with the induced impacts on the level of competition and on the choice of supplier, whereas the present paper is focused instead on the individual decision making process regarding the choice amongst specific mobile telecommunication plans (offered by the same firm or by different firms). By so doing and by making use of a new methodological approach, we contribute both to the extant literature and to the policy discussion by empirically demonstrating that consumers who value having friends in the same network also tend to be more sensitive to commitment periods. In addition, and perhaps more importantly, we are able to provide estimates about the cost that a firm must incur (by means of providing a discount in the monthly fee) so as to be able to lock in consumers for an additional six month period, controlling for the presence of network effects. These results are therefore useful both for firms, when designing their pricing strategies, and for regulators, who are certainly interested in understanding whereas those pricing strategies may (or may not) give rise to lock-in effects which prevent effective competition between existing firms in the market or deter new entry.

We use a discrete choice experiment as a preference elicitation method. We present results regarding willingness to pay for the described features as well as their relationship to socio-demographic variables. We find that consumers are willing to pay 1.3 Euro per month more to reduce the commitment period from 1 year to 6 months and willing to pay 2.5 euros per month more to be part of a larger network. In addition, our empirical results suggest that consumers are also twice as much more sensitive to on-net price variations than off-net price variations. Interestingly, this last result appears to be related to the recent findings of European Commission Special Eurobarometer 396,³ where it is highlighted that: (i) roughly half of the EU respondents involved in the survey agreed that they have limited their calls to mobile or fixed phones on another network operator because they were concerned about charges; (ii) the proportion of respondents that agreed that they limited calls to mobile or fixed phones on another network varied significantly across EU countries; and (iii) Portugal was found to be the country with the highest level of agreement regarding this statement about off-net calls limitation because of concerns related to communications charges, with 86% of Portuguese respondents recognizing to have adopted such behavior.

Our results may then be of interest to regulators as they may be useful to discuss the eventual need for regulation related to commitment periods and also to discuss implications for regulating on- and off-net price discrimination.

The paper is organized as follows: Section 2 presents a review of the literature; Section 3 includes a detailed description of the data, the survey design and the estimation methods used; Section 4 presents the results of the analysis; Section 5 discusses the regulatory policy implications that can be drawn from the obtained results; and Section 6 provides final remarks.

2. Review of the relevant literature

This paper is related to different strands of the broad extant literature on tariff choice in mobile telecommunications markets. A first strand of this literature investigates which network is relevant to the consumer when choosing between different network operators. Is it the total number of subscribers of a particular network (global network effects) or is it rather the choice of people living in the same area (regional network effects) or belonging to a more restricted social network (local network effects)? Based on Turkish micro-data, Karaçuka, Çatık, and Haucaş (2013) conclude that local network effects are significant for consumer choice: consumers are more likely to be affected by the choices of other people within their local area than by the overall size of a network. In particular, their findings suggest that regional network effects (as measured by market shares at the province level) are more important than network effects at the country level (as measured by national market shares). In addition, Birke and Swann (2006), (2010) provide some evidence that the individual choice of operator is influenced by the total number of subscribers for each operator, but a much stronger effect is due to the operator choice of other household members, on the one hand, and to the operator

¹ See Villas-Boas (2015) and Farrell and Klemperer (2007) for surveys on the effects of switching costs on product market competition.

² See Section 2 for more a detailed description of these two studies.

³ See European Commission Special Eurobarometer 396 (November 2013): E-Communications Household Survey, available at: http://www.ec.europa.eu/public_opinion/archives/ebs/ebs_396_en.pdf.

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