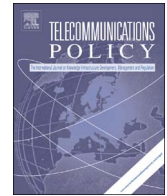




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Effects of degrees of acceptance and awareness on a rate system for lowering mobile bills

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ABSTRACT

South Korea has the highest mobile bills among the OECD countries, and there is strong public demand in the country to reduce expenditure amounts. In response, the South Korean government and mobile carriers have implemented measures such as a “Smart Choice Service,” data-centered plan, and 20% discount scheme in order to reduce mobile bills. However, it is unclear whether these systems have actually led to such a reduction. The present study analyzes quantitatively how people's acceptance and awareness toward rate systems reduce or do not reduce mobile bills, based on the results of a survey conducted here. More specifically, to solve the endogeneity problem of saving behavior's effect on mobile bills, the study adopts the instrumental variables of degree of acceptance and awareness of systems relating to mobile bills. The results show that acceptance and awareness of the system do affect savings behavior and thus mobile bills. If the degree of savings behavior (affected by acceptance and awareness) goes up one step on a seven-point Likert-type scale, there is an average 8.28% savings effect on mobile bills. Thus, this study shows that degrees of acceptance and awareness of the rate system do affect mobile bills.

1. Introduction

Smartphone penetration has increased quickly in South Korea from 2008, when smartphones were introduced to the market, to over 80% in 2015 (Korea Information Society Development Institute, 2016). As dependence on and consumption of smartphones and smartphone data have increased, monthly communication costs per person have grown accordingly, to about USD 126.82, about 5.8% of total household expenditures. In addition, mobile bills account for more than 80% of communication costs; this has become a social problem due to the steep rise and because a mobile phone has increasingly become a necessity (Korea Statistics, 2015). Monthly household communication

expenditures show a steep rise of 7.4% from USD 115.88 in 2010 to USD 124.46 in 2013 (Organisation of Economic Co-operation and Development [OECD], 2013). In fact, South Korea has the highest ratio of communication costs to household expenditures among the OECD countries (OECD, 2013). Income elasticity of communication costs in South Korea is below 1, which shows a character of necessity (Shin, Na, & Bae, 2008); and since communication costs reveal a reversibility of income from 2001, that is, decreasing income, an aging population and increasing inequality, the burden of communication costs has emerged as a factor that threatens the welfare of the people (Kim, Kim, & Lim, 2012). Considering that the world's average smartphone penetration rate is around 40% (eMarketer, 2014), this

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communication cost burden is to varying degrees a problem and source of potential social issues not only in South Korea but also around the world.

In order to resolve communication cost issues, people have made efforts to reduce their household mobile telecommunication service costs; however, there is a limit to the effectiveness of this approach due to the variety and complicatedness of rate systems. Thus, the South Korean government, a regulator in the mobile service market, has launched a “Smart Choice Service” in partnership with three mobile carriers, which automatically suggests multiple plans from multiple producers at economical price points when one enters one’s desired data and phone call usage. Furthermore, the government in October 2014 changed the law on Mobile Device Distribution Improvement (MDDI) to prevent inefficiency caused by information asymmetry between mobile carriers and consumers (Kang, Park, Lee, & Rho, 2017; Kim, Park, Cho, Kim, & Choi, 2017). However, the government should thoroughly consider the objective and cost of regulation before implementing such strong restrictions (Kang et al., 2017). Moreover, people in South Korea distrust the government’s telecommunication policies; for this reason also, measures to provide helpful information may not work effectively (Kim et al., 2017). Since mobile carriers could no longer differentiate the subsidies that mobile carriers offer to consumers, which were formerly their main strategy to increase market share, they have competed using data-centered plans¹ and 20% discount schemes.² These approaches are intended to increase provider competitiveness and reduce mobile bills.

However, three years after the Smart Choice Service was launched, only 17% of 550 respondents to a survey conducted for this study are familiar with it. Furthermore, although mobile bills can be reduced if changes to the suggested plan are implemented using this service, only 41% of 550 respondents had positive attitudes toward the use of the suggested plan. Moreover, only 33% and 23% of 550 respondents respectively were familiar with the data-centered plan and 20% discount scheme. This means that awareness and acceptance are low for all these systems.

The purposes of this study are to analyze quantitatively the effect of people’s efforts to save on their mobile bills. Savings behavior and mobile bills affect each other mutually, meaning that “savings behavior” as an explanatory variable has an endogeneity problem because of reverse causality. Such endogeneity issues between attributes can be solved using an instrumental variable; however, it is difficult to find such an instrumental variable in this case. In this study, two attributes that meaningfully influence savings behavior and are considered to be valid and reasonable statistically as instrumental variables have been verified and applied to solve these endogeneity issues: *acceptance* and *awareness* of rate systems.

¹ A mobile telecommunication plan that provides unlimited talk and text free and applies different monthly fixed bills (basic charges) according to levels of data service, which is an area of keen competition between mobile carriers currently.

² Discounts are available for long-term customers.

2. Background

2.1. Characters of the Korean rate system and information asymmetry

Lee and Lee (2012) analyzed the factors affecting telecommunications expenditure in South Korea, and found out that one key factor was that many services that were provided offline in the past have now migrated online. The scope and volume of online services are very likely to continue to grow, and data usage on mobile devices is expected to grow accordingly. Due to the increasing penetration and usage of smartphones in South Korea, the burden of mobile bills is the highest among OECD countries (OECD, 2013), and charge structures are similar across mobile carriers. Given this situation, various subscriber and consumer groups have filed complaints with the government, including a written opinion promoting the abolition of basic charges, reduction of mobile device prices, and increase of data serving size (People’s Solidarity for Participatory Democracy [PSPD], 2015.7.2 [press release]). In this context, government intervention in the South Korean mobile market has been frequent. The aforementioned Smart Choice Service as well as a recent law to restrict phone subsidies, can be seen as interventions by the government in the mobile market. In contrast to this situation, in most major countries, regulatory system focuses on the antitrust aspect of mobile carriers rather than on subsidies and rate systems. For instance, the Swiss government prohibited a merger of three companies into two in April 2010 (Köllezi, 2015).

After the introduction of smartphones, data-centered plans have become more prevalent. Therefore, in the US, Verizon launched a data-centered plan called “Share Everything” in June 2012 and AT & T launched its “Mobile Share” in August 2012 (Sen, Joe-Wong, & Ha, 2012). These plans provide unlimited call and SMS with 1 GB of data at USD 90 (Verizon) and USD 85 (AT & T); the plans can be expanded to a maximum of 10 GB. Likewise, payment plans in the US are easily distinguishable, while in South Korea, the overall rate structure may be similar between companies but each payment plan is quite complicated. For this study, we analyzed the payment plans of the three main Korean internet service providers (ISPs); at least 84 plans were identified for SKT, and 72 and 56 each for KT and LGU+.

To sum up, in South Korea the rate systems implemented by government and payment plans provided by mobile carriers are quite complicated, putting consumers in an incomplete information environment (Akerlof, 1995). As a result, consumers have less information compared to suppliers such as mobile carriers and government, a condition called information asymmetry (Healy & Palepu, 2001); there also exists an information and knowledge gap among consumers. Information asymmetry can weaken the ties of trust between consumers and suppliers (John, 1984), but can be resolved through the introduction of signals (Nelson, 1970) that help consumers make more accurate and effective decisions; representative signaling methods are advertisement and price (Bergen, Dutta, & Walker, 1992; Nelson, 1970).

2.2. Factors affecting expenditure and financial management behavior

Consumers spend time and cost to resolve information

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