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Strategic management of over-the-top services: Focusing on Korean consumer adoption behavior

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ABSTRACT

With the emergence of over-the-top (OTT) services, consumers can enjoy broadcasting contents using personal computers, smartphones, and tablets whenever and wherever they want. Not only are traditional broadcasting service providers entering the OTT service market, but Internet service providers are as well, and they are competing with each other to achieve market power. We estimated consumers' preference for OTT service based on conjoint survey data, and conducted a market simulation based on the estimation result in order to analyze the change of market penetration ratio in accordance to the change of market strategy of each broadcasting service provider. As a result, consumers have the highest priority for real-time broadcasting. When the terrestrial television broadcasting service provider does not provide its contents to other service providers, Internet service providers and pay TV service providers can increase their market power by decreasing the price and by increasing the number of VODs respectively.

1. Introduction

With the spread of smart devices with Internet connectivity and the digitization of media content, consumers can enjoy a variety of media content without constraints on time and space. The emergence of service platforms that provide media content through open Internet has led to a paradigm shift from the traditional broadcasting industry. This kind of online video service is referred to as an "over-the-top (OTT) service" and the definition of OTT used by researchers varies. Gonçalves et al. (2014) defined OTT as "video distribution using the Internet Protocol over a public network" and Limbach (2014) denoted OTT players as Internet service providers that provide Internet content without direct control from communication service providers. The Federal Communications Commission (FCC) (2013), which regulates communications services in the United States, defines online video distributors (OVD) as "any entity that offers video content by means of the Internet or other Internet Protocol (IP)-based transmission path provided by a person or entity other than the OVD." Since 2014, the FCC has classified internet-based services as a multichannel video programming distributor (MVPD).

In contrast to the structure of the traditional broadcasting industry (a vertically integrated structure), the OTT service industry has a flexible structure combining various content (broadcast, movie, music video, etc.), platforms (websites, smartphone apps, social network services [SNSs], etc.), and devices (TV, PC, smartphone, etc.). OTT services can be provided by any third party company. Thus, various players that are not traditional broadcasting service providers provide OTT services, including Netflix, Amazon Prime, and Youtube. Consequently, traditional media companies such as TV service providers are faced with competition from various new entrants in the industry. Therefore traditional media companies have launched their own online video platforms such as Hulu, Youview, and HBO Go in order prevent cord-cutting[1] or cord-shaving[2] and to lock in their customers.

The OTT market is growing rapidly. According to PwC (2015), the size of the OTT market in the U.S. is expected to reach US$16.54 billion in 2019, with a CAGR of 14.6%. While the largest U.S. OTT provider is Netflix, which is not a traditional media company, various OTT services in South Korea are provided by traditional TV service companies, such as IPTV and cable operators. Unlike in the U.S., OTT services are not widely used yet and are driven by traditional media companies in South Korea. This can be explained by the difference in pay TV subscription fees. The pay TV and OTT service fees in South Korea are similar. For example, the subscription fee for IPTV is about US$11.2 per month if consumers agree

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[1] Cord cutting refers to the phenomenon of subscribers cancelling subscriptions to TV services.
[2] Cord shaving refers to the phenomenon of subscribers dropping expensive TV services or reducing the number of hours watching TV services.

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to a three-year contract, while that for OTT services is about US$11.7 per month. In the U.S., consumers can use the Netflix service for US$7.99 per month, while basic cable TV is about US$20 per month. Therefore, OTT services in the U.S. enjoy a comparative advantage in terms of price competitiveness. This price competitiveness explains the rapid growth of OTT services in the U.S.

As of January 2016, Netflix launched their service in South Korea as the first global company to enter the Korean subscription-based OTT market. The entrance of Netflix is expected to bring the attention to OTT services even though Korean market situation is different from that of the U.S. The attributes of each OTT service such as service fees, the type and quantity of content and service quality vary among OTT service providers. OTT services have not been particularly successful yet in South Korea despite conditions favorable for a rapid diffusion of OTT services, such as the availability of the latest smartphones and high-speed broadband Internet.

To establish a successful OTT business model, a user-centered strategy is required because OTT service is a socio-technical ensemble (Bijker, 1995). That is, it is necessary for OTT service providers to investigate consumer preferences and demands. In addition, OTT services can act as a substitute for traditional terrestrial networks, cable networks, and Internet protocol television (IPTV). Therefore, in order to be successful in the market, the relationship with traditional broadcast services should be considered when establishing a business strategy. The price of content owned by traditional broadcasters can change based on whether the OTT service is a substitute for or a complementary service compared to what they are offering.

This paper seeks to determine which OTT services will be preferred by consumers. In order to achieve this, the paper empirically analyzes consumer preferences for various attributes of OTT services. Additionally, the relationship between OTT and traditional broadcasting services is examined based on the estimation results. From these results, this paper proposes a user-centered OTT strategy to lead the OTT market using a computational experiment.

The remainder of this paper is organized as follows: Section 2 examines previous literature on OTT services. Section 3 presents the research model and estimation method, and Section 4 presents the structure of the choice experiments and data. Section 5 presents estimation results of consumer preference for OTT services, results of the market simulation and the relationship between OTT and traditional broadcasting services. Lastly, conclusions are provided in Section 6.

2. Literature review

The impacts of OTT services have been investigated from a number of different perspectives. Among them, many previous studies have focused on the analysis of OTT technologies. Specifically, many research papers analyzed network traffic generated when people use video streaming services and dealt with the network management required to provide OTT services in a stable manner in terms of quality of service (QoS) and quality of experience (QoE) (e.g., see Bouten et al. (2013), Haugene and Jacobsen (2011), Nam et al. (2013), and Seppänen and Varela (2013)).

The regulation issues generated by OTT services have received a lot of attention from researchers. OTT services are currently not regulated by broadcasting act in many countries, but some OTT services provide the exact same content as those of TV service providers. Therefore many studies have investigated regulation issues related to OTT services. Little (2008) analyzed the European Audio Visual Media Services Directive. VanWanger (2011) suggested an appropriate regulation framework for commercial distribution of video content via broadband internet. Onay (2009) pointed out that regulation of OTT services is required in order to secure fair competition in the market. However, investigation of the impact of OTT services on the traditional media market should take precedence over decisions regarding whether or not to regulate OTT services, as the Canadian Radio-television and Telecommunications Commission (2011) pointed out.

In this respect, some studies have analyzed the impacts of new media such as OTT on old media from industrial and user perspectives. Waterman et al. (2013) found that the TV Everywhere service provided by MVPD could discourage entry into the online video market. The entrance of new online TV service provider which does not provide traditional TV service into OTT market could be deterred if an existing cable operator provides a bundled service (TV + free online TV) since standalone online TV service cannot be profitable. Waterman et al. (2013) also mentions that the results could be changed according to the market conditions such as the demand structure for on/offline TV service and the value of online TV service. Gonçalves et al. (2014) examined the strategies of various online video services and discussed control issues in the market.

Other studies analyzed consumer preference and usage behavior in terms of new media. Baccarene et al. (2013) analyzed usage behavior of media services including OTT services through survey data. Both studies showed that the adoption of OTT services will be increased. Prince and Greenstein (2015) investigated factors affecting consumer choices regarding the delivery method of video content by analyzing consumer cord-cutting behavior. Their findings indicate that young and low-income households had a higher probability of cord-cutting. Sujata et al. (2015) examined the change in consumer usage behavior with regard to telecommunications service and the effect of OTT services on the profit structure of the telecommunications market. Woo et al. (2014) empirically analyzed the impacts of internet and mobile internet on consumer media usage. The results indicated that usage of old media, with the exception of TV, is decreased by the advent of mobile media. See-To et al. (2012) and Lee et al. (2010) analyzed mobile TV or mobile video from the user perspective.

Although a few previous studies empirically investigated user preference for OTT services, to the best of our knowledge, there has not yet been a paper investigating OTT services that considered changes in the attributes of OTT services and the relationship between OTT and traditional broadcast networks. Identifying the importance of each attribute of OTT services from the user perspective is important in order to build effective business strategies, since OTT services are new to most consumers. In addition, investigating how competition with new services will affect traditional media with the advent of OTT is also important for both media companies and media policymakers. This paper focuses on the specific attributes of OTT. Most previous empirical studies on OTT services were based on survey data and were limited by sample size; thus, this paper sought to secure a reasonable sample size.

3. Model specification

This study analyzes consumer preference of OTT services as well as the relationship between the OTT services and traditional broadcasting services in order to provide a user-centered OTT strategy. To analyze these topics, this study uses discrete choice models based on random utility theory. Discrete choice models have been used to analyze consumer preference for many information and communication technology (ICT) products and services (e.g., see Shin et al. (2014) and Lee et al. (2015)). In a discrete choice model, it is assumed that each consumer i has their own utility function for each product or service j in the choice set t (McFadden, 1974; Train, 2003). This utility function can be stated using Eq. (1):

$$U_{ijt} = V_{ijt} + \varepsilon_{ijt} = \sum_k \beta'_{ik} X_{jkt} + \varepsilon_{ijt}. \quad (1)$$

In Eq. (1), the random utility model is divided into two parts: effects from deterministic factors (V_{ijt}) and random factors (ε_{ijt}). The deterministic part consists of the marginal utility of each attribute k of service j