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Accepting or fighting unlicensed usage: Can firms reduce unlicensed usage by optimizing their timing and pricing strategies?

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ABSTRACT

The rise of the Internet and new online services have led to the wide-scale illegal distribution of digital entertainment products, such as music, movies, games, and books. We analyze whether firms in the entertainment industry should fight unlicensed usage by providing specific offers that maximize the utility for segments relying on unlicensed usage, i.e., by optimizing timing and pricing strategies, or whether they should simply accept a certain level of unlicensed usage. We combine Becker's (1968) economic approach to analyzing social issues with random utility theory to develop a choice model for media products in which we account for unlicensed usage. We then apply the model in two large-scale empirical studies on movies and books. The results show that consumers who prefer unlicensed usage are sensitive to the marketing mix to some extent in both markets. However, optimizing timing and pricing only has limited impact on additional revenue generation. Thus, from a managerial perspective, it is very difficult to reduce the relative loss due to unlicensed usage by providing targeted offers.

1. Introduction

Steve Jobs directly addressed the problem of piracy in the media industry in the interview with Goddell (2003): "You'll never stop [piracy]. What you have to do is compete with it". The challenge for firms in the media industry is to identify strategies that allow them to compete at an optimal level against unlicensed usage.[1] The major players in the media industry lobby via trade associations (MPAA, IPA, and RIAA) for strict copyright enforcement and stronger punishment for piracy. However, consumers (and pirates) argue that the offered products are not optimally designed to meet their preferences (Clement, Rangaswamy, & Vadali, 2012; Economist, 2014). The pressure to compete against unlicensed usage is high, especially with the advent of new online services, such as file sharing or, more recently, locker services, which allow users to widely and efficiently share media files illegally (IFPI, 2013; International Publishers Association & Börsenverein, 2012).

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[1] We define unlicensed usage as any usage of media content obtained from sources that do not have the right to distribute the content to the user. This definition includes illegal usage (e.g., piracy), on the one hand, and gray areas of usage (e.g., borrowing), on the other hand, as both lead to a revenue loss for the holder of the copyright. It is therefore also not limited to digital media products.

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These new technologies have substantial effects on consumer behavior (Bhattacharjee, Gopal, Lertwachara, Mardsen, & Telang, 2007; Papies, Eggers, & Wlömert, 2011). Interestingly, prior research mainly focuses on understanding unlicensed usage and addresses the effects of digital rights management (DRM, Chellappa & Shivendu, 2005; Sinha, Machado, & Sellman, 2010; Sundararajan, 2004), legal actions (Chen & Png, 2003; Sinha & Mandel, 2008), or free services on downloading intention (Clement et al., 2012; Gopal & Gupta, 2010). However, the key questions for the industry are whether and how firms should change their marketing strategies to compete against unlicensed content distribution.

Following the argumentation of Becker (1968), in which pirates are assumed to be rational, we argue that some users knowingly consume illegitimate versions of music, movies, books, and so forth to maximize their utility. Thus, when deciding on a source of consumption, users evaluate both the costs and the expected return from illegal activities (Ehrlich, 1981). We integrate this notion into random utility theory to develop a framework for licensed and unlicensed media choice. In this model, we assume that (potential) consumers are aware of the available legal market options and the possibilities of unlicensed usage. To determine their final choice, they compare the utility of the most attractive legal alternative with the utility of consuming the product via unlicensed distribution channels and then choose the utility-maximizing option. According to this model, unlicensed users can be converted to paying customers by increasing the utility of the legal options, e.g., by reducing their prices. Then, the question arises whether firms should fight unlicensed usage by providing specific offers that maximize the utility for the relevant segments or whether they should simply accept a certain level of unlicensed usage because they will not be able to gain more business owing to cannibalization effects. In other words, should a firm care about unlicensed usage or simply ignore the “lost” segment?

To address this research question, we analyze the effects of different (1) timing and (2) pricing strategies for specific media products on consumers' choices while controlling for unlicensed usage in two major entertainment markets: motion pictures and books. We focus on pricing and timing decisions as the two main strategic instruments for applying a sequential release strategy. Both instruments play a significant role in many entertainment industries, such as the motion picture (Elberse & Eliashberg, 2003; Hennig-Thurau, Henning, Sattler, Eggers, & Houston, 2007; Ho & Weinberg, 2011) or book industry (Clerides, 2002; Hu & Smith, 2011; Kannan, Pope, & Jain, 2009), in which related or substitutable products are sold for different prices at different times (e.g., hardcover versus paperbacks versus e-books). We empirically assess the validity of the choice model and the impact of timing and pricing by using two large, representative samples of 2521 (1623) consumers in the motion picture (book) market. We use the empirical results to predict consumer choices and to simulate revenues for more than 17 million potential market configurations that differ in terms of the timing and pricing of market options. We then analyze the scenarios that provide the highest revenues for the industry, both with and without considerations of unlicensed usage.

Our results reveal that unlicensed usage has a significant effect on firm revenues, accounting for a loss of approximately one-third of firms' revenue potential. Explicitly addressing this problem by accounting for unlicensed usage through timing and pricing decisions has only a limited impact. The maximum revenue that can be achieved by accounting for unlicensed usage is not substantially different from the maximum revenue that neglects unlicensed usage, providing only a 1–2% revenue gain. Thus, from a managerial perspective, our results indicate that it is not optimal for firms to significantly change their marketing strategies to counter unlicensed usage. Overall, we find support for Becker's (1968) theoretical work that suggests that it may be optimal for firms to simply accept a certain level of unlicensed usage.

2. Literature review

The negative impact of piracy on sales has been addressed in various studies that rely either on market-level data (e.g., using natural field experiments, Danaher, Dhanasobhon, Smith, & Telang, 2010; Danaher, Smith, Telang, & Chen, 2014) or individual-level data (e.g., survey data; Sinha & Mandel, 2008). While there are some heavily debated exceptions (e.g., Oberholzer-Gee & Strumpf, 2007), most studies find strong support for the negative effects of digital piracy on sales (see the literature review by Danaher, Smith, & Telang, 2014; Dejean, 2009). However, few papers have analyzed the impact of marketing strategies to reduce the problem of piracy (Table 1).

As revealed in Table 1, previous research has addressed three major strategic options to reduce unlicensed usage. First, we find studies that analyze the impact of new laws (e.g., HADOPI; Danaher et al., 2014), the execution of laws that result in the shutdown of illegal activities (e.g., megaupload.com; Danaher & Smith, 2013), and the announcement of legal sanctions on demand (e.g., Bhattacharjee et al., 2007). The findings of these studies suggest that anti-piracy interventions reduce the level of piracy. In line with these findings, studies focusing on the link between the perceived costs of piracy (e.g., attitudes toward piracy) and the intention to pirate support the notion that taking legal actions seems to be a valid strategy to combat piracy (Lysonski & Durvasula, 2008)—ideally if it is accompanied with improved services by legal providers (Sinha & Mandel, 2008).

The second group of research focuses on technical restrictions to enforce copyrights by using digital rights management (DRM) (e.g., analytical research by Jain, 2008; Sundararajan, 2004). Using (student) survey data, Sinha et al. (2010) find that the music industry can actually benefit from removing restrictions, as a DRM-free environment increases the demand for legitimate products as well as consumers' willingness to pay for music. Thus, strong technological restrictions resulting from DRM may backfire.

A third stream of literature addresses strategies to compete with piracy by providing services for free (e.g., advertising-funded services such as Spotify). Such service interventions may change consumers' mental models regarding illegal file sharing and may result in fewer downloads of illegal music files. Based on two field experiments, Clement et al. (2012) find that the introduction of free legal music downloading services weakens the relationship between attitudes toward illegal file sharing and intention to illegally share files if the free service is of high quality. Papies et al. (2011) argue that advertising-based business models have the potential to attract consumers who would otherwise ignore commercial downloading. Smith and Telang (2009) find that free