



The effect of music streaming services on music piracy among college students



Karla Borja^{a,*}, Suzanne Dieringer^{b,1}, Jesse Daw^b

^a The University of Tampa, Tampa, FL, USA

^b The University of South Florida, St. Petersburg, FL, USA

ARTICLE INFO

Article history:

Available online 18 December 2014

Keywords:

Music industry
Digital music piracy
Music streaming
Attitudes and collective views
Logit model

ABSTRACT

Previous studies examining the intention and level of music piracy among young people have postulated that collective attitudes, optimistic biases toward risk, and beliefs about copyright laws are the key factors involved in their decisions. We extend the analysis by studying the impact of music streaming services. Music streaming is an alternative business model in which, for a small fee, the consumer has access to a large set of songs without downloading them onto their devices. Results from a Logit model show that college students who are frequent users of music streaming are also more likely to download music illegally. A plausible explanation is that those engaged in music streaming are also heavy users of computer technology, software downloading, and digital sharing – factors that facilitate the conditions for music piracy. Demographics, collective attitudes, and beliefs about risk and rewards continue to play a key role in explaining music piracy, but their relevance is slightly reduced once controlled for music streaming usage.

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1. Introduction

Illegal downloading of digital files is a growing threat to the music industry. No longer limited to sharing physical copies, millions of virtual strangers can share music files via the Internet. The International Federation of the Photographic Industry estimates that over 40 billion songs were illegally downloaded in 2008 (IFPI, 2009). New technology, faster wireless connections, and a wider range of mobile devices have facilitated the venue's shift to a space for file sharing and music piracy. This digital embezzlement decreases profits and earnings, but most importantly, it distorts the dynamic market of digital music.

The music industry and the research community have made advances in investigating the effects of music piracy as well as the attributes of those engaging in this illegal act. However, with the emergence and popularity of digital streaming services, more research is needed to determine the relationship between music streaming and music piracy. It is estimated that more than 28 million paying subscribers and many more free-service music streamers had access to 37 billion digital songs in 2013 (IFPI,

2014). Since music streaming is a low-cost alternative to listening to music, it has the potential to reduce music piracy. At the same time, music streamers are young computer users who might feel at ease downloading music illegally.

To address this issue, we use a representative survey of 197 college students who were asked about their online shopping habits, the frequency of movie and music downloading, the usage of streaming services, and the reasons for avoiding music downloading fees. After controlling for variables often considered in the literature, we show that, on average, a music pirate is more likely to be young, with lower income, heavily influenced by peers, and overconfident about risks and rewards. Most importantly, those who actively use a streaming service are also more likely to engage in music piracy. Our results offer valuable insights regarding the impact of online music consumption on the revenue of the music industry.

The rest of the paper proceeds as follows. In section two, we review the existing literature on music piracy and music streaming services, and propose five hypotheses. In section three, we describe the empirical methodology and data. In section four, we present the results from a Logit model analysis and discuss the findings. Finally, in section five, we offer conclusions and recommendations.

2. Theoretical framework, literature review and hypotheses

Music piracy – or, the copying and downloading of music illegally – is considered a serious problem for the music industry

* Corresponding author at: 401 W. Kennedy Blvd., Box O, Tampa, FL 33606, USA. Tel.: +1 813 257 3588; fax: +1 813 258 7408.

E-mail addresses: kborja@ut.edu (K. Borja), sdiering@mail.usf.edu (S. Dieringer), jdaw@mail.usf.edu (J. Daw).

URL: <http://www.ut.edu/KarlaBorja/?terms=karla%20borja> (K. Borja).

¹ Address: 140 7th Ave. South, St. Petersburg, FL 33701, USA.

and the economy of developed nations. Although it is difficult to accurately assess the losses, preliminary evidence indicates that music crime reduces annual U.S. GDP by \$12.5 billion (Siwek, 2007). The problem of music piracy goes beyond the current dollar losses. It is also about the economic, legal, and social distortions, and the market inefficiencies embedded in the act of stealing copyrighted songs. If so, the research community is interested in recognizing music pirates and their motivations.

Following this line of investigation, our interest is to examine the determinants of the digital music piracy by developing a set of hypotheses supported by prominent theories in the field. For instance, age, gender, and income are predictors of music piracy. According to the purchasing behavior theory, digital music is a hedonic product from which the consumer attains an affective experience such as pleasure or joy (Moe & Fader, 2001). The degree of such stimulation in the willingness to purchase an item is not homogenous among consumer segments (Sinha & Mandel, 2008). Madden and Lenhart (2003) conducted a telephone interview of over 2700 adults asking about their illegal downloading habits and found that more than 50% of those admitting to do so were between 18 and 29 years of age. In contrast, adults over the age of 50 who illegally download music represented less than 15% of the respondents. Rochelandet and Le Guel (2005) also identified similar patterns among young adults.

Previous research also indicates that men are more prone to engage in software piracy than women because men are more familiar with peer-to-peer (P2P) networks and other digital sharing technologies. Furthermore, men are more focused on economic incentives and personal advancement than females (Chiang & Assane, 2008; Gopal, Bhattacharjee, and Sanders (2006); Sims, Cheng, & Teegen, 1996).

Gopal and Sanders (1997, 1998), Madden and Lenhart (2003), and Bhattacharjee, Gopal, and Sanders (2003) found that household income and education are linked with illegal downloading behavior. Coyle, Gould, Gupta, and Gupta (2009) concluded that “people intending to pirate were younger, likely to be male, and had lower household income” (pp. 1036). Supported by the research cited above, we propose the following hypothesis:

H1. Age, gender, and income affect the likelihood of engaging in music piracy.

Ajzen (1991) and Akers (1998) developed models in which human behavior is determined by the beliefs and perceptions about consequences, social pressure, and the control and rewards of the outcomes from an action. Supported by these theoretical models, recent empirical studies have focused their attention on the beliefs associated with music piracy (Coyle et al., 2009; Cronan & Al-Rafee, 2008; Phau & Ng, 2010; Taylor, Ishida, & Wallace, 2009).

In addition, herding behavior models diagnose that collective viewpoints and social relations are strong predictors of individual choices, particularly when the consumer has incomplete information about the product or it is costly to calculate risks and rewards (Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1992; Manski, 2000; Schiller, 1995). In the specific case of digital music, herding behavior is manifested when music pirates encourage others to download songs with little concern about the risks or illegality of the choice. Shanahan and Hyman (2010) found that attitudes such as “everyone else is doing it,” “my friends are doing it,” and “important online users want to swap digital files” were strong indicators of music piracy behavior. Rochelandet and Le Guel (2005), Levin, Conway, and Manolis (2007), Chen, Shang, and Lin (2008) and Altschuller and Benbunan-Fich (2009) also found similar results. From this information, we test a second hypothesis:

H2. Peer pressure and herding behavior affect the likelihood of engaging in music piracy.

Rational choice theory predicts that individuals weigh the rewards and risks of any action. In the case of the music piracy act, a consumer weighs the reward of owning a wide range of music without paying for it, against the probability to be arrested and the severity of the penalty. In a study interviewing 500 individuals, McCorkle et al. (2012) found that lower perception of penalties and computer virus risks is associated with illegal file downloading. Coyle et al. (2009) also found that most music downloaders do not fully recognize the risks of being caught, which partially explains the persistence of illegal downloading even when governments have established clear copyright laws and raised fines and jail time (Cheng, Sims, & Teegen, 1997; Chiou, Huang, & Lee, 2005; Li & Nergadze, 2009; Nandedkar & Midha, 2012; Shanahan & Hyman, 2010). Supported by this literature, we develop the following hypothesis:

H3. Perceived risks and penalties associated with music piracy affects the likelihood of engaging in music piracy.

In the field of social learning, Akers (1998) argues that individuals exposed to criminal models for a long period of time are likely to commit the criminal act. Music pirates tend to experience little or no concern regarding the economic struggles of the music industry or the artists (Freestone & Mitchell, 2004; Lysonski & Durvasula, 2008; Rochelandet & Le Guel, 2005). In fact, music pirates tend to hold negative views about the industry, arguing that music companies take advantage of consumers by forcing the purchase of an entire CD, the price of a CD is extremely high, or artists are not being paid fairly by the record labels (Bowie, 2005; Coyle et al., 2009; Levin, Dato-on, & Rhee, 2004; Wang & McClung, 2012; Wingrove, Korpas, & Weisz, 2011). Thus, we propose the following hypothesis:

H4. Individuals’ opinions about the music industry or the artists affect the likelihood of engaging in music piracy.

The role of music streaming services in the context of illegal digital downloading also needs to be investigated. Music streaming services send files of songs or videos to a computer or mobile device without downloading the file into the device. Thus, consumers, at a low cost, have access to the digital content without actually owning it. Music streaming is thriving globally. In 2010, the industry recorded 8 million subscribers, and by 2013 there were more than 28 million paid subscribers and countless more free-service members considered active users of music streaming services (IFPI, 2014). This new model of music purchasing has gained popularity thanks to faster Internet speed and mobile technology.

Controversial notions have risen around the music streaming service. Models of consumer surplus predict that lower prices increase the net utility arising from a product, prompting higher demand. Music streaming is a less expensive alternative to other music purchases; it also promotes new and unfamiliar artists, propelling consumers to purchase music online (Gopal et al., 2006). Using a panel of 16,000 European consumers, Aguiar and Martens (2013) found a positive relationship between music streaming and online music purchases.

On the other hand, streaming services are also associated with tech savvy consumers who feel comfortable with software downloading, digital sharing practices, and music piracy. Coyle et al. (2009) found that individuals “who are heavy consumers of legally purchased online music will be more likely to pirate music in the future” (pp. 1034). Rob and Waldfogel (2006) concluded that file-sharing and file-downloading reduce music spending. Thus, we propose the following hypothesis:

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