



Sailing in the same ship? Differences in factors motivating piracy of music and movie content



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ABSTRACT

This study presents indicative evidence on the impact of a range of consumer attitudes and characteristics upon the consumption of pirated music and movie files. Consumers of both types of content are analyzed using a survey sample consisting of over 6100 observations. The study finds that demographic factors and attitudes toward downloaded content have the greatest influence on the consumption of pirated material, while awareness of legality and the threat of punishment affect consumption to a lesser extent. The findings of this study also suggest several conspicuous contrasts in the consumption of illegally downloaded music and movie files. Prolific music downloaders typically demonstrate a greater propensity to substitute legal content for pirated materials, while heavy movie downloaders demonstrate a greater willingness to pay for legal alternatives and are deterred to a greater extent by an awareness of negative effects of piracy upon the movie industry.

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1. Introduction

File sharing is the act of distributing digital materials between groups of users. Shared content often takes the form of entertainment media ripped from an original copyrighted source such as a commercial CD or DVD, where it is illegal to share these files without the consent of the copyright owner. A popular mechanism for accessing pirated materials online is the BitTorrent protocol, whereby users share components of the same file simultaneously through networks that reduce the strain on any single user's Internet bandwidth. Torrent files indicating the location of external trackers are downloaded via websites such as The Pirate Bay, Kick-Ass Torrents and TorrentReactor, which typically do not accept any legal liability as the copyrighted material is not actually hosted on their servers. Additionally, with the technological frontier constantly shifting, illegal file sharing is increasingly being facilitated via other mechanisms, such as newsgroups, blogs and direct download sites.

The piracy of copyrighted material is a major issue of concern for governments and policy makers, as well as the creative industries who represent themselves as victims of such activities. The scale of the problem has become vast, with peer-to-peer (P2P) file sharing interactions accounting for between an estimated half and four-fifths of all internet traffic and over 95% of overnight activity (Schulze and Mochalski, 2007). Consumer attitudes toward illegal file-sharing seem to suggest a high level of moral ambivalence toward the practice, with previous research showing that two-thirds of illegal file sharers in the US are unconcerned whether files are copyrighted or not (Pew Internet and American Life Project, 2003) and only around 5% of the so-called Generation Y holds the belief that illegally downloading copyrighted material is ethically or morally objectionable (Freestone and Mitchell, 2004). Additionally, it has been suggested that 70% of surveyed 16–19 year olds do not feel any guilt about illegally downloading music tracks, while 61% of the same age group do not believe that they should have to pay for music at all (Human Capital, 2009).

Prior research into illegal file sharing has tended to focus on the piracy of music files, with comparatively little attention paid to piracy of movies and even less to any formal comparison between the two types of behavior. Most other studies either explicitly focus on one type of piracy or assume these activities to be

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indistinguishable. The aim of this paper is to explicitly differentiate between the factors motivating piracy of music and movies through testing the following research question: *Are there significant differences between the factors affecting the likelihood of pirating larger volumes of music and movie files?*

Three other features of this study make a significant contribution to the body of literature on illegal file sharing behavior. First, the survey evidence used in this study draws on a wider cross-section of society in comparison to the many others that restrict their enquiries to relatively small groups of college students. Second, the empirical analysis is based on a larger number of observations ($N = 6103$) than is found in similar research. Finally, the use of a Finnish dataset responds in part to calls from within the literature for both analyses outside of the USA and UK (Shanahan and Hyman, 2010), as well as in a range of markets beyond music (Huang, 2005).

The empirical analysis in this study essentially derives a demand function for pirated media while controlling for a variety of social and demographic factors. Although the direct price for illegal downloads is zero, other elements of a generalized price expression are included to represent the cost of consumption at the margin, such as the expected cost of punishment. These are related to the banded quantity of consumption for each consumer to derive an effective demand function that also measures the marginal impact of a range of incentives (social, financial, etc.) and disincentives (such as poor relative quality of content) upon behavior.

2. Method

This study uses an online survey into digital piracy to distinguish between differing incentives for pirating music and movies. The survey was conducted by the Helsinki Institute of Information Technology (HIIT) in August 2007 and was advertised to the public for a period of seven days through the Sanoma media group websites, as well as their technology and business magazines. The primary survey questions asked respondents to reveal the extent to which they had engaged in the piracy of music and movie files, measured in terms of the number of files illegally downloaded over their lifetime. The survey also identified respondents' demographic and social characteristics and asked participants to answer a range of questions relating to behaviors and attitudes toward piracy and illegal file sharing.

The results of the survey were made publically available online by HIIT and include 6103 individual responses. Due to the nature of the subject and channels used to advertise its existence, the survey is best regarded as a self-selecting opinion poll. This is because respondents may be more predisposed to illegal file sharing than the general population and consequently be less representative in terms of age, gender, etc. However, despite the clear bias of younger males in the survey sample, the dataset employed is representative of the demographic for which there is perhaps the greatest need to understand motivation.

A further possible concern relates to the self-admissive nature of the data, in that the survey only records the respondent's stated patterns of use, which may not accurately reflect their actual behavior. While this is a general problem encountered in surveys of illegal activity, respondents to this particular survey arguably have less need to camouflage their responses compared with those committing other crimes (e.g. sexual or violent offenses). The dataset can only be claimed to represent a convenient sample of opinions, attitudes and behaviors that can help explore a range of theoretical expectations in relation to the demand for illegally obtained media. The results are merely intended to be indicative of prevailing attitudes and behaviors within this particular group of respondents

and do not necessarily offer the sort of definitive conclusions that could be identified using a fully representative sample. Owing to the nature of the subject matter, the authors feel that the evidence presented in this paper is sufficiently compelling to warrant further investigation and discussion.

A series of ordinal logistic regressions are specified based on the responses to the HIIT survey. This technique can be used to reveal the effect of a range of independent variables describing respondents' characteristics upon the value of a dependent variable, which here represents the quantity of different file types illegally downloaded measured on a rising scale between 0 and 4 (see Table 1). In the regression which assesses music downloads, this ordered variable represents the volume of whole albums downloaded illegally by respondents over time. For movie downloads, the response band represents individual movie titles illegally downloaded. With respect to both the music and movie variables, the proportion of the sample suggesting they had never downloaded an album or movie in the past is approximately 20%.

A majority of the remaining survey questions require the respondent to state the extent to which they agree with a given statement or sentiment using a Likert scale. A principal component analysis is conducted on the vast number of these attitudinal responses to construct the independent variables used in the regression analysis. This factor analysis is primarily undertaken so as to avoid any issues relating to multicollinearity between variables that are each determined by the same underlying attitudes and has the added benefit of preserving degrees of freedom.

Table 2 contains detailed information on the 16 attitudinal factors that are retained for the purposes of the exploratory regression analysis. The identified factors are presented in descending order of their Eigenvalue (all in excess of 1), where the respective Cronbach's alpha values suggest that a majority of the factors have an acceptable or better level of consistency. Descriptive statistics for the set of variables used to control for socio-demographic factors are also presented in this table.

3. General results

Output from two ordinal logistic regressions is presented in Table 3, where the functional forms are identical aside from the choice of dependent variable. The discrete categories for the limited dependent variables recorded by the survey make precise interpretation of the magnitudes of estimated coefficients difficult. For example, if this variable takes a value of four, this does not necessarily mean that the given respondent downloads twice the amount of material as those expressing a value of two. Therefore, the interpretation of this regression output allows only for the comparison of relative magnitudes between coefficients appearing in each of the regressions, as well as the level of statistical significance. Table 3 presents the estimated coefficients: one, two or three star notation indicates statistical significance at the 95%, 99% and 99.9% confidence intervals respectively.

The estimated coefficients for control variables capturing relevant demographic information accord with theoretical expectations. Age and gender are found to be significant predictors of piracy, in that females and older respondents demonstrate a reduced likelihood of having downloaded large quantities of materials. These findings are consistent with the consensus expressed elsewhere in the literature relating to the typical demographic profile of pirates (Sims, Cheng, and Teegan, 1996).

The estimated coefficients attached to the income dummies (Y1500, Y2500, etc.) show that demand for illegal downloads peaks among the middle of the income range. This is presumably because paid consumption of legal material does not present a significant

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