FROM PESTS TO PETS: EFFECTS OF OPEN CONTENT LICENSING ON THE DISTRIBUTION OF MUSIC

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FROM PESTS TO PETS: EFFECTS OF OPEN CONTENT LICENSING ON THE DISTRIBUTION OF MUSIC

Research in Progress

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Abstract
As digital music proliferates, consumers increasingly illegally share the music that they love; music distributors complain that this erodes their profits. While most existing research has characterized illegal sharing as harmful to music distributors, some research has shown that it also has positive effects in marketing the music more widely, which opens secondary but substantial profit opportunities. This article examines the emerging phenomenon of open music licensing as an unexplored solution to the challenges posed to musicians and music distributors: like the woman who caught five pesky mice and turned them into pets, some musicians have chosen to legalize sharing of their music. Our analyses show that open-licensed tracks on the SoundCloud platform have been more widely distributed than all-rights-reserved tracks. These preliminary analyses suggest that open music licensing could be a solution that meets the goals of both musicians and consumers of their music.

Keywords: open music; digital music; music licensing; music distribution; open content; Creative Commons; piracy.

1 Introduction

There is a story about an old lady whose house was infested by five mice that kept on stealing her food. She bought a trap, and caught one of the mice alive. But the mouse gazed into her eyes so pitiably that, instead of killing it, she decided to put it in a cage and keep it as a pet. One by one, she caught the other mice and then decided to keep them, until instead of five pests, she had five pets whom she fed her choicest morsels.

Digital music has become the most dominant means of enjoying music in many countries (IFPI 2013). It is now easier than ever for consumers to copy their music to their various music-playing devices (MP3 players, computers, CD players, etc.) and also to share the music they enjoy with friends and even with strangers. Although there are many technological means of implementing digital rights management (DRM), their inconvenience for legal consumption and the ease of their circumvention make it difficult for artists (musicians) and record labels (music publishers) to restrict such copying by enthusiastic consumers. The music industry claims that illegal sharing reduces its profits drastically (IFPI 2013). Along these lines, much academic research addresses the negative effects of illegal sharing and means of combating it (Fetscherin 2006; Peitz & Waelbroeck 2006; Sinha et al. 2010; Sinha & Mandel 2008).

In contrast to these negative perspectives, some research shows that illegal sharing can actually have positive benefits for revenue (Peitz & Waelbroeck 2006; Mortimer et al. 2012). However, research has so far overlooked an emerging solution to illegal sharing: simply legalizing it. Like the old lady in the epigraphic story, rather than waging a legal and techno-social war against their fans who illegally share their music without permission, many artists are increasingly deciding to use existing copyright...
law to legally authorize consumers to freely share some or even all of their music. Whereas the existing literature predominantly considers illegal sharing to be a societal or economic problem which requires broad-ranging solutions, we suggest that it could rather be considered an individual problem for artists; thus, the artists can individually decide whether their fans’ sharing of their music should be considered illegal or authorized as legal.

Because illegal sharing of music is decried as such a major problem, we seek to discover if the legalization of such sharing behaviour by the artists can achieve some of the artists’ goals. This article reports the current status of an in-progress research project on the effects of such open music licensing on the extent of the distribution of this music. We find that such licensing can actually increase the marketing reach of artists’ music, and propose that this opens opportunities for additional revenues.

Adapting Okoli and Carillo’s (2013) definition of open content, we define open music as digital music for which the rights holder authorizes royalty-free redistribution, while perhaps imposing some conditions and retaining some restrictions. Open music is an increasingly significant aspect of the music industry, particularly among newer musicians, with burgeoning marketplaces and record labels such as Jamendo, Magnatune, Dogmazik and ccMixter arising to foster this new and important trend.

In this article, we provide some theoretical background for studying the distribution of open music based on research on related phenomena, and we present a theoretical model to frame our investigations. Next, we undertake concrete empirical investigations of the question: What are the effects of open licensing on how widely open music might be distributed? For this, we use publicly-available data from SoundCloud, a web platform for distributing both open and closed music. We present our analyses that show that in SoundCloud, open-licensed content is indeed more widely distributed than that licensed with traditional copyright restrictions. We conclude this article with a discussion of the findings and a description of further research we intend in this ongoing project.

2 Theoretical Background

The bulk of scholarly research on the marketing effects of digital music has focused on the effects of illegal file-sharing (refer to Peitz & Waelbroeck 2006 for a review). Various studies have explored effects of digital rights management (Sinha et al. 2010; Sundararajan 2004), pricing options (Chellappa & Shivendu 2005; Iyengar 2010; Sundararajan 2004), and the presence of gratis (though not open content) alternatives (Doerr et al. 2010; Smith & Telang 2009). However, there has been very little research that has addressed distribution issues related to music that is licensed for distribution in ways that obviate illegal sharing. Although we could find no research on the effects of open content licenses on music distribution or revenue, there are numerous studies on closely related topics that provide helpful directions for theory.

Premkumar (2003) described six distribution strategies for music, two of which are online distribution of digital music, arguing that certain business models yield varying outcomes—sometimes conflicting—for different stakeholders, whether consumers, artists, record labels or retailers. Although he did not consider open music as a business model as we do, our fundamental argument is the same: open music models result in increased distribution of music, which increases certain opportunities for revenue (albeit while reducing others).

Peitz and Waelbroeck (2005) argued that online music distribution reduces the role of record labels while increasing the market of consumers for smaller artists. In this vein, we believe that open music is particularly attractive to smaller artists, who often have more difficulty obtaining contracts with larger record labels who could widely market their music. Such labels never license the music they distribute with open licenses, so open music models necessarily bypass them. Nonetheless, by giving away their music for free, the artists can reach a much larger number of consumers.
One of the most popular related topics has been the effects of illegal sharing on the distribution and revenue of digital music. Various factors might influence consumers’ decisions to illegally share music: the price, quality of the website offering legal music, risk of being caught, whether the consumer intends to listen to the music privately, and the consumer’s individual stimulation from illegal behaviour (Fetscherin 2006; Sinha & Mandel 2008). Fetscherin (2006) particularly noted that the price at which legal music is offered might make the difference between a consumer choosing to buy it or choosing to copy it illegally. Open music at zero price makes such a decision easy—a consumer would choose to “buy” the music, and copying it would always be legal (at least, for private consumption).

Some studies found evidence for positive effects of illegal sharing. Peitz and Waelbroeck (2006) noted that although illegal sharing might reduce profits in the short term, such activity could widely market a song and thus increase its market for legal purchases, thus eventually increasing profits beyond what they might have been without the illegal sharing. Mortimer et al. (2012) found that illegal sharing actually increased the profits that smaller artists gained from live concerts, as they served to popularize these artists. However, such illegal sharing had negligible effect on more established artists, whose strong market base was not significantly increased.

We integrate these relevant findings in a theoretical model of factors affecting the distribution of digital music, illustrated in Figure 1. In that figure, arrows indicate causality; the specific mechanisms of causality are explained in the references cited in the figure. Various online retailer factors such as price and website quality affect consumers’ decisions to either buy (Fetscherin 2006) or illegally copy music (Fetscherin 2006; Sinha & Mandel 2008). Various individual consumer factors can also affect their decision to illegally copy music (Sinha & Mandel 2008). However, such illegal copying can lead to widespread distribution of music (Peitz & Waelbroeck 2006; Mortimer et al. 2012). Such widespread distribution, albeit by illegal means, can have positive outcomes: it can increase the profits and “welfare” of record labels (Peitz & Waelbroeck 2006) and, depending on whether the artist is already popular or not, can increase their revenue from live concerts (Mortimer et al. 2012).

Our contribution in this article is to propose another path to widespread distribution of digital music: open licensing of music encourages consumers to freely and legally share it, which leads to greater distribution. Such greater distribution would have the same positive effects as illegal sharing, though it would be through legal means. Specifically, open licensing encourages consumers to not...
only freely listen to the music, but to download it and even share it with friends. Moreover, they may even legally upload it on file-sharing sites to share it with strangers. These legal sharing mechanisms for music that consumers appreciate will increase its distribution beyond what can be done with music that legally restricts such sharing. Although the artists forego some revenue from potential sales from their source websites, artists still garner some revenue from concert bookings made possible by the widespread distribution, as well as from sales on online retailers (e.g. iTunes or Spotify), which are still available despite the music’s open license.

In this research-in-progress study, we only investigate whether open licensing does indeed lead to greater distribution of music. To do this, we have obtained a dataset that features both open- and closed-licensed music with distribution data for both kinds of music. In comparing these two kinds, we can obtain some understanding of the effects of licensing on the distribution. We proceed to describe our preliminary empirical analyses to this effect.

3 SoundCloud Dataset

Established in 2007, SoundCloud is a Germany-based web platform that permits musicians to upload, share, and distribute their music—in fact, it permits distribution of any kind of recorded sound, not just music. Sometimes described as “YouTube for audio”, SoundCloud is used widely by musicians, broadcasters and speakers, though most of the content is music. In 2013, it reached over 200 million unique listeners through the Web, mobile devices and social media sites.¹

With currently over 55 million user accounts, the API available from SoundCloud provides access to a large set of metadata related to these users and their sound files. In our preliminary analysis, we used this API to download data related to the tracks (sound recordings) of the first 3 million user accounts. The users’ data include their names, usernames, countries, cities, websites, details of their tracks, etc. A sample XML user record is displayed in Figure 2.

![Figure 2. Part of the data of user 1 obtained from SoundCloud API.](image)

Not all SoundCloud users host tracks; some have listen-only user accounts. For those who do upload tracks, the tracks data comprise the title, creation date, duration in seconds, and various distribution information such as the track’s playback count (how many times the track has been streamed online) and download count. We downloaded data from all the tracks from among the first 3 million users, resulting in a total of 8,845,505 tracks. A sample XML track record is shown in Figure 3.

The SoundCloud dataset is particularly useful for answering our research question, as it hosts open music released under Creative Commons (CC) licenses as well as music made available under

traditional copyright (“all rights reserved”, ARR). Thus, we can readily compare distribution of open music against that of closed (ARR) music.

Figure 3. Part of a track data of user 1 obtained from SoundCloud API.

4 Analysis and Results

We acquired two distribution-related variables from SoundCloud data: playback count denotes the number of times a track was streamed on the SoundCloud website; download count is the number of times a track was downloaded. To examine the effects of license on distribution of tracks, we first grouped the 8,845,505 tracks by license into two groups: ARR tracks and open-content tracks (one of the six CC licenses, plus those licensed as “no-rights-reserved”). In order to compare distribution counts for the two groups, we had to control for creation time, since tracks created earlier on SoundCloud would naturally have more playbacks and downloads. Thus, we grouped all tracks by the month when they were created on SoundCloud, thus obtaining 74 months from July 2007 to October 2013. (August and December 2007 were excluded as they had no data for open-licensed tracks.) For each group of tracks with the same license type (open vs. ARR) and the same month of creation, we then computed the medians of the playback count and download count of the tracks. We used the median instead of the mean since we do not expect download and playback counts to be normally distributed, which makes the median a more relevant measure of central tendency for this dataset.

<table>
<thead>
<tr>
<th>Track Type</th>
<th>Negative Ranks</th>
<th>Positive Ranks</th>
<th>Ties</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN – ARR Playbacks Medians</td>
<td>1\textsuperscript{a}</td>
<td>73\textsuperscript{b}</td>
<td>0\textsuperscript{c}</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Mean Rank</td>
<td>Sum of Ranks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60.00</td>
<td>2715.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Track Type</th>
<th>Negative Ranks</th>
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<th>Ties</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN – ARR Downloads Medians</td>
<td>1\textsuperscript{d}</td>
<td>73\textsuperscript{e}</td>
<td>0\textsuperscript{f}</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>Mean Rank</td>
<td>Sum of Ranks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.50</td>
<td>2771.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Ranks table for the Wilcoxon Signed-Rank test. The superscripts in the “N” column represent the number of months in the following cases:

a. OPEN_PlaybackCounts_Median < ARR_PlaybackCounts_Median
b. OPEN_PlaybackCounts_Median > ARR_PlaybackCounts_Median
c. OPEN_PlaybackCounts_Median = ARR_PlaybackCounts_Median
d. OPEN_DownloadsCounts_Median < ARR_DownloadsCounts_Median
e. OPEN_DownloadsCounts_Median > ARR_DownloadsCounts_Median
f. OPEN_DownloadsCounts_Median = ARR_DownloadsCounts_Median
With this grouped data, in order to test the influence of open licensing on music distribution, we compared the open vs. ARR data using the Wilcoxon Signed-Rank test in IBM SPSS version 20. This non-parametric test is used instead of the paired t-test when the data is not normally distributed. The results of this test are displayed in Table 1.

The analysis showed that for 73 out of 74 months, the median open-licensed track streams and downloads was greater than the median ARR track playbacks \((z=-7.152, p<0.001)\) and downloads \((z=-7.462, p<0.001)\), respectively. Since in each case there was only one month where ARR counts were greater than open counts, the mean rank is not very meaningful. Thus, we calculated effect sizes, \(r\), using the equation \(r=z/\sqrt{N}\), where \(N=2\times74\) (Field 2013). The effect sizes were \(-0.59\) for playbacks and \(-0.61\) for downloads, both considered large effects. These results show that in our preliminary analyses with SoundCloud data, open-content tracks were more widely distributed than ARR tracks.

5 Discussion and Conclusion

This article has examined the emerging phenomenon of open music licensing as an unexplored solution to the challenges posed to artists and record labels from consumers’ illegal sharing of music. Although illegal sharing undoubtedly reduces some profits, it also has positive effects in marketing the music more widely, which opens secondary but substantial profit opportunities. We have argued that open licensing further enhances these benefits. In preliminary analyses to investigate this claim, we found that open-licensed tracks on the SoundCloud platform have been more widely distributed than all-rights-reserved tracks.

We must emphasize, however, that what we present here are only preliminary results. We analysed tracks for only 3 million of 55 million user accounts; we did not distinguish between music and non-music tracks; and we did not verify whether tracks were unavailable for streaming or download. Nonetheless, these initial findings are promising, and as we continue this project we will introduce more controls on the full dataset to assure the validity of the final results.

One limitation of the SoundCloud dataset for testing our theory (that is, that open licensing increases sharing, which increases distribution) is that we can only observe SoundCloud distribution; we cannot decouple this from consumer sharing. Thus, we will attempt to analyse other open music platforms to see if our preliminary findings are valid beyond SoundCloud. In particular, in order to test whether open licensing increases distribution of music, it will be necessary to observe the distribution of music in major consumption channels that are not as tightly tied to musician distribution as SoundCloud is.

Another related research question which we intend to investigate is: What are the effects of open licensing on the revenue generated from open music? It is hotly debated whether freely distributing music drains musicians’ potential revenue (the traditional perspective) or whether it serves as free advertising that opens the door for greater commercial opportunities (a more recent perspective), especially for newer musicians. Existing research has shown that illegal sharing opens more concert opportunities for new musicians (Mortimer et al. 2012) and can increase legal sales of tracks (Peitz & Waelbroeck 2006). In other words, more-experienced musicians tend to choose more restrictive licenses because they usually have increased revenue sources tied to traditional restrictive distribution channels. Less-experienced musicians, in contrast, have less at stake and so are more open to experimentation. A further possibility not yet confirmed by research is increased professional licensing for use in video audio tracks, background music, etc. Building on the investigation reported here regarding distribution, we intend to continue this research by further examining how the specific features of a license affects revenues from open music, while controlling for quality of the music, date of its initial release, and other possible confounds.

Although it is still in its early stages, this research project has the potential of making a contribution to the field of information systems, which generally studies the use of information technologies (IT) to achieve individual and organizational goals. Open music is a little-researched aspect of the open
content phenomenon (Okoli & Carillo 2013), which has been widely studied in information systems research mainly in its manifestations of open source software (Wade & Aksulu 2010) and Wikipedia (Okoli et al. 2012). By definition, open music is a digital phenomenon, which uses IT to distribute music. Moreover, it is a legal phenomenon, since it uses licenses based on copyright law to facilitate the distribution. This project explores whether this conjunction of IT and legal license can meet the goals of musicians in the distribution of their music.

Specifically, this project seeks empirical evidence to verify if open music is a viable option for musicians to market their music, both in order to reach a wider audience and to gain more revenues for their labours. Instead of treating their music-copying fans as illegal pests, by welcoming them as “pets” who are encouraged to freely share their music, musicians could diffuse the potentially tense relationship with their fans into an amicable one of mutual benefit.

Acknowledgements

We gratefully acknowledge the indispensable contributions of an anonymous research assistant. This research contribution was funded by the National Social Science Foundation of China (12CTQ045) and by the Concordia University Seed Grant program.

References


