

THE GLOBAL PHONOGRAPHIC MARKET: RECORD LABELS, ARTISTS AND FANS IN THE INTERNET ERA

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ABSTRACT

The Internet has given a possibility to exchange information and files between music fans that have been previously devoted to physical forms of music records. It has changed completely the structure of the phonographic market. On the one hand, fans have the opportunity to exchange pirated copies of songs and albums, which results in a decrease in sales. On the other hand phonographic companies have introduced electronic format, which maximizes their profits. We investigate the properties of global and local phonographic markets under and before the influence of the Internet era. For example time scales of processes of distribution are few times shorter, than before the Internet and records achieve top positions on the polls already at launch. We also discuss the impact of the Internet on record sales.

Keywords: phonographic market, statistics of music.

INTRODUCTION

The phonographic market is associated with artists, whose value is measured by weekly record sales (vinyl's, CDs, mp3, etc.). While music has accompanied humans on their journeys through life, and the people themselves, in turn, the creators of the musical trends have established businesses to supply the demand for music. On the Internet era, the form of record sales has become violent and revolutionary because of information exchange (analogy to the Epps Effect, already known in economy). From the economical point of view, music as a cultural good has created its commodity market (Alexander, 1994). Thus, the description of changes made in the Internet era is necessary. The Internet has become a space of information exchange between users and a space of produc-

tion (Batorski, 2006). So, our aim in this paper is to understand the role of record labels, products (artists) and customers that interact with each other.

The global phonographic market is a commodity market that contains several unique properties like periodicity of record sales or strong historical dependence and features competitions between record labels or artists, customer heterogeneity and product lifecycles. The dynamics and structure of record sales is a consequence of interactions between 4 areas: biological (musical preferences created in human brains), psychological (Perlovsky, 2010), social (interpersonal communications, mass media) and the economy (relations between producer and consumer). Thus, we observe the complexity and nonlinear interactions including the emergent collective behavior under the influence of the Internet. Moreover, the investigated phonographic market has become global just because of the Internet era. In our work we analyze all data of albums sales between 2003 and 2013 and discuss the environmental change in the phonographic market before and after the Internet revolution.

In our work we consider the record industry as a part of modern culture (Rogers, 2005) and a branch of the global economy. These results were possible because of our cooperation between the sociologist and a physicist who had previously investigated the history of popular music (Buda, 2006).

THE PHONOGRAPHIC MARKET BEFORE THE DIGITAL ERA

The phonographic market is almost as old as financial markets. Since Thomas Edison (1877) the phonograph, gramophone or record player has been commonly used for playing sound. Although in 1906 these devices were elusive for common people, the Italian tenor Enrico Caruso was the first and only artist who sold more than 1,000,000 copies of his record before The Beatles. The development of the record industry and record sales was stopped by World War II, so in 1948 Columbia released the first ever long playing record (LP) that would hold at least 20 minutes per side. Since the 1967's The Beatles 'Sgt Pepper's Lonely Hearts Club Band' long playing records has dominated the phonographic markets worldwide. The new formats (vinyl, cassette, compact disc and mp3, etc.) became more and more popular. Finally, Michael Jackson's 'Thriller' became the most popular record ever and sold over 100,000,000 copies. On the other hand, currently his success is impossible to repeat because of digital piracy, marginal utility, etc. Thus, Digital sales in some of those markets rose at very encouraging rates, reflecting the new opportunities of online and mobile channels.

Since 1991, Nielsen Soundscan began tracking sales data from cash registers collected from 14,000 retail, mass merchant, and non-traditional (on-line stores, venues, digital music services, etc.) outlets in the United States, Canada and the U.K. Previously, Billboard tracked sales by calling stores across the U.S. and asking about sales - a method that was inherently error-prone and open to outright fraud (Buda, 2012).

Traditionally, the record charts are based on weekly record sales and opinion polls. The first US chart based on weekly record sales was published in 1949 by

the Billboard magazine and in the New Musical Express (1953) for the UK market. These charts were not accurate enough because of sociological methods used to estimate record sales. Moreover, some of the highest places reached by Elkie Brooks or The Beatles were reached as a result of manipulations. For example, The Beatles' manager Brian Epstein bought 10 000 copies of their debut single Love Me Do to settle his group on the UK single chart at number 29. On the other hand, The Sex Pistols single God Save The Queen (1977) was unofficial number one in the UK, but it was banned because of explicate lyrics against the British Queen. Thus, this song had officially reached number 2 only, behind Rod Stewart.

The paradigm of technological change (Percino, et al., 2014) according to wide space of instruments and technology has been already investigated, but the new revolutionary levels of communications (Castells, 2000), and dependencies has impact on physical and digital forms of music:

- 1887 Thomas Edison, the discovery of gramophone
- 1904 Enrico Caruso, the first artist who sold more than 1 000 000 copies of his records
- 1948 Columbia released the first ever long playing record (LP)
- 1967 The Beatles' Sgt Pepper's Lonely Hearts Club Band started the domination of long playing records in the phonographic market
- 1982 The introduction of Compact Disc (CD) format
- 1990 Tom's Diner by Suzanne Vega was the first song ever compressed to mp3 format

PHONOGRAPHIC MARKET AFTER THE DIGITAL ERA

Personal computers with hard drives were also able to contain data in digital form (74min=650MB). On the other hand, since the early eighties, the professional studios used to record songs in wave format (.wav). Thus, because of new methods of compression, the new format mp3 appeared in 1990 when Suzanne Vega's song Tom's Diner (remixed by DNA) had been compressed by the reduction of the frequencies that a human ear might hear. One year later, in the summer of '91 the Billboard magazine introduced the first album chart based on Nielsen Soundscan system that measured the weekly record sales exactly because of barcodes on the covers and sleeves of CDs and LPs. Soundscan was introduced to other countries including the UK and Canada, so the number of record stores that participated on the weekly sales was equal 14 000. Thus, in 2003 the IFPI (International Federation of the Phonographic Industry) had the possibility to measure weekly record sales all over the world with accuracy = 100 copies. The best selling long playing record of all time is Thriller by Michael Jackson (1982) that sold more than 100,000,000 copies in the first 30 years. However, in the Internet era, almost all albums reach the peak of record sales in the first week after the release. This accurate measurement is possible because 70% of the global phonographic market belongs to the four biggest companies (EMI, Universal, Warner and Sony BMG).

The digital technology had a gigantic impact on the accuracy of record sales and phonograms. The Internet era (2003 till now) caused the dramatic decrease of record

sales in physical formats. Nobody listens to music on tapes nowadays, but 3% of the global phonographic market belongs to vinyl format. The rest is represented by CDs (70-80%) and mp3 or ringtones, because in the first decade of the 21st century all record labels offered their music in virtual forms by the Internet stores officially. Thus, the decrease of record sales had been stopped in 2006.

The domination of the four biggest major labels influenced the geography of the market. The greatest local markets are: The United States, The United Kingdom, Japan and France. On the other hand, big countries like Russia, China or Brazil have little impact on the global phonographic because of piracy and small income of customers. The 30 biggest markets generate 95% of global record sales. There are also various forms of promotion like traditional press conferences, information spread in mass media, radio broadcast or TV shows, concerts and tours, etc.

The Internet era has introduced new technological forms of advertisement and promotion like live streaming online, etc. and mp3 singles available in iTunes. Thus, the modern marketing (*The forms of promotion on the international music market*, 2013). contains several elements like sharing feelings with friends and other fans, advertisement in press, Internet, radio or TV, public relations or social media events like flashmobs, etc.

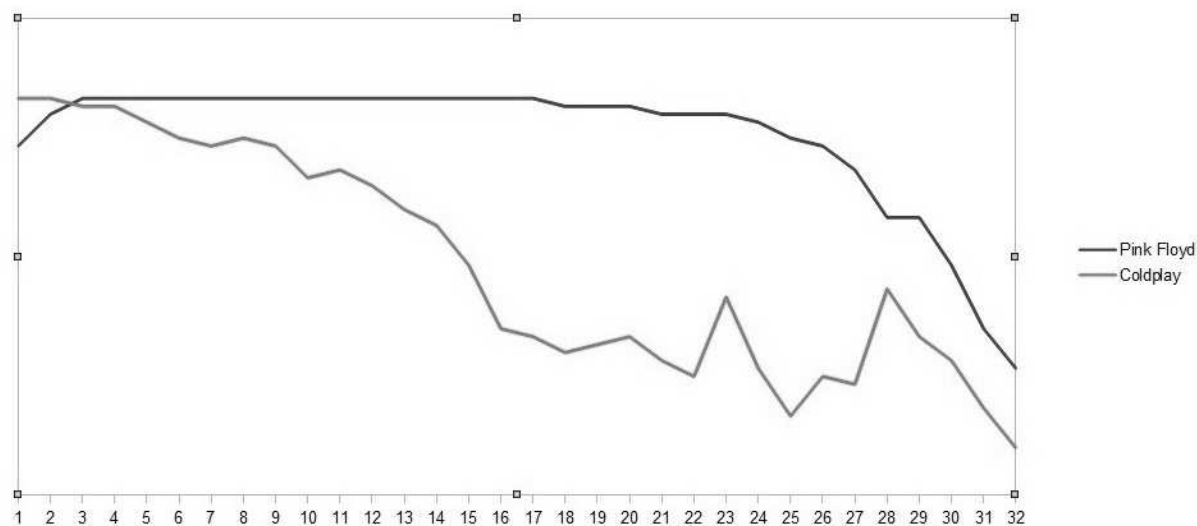
In the end, the digital and Internet era has changed phonographic markets completely:

- Weekly record sales (200 best selling albums) are accurate since 2003 (IFPI, 2013)
- Global phonographic market has decreased since 2000 (the decrease rate is equal a few percent every year, \$16-28 billion)
- The global digitalization as a recipe for this decrease
- The profits are available in the USA and other biggest markets, but digitalization in China and India (2012) caused the first increase of record sales since 2000
- Music as ICT (Information and communications technology)
- Music as a Big Data, data-minig (Billboard)
- The influence on phonographic market ad hoc (Great Britain) – the marketing policy

THE ANALYSIS OF CHANGES IN PHONOGRAPHIC MARKET MADE BY THE INTERNET ERA

Traditionally, record sales had always been under the influence of product life-cycle. The peak of record sales appeared a few weeks after the release, and sales have decreased slowly. Digital and Internet era has brought physical phonograms (vinyl, cassette, CDs) on a higher, virtual level (mp3, ringtones, etc...) so music may be supplied to the market without any limits. Thus, the peaks of record sales appear in the first week after the release. We detect this phenomena if we compare two product lifecycles: traditional Pink Floyd *The Wall* (1979) and Coldplay *Viva La Vida* (2008) according to the Billboard record sales chart

in the USA. The upper line (Pink Floyd) reaches the peak of record sales after 3 weeks. On the other hand, Viva la Vida by Coldplay has the highest position just in the first week and decreases slowly with some additional peaks because on the Internet era the market it is possible to satisfy customers quickly by mp3 or



ringtones without producing physical CDs or vinyls.

Fig. 1. Pink Floyd (1979) and Coldplay (2008) record sales in consecutive 32 weeks after the release according to the Billboard album sales chart.

Source: According to the official Billboard album sales chart.

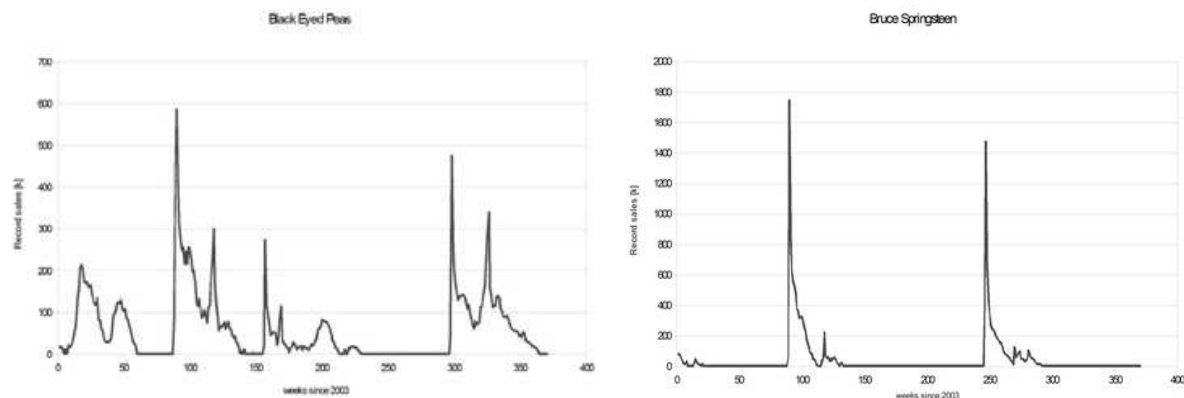
Changes made in the Digital and Internet era have impact on customers behavior:

- The beginning of phonographic markets decrease (circa 2000)
- Major labels enter the Internet market (popular websites like iTunes, LastFm)
- The crisis of 2007 in the economy (music as a luxury)
- 2012 major labels stopped the decrease of all markets using the official digital streaming against P2P
- 2013 the first ever decrease of e-music sales ($\frac{1}{4}$ of the market) including Spotify

THE COLLECTIVE BEHAVIOR OF CONSUMERS AND DIGITAL PIRACY

The phonographic market could be represented as a set of players (artist) managed by their labels, who tried to sell product to consumers. As the size of the market is limited, labels with their artists are trying to establish optimal strategy. In our perspective an artist is a product. They can play with many variables like date of album release and amount of investment (in terms of insensitivity and duration) in an album promotion. Empirical observations (Figure 2) show that album sales of an artist reach a maximum exactly during the week of the release of its new album in rapid and spiky way (such as spikes are often observed in price on energy markets. The "Big Four" companies (EMI, Univer-

sal, Warner, Sony BMG) with a view to maximum sales will, however, set release dates from above, even in agreement with each other, often months in advance. A premiere of the album is often accompanied by a promotional single, whose presence in the media raises sales. Therefore, it is easier to control, since just after the release a decline in sales is observed, similar to an exponential one. Of course, labels want to prevent it, so releasing more singles from the album stops for a while a decrease of its sales, which also can be seen in the shape of the de-



cay after premieres.

Fig. 2. Examples of artists sale trajectories in time: Black Eyed Peas [left], Bruce Springsteen [right].

Source: According to the IFPI data.

The massive increase of record sales characterize the phonographic markets all over the world. The trajectory of record sales decreases exponentially with some additional peaks caused by promotion including tours, singles, videos, etc. There are lots of antipersistent fluctuations. On the other hand, the highest shocks (because of supplying the biggest amount of records to stores) are predictable and set by record labels according to release dates. The most popular artists release their albums every two years. This historical property depends on the capacity of phonograms, because nowadays the CD contains 80 min. of music (700 MB) and before the digitalization the classic vinyl format might have contained 40 min. of music only. Thus 40 years ago artists created brand new records every year.

For the most popular artists, the number of promotional singles per album has a Poissonian distribution because albums usually contain 8-18 songs and promotion is stopped in case of a failure on the singles chart. So, most of the underground or jazz artists don't release any singles. On the other hand, pop stars like Michael Jackson, Justin Timberlake, Beyonce, Katy Perry and Rihanna might release up to 9 songs from their albums as a single. Thus, the time of promotion is extended and create more weeks or years on record charts (Ordanini, 2006).

If we add other possibilities of promotion (like tours, interviews, TV and radio shows), the Bernoulli distribution is much more reasonable than the Poissonian. If we consider all these conditions, it is possible to compare the empirical trajectories of record sales with our stochastic model of the market (Jarynowski,

& Buda, 2014). According to this, there are 2 categories of customers: the conscious music fans that buy records every week and occasional clients who buy music just before Christmas or St. Valentine's day. These occasional fans know only the few biggest stars of the most popular music genres. The digital piracy of the Internet era refers to both groups of customers:

- The occasional clients buy records as gifts for their friends
- The conscious music fans collect records and use digital piracy to listen to some music before buying a records

Music artists have various opinions on a digital piracy. In 2000 Metallica fought against Napster that made digital streaming possible. On the other hand, Radiohead releases their own albums in digital formats almost for free because all customers may donate to the band after downloading their albums as a mp3 officially.

So, the main properties:

- Phonographic market as a predictable system – in complexity and in particular for a single artist
- Record industry might be considered as a programmable system
- Even unpredictable recordings spread by the Internet do not break the equilibrium on the market (for example: Gangman style)
- The system might be unstable in case of artists death only
- The decrease of digital piracy in the biggest countries like India and China causes the increase of the global phonographic market

CONCLUSIONS

Since the Internet era, the structure of the phonographic market has changed completely. On the one hand music fans have possibility to exchange their files, so the market decreases because of a digital piracy. On the other hand, major labels have stopped the decrease by introducing the official digital streaming like iTunes, Spotify, etc. The Internet society has a new form of expression that does not always correlate with major labels income. This phenomena is an effect of globalization and a new Internet media (Nieżgódka, 2006) that have impact on human life:

- The change of habitual behavior – buying online without visiting traditional stores;
- The change of cultural participations – listening to music in virtual formats without any physical phonograms

The hierarchical dependence between artists has also changed (Serra, Corral, Boguna, Haro, & Arcos, 2012) and a traditional meaning of „pop” music has been destroyed (Buda 2012; Buda, & Jarynowski, 2013). On the other hand, other traditional genres (rock, soul, rhythm'n'blues, rap etc.) still exist on the market (Buda, 2006).

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