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Competition for attention in the digital age: The case of single releases in the recorded music industry[☆]

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ABSTRACT

In markets with long tails and thousands of products, like recorded music, consumers cannot possibly be aware of every product. We analyze how record labels use single releases as a strategic instrument to attract consumer attention in a competitive environment. In particular, we study how the advent of digitization has changed firm strategy. In accordance with predictions from a simple theoretical model, we show that record labels release more singles with shorter intervals in between when facing greater competitive pressure. We show that this effect is stronger in the digital age. With individual songs becoming readily available (forced unbundling), the attention generation motive becomes predominant and single releases more closely resemble a form of advertising.

1. Introduction

Firms compete along multiple dimensions, in particular, price, quality, and consumer attention. In markets with a multitude of products, the costs of information acquisition for consumers are substantial. Therefore, capturing and retaining consumer attention is of particular importance. This is of special relevance in entertainment markets due to the large variety of offerings in film and television programs, video games, smartphone applications, books, and music. Consumers cannot possibly be aware of every offering that exists in such settings, so that producers must muscle for their attention. In this paper, we study a specific strategic instrument that firms use to compete for attention in the recorded music industry.

Recorded music is traditionally sold in bundles, where multiple songs together represent an album. Apart from albums, firms sometimes also sell so-called singles, which are defined as separate (physical) products that feature a subset of songs (mostly only one song) from an album. In that sense, releasing a single can be thought of as strategic unbundling. While unbundling directly affects revenues, sales of the separate product are certainly not the only reason why firms release singles. Anecdotal evidence suggests that record labels strategically decide on the number and frequency of single releases to create consumer attention, e.g. via journalistic coverage, radio airplay and music videos.[1] The idea is that free access to music gives consumers the opportunity to sample the work of an artist (cp. Wang and Zhang, 2009; Halbheer et al., 2014), which will ultimately affect the purchase decision.[2]

In this paper, we take both unbundling and promotional aspects of single releases into account, when we study how firms decide on number and timing of single releases given the competitive setting. In doing so, we put special emphasis on how single release strategies have been affected by the fundamental digital transformation of the music industry in the first decade of the new millennium. After the rise of phenomena such as MP3, file sharing,

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[1] Record labels traditionally have close ties to radio stations (Vogel, 1986; Caves, 2000) and more recently operate YouTube channels with millions of subscribers. See also http://www.huffingtonpost.com/marcel-hidalgo/whats-up-with-the-single-_b_6903090.html.

[2] The mechanism that leads from single releases to album sales might have important second order effects: increased awareness for an artist may well also have positive effects on other sources of artist income, such as concerts (Montoro-Pons and Cuadrado-Garcia, 2011), fan merchandise, or long term brand value.

and iTunes, the pure unbundling aspect of single releases has increasingly vanished, because digitization has allowed consumers to access/purchase each individual song immediately upon an album being released. We refer to this process as forced unbundling of albums in this paper. We provide evidence that in the course of this process, the role of single releases in the strategic arsenal of record labels has changed fundamentally. Singles (as stand-alone physical products) are increasingly a much less important source of independent revenue, while they have become more important to garner attention for the other songs of the underlying album.

To inform our empirical exercise, we propose a simple mechanism to elucidate the tradeoff that firms face. After its initial release, an album is noticed by consumers at a rate that decays over time, which we define as attention. Through single releases, firms can “refresh” attention for the album. However, in the pre-digital era, the firm has to additionally take into account that unbundling will cannibalize some album sales. Accordingly, we can use time-variation in the importance of the digital distribution to disentangle the effects of unbundling and attention gathering, and therefore identify how digitization has changed the nature of competition in the music industry. Clearly, other factors change over time that affect the single-release calculus of firms, such as cost structure, music consumption behavior, etc. Therefore we consider the release behavior through the lens of competition: firms should react to stronger competition differently when only competing for attention through single releases, than if unbundling directly affects revenues, for any given cost structure. We derive these systematic differences and take them to the data.

Analyzing rich, product-level panel data obtained from the online platform MusicBrainz, we find that competition has an inverted U-shaped effect on the number of released singles. The fact that we find an initially positive relationship between competition intensity and single releases is in line with the interpretation of singles as an information device. As hypothesized, we show that this positive effect is more pronounced in the digital age, which implies that, for any given level of competition, the optimal number of singles releases is larger than in the pre-digital age. We further show that the time intervals between advertising efforts are strictly decreasing in competition. Tougher competition leads firms to inform or advertise more often and with shorter delays between releases.

Competition along the dimensions of price and quality has been extensively studied, both theoretically and empirically. How firms compete for attention, on the other hand, is still less well understood. One mechanism that firms can use to, either directly or through signaling, communicate their existence (Haan and Moraga-Gonzalez, 2011) is informational advertising.[3] In this paper, we are particularly interested in understanding how stronger competition in the product market (i.e. how densely the market is populated by competing products) affects the intensity and frequency of information provision.

Our paper contributes to multiple strands of literature. In a related paper, Hendricks and Sorensen (2009) show that earlier albums of artists benefit from increased demand due to subsequent album releases. We build on this basic mechanism, considering a closer link than between two albums, i.e., the link between a given album and the singles contained therein. Due to the richness of our data, we can construct a measure of the competition that an album faces at the time of its launch. Using this measure and the underlying information-mechanism, we can address a central question that is frequently posed in the advertising literature: What is the relationship between competition intensity and advertising efforts? Typically, in the past studies had to rely on the competition intensity at the industry-level, finding a hump-shaped relationship between competition and advertising intensity (Greer, 1971; Cable, 1972; Sutton, 1974; Brush, 1976; Strickland and Weiss, 1976; Martin, 1979; Buxton et al., 1984; Willis and Rogers, 1998). We are able to contribute evidence at the level of individual product competition in this paper. Finally, our empirical strategy allows us to make a perhaps even more important contribution to the literature on the economics of digitization. We show that digital technologies have not only enabled more entry through lower fixed costs of production (Waldfogel, 2012; Waldfogel and Reimers, 2015; Aguiar and Waldfogel, 2016), but, by changing the nature of the single, have also altered the nature of competition in the music industry. Firms have adjusted the use of their available tools to their new competitive surroundings.

2. Industry background and hypotheses

In the following, we develop a simple reduced-form framework to derive and motivate the central hypotheses that will inform the subsequent empirical analysis. In the music industry, firms generate two (very similar) products simultaneously: singles and albums. In principle, both of these are sources of revenues for the firm, although the role of physical singles in this regard is dwindling.[4] Yet, firms continue to release singles, an analogous instrument has even been created in the digital format.[5] The music industry is a good representative of the digital economy: there is an ongoing flood of new products and releases[6] raining down on consumers, who have to sift through the information overflow to find what they like and firms compete for consumer awareness and try to make optimal use of the tools at their disposal.

2.1. Consumers’ purchase decisions and unbundling

An album can be considered as a bundle of products: the songs it is composed of. When a firm releases a single from an album, this is partial unbundling and there is an immediate effects on revenues, apart from any information transmission.

To motivate this, consider a setting in which both the album, containing N songs and a subset S_n of its songs are respectively available for purchase in the format of a single. At any point in time t there is a certain probability – which we derive in the following section – that a consumer becomes aware of the offered products and makes a purchase decision. Assume that consumers purchase at most one unit of the album. For simplicity, we fix the price of the entire album at P and the price per song sold as a single as p, which are exogenous for the firm. Note that this is much in line with empirical observations on observed price variation in the recorded music industry (Shiller and Waldfogel, 2011).[7] A consumer who becomes aware of the products then faces the following three options: she may either purchase nothing and obtain utility normalized to 0. Or, she may purchase the album obtaining utility $u_i(N) - P$. Or, finally, she may purchase her favored

[3] See Vakratsas and Ambler (1999) for an overview of research on how advertising influences customers. Various studies have shown that the primary effect of advertisements is that of informing consumers (Ackerberg, 2001; 2003). The alternative (or complementary) view of advertising emphasizes its persuasive effect, see, e.g., Dixit and Norman (1978), Bloch and Manceau (1999).

[4] See https://www.theguardian.com/music/musicblog/2009/jul/15/chart-sales.

[5] iTunes, for example, defines a digital single as a bundle of 1–3 tracks, where each track has a duration of less than 10 min. See https://www.emubands.com/blog/single-and-ep-definitions-on-itunes/.

[6] In the US alone, 75.000 albums were released in the year 2010, according to market research firm Nielsen, see http://tinyurl.com/nd2hsfg.

[7] A firm setting prices optimally would attempt to minimize cannibalization and maximize overall sales, since variable costs are low. Also, the price of the album should decrease with each single release. Incorporating these decisions would not change the basic mechanism we wish to demonstrate, but would unnecessarily make the exposition more complex.

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