

# THE 99¢ QUESTION

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## I. INTRODUCTION

In the short time since it opened for business on April 28, 2003, Apple Computer's iTunes music download service has sold over one billion songs worldwide,<sup>1</sup> and it has already become one of the ten biggest U.S. music retailers, moving ahead of long-established retail chains such as Tower Records and Sam Goody.<sup>2</sup> This is an astonishing achievement in itself, and we might expect iTunes to outpace its early success in the next several years, for the business of paid downloads is growing robustly,<sup>3</sup> especially in comparison with anemic sales of music

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1. See Apple, iTunes, <http://www.apple.com/itunes/store/music.html> (last visited Sept. 20, 2006).

2. Brian Hiatt & Evan Serpick, *Music Biz Laments "Worst Year Ever,"* ROLLING STONE (Jan. 13, 2006), available at <http://www.rollingstone.com/news/story/9147118/>.

3. The Recording Industry Association of America (RIAA), a trade association controlled by the major record labels, reports that the number of single tracks downloaded grew by 163.3% between 2004 and 2005, and the number of albums downloaded grew by

on CD.<sup>4</sup>

Moreover, iTunes is not alone—a number of rival music download services have emerged over the past two years, and their businesses are growing along with the overall surge in paid downloads. What we have seen thus far likely represents only the early stages of a much more profound shift in the way we consume music. We are moving toward “pure digital” consumption, unencumbered by physical media like the CD or the comparatively ancient cassette tape and vinyl LP. And as more Americans access the Internet with high-speed connections, the speed with which users can download music will increase, and sales of downloads will increase concomitantly.

This shift is in its early days, yet it has already taken some unexpected turns. One has to do with price. Take a tour through the most heavily trafficked music download services and you will quickly notice a pattern. The price for most songs is the same—typically 99¢. The most popular songs are 99¢—take, for example, “Control Myself,” from LL CoolJ’s 2006 album *Todd Smith*, which recorded the highest total sales on the particular day of this writing (April 15, 2006), on the most popular download site, Apple’s iTunes. And so are a huge number of songs that might not have sold a single copy on iTunes (or on any other download service) that same day—for example, “A Spoonful Weighs a Ton”, from a 1999 album, *The Soft Bulletin*, released by the Oklahoma City band The Flaming Lips. That song is also 99¢ on iTunes, despite the fact that it might sell many more copies, and yield more revenue (and profit, since the marginal cost of providing a download is near zero) at a lower price. These examples—and all the examples I use in this paper—involve popular music (“popular” in the sense of the musical style, not necessarily in terms of consumer appeal). But much the same is true of classical, jazz, and other styles of music offered online—download prices tend markedly toward uniformity.

This is a puzzle. Why would we see a hit song priced the same as one that is unpopular? Typically, we expect pricing of goods and services to vary according to demand, and demand for songs varies widely. Yet prices for songs—more specifically, for song downloads—don’t vary much at all. And failure to price according to demand likely means that both the download services and the major record labels are leaving money on the table. In 2003, the Rhapsody download service

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198.5%. Recording Indus. Ass’n of Am. 2005 Year-End Statistics, <http://www.riaa.com/News/newsletter/pdf/2005yrEndStats.pdf> (last visited July 7, 2006) [hereinafter RIAA Year-End Statistics].

4. The RIAA reports that CD sales declined by 8% in unit terms between 2004 and 2005, and revenue from CD sales declined by 8.1%. The 2004-2005 figures are not anomalous: RIAA data report revenue from CD sales declining in excess of 20% from 2000 to year-end 2005. *Id.*

conducted a brief but suggestive experiment.<sup>5</sup> For six weeks the service offered tracks at 99¢, 79¢, and 49¢. The prices do not appear to have been differentiated according to quality—each category contained some hit and non-hit tracks. Somewhat surprisingly, Rhapsody sold three times as many of the 49¢ tracks as the 99¢ tracks. Given that the marginal cost of selling each track is virtually zero, the 49¢ price yielded greater revenue. What is the lesson here? Many consumers were willing to pay the lower 49¢ price for tracks they would not purchase at the 99¢ standard. Had Rhapsody sorted the tracks by quality (measured by demand at the previous uniform 99¢ price), it could have enjoyed additional sales for the lower-quality tracks (sales that would be profitable if the price Rhapsody pays to the major record labels for licenses to particular tracks were also varied to track demand), and maintained its margins for the higher-quality ones. But for some reason the music industry hasn't absorbed this lesson. Rhapsody's current service is based on a subscription model—a fee for unlimited *rental* of music downloads that cease to function once the consumer stops paying. But for the small portion of Rhapsody's service that remains dedicated to a la carte downloads, prices remain uniform.

In addition to price, we see a number of other non-price characteristics of the download product—audio fidelity, for example, which can change along with the bitrate at which the digital file is encoded—that could vary but do not. We might expect download services to offer downloads of varying fidelity, with more expensive high-fidelity versions for audiophiles willing to pay for quality, and cheaper standard versions for the iPod-wearing masses. Yet we see little product differentiation of this kind. Is there some explanation for this puzzling price and non-price uniformity? That is the 99¢ question that this paper attempts to answer.<sup>6</sup>

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5. See Amy Harmon, *What Price Music?*, N.Y. TIMES MAG., Oct. 12, 2003, at 1.

6. Writing about download services has long focused on the possibilities such platforms offer to more flexibly measure and respond to consumer demand. For example, Stanford law professor Paul Goldstein, writing in 1994, speculated about the advent of a kind of super-download service he called the “Celestial Jukebox” (which he described as something functionally very like the current download services, albeit distributing not only music, but an Alexandrian collection of every imaginable form of creative content). Goldstein emphasized the promise of the Celestial Jukebox in making a huge library of content available to everyone, everywhere. He also noted, however, efficiencies that might arise from technology's ability to better track consumer demand for particular works:

From today's vantage point, the celestial jukebox may seem to offer only a convenient new way to disseminate works that were initially conceived as—and are already available in retail outlets for—books, records, or videocassettes. But soon it may be more like a warehouse filled with fragments of recorded sound, visual images, and printed material that electronically cruising subscribers can combine and recombine to their own tastes and purposes. If that happens, the celestial

Part II of this paper briefly examines the price and non-price uniformity that characterizes the selling of music on the download services. Part III then considers several possible explanations for the high degree of uniformity we observe currently in the market for music downloads. I review a number of explanations related to consumer behavior in the market for music downloads, but find that none of the behavioral explanations sufficiently account for current uniform pricing or elements of product quality such as audio fidelity. Part IV considers industry structure—in particular, the existence of substantial bilateral market power (exercised by the “big 4” (as I will refer to them throughout this paper) record companies, acting jointly, on one side, and Apple, with its dominant iTunes download service, on the other)—as a possible explanation for uniform download pricing and product characteristics. This final part provides an account, at this early point necessarily tentative, of how the competitive interaction of the big 4 record labels and the dominant download service, Apple’s iTunes, leads to an inefficient regime of uniform pricing and product quality.

## II. MUSIC DOWNLOADS: A QUICK LOOK AT PRICING AND OTHER TERMS OF DEALING OFFERED BY CURRENT SERVICES

### A. *Why 99¢?*

Although paid download services have been operating for just over three years, they have fundamentally changed the way in which music is consumed. In the not-so-long-ago world before downloads, songs were almost always sold as part of a larger bundle—i.e., individual tracks were packaged with other songs on an album, and marketed together in a variety of formats, including vinyl records, cassettes, and, latterly, CDs. A substantial market for single songs—i.e., the “45” format—existed in the days of vinyl records, but once CDs took over as the dominant format the singles market withered.<sup>7</sup> The singles market has revived as the

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jukebox will bring copyright closer than ever to its historic economic objects . . . [which are] aimed at subjecting the production of literary and artistic works to the discipline of market forces[.] [B]ecause the celestial jukebox can keep a record of every selection a subscriber makes, and the price he paid for it, copyright owners will have a far more precise measure of the demand for their products than they do today. This capacity should enable them to channel their investments more precisely to meet these newly articulated patterns of demand.”

PAUL GOLDSTEIN, COPYRIGHT’S HIGHWAY 199-200 (1994).

7. In 2003, the last year before paid downloads became widely available, CD singles comprised less than 2% of total sales, in unit terms, for recorded music in the CD format. Of course, by 2002 illegal downloading, undertaken with the assistance of various services associated with the FastTrack and Gnutella peer-to-peer networks, was flourishing and

download services grew. Consumption in the world of downloads is more like the early era of vinyl than the past quarter century of CDs, as it turns out.

This ongoing rebirth of the singles markets should have significant implications for music pricing. When songs are sold in a bundle, it is difficult for a consumer to tell exactly what portion of the price charged can be assigned to the album's hits, versus the portion assigned to the album's filler songs. But in the current environment of download services, the songs have been unbundled, and consequently prices are now more transparent. Transparency means that pricing is more likely to visibly reflect demand for particular songs. Yet we see little variation in pricing for downloads.

Viewed another way, the puzzle is deeper still. The unbundling we see on download services, where songs are sold singly, is in itself a response to demand. Many consumers who desire to purchase a particular band's hit songs do not wish to purchase other songs from that band that are not hits. This desire for disaggregation was difficult to satisfy with music distributed on CDs, for both the cost of the medium (i.e., the plastic disk and associated packaging) and the cost of selling (i.e., shipping expenses, as well as the inventory and retail space required) do not vary much between CD singles and albums on CD, and therefore distribution costs made the CD single uneconomic. In contrast, the cost structure of the download format is largely indifferent to whether music is sold as a bundle or not. The cost of storing and transmitting digital code is insignificant compared to the cost of distributing those same ones and zeros encased within the medium of plastic disks, and it does not vary significantly depending on the size of the digital file.

So we see that download services have responded to consumer demand by disaggregating music formerly sold in bundles. Distribution via downloads makes this disaggregation possible. But the shift to downloads makes other innovations possible as well, and we might expect both record labels and the retailers to start thinking about new approaches to music pricing. Here's a good first question: why are the diamonds priced the same as the dross? Why doesn't the industry move toward pricing that varies to reflect demand?

The puzzle is not limited to pricing. Once we begin inquiring whether uniform pricing is sensible, we notice in this new model of music distribution other instances of uniformity that appear odd. On the whole, we don't see new songs priced differently from old, although hit

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therefore the number of CD singles purchased may well have declined substantially relative to the number of units that would have been sold absent illegal file sharing. Nevertheless, RIAA data for 1997 show that even prior to the rise of illegal file sharing, CD singles at most comprised 8.1% of total sales, in unit terms, for recorded music in the CD format. See RIAA Year-End Statistics, *supra* note 3.

songs are typically new songs. We don't see differential pricing based on the quality (i.e., the bitrate) of the digital file, even though audio enthusiasts might be willing to pay for a version encoded in a bitrate higher than the relatively low-fidelity offerings typically encountered on download services. (Obversely, casual listeners or samplers might be responsive to a discount for a lower-fidelity copy.) And we don't see songs for new artists priced differently from those of established artists, even though lower prices for new artists might help build future demand (and permit more sales down the road at a higher price) by tempting consumers who might otherwise be unwilling to pay for music unknown to them.

In a competitive market, we ordinarily would expect firms to respond to these different forms of demand. Indeed, the flexibility and cost advantages offered by online distribution might provide an excellent platform for variable pricing and the many approaches to product differentiation that may attend variable pricing. There are anecdotes that suggest that the music industry would benefit from variable pricing and more elaborate product differentiation. When the BBC briefly posted versions of Beethoven's symphonies online for free, they were downloaded over 1.4 million times.<sup>8</sup> An executive of the classical music label of Warner Music Group, one of the four major record labels, commented that it would take a commercial CD recording of the complete Beethoven symphonies "upwards of five years" to sell as many downloads as were distributed through the BBC website in two weeks.<sup>9</sup> The huge number of Beethoven downloads in such a short period suggests that a significant demand exists for this music among consumers who are unwilling to pay the prevailing price, but may be willing to pay something.

Why don't we see an attempt to expand the commercial market for classical music by offering cheap downloads? Or, for that matter, to expand the market for other types of music that currently find only a limited audience? It is tempting perhaps to conjecture that low-priced classical music downloads are shunned because they threaten to cannibalize the sale of high-priced CDs. But this isn't a particularly compelling explanation. Downloads could be more heavily exploited as a price discrimination mechanism—expensive, high-quality classical CDs or premium downloads for the enthusiast; cheap, lower-quality classical downloads for the neophyte. Is the music industry simply missing an opportunity to satisfy unmet demand? Or is there some other

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8. Charlotte Higgins, *Beethoven (1.4m) Beats Bono (20,000) in Battle of the Internet Downloads*, GUARDIAN UNLIMITED, July 21, 2005, available at <http://technology.guardian.co.uk/online/news/0,12597,1532890,00.html>.

9. *Id.*



explanation for the uniformity in both pricing and product offerings that we see on the download services?

Recent news reports suggest that the major record labels may want to move away from uniform pricing. Warner CEO Edgar Bronfman, Jr. reportedly stated that “[w]e want, and will insist upon having, variable pricing.” But Apple’s Steve Jobs, whose opinions matter given iTunes enormous share of download sales, counters that the major labels are “greedy,” and that their interest in variable pricing is limited to charging more for hits.<sup>10</sup>

The Bronfman and Jobs statements evidence a standoff between powerful firms at different levels of the market for downloads. On the one hand we find the major music labels. Due to their substantial market power, these firms have traditionally exercised control over their prices and terms of dealing. On the other hand we find an upstart retailer. Because of its first-mover advantage and the technological lock-in that users experience once they commit to the iTunes platform (more on this later), Apple exercises substantial market power of its own. Is market power responsible for the uniform pricing of downloads?

We’ll consider that possibility in Part IV of the paper, but it’s worth pausing here to make clear that the explanation offered later can’t simply be that Apple is dominant in the download market and insists on 99¢ pricing. There is an important antecedent question that any explanation must address: *why* would Apple insist on uniform pricing? That’s the biggest piece of the puzzle, for even if Apple owned 100% of the download market, variable pricing might still make sense for them. By better reflecting demand, a variable pricing strategy (at least one not limited to higher prices for hits) might produce higher revenues in the download market. Apple is the leading firm in this burgeoning market, and is likely to remain so for some time. If it implemented a variable pricing strategy that made its download service even more attractive to consumers, the record companies might well be willing to pay Apple more for the opportunity to distribute their songs on Apple’s platform. So the answer has to be something more than Apple’s dominance. There must be some other explanation, perhaps arising from the behavior of download consumers or perhaps a longer-term strategic interest, that is linked to uniform pricing. What might that be? We will return to these questions in Parts III and IV. First, however, a brief look at the download services.

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10. Hiatt & Serpick, *supra* note 2.

FIGURE 1: COMPARISON OF MUSIC DOWNLOAD SERVICES

Music Download Service	Per Song, Album, or Subscript..	Number of Songs	File Type	DRM	Download Bit Rate	Price Per Song	Price Per Album	Subscription Price	Playable on Other Computers?	Playable on portable Devices?	Burn to CD
Apple iTunes	Song/Album	> 2.0MM	AAC	Yes	128 Kbps	99¢	\$9.90-\$13.99	NA	5 CPUs	iPods only (unlimited)	7 times/ unique playlist
Napster	Subscript.	> 1.5 MM	WMA	Yes	192 Kbps	99¢	\$9.95-\$13.95	\$9.95/mo or \$14.95/mo w./ portable	3 CPUs	ToGo Subscribers (25 devices)	No
Rhapsody	Subscript	> 1.3 MM	RAX (Harmony)	Yes	192 Kbps	99¢	\$8.99-\$9.99	\$9.99/mo or \$14.99/mo w/ portable	3 CPUs	ToGo Subscribers (17 devices)	Add'l fee/ song 7x/ unique playlist
Yahoo! Music	Subscript.	> 1.0 MM	WMA	Yes	192 Kbps	79¢ (w/ sub.)	NA	\$6.99/mo or \$11.99/mo w/ portable	TBD	ToGo Subscribers (32 devices)	Add'l fee/song # bums TBD
MSN Music	Song/Album	> 1.0 MM	WMA	Yes	192 Kbps	99¢	\$7.90-\$9.90	NA	5 CPUs	Secure WMA devices	7 times/ unique playlist
Musicmatch (Yahoo)	Song/Album	> 900 K	WMA	Yes	160 Kbps	99¢	\$7.49-\$12.79	\$6.99/mo	5 CPUs	Secure WMA devices	7 times/ unique playlist
WalMart Music	Song/Album	> 500 K	WMA	Yes	128 Kbps	88¢	\$8.80-\$9.94	NA	Backup on 2 CPUs, per license/terms	Secure WMA	10 times /song
BuyMusic	Song/Album	> 800 K	WMA	Yes	128 Kbps, 256 Kbps on select songs	99¢, some at 79¢	\$9.49-\$11.99	NA	Waries w/ licenser	Secure WMA, limited # xfers	Based on licenser terms
Virgin Digital	Song/Album	> 2.0 MM	WMA	Yes	128 Kbps	99¢	\$6.99	\$7.99/mo	3 CPUs	Secure WMA devices	Add'l fee/song # bums TBD
Sony Connect	Song/Album	> 700 K	ATRAC3	Yes	132 Kbps	99¢	\$9.99-\$10.99	NA	5 CPUs (playback on 4)	ATRAC3 devices, 5x/ unique list	7 times/ unique playlist
eMusic	Subscript.	> 900 K	MP3	Yes	VBR (192-320 Kbps)	25¢ (40/m) 23¢ (60/m) 22¢ (90/m)	(see per-song pricing)	(see per-song pricing)	Yes	Yes	Yes
Audio Lurchbox	Song/Album	> 350 K	MP3 & OGG	No	192 Kbps	99¢ or less (25¢ or less w/ sub.)	\$9.99 or less (25¢/song or less w/ sub.)	\$9.99-24.99/mo based on use	Yes	Yes	Yes



### B. *The Download Services*

To begin to understand the possible reasons why we might find uniform pricing and limited product differentiation in the provision of music downloads, it is helpful to look closely at the leading download services. Figure 1 presents data regarding the available content, pricing, and terms of service for the ten largest paid music download services—Apple’s iTunes, the retooled (legal) Napster, Real Networks’ Rhapsody, Yahoo! Music, Microsoft’s MSN Music, Musicmatch (recently acquired by Yahoo!), Wal-Mart Music Downloads, Buy.com’s BuyMusic, Virgin Digital, and Sony Connect.<sup>11</sup>

Of these services, iTunes is by far the largest, comprising approximately 83% of the U.S. music download market, according to Apple. And just as the retail side of the market for downloads is concentrated, so is the wholesale side: all of the services mentioned directly above offer downloads from a catalog comprised mostly of music from the four major record labels that dominate the production of recorded music—Universal Music Group, Sony BMG Music Entertainment, EMI Group, and Warner Music Group. Taken together, these four major labels control over 70% of the sales of recorded music globally, and over 85% of sales in the U.S.<sup>12</sup> The catalog offered by the big 4 via the download services is, for the most part, also available on CD, although we do see some music that is offered for exclusively for download.<sup>13</sup>

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11. See also WILLIAM M. FISHER III, PROMISES TO KEEP: TECHNOLOGY, LAW AND THE FUTURE OF ENTERTAINMENT 199-258 (2004). (To be clear, I am focusing on a subset of the means currently available for obtaining digital music files online. Most importantly, I focus on the “paid” services – e.g., Apple’s iTunes, Real Networks’ Rhapsody, and the “new” Napster – that offer downloads or “streams” of digital audio files. I do not include peer-to-peer (p2p) networks, such as Grokster or BitTorrent, in my analysis. P2P services, which typically involve unauthorized access to copyrighted works, might in the future serve as a platform for some form of alternative compensation system, perhaps of the type recently described by Terry Fisher.); see also *iMesh, MusicNet Officially Announce Partnership*, Digital Music News, Jan., 2005, <http://www.digitalmusicnews.com/results?title=iMesh> (describing plans for paid p2p services, with two firms, iMesh and Snocap, having obtained licenses to the major labels’ digital catalog of over two million songs); see also Chris Marlowe, *Early Peer-to-peer Music Site Gets Back in Game*, HOLLYWOOD REP., Jun. 12, 2006, available at [http://news.yahoo.com/s/nm/20060612/tc\\_nm/qtrax\\_dc\\_2](http://news.yahoo.com/s/nm/20060612/tc_nm/qtrax_dc_2) (describing a p2p sampling service, to be offered through the Qtrax network and limited, at the moment, to tracks from major label EMI. Paid p2p has, however, not yet launched and we cannot therefore gauge whether, and to what extent, paid p2p would offer a service meaningfully different, in terms of the music available, the prices charged, or the terms of use offered, from the paid download services.).

12. Press Release, International Fed. of the Phonographic Indus., 12th Annual Recording Indus. in Numbers (Aug. 2, 2005), [http://www.ifpi.org/site-content/publications/rin\\_order.html](http://www.ifpi.org/site-content/publications/rin_order.html).

13. See, e.g., Walmart, Music Downloads, <http://musicdownloads.walmart.com/catalog/servlet/AlbumServlet?id=130276> (last visited July 8, 2006) (two tracks available exclusively for download on WalMart.com); see generally, Walmart, Music Downloads, <http://musicdownloads.walmart.com/catalog/servlet/AlbumMerchServlet?albummerchsubjecti>

Figure 1 also presents data for eMusic and Audio Lunchbox, two of the many smaller services that offer music downloads from a large number of independent record labels. These “independent” download services enjoy only a small share of the market, likely less than 5%. As a result, we will focus mostly on the services offering music from the big 4 major labels.

*Download purchase vs. download rental.* It is important to note that our focus is on download *purchases*, and not download *rentals*. One important fact that jumps out from Figure 1 is that download services have introduced an important innovation—music “subscription” services—that has been unavailable in the CD market since Congress amended the copyright law to proscribe the unauthorized rental of sound recordings (an activity that would otherwise be permissible under copyright’s “first sale” doctrine).<sup>14</sup>

Music “subscription” is a marketing term for a rental service: i.e., a model wherein the customer pays a fee, usually set as a price paid per month, for the right to download as much music as he desires. The music files are wrapped in a digital rights management (DRM) scheme that directs that the downloaded files disappear from the customer’s computer or portable music player once the customer stops paying rent. These services operate only with certain computer media players and portable music devices configured to respect the DRM rules associated with the downloaded files. In a model that allows unlimited downloading for a fixed monthly price, variable pricing is by definition impossible—consumption is unlimited (or limited only by the amount of data that could conceivably be downloaded) and therefore although subscribers do incur costs for their downloading, individual downloads are not priced. Of course, a service could offer variable pricing within the subscription model by calibrating its monthly fees to a maximum number of downloads. The independent eMusic service offers something like this, charging \$9.99/month for up to 40 downloads, \$14.99/month for 65, and \$19.99/month for 90. But one might question whether eMusic is really offering a “subscription” service, or merely a form of volume discount on *purchased* downloads. Unlike the true subscription services offered by Yahoo! Music and several of its rivals, the downloads distributed by eMusic are not wrapped in DRM, do not disappear when the customer stops paying monthly fees, and so are owned rather than rented.

Although they are mostly irrelevant to the question of variable pricing, it is worth pausing a moment to consider the role of true subscription services, which are another form of product differentiation

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d=50 (last visited July 8, 2006).

14. See Record Rental Amendment Act of 1984, 17 U.S.C. § 109(b)(1)(A) (2000).

that responds to demand. These services are especially attractive to “samplers”—those who prefer to listen to a large amount of music but purchase only the fraction that they particularly like. Subscription services may also be a sensible choice for consumers who tend to treat music as a disposable good, listening to a particular song or album for a period and then rarely or never returning to it. Neither samplers nor “disposers” are addressed particularly well by music marketed on CDs.

It is also important to notice that “all you can eat” subscription services are possible only because of the use of DRM technologies that enforce the rental terms and prevent (or hinder) further unauthorized distribution by the user. DRM is a form of electronic self-help that content owners use to limit the uses that are made of their works distributed in digital form. The scope of permissible use of a non-DRM-protected CD is restricted, of course, by copyright law. But the restrictions imposed on “pure-digital” files purchased from online music download services often are more exacting than what the default rules of copyright law would otherwise mandate.

Functional and enforceable DRM is often said to be a predicate to content owners’ willingness to offer their properties over digital networks—because digital files can be copied endlessly without degradation. Somewhat awkwardly for the record labels, most CDs—although also a digital medium that allows perfect serial copying—are not subject to DRM restrictions. The major record labels have tried, and thus far failed, to design an effective DRM scheme for CDs. That effort is likely to continue, as part of a broader push to apply copy protection technologies to all forms of digital music. DRM, in the industry’s view, is the key that unlocks all the potential that digital distribution can offer. Why? Because it replaces copyright enforcement via expensive lawsuits with enforcement through inexpensive code. Moreover, it can encode different terms of dealing that respond more flexibly to different types of demand. DRM would, of course, be an important tool in implementing certain forms of variable pricing—e.g., one that charged different prices for a short-lived “sampling” download versus a standard persistent download, or one that varied prices based on the number of devices on which a particular consumer wished to play the download.

### *C. Uniform Pricing Amidst Variable Demand*

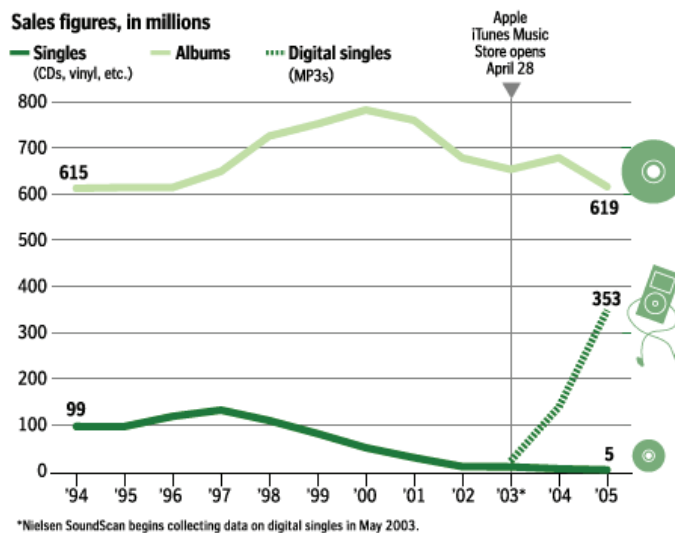
Online services distribute music as naked digital files, rather than as files encoded on a physical medium, like a CD. Accordingly, distribution of music via download services avoids the cost of the physical medium itself, and also the costs (transport, inventory, etc.) associated with the distribution of the physical medium. By virtue of these avoided costs, we might expect to see lower pricing for music

offered via the download services, compared with the same music offered on CDs. And we do observe lower pricing, albeit not dramatically lower.

*Price reduction via disaggregation.* The most important source of lower pricing offered by the download services inheres, of course, in the services' disaggregation of music that formerly was sold only as a bundle (i.e., as a group of songs on a CD), but are now offered a la carte. This means that consumers who value the hits from a particular release, but not the lesser-known tracks, can choose to consume only the hits and pay less. This flexibility prices in some consumers who are willing to pay 99¢ for a hit song, but not ten times that amount or more for the associated CD. And a la carte pricing increases consumer surplus for those who would be willing, absent disaggregation, to pay for the CD, but would prefer to purchase the CD's hits and direct the balance of their \$9.99 toward other purchases.

Disaggregation has led already to a substantial change in the industry's product mix, as illustrated by Figure 2, a graphic, taken from an article in the *Washington Post*, which sets out data from Nielsen SoundScan. Figure 2 shows an accelerating shift from consumption of albums, which fell by 7.2% in 2005, to consumption of single tracks, which rose by more than 150% in the same year.<sup>15</sup> This shift in consumption reflects demand focused on single tracks, rather than

FIGURE 2: NIELSEN SOUNDSCAN DATA



15. J. Freedom du Lac, *Downloads Make Singles a Hit Again: But Popularity of MP3s Has a Flip Side: Fewer Album Sales*, WASH. POST, Feb. 8, 2006, at A1.

albums. Some share of this demand was almost certainly unmet prior to the disaggregation re-introduced by the download services.<sup>16</sup> In sum, we see significant consumer welfare arising from disaggregation. That said, there is potentially much more consumption to be unlocked. What we do not yet see is disaggregation of previously bundled music into a la carte offerings, accompanied by variable pricing for the disaggregated tracks. If demand for hits exceeds substantially demand for less popular tracks (which it almost certainly does), pricing all or almost all tracks at 99¢ is not optimal. There is no legal rule preventing variable pricing. The question remains to be answered, therefore, why we do not see much more differentiation in prices charged for individual tracks.

*Price reduction without disaggregation.* Aside from the gains realized from disaggregation, we see evidence that download services have generally lowered prices, at least for albums. The market for CD singles is very small, and pricing is highly idiosyncratic (many CD singles are imports and rarities that typically are specially valued by collectors and therefore sell for a higher price), so price comparisons are difficult. Comparison between download and CD prices for albums is more revealing.

As Figure 1 illustrates, most sites offering downloads charge around \$9.99 per album. There is some small variation in price: a few of the services (e.g., MSN and Musicmatch) offer a small number of albums for less than the standard \$9.99 rate, and another, somewhat larger number, at a rate higher than the standard.

The typical \$9.99 price for an album download is often somewhat less than what the same CD costs at retail. For example, WalMart charges \$11.88 (plus approximately \$2.00 in shipping costs) for the latest album (*Plans*) by Death Cab for Cutie, whereas WalMart.com charges \$9.44 and BuyMusic.com \$9.99 for the same album in download form. CD prices in retail stores vary widely, but tend to be higher than the lowest prices available online. Plan9 music on University Avenue in my hometown of Charlottesville, for example, charges \$17.07 plus tax for Death Cab's *Plans*.

So for this particular album, purchasing the download yields a savings of approximately \$4 including avoided shipping costs versus ordering the CD online, and more than \$8.00, not including tax, versus purchasing the music at a local brick-and-mortar retailer. This particular example is merely suggestive—a full survey of download versus CD

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16. We can see this process at work at the level of individual musical works. Recently the Washington Post reported on a particular instance of disaggregated consumption involving a hit song, "Laffy Taffy," from the Atlanta hip hop band D4L. "The song has been downloaded—legally, and for a fee—more than 700,000 times from iTunes, Yahoo! Music and other online music outlets since its release in late October . . ." *Id.* By comparison, total sales for the album, "Down for Life," on which the song appears, is only 304,000 copies. *Id.*

pricing is far beyond the scope of this paper, which is concerned about price variability and not absolute price levels. Of course this raw price comparison is necessarily imprecise because the Death Cab album obtained via download is in some important ways a different product than the same album on a CD. The downloaded music is available for use almost immediately, whereas the customer must wait for the CD purchased online. Conversely, the music purchase offered via a download service does not include the physical media, usually does not include the artwork and liner notes, and is of lower sound quality than music sold on a CD. And, perhaps more importantly, the download is usually subject to DRM rules that govern usage—including restrictions on how many copies can be made of the digital file, and often on the number and type of devices on which the music can be downloaded. The data on the CD, by comparison, is almost always “in the clear”—i.e., unencrypted (and therefore subject to copying) and also playable on any device that adheres to the CD standard. Accordingly, one’s ownership of a download subject to DRM rules is much less complete than the same music packaged on a CD. The product we think about as “music” turns out to be a bundle of digital code and legal rights, and whereas the code may be the same, the rights differ. For many individuals, willingness to pay will vary along with the rights conveyed in a particular bundle.

*Price variation.* Despite these factors that make a precise reckoning difficult, it is clear that download services offer at least some price advantage over online and, especially, brick-and-mortar purchases of CDs. But when we look not at the price of a particular song or album, but at the incidence of *price variation* between different songs or albums, we observe a high degree of uniform pricing in the offerings of the download services. Indeed, we arguably see less price variation for downloads than for CDs, which is strange given the increased pricing transparency brought about by disaggregation, and also the relative ease with which prices can be varied online versus for inventory sitting in the shelves of a record store.

The typical price for a downloaded single is, as the title of this article suggests, currently 99¢. That price is typical, but not inevitable: WalMart, for example, charges somewhat less (88¢) for a download, and Rhapsody and BuyMusic.com offers a limited selection of singles at 79¢. So we see some direct price competition among the download services, but little evidence of demand-based variable pricing within the offerings of any particular download service. To wit:

Thirteen of the fourteen tracks on Mariah Carey’s 2005 album *The Emancipation of Mimi* are priced at 99¢ each on BuyMusic.com (the remaining track, “We Belong Together,” is offered at 79¢). The same fourteen tracks are available on WalMart.com, each priced at 88¢.

The thirteen tracks on Bruce Springsteen’s 2006 album, *We Shall*



*Overcome: The Seeger Sessions*, are uniformly priced on WalMart.com for 88¢ per track; the same tracks cost 99¢ each at Sony's Connect.

The twelve tracks of Toby Keith's self-referentially titled 2006 album, *White Trash With Money*, are uniformly priced at 99¢ each on Sony's Connect; the same tracks cost 88¢ each on WalMart.com.

So we see some price competition among download services, but little variable pricing among individual tracks on the same album. That pattern continues when we look at pricing for the albums themselves. Indeed, the degree of differential pricing for downloaded albums may in some cases even be *less* than what we find for albums distributed on CDs.

On Amazon.com, for example, the single-CD albums offered for sale by Chicago band Wilco range from \$8.97 for 1999 release *Summerteeth* to \$14.98 for the band's 2004 studio release *A Ghost is Born*. Wilco's latest (2005) release, *Kicking Television: Live in Chicago*, a double album, is priced at \$22.98. On BuyMusic.com, available Wilco single-CD album downloads are priced uniformly at \$9.99, except for *Kicking Television*, which costs \$18.99. On WalMart.com's download site, available Wilco single-CD albums are uniformly priced at \$9.44; *Kicking Television* costs \$17.44.

The same pattern persists when we examine pricing for the albums of a better-selling band, the Black-Eyed Peas. On Amazon.com, prices for non-import CDs from this band range from \$9.76 for 2005 release *Monkey Business* to \$11.98 for 2004 release *Elephunk*. On BuyMusic.com, all available Black-Eyed Peas albums are priced at \$9.99. On WalMart.com's download site, Black-Eyed Peas albums are priced at \$9.44, except for the 2000 release *Bridging the Gap*, which is priced at \$5.88.

Again, this data is merely suggestive, and a full survey of download pricing is beyond the scope of this paper. Yet if space permitted, we could multiply examples endlessly, and the data would continue to illustrate a high degree of pricing uniformity in the offerings of the download services, more than we would expect based on what intuition suggests is a wide variation in demand between hits and non-hits.

Is there perhaps something wrong with this baseline intuition—i.e., is it possible that demand for hit songs is not meaningfully different, at least for music in the form of downloads, than demand for non-hits? The nomenclature itself—the identification of certain songs (both within the industry and by the broader public) as “hits”—suggests that the intuition is correct, but of course the language used is not itself definitive. Data about demand for individual tracks is available from Nielsen's SoundScan division. SoundScan maintains an information system that tracks sales of music and music video products throughout the United States and Canada and that provides data for the music charts, like those



published weekly in Billboard. The SoundScan data is, however, available only via a very expensive subscription, so for our purposes we are obliged to rely on rough proxies for measuring differential demand.

An interesting window into the variation in demand between hits and non-hits is provided by data collected by LastFM,<sup>17</sup> a service which describes itself as providing a platform for music communities. Among other things, LastFM distributes software that identifies all music files contained on a user's computer and periodically reports back to the service all music the user has played on that computer. This authorized electronic snooping allows users to build a personalized music profile, which in turn permits LastFM to make personalized music recommendations (i.e., to identify music a particular user might enjoy, based largely on the record of the music that user has listened to). The service produces, as a byproduct, a record of how many LastFM users have listened to each particular track from a large number of popular music albums. LastFM makes these numbers visible for each track.

LastFM users are generally technologically savvy and as a group likely pay attention to and consume music at a rate above the norm. One might suspect, therefore, that as a group LastFM users may have deeper knowledge of music and focus less on hit songs relative to music consumers as a whole. Nevertheless, LastFM data suggest that users listen to hits significantly more often than non-hits from the same album. For example, 279 LastFM users have listened to "Laffy Taffy," a hit song from the 2005 album *Down for Life* by hip-hop band D4L, while only 3 have listened to "Diggin' Me," from the same D4L CD. 18,082 people have listened to "Frozen," from Madonna's 1999 release *Ray of Light*. That song hit #2 on the Billboard charts. In contrast, only 2,008 people have listened to "Shanti/Ashtangi", a non-hit from the same album.

Variation in demand among different tracks by the same artist is perhaps stronger for music with a fanbase heavily oriented toward hits. Nevertheless, LastFM data suggests that demand varies even for tracks from artists whose fans are more likely to be interested in the artist's output as a whole, rather than individual hit songs. 100,678 people listened to "Such Great Heights," a relatively well-known song (albeit not a chart topper) from the 2003 release *Give Up* by The Postal Service, while 19,820 people have listened to "There's Never Enough Time", from the same album. 1,552 people have listened to "Lake Swimming," from Laura Viers' 2005 album *Year of Meteors*; whereas 3,142 people have listened to "Galaxies," the song that has attracted the most attention from that same album.

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17. See generally Last.fm, The Social Music Revolution, <http://www.last.fm/> (last visited Sept. 6, 2006).

Again, this data is only suggestive, but it aligns with an intuition that the entire structure of the music industry also supports. The record labels promote hits in part via payments (estimated in the hundreds of millions of dollars annually) to “independent record promoters” who, in turn, pass money along to radio stations that play songs the record companies are promoting as hits.<sup>18</sup> This system is different from illegal “payola” only because the payments are made through a middleman (the independent promoters) rather than directly from record company to radio station. While that is enough of a difference to evade the law, the effect of the system is the same – i.e., to increase the public’s exposure to certain favored songs in order to spark (and to some extent reflect) demand for those songs. Until recently, consumers who wished to purchase songs they heard on the radio were, for the most part, forced to buy those songs as part of a bundle. The mechanism for spurring consumer demand was (and is), however, still directed toward hits, rather than toward the bundle as a whole. The industry’s significant investment in this strategy speaks to its perception that demand is directed disproportionately toward hits.

#### *D. Non-Price Uniformity: Quality and Usage Rules*

*Uniform audio quality.* Aside from different prices based on the popularity of individual albums or tracks, firms might also discriminate among different types of demand by offering music downloads at different levels of quality, with price adjusted accordingly. This type of differentiation would take advantage of firms’ ability to offer files of higher or lower bit-rate resolution (and hence of higher or lower fidelity) within the same file format, such as MP3, WMA, AAC, etc. Or, since media players may be configured to support more than one format, firms might also discriminate by offering files encoded in different formats, employing different compression-decompression algorithms (codecs). Compression reduces the size of digital files, thereby speeding downloading and minimizing the share of the user’s hard drive occupied by the downloaded file. Most codecs are “lossy”—i.e., they reduce file size by removing data in a way that affects fidelity. Other codecs are lossless; they remove data by using techniques that produce no audible changes. Audiophiles may be attracted to downloading in a lossless format, such as the Free Lossless Audio Codec, or FLAC, while ordinary listeners, who are relatively insensitive to audio quality, may favor a lossy format, such as MP3, which results in a smaller file that occupies less disk space and which is compatible with a larger number of music

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18. Eric Boehlert, *Pay for Play*, SALON, Mar. 14, 2001, <http://archive.salon.com/ent/feature/2001/03/14/payola/index.html>.

players.

Because they deal in pure digital code, download services can introduce all these forms of product differentiation at low cost relative to those attending physical media. This flexibility offers music download services a significant potential advantage over distribution via CDs, a standard now more than two decades old and which supports only one (not particularly high-quality) format.<sup>19</sup> Firms offering downloads of varying fidelity might be able to charge different prices based on consumers' differing demand for sound quality. The audiophile who listens to music on his \$10,000 home stereo may be willing to pay considerably more for a high-resolution digital file (which could easily offer better-than-CD-quality sound) compared with the casual listener who experiences music mostly through the cheap headphones of an iPod.

While product differentiation by varying the bitrate of audio files might be a promising price discrimination strategy, we see little evidence of it. Referring back to Figure 1, the services offer downloads at between 128 kilobits per second (kbps) and 192 kbps. It is difficult to compare the fidelity of some of the different services directly, because they are using different file formats, including different compression algorithms, which differ in the fidelity they produce at a given bitrate. Nonetheless, all of the services are clustered around a roughly comparable level of audio quality. Two of the services, BuyMusic.com and eMusic, do offer some higher-resolution files, but do not charge extra for them.

*Variation in DRM usage rules.* In addition to varying sound quality, firms might also use DRM code to vary usage rules, and charge differential prices based on the nature of the permitted uses. Firms might, for example, identify a class of consumers who treat music as a "disposable" item—i.e., those who listen to the latest hits, and then forget them once they are no longer hits. We see some effort to address these customers via the music subscription services, described above. Use of a subscription service allows a "disposer" to constantly cycle through the latest hits and simply record over what they no longer use. But it may be difficult to induce a casual listener to commit to a subscription service. First, he may not plan to consume enough music to make an "all you can eat" subscription service worthwhile. Second, even if he does, the necessity of paying monthly fees and (if he wishes to take his music with him) of purchasing a portable music player compliant with a particular service's DRM scheme, is a deterrent.

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19. Recently, the CD format's poor audio quality came under fire from music legend Bob Dylan, who noted that the songs on his latest (2006) album, *Modern Times*, "probably sounded ten times better in the studio when we recorded 'em. CDs are small. There's no stature to it." Jonathan Lethem, *The Genius of Bob Dylan*, ROLLING STONE, Sept. 7, 2006, available at <http://www.rollingstone.com/news/story/11216877/>.

A better solution for many casual disposers may be the opportunity to make a la carte purchases of tracks that are subject to “disappearance” via DRM after some period calculated to track the duration of a track’s appeal to the average disposer. If, at the end of this period, the disposer wishes to retain access to the track, he can simply pay to remove the portion of the DRM that applies the time limitation. As a further development along this path, firms might cater to adventurous listeners by offering a “sampling” price; i.e., a lower (even near-zero) price for downloads that persist for just a few days to allow a consumer to decide whether to purchase, perhaps by making an additional payment for the removal of the DRM.

We see no evidence that these strategies are followed by any of the major download services. We do, however, see some evidence of variation in the rules that apply to burning downloaded tracks to a CD. Referring again to Figure 1, we see a number of services offering DRM rules which allow burning a particular download to a CD seven times, so long as it is burned each time as part of a unique playlist—i.e., the services do not want multiple copies of the same compilation being produced, probably because they are afraid that multiple copies of the same thing are more likely to be sold. But Rhapsody, Yahoo! Music, and Virgin Digital have implemented a form of variable pricing by making users pay extra to burn tracks, up to a maximum number of allowed burns.

### III. SOME POSSIBLE BEHAVIORAL EXPLANATIONS FOR UNIFORM DOWNLOAD PRICING

There are several potential explanations for the uniform pricing of music downloads. These can be divided into two broad categories. First are a number of related potential explanations that arise from consumer behavior, and, specifically, consumer reaction to pricing schemes that renders seemingly rational variable pricing inefficient. Second is industry structure—i.e., is uniform pricing an artifact of an exercise of market power at either the wholesale or retail level? This section will consider possible behavioral explanations.<sup>20</sup>

*Fairness.* Consumers sometimes react unfavorably to prices that they perceive as unfair, even if the prices are themselves driven by supply and demand. For example, consumers were angered when Coca-Cola introduced vending machines that raised the price of cold drinks in

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20. See generally Barak Y. Orbach & Liran Einav, *Uniform Prices for Differentiated Goods: The Case of the Movie-Theatre Industry* (NYU Law & Econ. Research Paper No. 04-02, Jan. 2006), available at <http://ssrn.com/abstract=871584> (an interesting and insightful paper that lays out the scheme followed by the analysis in this section).

response to rising temperatures.<sup>21</sup> It seems reasonable that demand for cold drinks would rise along with temperatures, and therefore demand-based soft-drink pricing based on temperature would be efficient. And yet consumers perceive demand-based price increases for soft-drinks as unfair and opportunistic.

Consumers are believed to judge the fairness of prices relative to an industry “reference” transaction, which is typically a common transaction that provides the baseline against which consumers judge alternative terms and conditions.<sup>22</sup> The reference transaction for the recorded music industry has long been the CD, which, as we have seen, involves the purchase of a bundle of songs that are now offered separately on download services. Because the CD is a different product from a downloaded track, it is not a particularly powerful referent. Consumers do not compare download prices to CD prices directly—rather, if they treat the CD as a referent, they must interpret the price of a download as a percentage of the average CD bundle. Pricing individual tracks uniformly at 99¢ produces a rough approximation of the price of an average 12-track CD. But it is not self-evident that consumers identify “fairness” as requiring that hits and non-hits should, when unbundled, each be priced as equivalent contributors to the cost of the reference product.

The fairness question is further muddled by the various differences between music downloads and music on physical media. Consumers are accustomed to paying more for immediate access to media content. A good example is the price premium charged for hardcover books, versus the price charged to those willing to wait for the paperback, or the price premium for movies in their theatrical first release, versus the price paid by those willing to wait until the film moves to second-run theatres and from there to the rental market. Unlike the CD, the download is available immediately without having to travel to a store or wait for a postal delivery.

Similarly, consumers are accustomed to paying more, in general, for higher-quality products. The hardcover book is again a good example—both the binding and the paper are more durable than those used in a paperback, and book publishers demand and receive a large premium for hardcovers. As has been noted above, quality differentiation is almost unknown in the market for music downloads. That fact is especially curious when one considers that the CD is a dinosaur by the standards familiar in almost every other corner of our digital environment,<sup>23</sup> where

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21. Constance L. Hays, *Variable-Price Coke Machine Being Tested*, N.Y. TIMES, Oct. 28, 1999, at C1.

22. Daniel Kahneman et. al., *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, 74 AM. ECON. REV. 728, 729-730 (1986).

23. The technical specifications for the Compact Disk format, typically referred to as the

the ever-falling cost of processing power has resulted in ever-rising performance. Downloads could be made sonically superior to CDs, and also could be packed with data—such as artist information, photos, sheet music (e.g., guitar tabulations), etc.—that are for the most part unavailable in the CD format. As currently marketed, most downloads are differentiated from CDs, but as *inferior* products (i.e., of lower sound quality and without the desirable packaging (lyrics, artwork) included with many CDs).

Perhaps the 99¢ download is itself serving as a referent, thereby raising a risk that the introducing demand-based pricing for hits would be perceived as unfair (assuming that pricing according to demand would yield a price significantly higher than 99¢ for some hits). But even if we assume that the 99¢ download has been established long enough to serve as a referent, the industry can overcome consumer perception that a higher, demand-based price for a hit song is unfair. For example, download services could move higher-priced downloads away from the reference transaction by bundling additional content with the hit song. If the gap in demand between a hit song and a non-hit by the same artist is wide enough that the optimal price for the non-hit is low, the download service might seek to address consumers' unfairness perceptions by bundling a "b-side" with the higher-priced download. Alternatively, the download service could justify the higher price by bundling the hit song with a track from a less well-known artist that the service believes will be attractive to fans of the hit. Or, the download services could employ framing strategies, such as transitioning toward full demand-based pricing by first introducing prices for non-hits or older music below the 99¢ standard. Introducing prices for some tracks that consumers will perceive as "discounts" is a useful first step toward eroding the expectation of uniform pricing. In any event, download services could pursue a number of strategies to move away from uniform pricing, and thereby alter consumer perceptions regarding the fairness of download prices. Although it is possible that fairness concerns play some role in download services' pricing decisions, fairness does not in itself provide a persuasive justification for uniform pricing of music downloads.

*Demand Instability/Uncertainty.* Uniform pricing is sometimes justified as a response to the concern that demand for a good is sufficiently unstable or uncertain that consumers would perceive price cuts as a negative signal about quality and therefore be deterred from consuming low-price goods.<sup>24</sup> These arguments do not apply particularly well to uniform pricing for music downloads, for at least two

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"Redbook," were issued in 1980 by a taskforce composed of engineers from Philips and Sony. The first CD players appeared in 1982 in Asia and 1983 elsewhere.

24. See Orbach & Einav, *supra* note 20, at 17-18.



reasons.

First, we can deal with consumers' questions about quality by allowing sampling, specifically via streaming (i.e., by sending the audio file to a media player specially configured to prohibit storage of the data), or via DRM (i.e., by allowing storage, but with encoded rules that cause the data to become inaccessible after a set period). Sampling likely works better for individual tracks than for albums, but even for the larger works sampling is useful in diminishing consumer concerns about quality. Toward that end, we see online CD retailers like Amazon.com using sampling widely to allow consumers to assess quality before purchase.<sup>25</sup>

Second, even in the absence of sampling, consumers will often possess some information about low-priced non-hits that would help to address their quality concerns. In particular, when a consumer considers the purchase of an unknown low-priced song from a particular artist, he will often own or have otherwise experienced a performance (via radio or television) of other songs by that artist, and from that information draw some conclusions regarding the likely quality of the unknown song. Considering the small investment required to purchase the low-priced non-hit, knowledge of other songs by the same artist may be enough to address quality concerns in many cases. This is an empirical question, but the discussion directly above suggests, at the least, that strategies exist whereby the download services could implement variable pricing while minimizing the impact on consumers' perceptions of likely product quality.

*Menu and Monitoring Costs.* Variable pricing might not make sense if it would result in substantial "menu costs" arising either from the expense associated with the frequent adjustment of prices or from the creation of consumer confusion significant enough to deter consumption. But menu costs are not a persuasive reason to adhere to uniform pricing for downloads. First, technology could enable the download services to make frequent adjustments to prices almost costlessly. Download services could avoid significant menu costs by using variable pricing engines, such as Digonex's Digital Online Exchange System.<sup>26</sup> These technologies continually calculate and implement variable prices based on a number of factors, including consumer demand and content owners' desired margins, that can be customized to adhere to the business models of a particular service. So, for example, new releases could be priced at \$1.99, and then prices could be allowed to vary depending on the pricing

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25. See, e.g., Amazon.com, Fox Confessor Brings the Flood, <http://www.amazon.com/gp/product/B000CS4L1E/> (last visited July 8, 2006) (webpage that includes samples for 2006 release by Neko Case, Fox Confessor Brings the Flood).

26. See *Digonex Pushes Variable Download Pricing Technology*, DIGITAL MUSIC NEWS, Jan. 23, 2006, <http://www.digitalmusicnews.com/yesterday/january2006#012305variable>.



engine's calculation of demand and the resulting predicted optimum.

The risk that variable pricing will impose menu costs by confusing consumers is similarly slight. The download services are capable transparently of associating a price with any particular download; ensuring that patrons are able to locate the music they wish to purchase and understand the price of any particular download is a straightforward question of site design. This is especially true because the number of potential products offered by any download service is so large—even the smaller services offer hundreds of thousands of songs—that it makes no sense to confront consumers with a complicated menu of prices. Rather, it makes sense to design an interface that allows consumers to access music that interests them, and then associate a price with the particular tracks or albums on which the consumer wishes to focus.

Variable pricing might also prove inefficient if it creates the necessity of monitoring consumption to make sure that consumers do not purchase a low-priced product and then surreptitiously consume a higher-priced one. An example of potentially significant monitoring costs would be variable pricing in the movie theatre industry, which, if adopted, would raise the likelihood that consumers would purchase a ticket for a lower-priced movie and then sneak into a higher-priced film showing on a different screen in the same theatre.<sup>27</sup> There is, however, no directly analogous story to be told for downloads—cheap and effective technological means are available to ensure that download services deliver to consumers only those songs for which they have paid. There is, of course, a much larger problem of music piracy—i.e., downloading music without payment from peer-to-peer networks and elsewhere. Piracy poses a somewhat different monitoring costs problem; one that affects downloads whether prices are variable or uniform, but that might be worsened if prices vary. I'll discuss piracy and its relationship to uniform pricing later in the paper.

#### IV. SUBSTANTIAL BILATERAL MARKET POWER AS A POSSIBLE EXPLANATION FOR UNIFORM DOWNLOAD PRICING

If behavioral explanations don't appear to explain uniform pricing for music downloads, can we understand the phenomenon as arising from an exercise of market power held at one or more levels of the distribution chain for downloads? In particular, is uniform pricing for downloads related to the dominant share of sales of recorded music held by the big 4 labels? Or perhaps, does it relate to the equally dominant share of sales of downloads enjoyed by Apple and its iTunes download

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27. See Orbach & Einav, *supra* note 20, at 18-19 (Orbach and Einav ultimately conclude that monitoring costs are not a persuasive explanation for uniform pricing in the movie theatre industry.).

service? Or perhaps both?

We see conduct that reflects substantial market power on both the wholesale and retail sides of the download business. On the wholesale side, the four major record labels together comprise more than three-quarters of industry sales in the U.S. Barriers to entry in the recording business—related mostly to the expense involved in promoting acts (including, importantly, payments made via the modified payola system described earlier) and gaining retail distribution for releases—remain substantial even as music retailing migrates away from brick-and-mortar stores and toward downloads.

The big 4's possession of substantial share protected by barriers to entry suggests indirectly that they possess market power, which they may exercise either through explicit collusion (illegal under the antitrust law) or via tacit collusion and oligopoly pricing (lawful). There have long been allegations, as yet unproven, that the big 4 are acting collusively to raise wholesale prices over time. Recently, the Digital Media Association, an organization that represents several music download services, reported that several major labels have insisted on including in their agreements with download services "most-favored nation" (MFN) clauses designed to ensure that if one label negotiates a higher wholesale price with a download service, the other major labels immediately obtain the higher price.<sup>28</sup> Federal and New York antitrust prosecutors are examining whether the big 4 have included MFNs in their contracts, and whether these provisions function as an avenue for collusion.<sup>29</sup>

In addition to indirect evidence of market power arising from high share and significant barriers to entry, we find direct evidence of market power in the big 4's pricing. The big 4 labels distribute their electronic catalog through a common wholesaler, MusicNet. The labels' agreements with MusicNet are not publicly available, and so discussion of the details of the big 4's relationship with MusicNet is necessarily tentative. Nevertheless, what we do know adds to the picture of significant producer market power. First, the big 4 appear to offer their catalogs through MusicNet at approximately 70¢ for a track (on a per download basis)—a price which varies little either among the different companies or for different tracks contained in any single company's

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28. See Dawn C. Chmielewski & Charles Duhigg, *Online Music Deals Probed*, L.A. TIMES, Jan. 12, 2006, at C2.

29. See Brian Garrity, *Spitzer Spawns Scrutiny*, BILLBOARD RADIO MONITOR, Jan. 12, 2006, [http://www.billboardradiomonitor.com/radiomonitor/search/article\\_display.jsp?vnu\\_content\\_id=1001843241](http://www.billboardradiomonitor.com/radiomonitor/search/article_display.jsp?vnu_content_id=1001843241); see also Warner Music Group Corp., Quarterly Report (Form 10Q), at 52 (May 5, 2006), available at [http://sec.gov/Archives/edgar/data/1319161/000119312506101164/d10q.htm#tx30929\\_13](http://sec.gov/Archives/edgar/data/1319161/000119312506101164/d10q.htm#tx30929_13) (disclosing NY and U.S. antitrust investigations relating to download pricing).

catalog.<sup>30</sup> Are these prices substantially above a competitive level? If so, the big 4's prices would be direct evidence of market power.

The big 4's wholesale prices may readily be compared to the retail price charged by eMusic, a service which, as we have previously seen, offers downloads from a large number of independent recording firms. eMusic charges \$10 per 40 songs, or 25¢ per song—a retail price significantly below the *wholesale* price obtained by the big 4. On average, major-label tracks likely are of higher perceived quality compared with tracks from independent labels, and would thus command a higher price, even were pricing more competitive. Nonetheless, the wide disparity in pricing between major label and independent tracks suggests that the big 4 together exercise potent market power, not least because some high-quality independent tracks clearly are more valuable than lower-quality tracks from the big 4, and yet the big 4's wholesale pricing even for the lowest-quality tracks substantially exceeds the retail price charged for tracks from the independent labels. Of course, the independent download services, like the major services, employ uniform pricing strategies, and this is in itself a puzzle.

On the retail side, Apple's iTunes currently enjoys a share of download sales even higher than the big 4 enjoy of total music sales. In addition, Apple's share is protected by barriers to entry at least as formidable as those that shield the big 4. First, because Apple provides vastly more downloads than all its commercial rivals combined, it is in a better position than its rivals to negotiate favorable wholesale pricing. As a result, it is difficult for any of Apple's rivals to compete by significantly undercutting the dominant iTunes service on price. We do see some services, such as WalMart.com, offering marginally cheaper downloads than Apple's 99¢ standard. These minor price breaks have not induced Apple to respond, at least not by lowering iTunes prices.

Second, and perhaps more importantly, Apple's iTunes is linked to the dominant portable music player, Apple's iPod, which accounts for approximately 78% of all sales of portable music players.<sup>31</sup> Apple's tight linkage of its download service and its music player creates an exceptionally tricky problem for Apple's rivals. The iPod will play only unencrypted files encoded in the MP3 format, such as those offered by independent download sites like eMusic, or encrypted files encoded in Apple's proprietary AAC format, which incorporates Apple's FairPlay DRM rules. And the iTunes service delivers music files only in the AAC/FairPlay format, with which only iPods are compatible.

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30. See generally Alex Veiga, *Apple Likely to Prevail in Music-Pricing Dispute*, SEATTLEPI.COM, Apr. 3, 2006, [http://seattlepi.nwsourc.com/business/265259\\_apple03.html](http://seattlepi.nwsourc.com/business/265259_apple03.html) (discussing the desire by record labels to move away from fixed pricing).

31. See MacNN, *Apple's Music Biz, iPod Shares Grow*, Apr. 20, 2006, <http://www.macnn.com/articles/06/04/20/apples.music.business>.

Accordingly, rivals who wish to attack Apple's share of the download business – at least with respect to downloads from the catalogs of the big 4, which are not, generally, available in unencrypted form—must compete effectively and simultaneously on two levels. They must differentiate their download product offerings, either in terms of price (difficult, given Apple's purchasing power) or along various measures of quality (audio quality, ease-of-use, DRM rules, etc). Apple's rivals must also, for the large and fast-growing number of customers who use download services in conjunction with portable music players, compete at the *platform* level—i.e., their online services must appeal to consumers and must work with attractive portable devices.

At the moment, Apple's platform is composed of the iTunes download service, the iPod player, and the AAC file format/FairPlay DRM rules. This platform faces only one major platform competitor—Microsoft. As can be seen from Figure 1, a number of rivals to iTunes, including Yahoo! Music, BuyMusic, and WalMart.com, use Microsoft's WMA file format and associated DRM. And the proliferation of services employing Microsoft's WMA suggests that the unfolding strategies of Apple and Microsoft in the market for digital music platforms are coming to resemble the strategies each firm employs in the market for personal computers. In both markets, Apple offers a closed system—it owns the hardware (iPods for music; Apple Macintosh computers) and the software (the iTunes service and associated AAC file format for music; the MacOS operating system for personal computers), and it does not license these elements to others but bundles them together in an integrated offering. Microsoft tends more toward openness, but of course only in a limited sense. In the market for personal computer operating systems, Microsoft exercises significant power through its control of the dominant operating system, Windows. Unlike Apple, however, Microsoft does not deploy Windows only bundled with its own computer hardware. Rather, it licenses Windows widely to a large number of firms that make personal computers.

The difference between the markets for music downloads and personal computers is, of course, that the positions of Apple and Microsoft are reversed—Apple, a marginal firm in the personal computer market, is the dominant firm in the provision of music downloads. Operating from this position of strength, Apple is able to exert substantial leverage. The ubiquity of its iPods has generated a rich market for iPod complements—cases, speakers, headphones, car accessories, software, and a huge variety of other gadgets specially designed to work with the iPod and iTunes.<sup>32</sup> The iPod's dominance has

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32. One interesting recent example is the Nike+ iPod Sport Kit, a product created jointly by Nike and Apple that consists of a sensor that fits inside Nike running shoes and a small

also created opportunities for Apple to forge business relationships that could help entrench their leading position and disadvantage rivals. An example is Apple's recent agreement with General Motors, Ford, and Mazda whereby these car manufacturers will offer an easy connection between the iPod and the car stereos installed in most of their models, allowing iPod owners to listen to songs through the stereo, select songs on the iPod using the car stereo's controls, and charge their iPods using the car's electrical system. Apple claims that pursuant to this agreement, more than 70 percent of 2007-model U.S. automobiles will offer iPod integration.<sup>33</sup> Germany's BMW already offers this type of iPod integration, and Apple is reported to have signed similar deals with Acura, Audi, Ferrari, Honda, Nissan, and Volkswagen.<sup>34</sup>

These developments make the iPod more attractive to consumers, and strengthen consumers' commitment to the Apple platform. Additionally, Apple's control over its proprietary file format gives it significant power over its own customer base. Once a consumer purchases an iPod and begins to amass a library of downloaded music from iTunes, he is hooked, or, more formally, he is locked in. He cannot defect from Apple's iPod players without losing the ability to play music purchased on iTunes on a portable device, for no rival's device is compatible with the AAC format. And he cannot defect from iTunes to a rival commercial service offering files in the WMA format without also investing in a new portable music player for newly-purchased music, and retaining his iPod as a second player for mobile listening to his iTunes collection. There are, as always, technical means to strip the Apple DRM coding from the iTunes tracks and convert them to MP3 format, thus making them freely usable on a large number of portable players. But such work-arounds are beyond the technical knowledge of most consumers, and in any event removing DRM code may constitute a violation of the anti-circumvention provisions of the Digital Millennium Copyright Act.<sup>35</sup>

Back to the pricing of downloads. Negotiations between the big 4

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receiver that plugs into an iPod. The sensor monitors a runner's time, distance, pace, and calories burned, and sends that data to the iPod, which provides the data to the runner via a synthesized voice sent through the runner's headphones. The data can also be downloaded to the Nike website, which will maintain a record of the runner's workouts. See Nike, Nike+ Experience, <http://www.nike.com/nikeplus/> (last visited July 9, 2006).

33. Michele Gershberg, *Apple in Deals to Connect iPod in New Car Models*, REUTERS, Aug. 3, 2006, [http://today.reuters.com/news/articlebusiness.aspx?type=ousiv&storyID=2006-08-03T155431Z\\_01\\_WEN3256\\_RTRIDST\\_0\\_BUSINESSPRO-APPLE-AUTOMAKERS-DC.XML](http://today.reuters.com/news/articlebusiness.aspx?type=ousiv&storyID=2006-08-03T155431Z_01_WEN3256_RTRIDST_0_BUSINESSPRO-APPLE-AUTOMAKERS-DC.XML).

34. See May Wong, *Apple's iPod Sweetens its Ride with Top Automakers*, USA TODAY, Aug. 3, 2006, [http://www.usatoday.com/tech/products/gear/2006-08-03-ipod-automakers\\_x.htm](http://www.usatoday.com/tech/products/gear/2006-08-03-ipod-automakers_x.htm).

35. See 17 U.S.C. § 1201(a)(1)(A) (2000) ("No person shall circumvent a technological measure that effectively controls access to a work protected [by copyright].").

and Apple set the industry benchmark for download pricing, and the parties on both side of this negotiation exercise substantial market power. Does this observation help us understand why we find uniform wholesale and retail pricing for music downloads? Perhaps. Here is an argument, necessarily tentative both because the market is changing quickly and because information is sketchy, for how substantial bilateral market power has resulted in a regime of inefficient uniform pricing.

*Apple.* Variable pricing doesn't matter much to Apple—at least not at the moment—because iPod sales, not iTunes downloads, currently are the main driver of Apple's music revenues. In Apple's fiscal first quarter of 2006 (i.e., the three months ending December 2005), the firm reported iTunes revenue of \$491 million. That figure, however, includes revenues both from sales of songs and also from sales of iPod accessories. Apple CEO Steve Jobs stated at Macworld that the company was selling three million songs a day.<sup>36</sup> At 99¢ per song, that would produce revenue of about \$273 million per quarter. Based on that figure, the iTunes revenue figure that Apple reports for the first quarter of 2006 is about 56% songs and 44% accessories, which makes the disaggregated figure for iPod accessories (revenues which are more properly associated, for the purposes of our analysis, with iPod hardware sales rather than iTunes content sales) approximately \$216 million. In contrast, in the second quarter of 2006, Apple reported revenues from iPod sales (not including iPod accessories) of approximately \$1.7 billion.<sup>37</sup> Adding to this figure sales for iPod accessories, Apple's latest-figure quarterly revenues from total iPod hardware sales (players and accessories) approach \$2 billion—more than seven times Apple's quarterly revenues from song downloads.

And the disparity in revenues doesn't fully capture Apple's incentives, because margins on iPods are wider than those for downloads. One source puts margins on iTunes downloads at 5-10%, compared with margins on iPods that may exceed 25%.<sup>38</sup> Using a top of range (10%) margin for downloads yields first quarter 2006 profits of approximately \$27 million for the iTunes download business—a tidy sum, but hardly significant to a company the size of Apple (\$13.93

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36. See Gavin Clarke, "If you can find a better iPod, buy it," says Apple's Jobs, THE REGISTER, Jan. 10, 2006, [http://www.theregister.co.uk/2006/01/10/apple\\_itunes\\_market\\_share/](http://www.theregister.co.uk/2006/01/10/apple_itunes_market_share/).

37. See Jeff Malester, *Apple iPod Unit Movement Soars 61%*, THIS WEEK IN CONSUMER ELECTRONICS, Apr. 24, 2006, <http://www.twice.com/article/CA6327470.html>.

38. See *iTunes Margins Seen Surging in 2006 and Beyond*, FORBES, Mar. 2, 2005, <http://www.forbes.com/business/services/2005/03/02/0302automarketscan13.html> (discussing margins for iTunes downloads of 5-10%); Martyn Williams, *How Much Should an iPod Shuffle Cost?*, PC WORLD, Feb. 24, 2005, <http://www.pcworld.com/news/article/0,aid,119799,00.asp> (discussing for iPod Shuffle of 35-40%); *A Look Inside the iPod Nano and Apple's Margins*, APPLE INSIDER, Sept. 22, 2005, <http://www.appleinsider.com/article.php?id=1283> (discussing margins for iPod Nano of approximately 50%).



billion total revenues in 2005, and \$1.335 billion in net profit in that year).<sup>39</sup> This number is also tiny compared with profits from iPods and iPod accessories, which, using a conservative margin of 15%, would total approximately \$300 million for the second quarter of 2006. And this disparity is likely to persist for some time, even as the market for Apple's iPod matures. Portable music players are, like cell phones, frequently replaced, both because of hard usage and changes in technology and style.

As a result, although the growth of Apple's iPod business will eventually level off, demand for portable players is likely to remain strong for the foreseeable future. And this means that Apple reasonably focuses its music strategy, at least for now, on maintaining the iPod's dominance, which, in turn, protects the dominance of its iTunes/iPod integrated platform. For these reasons, Apple would benefit only modestly, at least in the short run, from variable pricing—the gains from more efficient pricing would be incremental compared with returns from close focus on designing and selling new and better iPods and related accessories. And so long as Apple's platform remains dominant, it need not worry too much about its rivals introducing variable pricing before it does. It is unlikely that Apple's smaller rivals will obtain more favorable wholesale pricing that would allow them to lower prices significantly for non-hits. More importantly, it makes no sense for Apple's rivals unilaterally to price hits above Apple's 99¢ baseline, for such a strategy would simply drive more consumers to iTunes and the iPod.

*The Major Labels.* The big 4 are said to want variable pricing, though perhaps not “true” variable pricing where prices vary in both directions from the current 99¢ standard. The industry's public statements predictably focus on higher prices for hits, rather than lower prices for non-hits. Setting this issue aside for the moment, the allure of some form of variable pricing is clear: disaggregation of tracks, combined with variable pricing for tracks with varying demand, would allow the labels to price discriminate much more intensely in the market for downloads, thereby shifting large amounts of surplus away from consumers and to themselves. Most notably, higher initial pricing for hits, followed by lower pricing as demand slackens, would create price discrimination markets that would isolate high-demand consumers (i.e., those who need the hit soon after its release), and oblige them to pay more to satisfy their demand.

Variable pricing is, however, also a potential hazard to the big 4, because raising prices for hits above the 99¢ threshold may drive some who would otherwise be paying customers to unauthorized peer-to-peer

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39. See Daniel Drew Turner, *Apple Hits \$1 Billion in Profit for 2005*, EWEEK.COM, Oct. 11, 2005, <http://www.eweek.com/article2/0,1895,1870027,00.asp>.



downloading. Some consumers willing to pay 99¢ for a hit song will rather download for free using BitTorrent than pay \$1.99 for the same hit song. This last point creates a large area of uncertainty for the major labels, but is less of a concern for Apple. iPod sales are tied, in part, to the vitality of the download market, but the relationship is not iron-bound—consumers who want their music to be portable are likely to purchase an iPod whether they are downloading from a peer-to-peer (p2p) service (most p2p content is encoded in the MP3 format, with which the iPod and all other portable players are compatible) or from iTunes, or indeed simply filling their portable player with tracks ripped from their own CD collection.

At this point, it is impossible to say how powerful a constraint the threat of piracy exerts on download pricing, especially as the market develops over the next several years. A particularly important but unknown factor in determining the future of the digital music market is the fate of the music industry's litigation campaign against unauthorized p2p downloading. The industry has thus far succeeded in shutting down three of the most popular and user-friendly p2p services (Napster, Grokster, and Kazaa<sup>40</sup>) and in stopping a number of individuals who were active uploaders to p2p networks (on the theory, of course, that without uploads, there can be no downloads).<sup>41</sup> These lawsuits have,

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40. See generally *Metro-Goldwyn-Mayer Studios Inc. v. Grokster*, 545 U.S. 913 (2005); *A&M Records v. Napster, Inc.*, 239 F.3d 1004 (9th Cir. 2001). Because the Napster service was based on Napster's centrally-maintained index system, the Napster p2p network died along with the Napster firm. The same is not true, of course, of true p2p networks such as Grokster. The Grokster software and the FastTrack p2p network constructed by the use of that software continue to exist, and are still used for unauthorized downloads, even though the Grokster website has been shut down – as a visit [www.grokster.com](http://www.grokster.com) somewhat heavy-handedly makes clear. See Grokster, <http://www.grokster.com> (last visited July 9, 2006) (“The United States Supreme Court unanimously confirmed that using this service to trade copyrighted material is illegal. Copying copyrighted motion picture and music files using unauthorized peer-to-peer services is illegal and is prosecuted by copyright owners. There are legal services for downloading music and movies. This service is not one of them. YOUR IP ADDRESS IS 137.54.151.217 AND HAS BEEN LOGGED. Don't think you can't get caught. You are not anonymous.”). The Kazaa service has been shut down pursuant to an agreement between its corporate parent, Sharman Networks Ltd., and the major record labels, in settlement of the lawsuit filed against Sharman and StreamCast Networks Inc., owner of the Morpheus file-sharing service. See Aisha Phoenix & Susan Decker, *Kazaa Agrees to Pay \$100 Million to Music Companies*, BLOOMBERG.COM, July 27, 2006, [http://www.bloomberg.com/apps/news?pid=20601088&sid=ac5d\\_C6HSwE](http://www.bloomberg.com/apps/news?pid=20601088&sid=ac5d_C6HSwE). Previously distributed copies of the Kazaa software are still operative, of course, and file sharing continues over the FastTrack network which the Kazaa and Grokster services share.

41. See generally Grant Gross, *RIAA Files 762 New File-Trading Lawsuits*, INFO WORLD, Oct. 1, 2004, [http://www.infoworld.com/article/04/10/01/HNriissuits\\_1.html](http://www.infoworld.com/article/04/10/01/HNriissuits_1.html) (discussing the number of lawsuits filed by the RIAA). The recording industry has now sued approximately 18,000 individuals for engaging in unauthorized downloading, with approximately 4,500 settling for about \$4,000 per case.” See Jefferson Graham, *RIAA Chief Says Illegal Song Sharing “Contained,”* USA TODAY, Jun. 12, 2006, [http://www.usatoday.com/tech/products/services/2006-06-12-riaa\\_x.htm](http://www.usatoday.com/tech/products/services/2006-06-12-riaa_x.htm).

however, hardly stopped the growth of p2p—rather, early post-*Grokster* data suggests that usage is mostly shifting to other services, most notably BitTorrent and eDonkey.<sup>42</sup> These ascendant p2p services are built on a mostly (BitTorrent) or fully (eDonkey) decentralized architecture, and so would be difficult to shut down even if the music industry succeeds in having them declared unlawful.<sup>43</sup> Still, because decentralized p2p architectures make content more difficult to find (networks such as BitTorrent and eDonkey lack the central content index of Napster, or the index “nodes” of Grokster’s FastTrack network, that help direct users to content), the music industry’s litigation campaign has succeeded in making the p2p experience less user-friendly, and that effect has, in all likelihood, led some unauthorized downloaders to the commercial services.<sup>44</sup>

The major labels’ interest in variable pricing suggests that they have, at least in their own estimation, succeeded in containing the threat from unauthorized p2p—and indeed industry executives are now saying as much.<sup>45</sup> If the recording companies believe that, via their legal campaign, they will shut down popular p2p services and limit unauthorized downloading, then they would be free to take the first step in implementing a variable pricing regime. Of course, even if the industry has succeeded in suppressing the threat from p2p, it surely has not been eliminated. Accordingly, the record labels must proceed cautiously—if they attempt to charge too high a price for premium content, they risk re-invigorating the p2p threat.

Assume for the moment that the industry’s campaign to suppress unauthorized p2p is likely to succeed. Why would the big 4 want variable pricing only above 99¢? Perhaps to defend the legacy product—the CD—that remains the only significant means of

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42. See CacheLogic, CacheLogic Research: A True Picture of P2p Filesharing, [http://www.cachelogic.com/home/pages/studies/2004\\_09.php](http://www.cachelogic.com/home/pages/studies/2004_09.php).

43. The music and motion picture industries may continue, of course, to target individuals who upload content to these decentralized networks. See Tony Smith, *MPAA to Serve Lawsuits on Bittorrent Servers*, THE REGISTER, Dec. 14, 2004, [http://www.theregister.co.uk/2004/12/14/mpaa\\_vs\\_bittorrent](http://www.theregister.co.uk/2004/12/14/mpaa_vs_bittorrent).

44. It is exceedingly difficult to measure p2p traffic, and rival studies issued since the decision in *Grokster* argue that p2p usage is declining, or that usage has shifted to lesser-known networks but continues to grow. See Nate Anderson, *P2P Use is Up, Down*, ARSTECHNICA, Dec. 15, 2005, <http://arstechnica.com/news.ars/post/20051215-5773.html>. Recent data suggests, however, that even as p2p traffic grows, an increasingly large share of that traffic consists not of music, but of larger files including motion pictures and software. See CacheLogic, CacheLogic Research: A True Picture of P2p Filesharing, [http://www.cachelogic.com/home/pages/studies/2004\\_10.php](http://www.cachelogic.com/home/pages/studies/2004_10.php).

45. See Graham, *supra* note 41. See also Alex Veiga, *File Sharing Still Thrives After Ruling*, FORBES, Jun. 30, 2006, available at <http://www.forbes.com/home/feeds/ap/2006/06/30/ap2852783.html> (quoting RIAA head Mitch Bainwol: “We don’t suggest that (unauthorized file-sharing) has been conquered, far from it. But it’s not fundamentally decapitating the legal marketplace from growing in a pretty robust fashion.”).

distribution for those who do not yet consume downloads and which will for many years continue to produce the lion's share of the labels' revenue.<sup>46</sup> In a variable pricing regime limited to premium prices for hits, the industry can capitalize on "hot" markets for a particular type of product—i.e., music for which consumers tend to focus on the individual song rather than a song collection by the artist, and which enjoys a short period of intense popularity during which demand is particularly high. The industry can price discriminate for these products, charging high prices during the period of high demand, and lowering prices later.

This "asymmetric" form of variable pricing does not fundamentally threaten the existing CD business. The industry can offer hits during their period of high demand both as a premium-priced download single and on CD as part of a bundle priced above the amount charged for downloads of the single or singles contained in the bundle. Consumers who are focused on the hit will choose the download single. Others may choose the CD bundle, depending on how they value the non-hits contained in the bundle. As demand declines, price for both the download and the CD may decline as well. Importantly, prices for non-hits need not be adjusted to reflect demand—they may remain at the 99¢ floor. As a result, consumers focused on non-hits will not experience any additional incentive to switch from CDs to downloads beyond what the disaggregation of tracks in the download market already provides. Similarly, consumers focused on an artist's output, rather than on particular songs, will face no significant additional incentive to migrate from CDs to album downloads.

Why does that matter? Because although we tend to focus on consumer demand for hits, non-hits are far more numerous, and comprise a substantial share of total demand—a phenomenon one writer has characterized as the "long tail."<sup>47</sup> Of course, because download services do not bear the storage and retailing costs of brick-and-mortar music retailing, they can keep a far deeper catalog of music and may thereby economically offer consumers a larger portion of the long tail. For this reason, as well as the generally superior economics of downloading and the consumer benefits of disaggregation, music consumers are almost certain to continue to migrate toward downloads. The key question for the record labels is the speed at which this migration occurs.

*The Threat of Disintermediation.* To understand this threat, we must consider the longer-term threat that the growth of downloads poses

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46. According to the RIAA, 2005 revenues from sales of music on CDs and other physical media (cassettes, vinyl, DVD Audio, etc.) exceeded \$10.47 billion. Revenues from download sales (including single tracks, albums, and music videos) in 2005 totaled approximately \$503 million. See RIAA Year-End Statistics, *supra* note 3.

47. See Chris Andersen, *The Long Tail*, WIRED, Oct. 2004, <http://www.wired.com/wired/archive/12.10/tail.html>.

to the big 4, the corresponding long-term opportunity for Apple, and the role of variable pricing in the development of the business of music downloads. Artists compete to sign contracts with the major labels because those firms excel at the business of developing, promoting (via payola-induced radio airplay and other marketing expenditures) and ensuring distribution for (via long-established relationships with a large number of music retailers) recorded music. For these services, the major labels claim for themselves a significant share of total revenues (excluding retailing and distribution costs) from the sale of recorded music. Exactly how big a share is disputed—the industry does not discuss its internal accounting—but rough estimates have been made. In an appendix to his 2004 book *Promises to Keep: Technology, Law, and the Future of Entertainment*,<sup>48</sup> Harvard law professor Terry Fisher reviews a number of studies estimating the share of music revenues enjoyed by record companies, manufacturers, distributors, retailers, and artists, and he provides a consolidated revenue allocation estimate based on this previous work. Fisher's analysis suggests that retailers collect approximately 39% of the retail price of a CD, distributors 8%, manufacturers 8%, artists 16% (a composite of both performance and composition royalties), and the record labels 28%.<sup>48</sup>

If downloads continue to grow, and if the music download eclipses the CD as the primary medium for the distribution of recorded music, Apple may have an intriguing proposition for artists. Rather than distribute their music through record companies, they can do so directly through Apple and keep a much larger share of revenues. This possibility of disintermediation would be enticing to artists and Apple, and frightening to both large and small record labels. Apple is said to pay about 70¢ per download to the major labels (and, recently, to independent labels as well).<sup>49</sup> Artists are paid approximately 15% of revenues, a figure that is approximately the same (as a percentage of revenues, not as a gross payment, of course) for both CD and download sales. That would mean that artists receive approximately 15¢ per download, the label keeps approximately 55¢, and Apple gets the remaining 29¢ (some portion of which is used to pay composition royalties to music publishers and to cover other costs, such as infrastructure and marketing).

The record companies' large share of total download revenues must be tempting to both artists and Apple. If Apple's dominance in music downloads proves durable, iTunes will be well placed to provide the kind of marketing that record companies provide now, for a large share of

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48. See Fisher, *supra* note 11, at 259-62.

49. See *More Indies: Payouts Grow Online, Radio Rotation Shrinks*, DIGITAL MUSIC NEWS, May 4, 2006, <http://www.digitalmusicnews.com/yesterday/may2006#050406indie2>.

consumers will be trafficking the iTunes website in search of music. Artists and Apple might make a deal to cut out the middleman and distribute the revenue currently taken by record companies. Even if this type of disintermediation doesn't occur, as consumption shifts to downloads, the position of the record companies looks increasingly endangered and the labels' share of download revenues is likely to shrink in future negotiations with Apple, but *only if Apple's iTunes remains the dominant retailer of downloads.*

We can see that disintermediation is a real threat to the big 4, because the process is already underway. Country singer Garth Brooks—one of the most successful recording artists of all time—terminated his agreement with big 4 label EMI and agreed to distribute his entire catalog exclusively through Wal-Mart stores and Wal-Mart's online download service.<sup>50</sup> Recently, Thom Yorke, frontman for the popular alternative band Radiohead, declined to renew his expired contract with EMI and released a solo album on an independent label. Yorke's album was promoted on the iTunes homepage and became the No. 2 record on the Billboard 200 charts.<sup>51</sup> These developments suggest that major artists no longer need a contract with a big 4 label in order to sell songs on a major scale. If download services continue to surge, and if Apple's iTunes remains a dominant player, then the same may become true for less established artists.

All of this raises questions about the reasons for Apple's current resistance to variable pricing. I suspect that Apple doesn't want variable pricing now, because it anticipates that the labels want only to use 99¢ as a floor and have prices for hit tracks go up. That would slow the CD to download transition somewhat, as some consumers who would have consumed a hit song a la carte at 99¢ will choose to purchase the CD bundle, or perhaps the album download—or, alternatively, forego consumption of the hit altogether. Apple is in effect using its market power to force the record labels to hasten the transition from CDs to downloads—a strategy that Apple apparently has the power, at the moment, to implement.<sup>52</sup> Apple would benefit if the transition proceeds quickly, while it still controls a large share of download sales. Once the sale of downloads as a percentage of total music consumption passes a certain threshold, Apple may begin the process of disintermediation by offering both a greater share of total revenues and more efficient variable

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50. Paul Farhi, *Garth's New Friends in Wal-Mart Places*, WASH. POST, Aug. 20, 2005, at C1.

51. Devin Leonard, *Big Musicians Flex their Muscle with Record Labels*, FORTUNE, Aug. 7, 2006, available at [http://money.cnn.com/magazines/fortune/fortune\\_archive/2006/08/21/8383597/](http://money.cnn.com/magazines/fortune/fortune_archive/2006/08/21/8383597/).

52. See generally *Apple Holds Labels to \$0.99*, RED HERRING, May 2, 2006, <http://redherring.com/Article.aspx?a=16714>.

pricing to artists that sign directly with them. The threat of complete disintermediation would give Apple substantial additional power to redistribute revenues even for content it receives through agreements with the record companies. Some of this revenue will be re-directed to artists; more is likely to end up enriching Apple.

Once Apple begins to disintermediate the major labels, the firm will have a number of options. First, Apple could license its roster of artists to other download services, thereby tolerating some rivalry for its own content but being in a position to control it. This strategy would also allow Apple to continue to extract rents via sales of iPods, and would also maintain the tight integration of the iPod and iTunes. This latter point is important because Apple's dominance in the download market, on which the promise of disintermediation depends, is powerfully reinforced by the ubiquity and exclusivity of the iTunes/iPod platform.

Second, Apple could pursue a strategy of licensing its AAC/FairPlay format. This second strategy could unfold in a number of ways. Apple might license AAC/FairPlay to manufacturers of rival portable devices, which would open competition in the hardware market in favor of extracting rents via iTunes and licensing of the file format and DRM standard necessary for computers and portable devices to interoperate with iTunes. This might be a rational strategy as growth of the hardware market slows. Alternatively Apple might license AAC/FairPlay to rival download services, thus permitting these services to sell to iPod owners but retaining an advantage in the market for portable devices. Or Apple might conceivably employ both of these variations of the AAC/FairPlay licensing strategy, an approach that would open up both the service and hardware markets. This third variation seems far more unlikely—Apple would be abandoning its current leverage in the service and hardware markets to become, in effect, a record label.

*The Big 4 vs. Disintermediation.* It would be surprising if the big 4 (and indeed the independent labels) do not already understand the disintermediation threat. What steps might they take to forestall it?

One obvious counter-strategy would be to invest in a portable player attractive enough to succeed as an “iPod killer.” Microsoft has recently announced plans to release under the “Zune” brand its first portable player and accompanying software. Early reports suggest that Microsoft will mimic Apple's strategy and position Zune as an integrated platform—i.e., a player, an associated file format and DRM software package, and a linked download service (or services),<sup>53</sup> and that

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53. Dai Wakabayashi, *Microsoft Music Player to Take on Apple's iPod*, REUTERS, Jul. 23, 2006, [http://today.reuters.com/news/articlenews.aspx?storyid=2006-07-23T152253Z\\_01\\_WEN1695\\_RTRUKOC\\_0\\_US-MICROSOFT-MUSIC.xml](http://today.reuters.com/news/articlenews.aspx?storyid=2006-07-23T152253Z_01_WEN1695_RTRUKOC_0_US-MICROSOFT-MUSIC.xml).



Microsoft is planning to implement some sort of variable pricing regime.<sup>54</sup>

It would be in the big 4's interest to see Zune succeed, and to have two well-established integrated platforms competing head-to-head for both consumer patronage and licensing deals with the record labels. Such competition would diminish the prospect of disintermediation by Apple—especially if, as has been reported, Microsoft attacks Apple's installed base by offering Apple customers free downloads to match those the customer has already purchased from iTunes (this is a strategy aimed at minimizing "lock-in" to Apple's platform).<sup>55</sup> Microsoft would have to pay something to the big 4 for the right to replicate the customer's existing library of downloaded music in the proprietary Microsoft format. The big 4 might facilitate competition in the market for downloads—which simultaneously blunting Apple's ability to attack the big 4's own exercises of market power—by licensing these "replacement copies" at a low royalty rate.

Even in the absence of an iPod killer, the big 4 can find other ways to subsidize Apple's rivals, on either the service or hardware level, or both. If the labels are successful at shifting share from the iTunes/iPod platform to the Windows WMA-based platform or some other platform, then Apple's dominance may not last long enough to support a disintermediation strategy.

There are several ways the labels could pursue the subsidy counter-strategy. First, the labels could subsidize rivals to iTunes by granting them lower prices or better non-price terms for access to content. One possible example of this is the recent announcement by Universal Music Group, the largest of the big 4 labels, that it would be backing SpiralFrog, a new music download service offering free songs in exchange for users' willingness to view "non-intrusive, contextually-relevant, targeted advertising."<sup>56</sup> News reports suggest that SpiralFrog paid Universal "up front" for access to its catalog, but no information has yet been released regarding how much SpiralFrog is paying. It remains to be seen whether the ad-supported model will produce substantial revenues. But if Universal is interested in heading off the possibility of disintermediation, propping up advertising-supported services like

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54. See *Insiders See Variable Pricing Ahead, New Technologies Enter*, DIGITAL MUSIC NEWS, July 19, 2006, <http://www.digitalmusicnews.com/yesterday/july2006#071906digionex>.

55. Peter Rojas, *Microsoft Planning WiFi-enabled Portable Media Player, Working on MVNO for Next Year*, ENGADGET, Jul. 6, 2006, <http://www.engadget.com/2006/07/06/microsoft-planning-wifi-enabled-portable-media-player-working-o/>.

56. Yinka Akegoke & Mark McSherry, *SpiralFrog, Universal in Free Music Download Deal*, REUTERS, Aug. 29, 2006, available at [http://today.reuters.com/news/articleinvesting.aspx?storyID=2006-08-29T112933Z\\_01\\_N29265656\\_RTRIDST\\_0\\_TECH-SPIRALFROG-UPDATE-2.XML](http://today.reuters.com/news/articleinvesting.aspx?storyID=2006-08-29T112933Z_01_N29265656_RTRIDST_0_TECH-SPIRALFROG-UPDATE-2.XML).



SpiralFrog as a popular alternative to iTunes may prove a good long-term strategy.

In addition (or perhaps alternatively) to stoking iTunes rivalry, the labels could subsidize rivals to the iPod, possibly by partnering with manufacturers to produce something that only the labels are able to authorize—portable players that come pre-loaded with a large sampling of tracks from whatever musical genre is preferred by an individual consumer. Even more ambitiously, the labels could vertically integrate into the manufacture of portable devices, thereby directly subsidizing competition to the iPod.

In addition to these subsidy counter-strategies, the big 4 may attempt to use the antitrust and competition laws, both in the U.S. and abroad, to force Apple to open up the iTunes/iPod platform. There has already been significant movement in this direction outside the U.S. In early August 2006 a law went into effect in France that allows competition regulators in that country to force Apple to open up iTunes access to rival portable players. Similar proposals for regulation have been discussed in the U.K., Sweden, Denmark, Norway, and Poland.<sup>57</sup> Of these jurisdictions, the Norwegian government appears at the moment to have moved closest to a decision to regulate, having publicly revealed that they are considering suing Apple, possibly to seek an injunction banning operation of iTunes in Norway.<sup>58</sup> It is unclear whether, and to what degree, the big 4 are involved in any of these legal attacks against iTunes/iPod integration. Whether or not the record labels are actively involved, however, if governments succeed in prying open the iTunes/iPod platform, the big 4 will have little cause to worry about disintermediation.

All of these strategies are possible, but it is too early to predict whether they are likely to work or what the outcome will be in the struggle to gain the upper hand as consumption shifts toward downloads. But if the possibility of disintermediation is real, it may be the force that is preventing the introduction of variable pricing, at least for now. And that point brings me to a final question, which I can only raise in this paper but not explore. This paper argues that uniform pricing for music downloads is indeed linked to a competitive struggle that points toward the possibility of disintermediation of the big 4 labels by Apple. Is disintermediation an outcome that we should fear or welcome?

My tentative answer—formed at this early stage of the game and subject to revision—is that the prospect of disintermediation is more

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57. *French iTunes Law Goes Into Effect*, USA TODAY, Aug. 3, 2006, available at [http://www.usatoday.com/money/industries/technology/2006-08-03-iPod\\_x.htm](http://www.usatoday.com/money/industries/technology/2006-08-03-iPod_x.htm).

58. Jaime Espantaleon *Apple Defends iTunes-iPod Compatibility*, ASSOCIATED PRESS, Aug. 2, 2006, available at [http://biz.yahoo.com/ap/060802/europe\\_apple\\_itunes.html](http://biz.yahoo.com/ap/060802/europe_apple_itunes.html).

likely to prove a boon than a threat to consumers. I would predict, at least for now, that the most likely outcome of the disintermediation struggle will not be the displacement of the big 4, but diversion of a portion of the big 4's revenue as a result of competition with Apple for deals with recording artists. Apple's current dominance means that the big 4 cannot simply continue their current direction, but the record labels also have significant counter-strategies, which have been described. As the thrust and parry plays out, the prospect of disintermediation is more likely to result in intensified competition (for deals with artists, as well as to attract consumers to online music platforms) rather than the consolidation of Apple's market power. In any event, it is far too early for antitrust intervention in the market for online music—regulators may succeed only in thwarting the re-introduction of fierce competition in a market where the big 4 have long enjoyed a quiet and cosseted existence at the expense of both artists and consumers.

#### CONCLUSION

Uniform pricing for music downloads is a puzzle. Prices are ordinarily based on demand, and demand for songs varies widely. Yet prices for music downloads do not. The usual behavioral explanations for uniform pricing do not offer a persuasive explanation of uniform pricing for music downloads. Perhaps an explanation can be found in the struggle between firms that exercise substantial market power—the big 4 record labels on the one hand, and Apple on the other. At the moment, it appears that Apple has the upper hand. Whether that will remain so is unclear, but the opportunities are opening for Apple, and the big 4 face a growing threat.

This paper has offered an explanation for the puzzle of uniform pricing, an explanation that is linked to a set of much broader and ultimately more interesting questions about the future of the music business. Will the threat of disintermediation force the major labels to cede ground on pricing? If Apple's iTunes/iPod platform maintains its dominance, is disintermediation an unstoppable force? And if Apple successfully pursues a disintermediation strategy, what would that mean for consumers? If downloads continue to grow at anything like the rate we've seen over the past three years, we will be facing these questions squarely very soon. For now, I have raised them and hope that others will join me in watching this market closely.