

**ROUND #1 OF THE DIGITAL INTELLECTUAL PROPERTY WARS:
ECONOMIC FUNDAMENTALS, NOT PIRACY, EXPLAIN
HOW CONSUMERS AND ARTISTS WON IN THE MUSIC SECTOR**

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ABSTRACT

Piracy may have been the solvent that dissolved the glue of an anticompetitive, anti-consumer market structure, but its magnitude has been vastly overestimated by the industry and the transformation of the industry is perfectly consistent with economic theory. With the advent of digital technologies, three quarters of the cost of producing a CD come under severe pressure. The fixed costs of distribution all but disappear and intermediary functions of promotion are transformed. The effort by record companies to keep singles out of the market and to keep CD prices high was a bald effort to use market power to prevent consumers from enjoying the benefits of more efficient distribution that would flow to them in a competitive market.

The benefits were huge. The number of units purchased by the public has more than tripled – but the vast majority of units sold are singles and most are not owned by record companies. The average price per unit shipped has declined by 70 percent. Gains in consumer surplus are close to \$6 billion in 2007 alone. The vast majority of artists were beneficiaries as well. Comparing the sales claimed by record companies to the sales claimed by digital distribution companies, it appears that for every single sold by a record company there are three additional songs sold by an unsigned artist. Of course, the dominant firms in the tight, music oligopoly and the handful of artists who benefits from the blockbuster/star system have suffered a reduction in the rents they collect.

I. INTRODUCTION

In April 2006, the Journal of Law and Economics published a symposium on “Piracy and File Sharing”¹ that included versions of several of the major analyses that had played a role in the intense policy debate on file sharing in response to the Supreme Court deliberations in the Grokster case.² Given the academic production cycle, the empirical evidence in the papers was very early in the development of digital distribution of music. Most of it was based on the pre-iTunes period, essentially examining developments from 1998 to 2003. Moreover, because the papers were framed in terms of the “piracy” and copyright issue, they did not delve deeply into the fundamental economics of the music industry. They were fixated on the question of whether file sharing helped or hurt the incumbent firms – ‘were people stealing and if so, how much was it costing the record companies?’ – and paid little attention to the structure of the music industry just prior to the arrival of file sharing, or the likely impact of the new digital technologies on the economics of the industry.

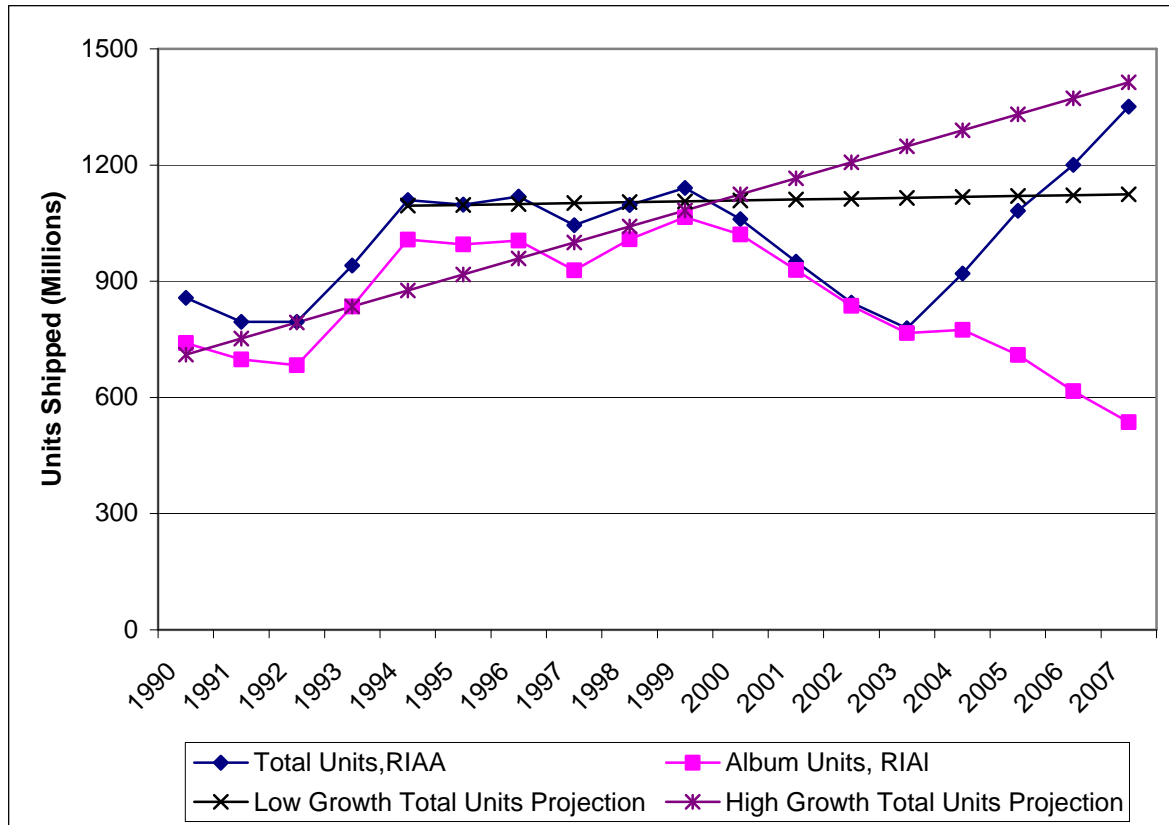
The early studies were all over the map. Some studies found increases in sales resulting from stimulation in certain population segments (older consumers) that offset losses in others (younger users).³ Other studies found little or no effect.⁴ Still others found losses that are not large.⁵ Moreover, because of recording industry pricing practices, even where recording industry revenue declined as a result of file sharing, consumer welfare may have increased.⁶ One econometric study of downloading found that the increase in consumer surplus was almost 200 percent larger than the loss of industry revenue.

With another half decade of development in the industry, it has become clear that there was a lot more going on than “piracy.” This paper assesses the outcome of the battle over digital music distribution, from a broader perspective with a full decade of data. It concludes that, while there was some privacy, it has been vastly over estimated and its primary impact was to provide the solvent to dissolve the glue that had held an anti-competitive, anti-consumer oligopoly together. The new industry structure is much more consumer and artist friendly and “piracy” plays little, if any, role.

Based on a series of assumptions that this paper argues were erroneous, the industry put forward vastly overblown claims of piracy and revenue loss. At the end of the 1990s, the industry assumed that the bubble of sales created by the previous change in formats (from 8-track tapes to CDs) would continue (along the high growth trend line in Exhibit I-1). At the same time, the industry intended to preserve its anticompetitive pricing structure of the mid-1990s that jacked up the price of CDs, in spite of the dramatic reduction in costs made possible by digital production and distribution. It also hoped its policy of forcing consumers to buy bundles of songs rather than singles could be maintained in spite of the advent of digital technology, which dramatically altered the economics of music distribution in favor of singles.

A decade later, the mid-term (10 year) developments in the industry point in a different direction. It appears that sales had already flattened out before file sharing came along, as existing libraries had already been updated, and high prices suppressed sales (along the low growth trend line in Exhibit I-1). It also appears that once the industry accepted the new distribution technology, the sales of singles exploded. Sales of singles would naturally suppress sales of albums.

Exhibit I-1: Alternative Expectations and Interpretations of the Napster Rebellion: RIAA Statistics on Units Sold with Projections



Source: Recording Industry of America, Annual Statistics, various years. Growth trends are linear projections described in text.

This paper argues not only that the industry vastly overestimated the role piracy played in upending the oligopoly of record company market power, but also, more importantly, that that the digital revolution radically transformed the fundamental economics of the industry in a direction that is consumer-friendly and also benefited the vast majority of artists. Now that the dust has settled, the outcome of the first round of the digital intellectual property wars suggests fundamental changes in economic structure that the content oligopolies of the industrial age abhor, but will have great difficulty resisting. Beyond the narrow question of the overestimation of “piracy,” the recent evidence points overwhelmingly in favor of those who saw it as improving the performance of the market.

OUTLINE

Section II describes the salient economic characteristics of the music industry on the eve of the digital revolution.

Section III provides a quantitative description of the consumer and artist gains, and offers

an explanation of the changes in the music industry in a classic, economic welfare framework.

Section IV provides an estimate of the extent of “piracy.”

Section V presents a brief conclusion.

II. THE OLIGOPOLY, PHYSICAL MUSIC BUSINESS

THE CONSUMER VIEW

Any analysis of the economic impact of digital distribution on the recording industry must start from an understanding of the structure and conduct of the industry in the years just prior to the digital revolution.⁷ The picture is not pretty. “The music recording industry is a highly-concentrated five firm oligopoly. Much of the dominance achieved by large firms in the industry results from control over the distribution and promotion of the products of the industry.”⁸ Well before digital distribution mechanisms were in place, the industry was engaged in a series of anti-consumer, anti-competitive practices.

Anti-Competitive Pricing

Two lawsuits, one by state Attorneys General and an earlier one by the Federal Trade Commission were settled in 2002 and 2000 respectively. As the complaint filed by 41 state Attorneys General put it:

The purpose of the illegal agreements was to raise prices and reduce retail price competition which threatened the high and stable profit margins for CDs enjoyed by both the defendant labels and distributors and many music retailers.

This competitive threat arose with the entry into music retailing of several discount retailers (for example, Best Buy, Circuit City and Target), which could profitably undercut the prevailing retail prices charged for CDs by traditional retailers. Consumers flocked to the discount retailers which rapidly gained market share at the expense of traditional retailers.

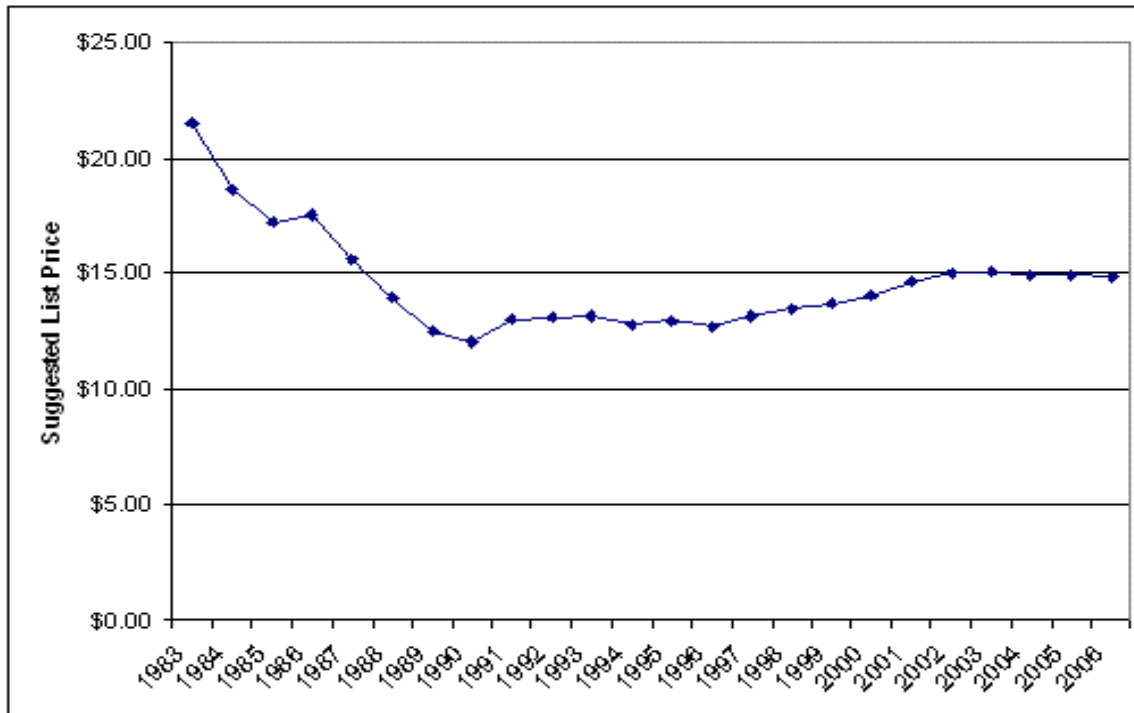
The traditional retailers reacted by pressuring defendant distributors to impose minimum advertised pricing (“MAP”) policies which established the retail price levels at which CDs were sold, thereby effectively reducing and/or eliminating retail price competition for CDs.

The effect of these anticompetitive agreements has been twofold. First, retail CD prices, which had been dropping, were stabilized and then raised industry-wide. Second, the oligopoly of defendant distributors was able to maintain high wholesale prices and margins for CDs. As a result of both effects, consumers have paid higher prices for CDs than they would have absent the illegal agreements.⁹

The history of the anticompetitive behavior outlined by the Attorneys General makes fascinating reading in light of subsequent developments. CDs entered the market in the mid-1980s, constituted a quarter of total sales by 1990, and three-quarters by 1995. Competition arrived in the early 1990s along with the expansion of CDs, a new technology of distribution that was lower cost and easier to store and handle.

As shown in Exhibit II-1, competition drove prices down, “from \$15 to \$10 in a short period of time.”¹⁰ As a result, “discount retailers’ sales grew dramatically.”¹¹ The list prices in the Exhibit do not reflect significant discounting that was going on prior to the mid 1990s before the industry engaged in its price fixing scheme to stop the practice. It was this price fixing scheme that the antitrust authorities challenged and overturned in complaints settled in 2000 and 2002.

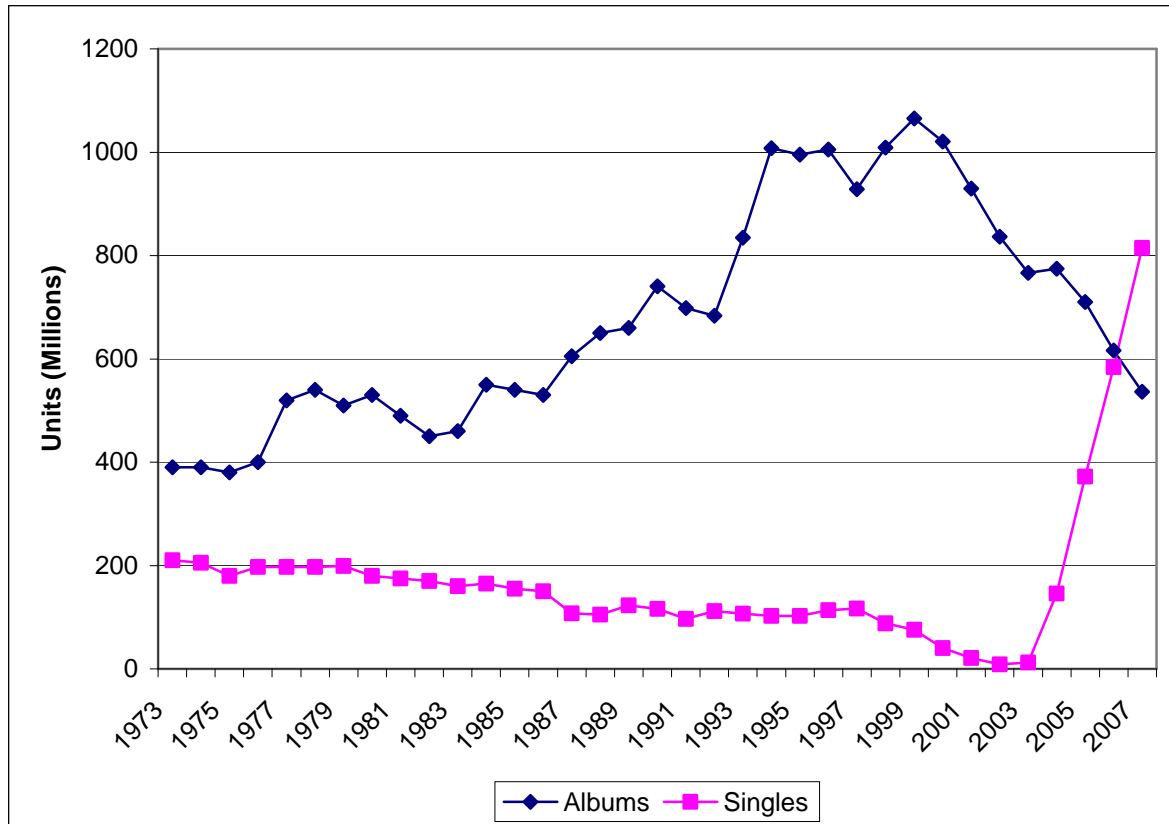
Exhibit II-1: CD List Prices



Source: RIAA, *The CD: A Better Value Than Ever*, August 2007

Total sales grew dramatically as well (see Exhibit II-2). In fact, this period of price competition saw a faster rate of sales growth than at any time over the prior 30 years. Prices fell by 40 percent and sales more than doubled. The big gains came in the early 1990s when list prices were at their low, discounting was widespread, and the big discount outlets were slashing retail prices. Unfortunately, the industry used its market power to undermine price competition.

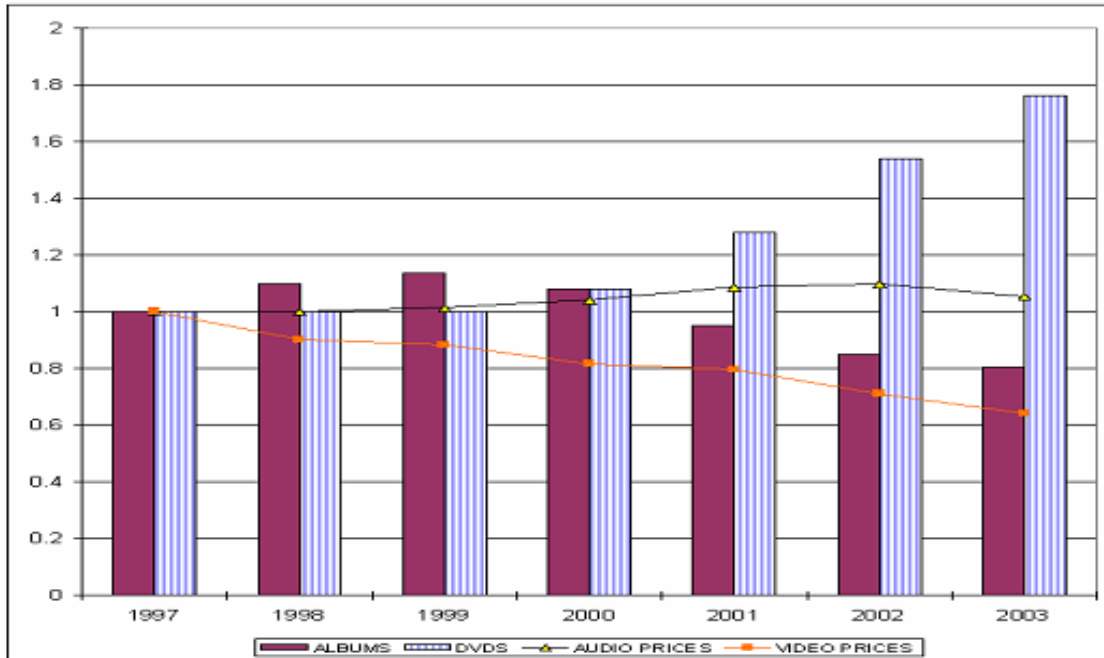
Exhibit II-2: RIAA Shipments of Albums and Singles



Sources: Recording Industry Association of America, Yearend Statistics; Erik S. Boorstin, Music Sales in the Age of File Sharing, Princeton University, Department of Economics, April 2004.

Sharply declining prices for DVDs in the late 1990s were associated with sharply increasing sales (See Exhibit II-3). By contrast, rising prices for CDs were associated with declining sales. We observe a similar effect for digital singles in the audio market in 2004. As shown in Exhibit I-1, above, and Exhibit III-1, below, when prices of singles tumbled from \$4 for CDs to \$1 for digital singles, sales skyrocketed.¹²

Exhibit II-3: Prices and Sales of Mass Market Items Affected by Digital Distribution



Source: Bureau of Labor Statistics, *Consumer Price Index*, database; Stan Liebowitz, *Pitfalls in Measuring the Impact of File Sharing*, School of Management, University of Texas at Dallas, 2005.

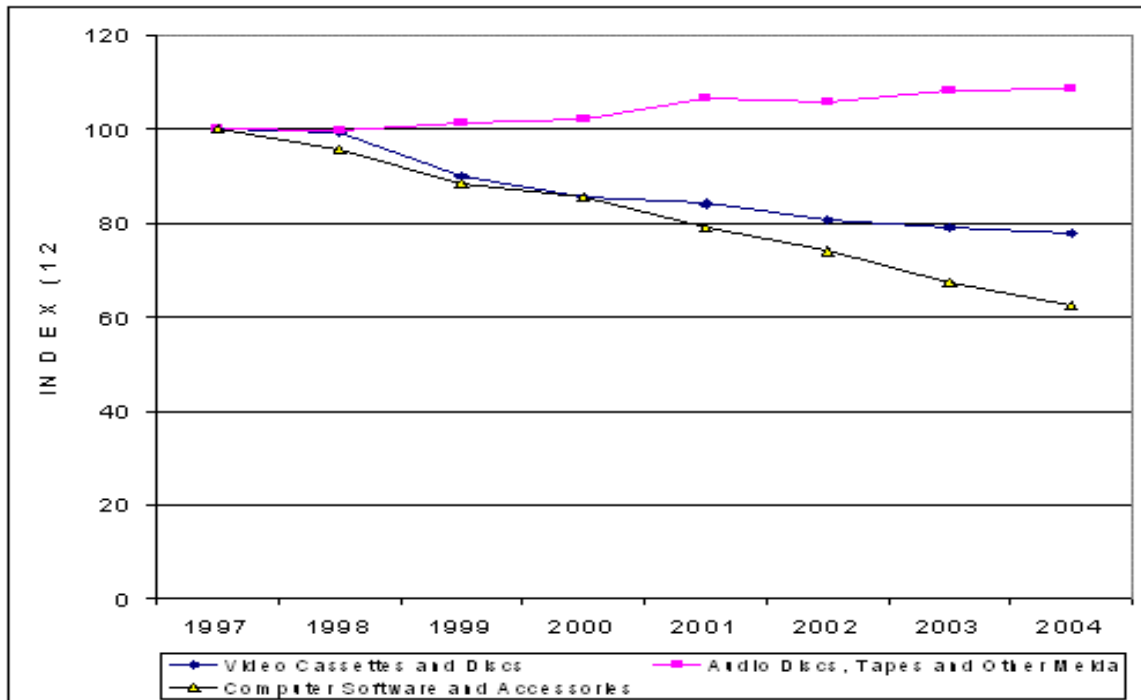
“In a series of announcements to their retail customers in 1995 and 1996 the defendant distributors transformed their MAP programs into blunt and effective instruments for putting an end to price competition.”¹³ With discipline applied to the industry, “retail and wholesale price increases occurred despite the fact that, as the records of one of the music companies revealed, per-CD unit costs had decreased sharply during the 1990s.”¹⁴ Once pricing discipline and prices began to rise, sales increases stopped. The benefits of economies of scale and falling costs that would have been passed through to consumers in a competitive market were redirected to suppliers through price fixing.

While these anticompetitive practices were enjoined in 2000 by the Federal Trade Commission and in 2002 by the state Attorneys General, the industry remains a tight oligopoly with suspect business practices.¹⁵ There continue to be battles over high prices of CDs. The anecdotal example frequently cited is the fact that “The soundtrack to the film *High Fidelity* has a list price of \$18.98. You could get the whole movie [on DVD] for \$19.99.”¹⁶

A survey of consumers at the time of the first consent decree in 2000 revealed significant consumer dissatisfaction with recording industry pricing.¹⁷ Three-quarters of respondents felt that pricing levels were unreasonable and almost as many felt they were excessive compared to other forms of entertainment. They said they would increase their purchases of music if prices fell substantially, and almost all the respondents said they would not be willing to buy digital downloads at the same prices as CDs. The public was clearly not satisfied.

Exhibit II-4 compares CD prices with several other products that, as Internet usage spread rapidly, were subject to pressures of digital distribution. At this level of disaggregation, the available data dates only to 1997, but that is a reasonable starting date. Each of the products was affected somewhat differently, but the pattern is quite clear. CD prices increased somewhat, while the other product prices declined.

Exhibit II-4: Prices for Mass Market Items Affected by Digital Distribution



Source: Bureau of Labor Statistics, Consumer Price Index, database.

Anti-consumer Bundling

The manipulation of CD prices was combined with a second strategy to further exploit consumers. Over the course of the 1990s, even though production costs were falling, the recording industry all but eliminated the sale of singles (see Exhibit III-2, above). In other words, consumers were being forced to pay too much for CDs that contained a lot of content they did not want to purchase.

In the 1980s sales of singles had been in the hundreds of millions and, with declining production costs, could have remained high but the industry sought to increase profits by

restricting the availability of singles. Implementing this strategy, sales volumes of singles fell by 90 percent.

Prior to the 1990s, singles had the effect of allowing consumers to cost effectively meet their needs cost, while stimulating sales with the purchase of individual songs which consumers could use to ‘try out’ an artist. During the 1990s, however, the industry virtually eliminated sales of singles and provided no alternative online. Only after peer-to-peer file sharing became prevalent did the industry reluctantly offer sales of singles online.

At one time, singles made up a hefty part of the record industry’s income... But things have changed. Record companies want consumers to buy full length CDs when they fall in love with a song. So they have shut off the spigot when it comes to releasing less expensive commercial singles to retail...

The debate rages. Labels insist they simply cannot make a big enough return if fans are buying \$3 singles instead of \$16 albums. Retailers, though, fume that they are suffering without singles, which have historically increased foot traffic in stores, especially among younger shoppers.

Labels like the single when it suits their purposes; during parts of the overheated 1990s, labels released them in floods at deeply discounted prices to help promote blockbuster albums and claim fanciful new sales records...

But that was then, this is now, and the music fans are the losers.¹⁸

Keeping prices high with anticompetitive collusion and eliminating singles in order for the new CD format to thrive created a windfall for the record labels. “The record companies minted money,” one major-label exec told me. “We made huge margins off CDs. We’ll never have those margins again.”¹⁹

Inflated Expectations about the Base for “Piracy” Claims

Thus, the growth in industry revenue through the 1990s was, in part, a result of anti-competitive and anti-consumer practices. Prices for other products that could be digitally delivered were declining. File sharing enters this market structure as an “arbitrage” opportunity. The experience of rising sales and declining prices in the early 1990s due to competition is what we would expect with a cost-reducing technology penetrating the market. The experience of declining costs of digitally distributed products should extend to the music industry. When the opportunity for arbitrage presented itself, in the face of anti-consumer and anti-competitive practices, we should not be surprised that consumers avail themselves of some self-help measures.²⁰

Perhaps most peculiarly, the costs of production, reproduction and distribution in the industry are close to zero (from a physical standpoint), yet the industry structure in which five firms dominate the field worldwide has been essentially unchanged since the mid-1980s. One implication of this structure is that firms are able to more easily coordinate and carry out anticompetitive activities, such as

price fixing. Prices that are held artificially high generate social welfare losses (in absence of perfect price discrimination), and might have accelerated and amplified the use of file-sharing networks by consumers.²¹

This underlying economic picture also casts doubt on the claims that every downloaded file is a lost sale. One can certainly argue that the combination of anticompetitive pricing and the elimination of singles hurt consumers in two ways. It priced a significant number of people out of the market and transferred a great deal of surplus from consumers to producers.

The failure to take into account the anti-competitive, anti-consumer practices of the industry in the 1990s completely distorts the picture one paints of the events of the period after peer-to-peer communications networks came into existence. For example, Stan Liebowitz, one of the strongest defenders of the claim that file-sharing is harming the industry, uses the competitive period of the early 1990s as the basis for estimating the damage, but never mentions the anti-competitive behavior of the late 1990s, which suppressed sales and set the stage for peer-to-peer growth. Referring to the 1991-1996 period, he notes that “CD sales during this period have the largest increase of any 5 year period in our data.”²² This expansion of sales was the result of the price competition that had broken out and a shift in technology, which stimulated library replacement.

Ignoring discounting of CDs in the early 1990s, Liebowitz concludes that price elasticity does not matter. This contradicts the experience in the industry “ All major labels report that moving albums to mid- or budget-pricing increases sales significantly.”²³ It is also contradicted by contrasting the price changes for DVDs and CDs in the period during which consumer price data is available to changes in sales, as discussed above. Ironically, Liebowitz goes on to conclude that pricing behavior does not account for much of the change in purchasing behavior by ignoring the competition and discounting of the early 1990s that later anti-competitive behavior was intended to eliminate. This underestimates the important role of price and especially the relative prices of CDs and other forms of digital entertainment in consumer decision-making.

It is unclear how serious a problem the use of list, as opposed to transaction prices, would be in this case.^{a/} Although there was a fairly significant fall in the inflation adjusted list prices from 1978 until 1982 (a time of highly variable vinyl prices, unusually high inflation, and a changeover from vinyl records to the less expensive prerecorded cassette), inflation adjusted list prices have remained remarkably constant since 1981. The consistency of list prices is almost as if the record industry decided to keep prices in line with the inflation rate.

^{a/}If discounts were relatively constant from year to year, list prices would be good proxies for actual prices. On the other hand, if discounts varied considerably from year to year (the growth of Wal-Mart might be just one reason to suspect that discounts have not stayed constant) then the use of list prices could cause misleading results.²⁴

There are two critically important observations here. First, the conclusions about price are suspect since the discounts were variable and much larger during the competitive period.

When the anti-competitive behavior of the industry sought to control discounting, it had an immediate and substantial effect on prices.

By June 1996 Billboard reported, “Thanks to the majors’ new-found resolve on MAP prices of hit CDs at discount chains rose by \$2 to \$11.99 over the last month. In the meantime, NARM reported that the average price paid by their SoundData Consumer panel during the period of December 1995 through February 1996 was \$13.64, up from \$12.71 in the previous survey.”²⁵

Second, the constancy of prices over such a long period of time and with dramatic cost reducing technological innovations should have been a sign that prices were being managed. The fact that prices failed to fall with the shift to much less expensive CDs reinforces that suggestion. This anti-competitive behavior led to the run-up in margins.

Ironically, Liebowitz essentially ignores the impact of the anti-consumer practice of eliminating singles in his analysis.

For all intents and purposes, singles are now practically nonexistent. It seems possible that MP3s are responsible for killing off the singles market, even if what was left of the market was small (in 1997 singles accounted for merely 3.6% of record revenues). Nevertheless, the downloading of MP3s was clearly not the primary factor in the fall of singles, although it might have been the final nail in the coffin.²⁶

The fact that singles now play a larger role than at any time in nearly three decades casts doubt on the decision to exclude them from the analysis. It is clear that there is an immense, latent demand for singles that had been suppressed by the anti-consumer bundling practices of the industry. This demand was initially expressed in the form of illicit file sharing, but quickly shifted to legal sales when new business models made that possible. More than two-thirds of file sharing activity was dedicated to downloading of singles. Indeed, the most detailed study of downloading found that only one or two songs were downloaded from the most popular albums and that digital sales are concentrated in singles by more than twenty-to-one, breaking the long-worn chains of anti-consumer bundling and anti-competitive pricing.²⁷

THE ARTISTS’ VIEW

While the anti-consumer practices of the recording industry are proven as a matter of law (memorialized in consent decrees), some have argued that the worst aspect of the industry, though harder to prove, is its anti-artist and therefore anti-social impact. Pricing abuse only costs the consumer money; the centralized, star-oriented system that the industry enforced tyrannized artists and impoverished the culture.

It is a frequent lament in the music industry that few albums and almost no artists ever make any money on the sale of records. The gap in income between the handful of stars and the vast body of artists is huge. The range of works that are widely played and circulated is narrow. A handful of companies selected a small number of releases and promoted them heavily, marketing them through expensive distribution channels.

Hollywood major movie studios and recording companies have long understood that their profits are directly tied to their ability to monopolize distribution. After all, [they] are not the creators of the copyrighted works at issue; they are simply the assignees and licensees of copyrighted works. As such, they have but a single means for deriving revenue: control of distribution.²⁸

Peter Alexander examined product diversity over the history of the recording industry and reached a clear conclusion.

These studies unambiguously suggest a strong negative, linear link between market structure and diversity. The more atomistic the structure is, the greater the diversity is, and the more concentrated the structure is, the less diversity there is...

On the other hand, a study using actual musical characteristics of hit songs, rather than simply the number of songs, suggests that a moderately concentrated industry structure may better promote diversity than either an atomistic or monopoly structure... When measured against market structure, these results suggest that product diversity is maximized in a structure characterized by a four firm concentration ratio of about 50 percent.²⁹

By either measure, then, when the top four firms in the industry have more than 50 percent of the market, the output is likely to be less diverse than would be socially desirable. By this measure, throughout this period, the industry was too concentrated.

The costs of the distribution system that the recording companies controlled placed a huge drag on the market. Manufacturing, distribution and retail account for over half of the final price of the CD. These costs could be all but eliminated with digital distribution. Another quarter of the costs – record company overhead, marketing and profits– are vulnerable to sharp reduction in an environment that emphasizes horizontal structure and peer-to-peer communications. Thus, three-quarters of the costs and the central point of control could be eliminated, spelling the end of the highly skewed star system.

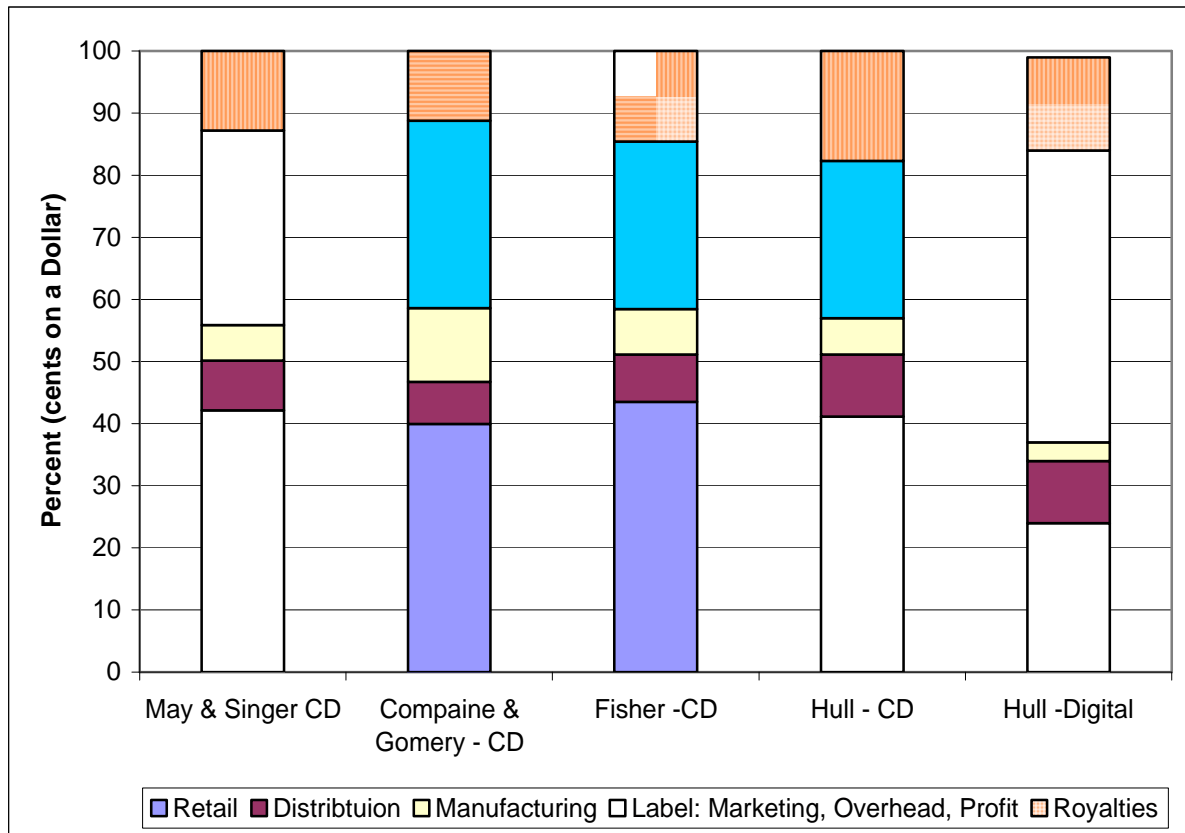
To put these numbers in stark relief, one author notes that the average price per CD in 2001 was about \$17.99, while the cost of producing a CD in quantity was \$0.50. The average amount an artist receives is \$0.12.³⁰ Others put the artist share somewhat higher, but not much more than a dollar, net of costs.³¹ Combining the composer, performer and producer share of the CD price, we find that the creators get between 12 cents and 16 cents of every dollar the consumer paid (see Exhibit II-5). Thus, the intermediaries that stand between the musician and the audience account for about 85 percent of the final price.

These large intermediary costs can be seen as inefficient from two points of view. The recording companies that control distribution have an incentive to maximize profits at the expense of the artists and the public.

Music is owned by the artists, but in control of the sellers. There are traditional agency problems in this context. Those who have control of music distribution

have incentives to sell the music that can bring them the most revenues, and distort the market by extensive and disproportional promotions in favor of a small number of works. Music listeners may not value the music produced by the big labels as much if they have a chance to know about smaller labels and new musicians; this is a severe distortion and source of social inefficiency. The overwhelming advertising campaign may further skew the consumers' preferences and lead to distorted demand.³²

Exhibit II-5: Who Get What from the Music Consumer Dollar



Sources: William Fisher, *Promises to Keep* (Stanford, Stanford University Press, 2004), Appendix for May and Singer, Compaine and Gomery and Fisher; Geoffrey P. Hull, *The Recording Industry* (New York: Routledge, 2004), 2nd ed., pp. 182 and 259 for CDs and Digital, respectively.

It is possible to arrive at this inefficiency and distortion as a pure information problem.

In essence, music consumers do not have accurate information on the quality of the music, because it is an experience good. Music publishers, because of the delay in obtaining market information for all of their music, may over-invest in

certain music genres and under-invest in others. A typical strategy to overcome the inefficiencies and uncertainties in the market is to focus on superstars.³³

The brunt of these inefficiencies falls on the artists. High costs and the incentive to focus on a narrow range of output reduces demand for the product overall and narrows the prospects for most artists.

New scale-reducing technologies can erode existing market structures by facilitating new entry... [N]ew technology has fostered two periods of significant structural turbulence in the music recording industry in which new firms, producing innovative products, displaced the existing firms. Reconcentration resulted from horizontal mergers among other factors. New digital distribution networks may promote greater competition in the industry, if they are non-exclusionary. This should promote greater levels of product diversity and variety in the offerings of the music recording industry.³⁴

Exhibit III-5 also includes an estimate of the recording company take on digital distribution in its early days. The companies did not give up their rents easily and while the hard costs of distribution declined, they pushed up their share of the total delivered price, seeking to turn the eliminated costs of manufacturing, distribution and retail into record company rents. Even the large increase in record company take shown in Exhibit III-5 may be too low because the companies could take charges against artist royalties. While these charges were always a bone of contention, with the advent of digital technology some of these had become utterly fictitious in a digital environment.

However, labels typically deduct a packaging charge, 25 percent for CDs, even from digital files where there is no packaging. Labels also typically pay a rate for singles that is lower than the album base rate, often 75 to 80 percent of the album rate. Labels also pay a lower rate on “new technologies”; also often 75 to 80 percent of the base album rate. If all of these deductions were taken, the artist’s and producer’s combined royalty would shrink to about 4.2 cents per download. Some major artists objected to this small portion of this small pie.³⁵

This observation on the battle over the rents between artists and labels reminds us that the outcome of struggle is not determined by technology alone.³⁶ Technology creates possibilities but the market structure that emerges reflects the business models that can be built on the technology and those models reflect the political and economic power of the players in the market; in this case, consumers, artists and record companies.

III. THE EMERGING DIGITAL MUSIC BUSINESS

THE EARLY ANALYSES

With digital technology arriving to shake up a market structure that was not very consumer or artist friendly, we should not be surprised to find that economic analyses of its

impact were all over the map. The analytic problem is rendered complex by a variety of competing factors that might also explain the changing level of demand for certain types of products. A debate raged about the positive and negative factors affecting sales. On the one hand, a series of partial explanations for the decline in recorded music sales, independent of the advent of file-sharing, was offered, including substitution of other forms of entertainment, saturation of new music technologies, and a reduction of output from the recording companies.³⁷

According to industry figures, from the early 1970s through the late 1980s the total number of albums (in all formats) shipped each year in the US hovered around 650 million. In 1992, CD sales reached 400 million; six years later they hit 800 million. By 2000, more than 900 million CDs were being shipped each year. Many of those were back-catalog purchases, as music fans converted to the format that seemed destined to make all others extinct.³⁸

This ambiguous empirical outcome, from an analytic point of view, is perfectly predictable from a theoretical point of view.³⁹ It has been well-recognized for over two decades that some technologies that appear to facilitate “piracy” can actually stimulate sales or have effects that offset the presumed loss of sales resultant from increased “piracy.” Thus, a series of potentially positive impacts of peer-to-peer has been suggested that includes sampling and networking.⁴⁰ This is especially true, where, as here, the industry has not been vigorously competitive, while the technology has reduced costs dramatically and enhanced the consumer experience of the product.

Digital distribution can dramatically lower the costs of producing and distributing music. The elimination of the cost of manufacture, transport, storage and sale of CDs represents an overwhelming efficiency gain, although some part of the cost of burning a CD is transferred from the record company to the consumer. Instead of CDs being produced by an assembly line in a factory, they are burned by consumers on an as-needed basis. The fact that supply and demand can be better matched in the process in which consumers become producers multiplies the efficiency gains by avoiding the waste that occurs when recording companies misjudge consumer tastes.

Every downloaded song need not represent a lost sale. There are many songs that would not be purchased because their cost is bundled into CDs. Sampling of individual songs through downloads may increase sales of CDs, as consumers experience the music and discover its value.

There was evidence that lower value songs are more likely to be downloaded than higher value songs.⁴¹ This is consistent with the notion that some of the downloads would not have been purchased, so no sales are lost. There is evidence that downloaders in high purchase groups purchase some CDs after downloading some songs and that downloading increases purchases in those demographic groups least likely to purchase.⁴² This supports the sampling function of downloading.

In a broader sense, singles and albums are complements to the purchase of audio equipment and other merchandise and services. By stimulating purchases of complementary and related goods and services, downloading may ultimately expand the market for legitimate purchase of content to play on the newly acquired equipment or goods and services related to

albums. Artists are the primary, direct beneficiaries of the revenues, rather than recording companies.⁴³

The public policy problem is rendered complex by the fact that the ultimate issue is not whether some revenues have been lost as a result of peer-to-peer communications networks, but whether the losses have been sufficient to threaten the viability of the industry⁴⁴ and whether the new business models and industry structure might better serve the public and the promotion of progress.⁴⁵

In a remarkably prescient article in 1994, Alexander considered the prospects for diversity in an industry that relies on digital technology for production and distribution. After studying repeated historical examples of technological change leading to outbreaks of competition in the recording industry, Alexander provided the first reference to the potential impact of digital file distribution in the academic literature. He offered an analysis of the potential cost savings and the “exponential” increase in product creativity afforded by new digital technology that was just a decade away.

The network for distribution in the music recording industry is highly concentrated, and many fringe firms and new entrants are unable to obtain national distribution. This trend limits the extent of competition in the industry, and possibly reduces the diversity and variety of product offerings (in part, because small new firms tend to be product innovators). If non-exclusive distribution networks existed, fringe firms and new entrants might provide robust competition for market share....

A digital delivery highway for the products of the music recording industry might take the following form. A distributor, or group of distributors, would transmit digital product samples to consumers via cable or telephone lines. The consumers could review the product samples... and then inform the distributor... which products they wish to purchase. These products would then be uploaded to the consumers, and a charge made to the consumers' account.

A distribution network of this type may potentially attenuate the effects of the significant barriers to entry in the music business. First, it could give firms (particularly fringe firms and new entrants) the opportunity to have their products distributed in a less costly and non-exclusionary fashion. By providing product samples to consumers, the new distribution network would also transmit information relating to product specifications. This would lessen the need for more traditional and less efficient techniques, such as radio airplay and other costly promotional activities, to inform consumers of the existence of new products. Given the modest marginal costs of adding a new product line to a digital delivery system, it is conceivable that the number of product offerings could increase exponentially. The costs of distribution should decline dramatically, as physical distribution at national or international levels has significant scale features. A competitive digital delivery system would reduce substantially the minimum efficient scale of distribution, and likely stimulate a highly competitive producer market.⁴⁶

LANDMARKS IN THE DIGITAL TRANSFORMATION OF THE MUSIC INDUSTRY

An article in the New York Times on May 17, 2007 marked two major milestones in the battle between consumers and record companies over digital downloads. The headline included the first milestone: “Amazon to Sell Music Without Copy Protection.”⁴⁷ This signaled a major shift in online sales where a major label and major online marketers were finally making music available without copy protection. Many of the smaller labels with which Amazon does business would fall into this new model as well. Universal and Warner followed suit, so that three of the four dominant record labels would supply digital distribution without DRM.⁴⁸ This meant that consumers would fully enjoy the ease of use made possible by digital technology.

The second milestone was embedded in the graph that appeared just below the headline. For the first time in 2006, the New York Times reported, sales of digital singles exceeded sales of physical albums (as shown in Exhibit I-1).

In 1998, singles represented less than 8 percent of the total number of units shipped, as claimed by the Recording Industry Association of America (RIAA), and less than 2 percent of the total revenue. A decade later, digital singles represented over 60 percent of the number of units shipped and 17 percent of the total revenue.

With the ability to choose singles, consumers can spend a lot less to get the music they want. In 2007, according to the RIAA, they spent about \$1.6 billion on singles and about \$7.7 billion on albums. The recording industry would have liked to force them to spend as much as \$10 billion more for twice as many albums, along the high growth line (in Exhibit I-1, above), which is the future the industry claimed, absent downloading. Of course, we do not know how many albums consumers would actually have purchased if the recording industry had won its war against digital distribution. The industry’s hope for very high rates of growth in album sales with inflated prices was likely entirely too optimistic.

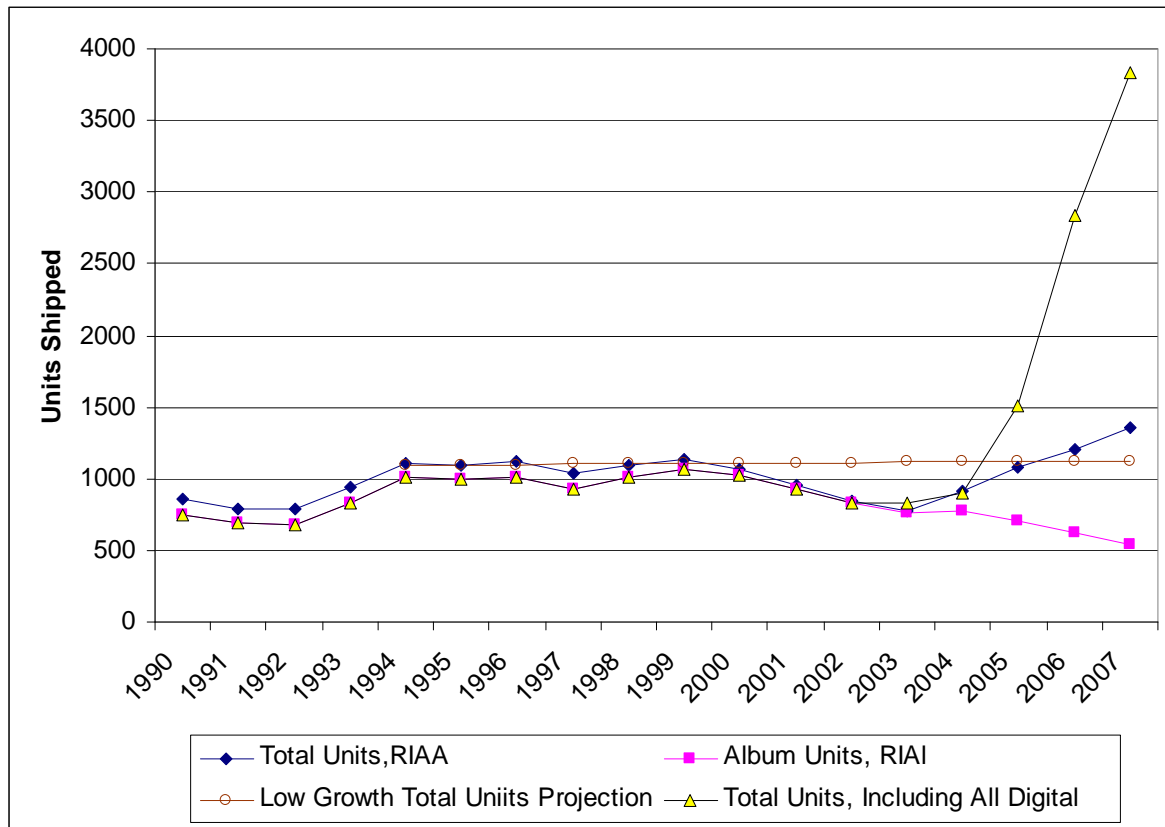
At the other extreme, if we look at total music sales, recognizing that rising prices and declining quality had already dampened the growth of sales and that the process of transitioning to the new CD format had already played out, we can argue that the industry was not going to enjoy much growth in album sales at all (the low growth line in Exhibit I-1). In that case, the effect of the shift to digital distribution was to increase total units shipped by pulling in consumers who had been priced out of the market. Total revenue, versus the industry’s high-growth hopes, would still be down due to the large number of album that consumers do not want to purchase. Reality may lie in between the extremes, but there is no doubt that consumers are better off.

We also do not know precisely how many singles consumers buy per album, although we do know the number is small (one to three). Consumers might want more than one song per album, but the ability to pick and choose nonetheless represents a massive victory for consumer sovereignty. If we assume consumers buy albums for one favorite song, consumer savings from the availability of singles would be as high as \$10.4 billion. If we assume three songs per album, consumer savings would be about \$6.3 billion. While there are uncertainties due to different assumptions about growth patterns and the number of songs consumers would purchase per album in a non-digital world, there is no doubt that the consumer savings are quite large. These

figures represent a substantial savings in an industry with total sales of just over \$10 billion.

Interestingly, the New York Times article points out that “single-track downloads have not risen as quickly as the music industry had hoped.” However, that may reflect the most dramatic shift in the industry. Comparing the sales claimed by the RIAA to the sales claimed by digital distribution companies, it appears that for every single sold by a record company there are almost three additional songs sold by an unsigned artist (see Exhibit III-1). The total number of units purchased by the public has more than tripled, but the vast majority of units sold are singles, most not owned by record companies. The average price per unit sold declined by 70 percent. The implicit elasticity of demand in this period is similar to that observed during the period of competitive declining prices in the late-1980s-early 1990s. Of course, the dominant firms in the tight, music oligopoly and the handful of artists who benefited from the blockbuster/star system have suffered a reduction in the rents they collect.

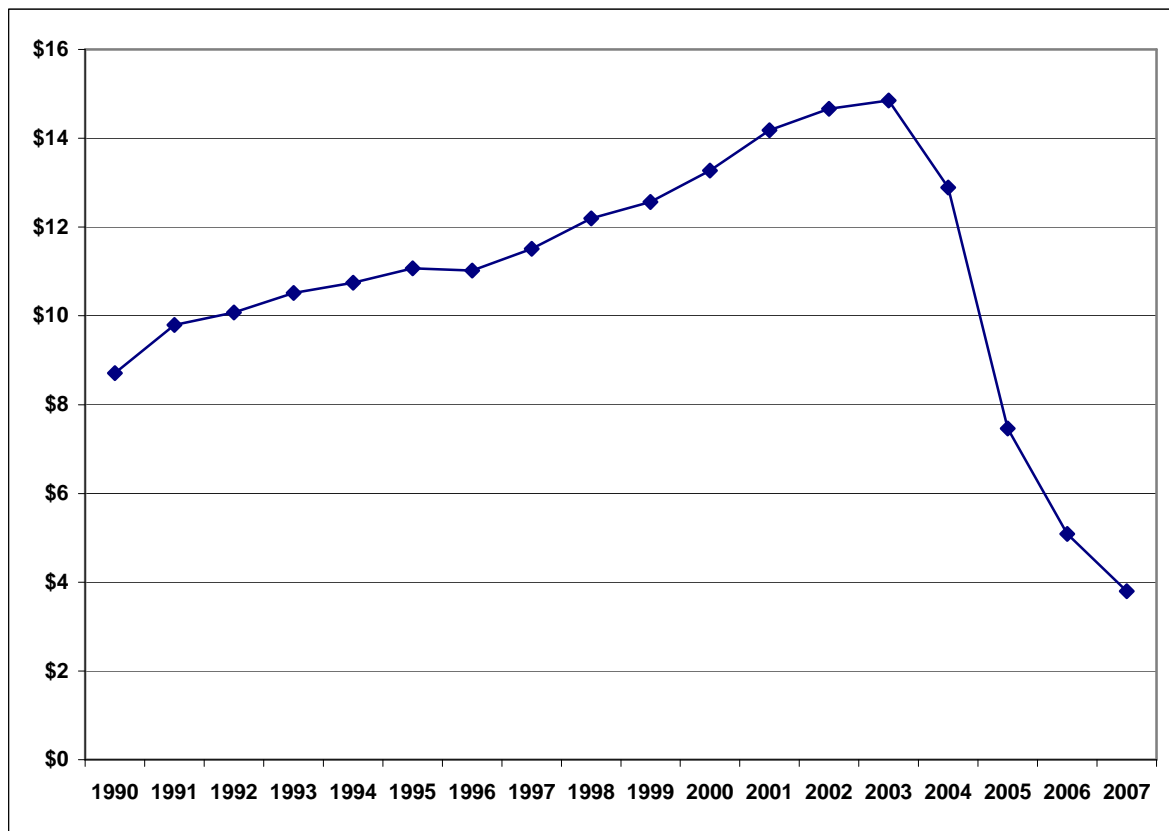
Exhibit III-1: Impact of Digital Distribution on Total Units Shipped



Source: Recording Industry of America, Annual Statistics; Wikipedia, iTunes Store.

In a world of physical distribution, with high fixed costs and near-zero marginal cost, it is still good business to put as many songs as one can on each CD (even though the cost of distribution had declined as a result of the new technology). The need for brick and mortar distribution infrastructure for physical products reinforced this logic. However, recall that singles had thrived in that environment and retailers liked them because they attracted traffic to stores and with declining costs sales of singles should have been expanding. With the advent of digital distribution, fixed costs of distribution all but disappear, physical infrastructure is no longer necessary, and transaction costs are slashed. The compelling economic logic of bundling disappears. The result is that the revenue per unit shipped plummeted (See Exhibit III-2)

Exhibit III-2: RIAA Revenue Per Unit Shipped



Sources: Recording Industry Association of America, Yearend Statistics.

To complete the formal economic analysis, it seems clear that the output expanding effects of the digital transformation go beyond the impact of cost reduction and the elimination of the exercise of market power. Demand shifts as well, as a result of both production and transaction changes. New flexible, consumer friendly formats expand demand.

The rise of the compact disc (like the rise of cassette tapes before them) demonstrated the market appeal of flexibility and convenience. CDs weren't a hit because they had the best audio fidelity; that honor still belongs to vinyl records. Rather, they gave consumers more control over the listening experience. If you wanted to replay your favorite song (or skip a crappy one), you didn't have to bother with delicately moving a phonograph arm or engaging in a frustrating rewind-stop-play-stop-rewind tango with your tape player. Everyone came out a winner.⁴⁹

Digital technologies take the consumer-friendly transformation of music to another level.

THE ECONOMIC STRUCTURE OF THE NEW INDUSTRY

Consumer Gains

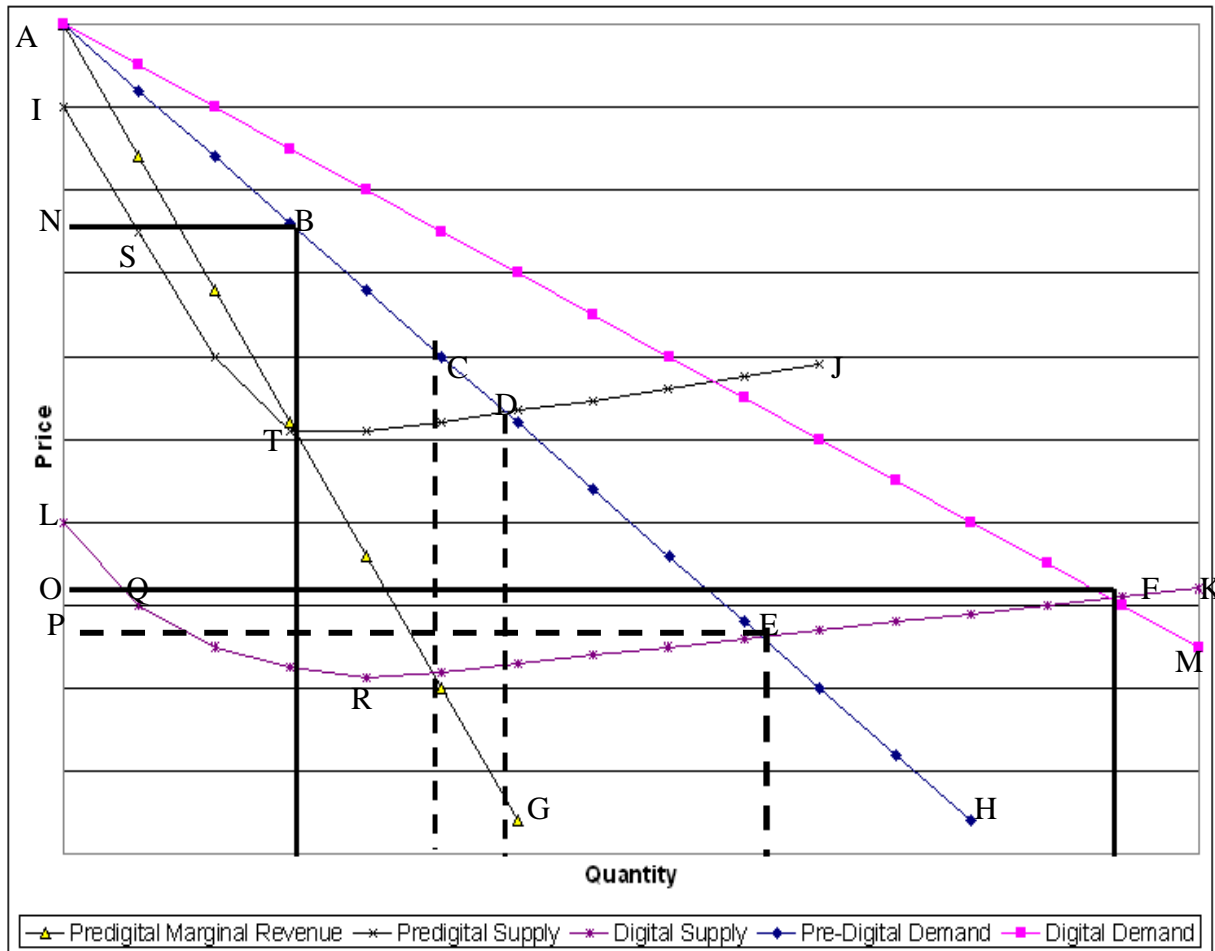
Of equal if not greater importance with the consumer savings is the fact that the transformation reflected fundamental economics, not illegal behavior; an explosion of digital singles was inevitable. From the consumer's point of view this transformation is perfectly consistent with economic theory and can be explained in the classic terms of welfare economics. Exhibit IV-3 shows the welfare economics. It includes both the supply and demand side shifts (falling costs, rising demand) and a shift from oligopoly pricing to competitive pricing.

Exhibit IV-3 charts a series of price quantity pairs defined by different market structures. The outcome for consumers improves as the market moves from A to B to C to D to E to F. Point B is the 1990s market structure. The industry is pricing along the marginal revenue curve (AG) at the point where it intersects the supply curve (IJ, shown as average cost curve). If the industry could maintain its market power and continue to price on the marginal revenue curve, but the supply curve shifted to LK, the equilibrium would have moved to C. Alternatively, if the industry had lost its market power and been forced to price along the demand curve AH, but there was no shift in the supply curve, the equilibrium would have shifted to D. The combination of breaking the market power of the companies and shifting the supply curve would produce a dramatic shift to E. The shift in the demand curve to AM, reflecting a more consumer friendly technology, as discussed above, and a more efficient discovery and information process, as discussed below, drives the market to a higher level of output at F. There is a massive shift in consumer surplus from ABN to AFO.

We can estimate the order of magnitude of consumer savings in two ways. If the recording industry had been successful in preventing the growth of singles, using the low growth scenario, it would have been selling slightly more than 1.1 billion albums at an average cost of \$14.58 per album for a total revenue of \$16.4 billion. Instead of spending just under \$9 billion for the additional albums, assuming two songs per album, consumer spent just under \$1.25 billion for digital singles. There is a net savings of \$7.7 billion. We can estimate the consumer surplus on singles directly, rather than rely on a projection of what album sales would have been if the industry had succeeded in its ballet against digital singles. Consumers bought 2.85 billion digital singles at a cost of \$1.00. In contrast, physical singles had been gone to almost zero at a

cost of \$5 per single. The consumer surplus triangle is approximately \$5.7 billion. In an industry whose total sales were just over \$10 billion, this is a huge gain in consumer surplus.

Exhibit III-3: Digital Technologies Lower Costs, Expand Demand and Break the Grip of the Music Oligopoly



The effort by record companies to keep singles out of the market and to keep CD prices high was a bald effort to continue exercising market power to increase producer surplus by capturing the bulk of the cost savings and preventing consumers from enjoying the benefits of more efficient distribution that would flow to them in a competitive market.

Artist Gains

From the artists' point of view, the benefits of the transformation are also readily

explained in classic welfare economic analysis. In the oligopoly environment, producer surplus is inflated by high cost products and results in the large surplus earned by a small number of recording companies that produce “high value” blockbuster albums (area BTS in Exhibit IV-2). In the digital environment, producer surplus is much smaller per unit, but made up of the much larger low cost output earned by unsigned artists (area QREF in Exhibit IV-2). Using the midpoint estimate of 14 percent of the retail price of a CD going to the artists (composers and performers) we estimate that about \$1.1 billion of the revenue from CD’s goes to artists in 2007. Apple takes about 30 percent of the digital sales revenue, returning 70 percent to artists. This is just under \$2 billion for 2007. Some of that goes for administrative and other costs, so the artists end up with about \$0.50 or about \$1.4 billion on digital singles. The big difference on the supply side is the much broader range of artists to whom the surplus goes. If the oligopoly model had prevailed by expanding sales of CDs, the artists’ share of the producer surplus would have been larger, but it would have been much more narrowly distributed.

Album sales are not the primary way artists earn their living. The mechanism through which the vast majority of artists became beneficiaries of the new market structure is easily explained by the reduction of transaction costs.

More interestingly, artists and publishers may benefit differently from the network effects generated by the number of those who buy legal copies and those who obtain illegal recordings... If the demand for, say, live performances is enhanced by the “popularity” of the artists generated from the number of distributed recordings (legal and illegal copies combined), then we obtain the conditions under which publishers of recorded media may lose for piracy, whereas artists may gain from piracy.⁵⁰

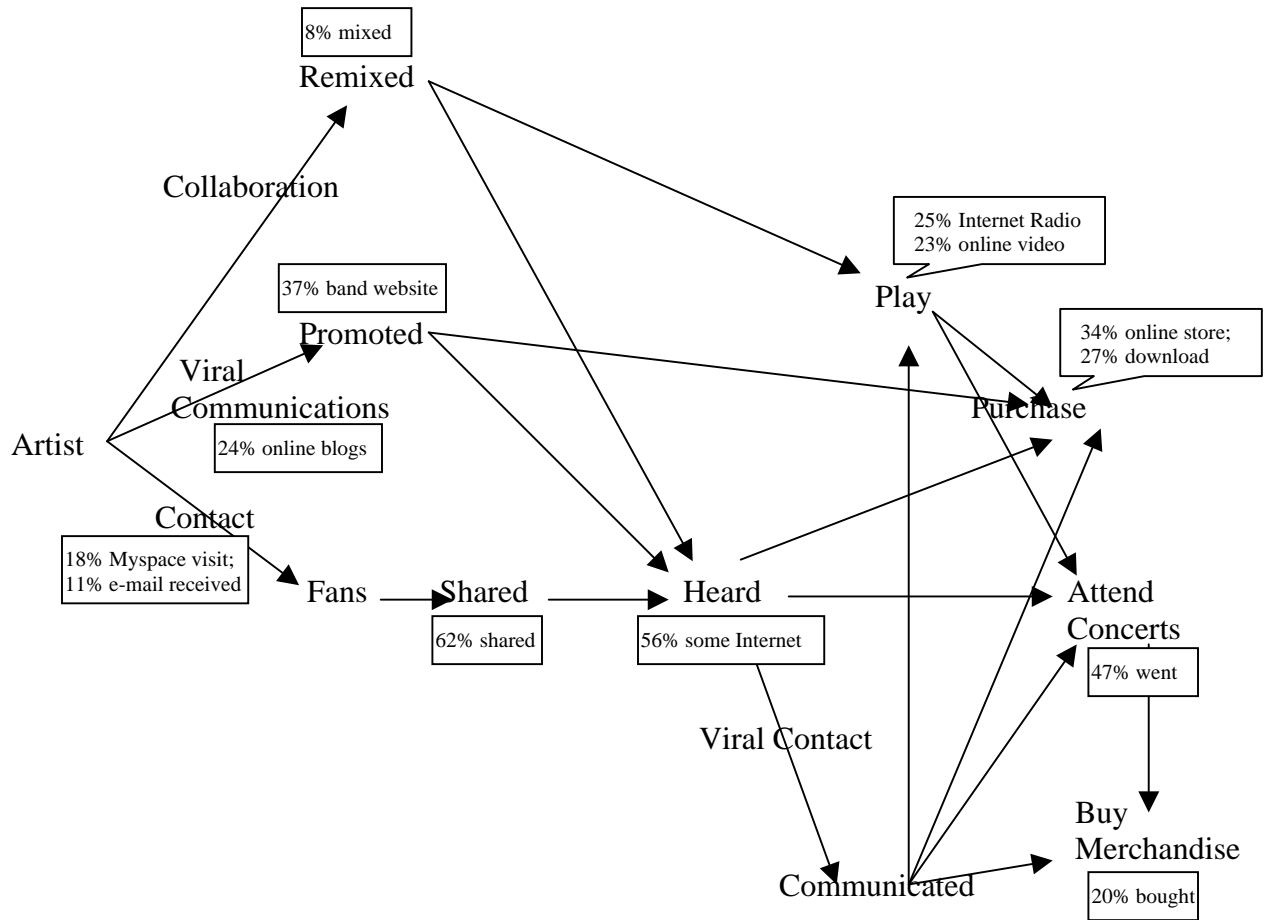
Artists earn their living by getting play time, which makes it possible to sell more songs, perform more shows and sell more merchandise (see Exhibit III-4). Digital distribution expands the opportunity to engage in each of these activities. Collaboration between artists and contact with fans is greatly facilitated. The ability to be heard expands through easier promotion, viral communications and sharing. Playtime, which had been largely restricted to radio (and hemmed in by repeated payola scandals), explodes on the Internet. A new distribution channel is opened up for direct sales from artists to consumers.

Exhibit III-4 shows the percentage of respondents to a recent Pew Internet and American Life Project poll on the use of the Internet in regard to acquisition of music and conduct of music related activities. The behavior has become pervasive.

The dramatic improvement in the discovery and information function of the market expands sales as well. This is a process that needs to be given more credit in the transformation. We tend to think about the digital revolution as inherently technical, a change in the means of production, i.e. the tools that are used to produce content, and the form of the end product. However, the transformation of transactions and transactions costs is at least as important. The digitization of content, which has captured so much attention in the intellectual property wars because of the ability to copy perfectly and infinitely, is not all that matters. Changes in the mode of production, the relationship between artists and audiences, matter, too. This is described in a recent article, entitled “Breakthrough of the Podcast Authors” (Washington Post,

April 13, 2008). Since it applies to books, which have not yet been digitized, the form of the product is less important. This highlights the importance of transactions.

Exhibit III-4: Digital Production and Distribution Enhances the Artist’s value Proposition



Source: John B. Horrigan, *The Internet and Consumer Choice*, May 18 2008, p. 18, 21 for usage.

Readings have long been a way for authors to reach audiences. This is the part of the discovery function. Podcasts change the arithmetic.

Horror writer Scott Sigler, one of the pioneers in this area, began regularly posting readings of his first book in March 2005. “EarthCore,” broken up into 45-minute chunks that he posted on a weekly basis, won an audience of 10,000 listeners. His second book, “Ancestor,” did even better, scoring 30,000 subscribers... This month, Sigler’s fourth book debuted in a hardcover release for the first time, from Crown Publishing Group, an imprint of Random House.

Crown has printed an initial run of 100,000 copies... That's a high figure for the book industry, where mostly unknown authors usually get an initial print run of only a few thousand.⁵¹

Sigler is an unsigned artist, who has used the new distribution medium to break into the system. The new medium not only makes it possible to reach fans, but it involves elements of viral communications. "Sigler's editors say the company has been impressed that Sigler fans have requested promotional materials about the book to try to spread the word about the new hardcover edition... At Hutchins's Web site, a 'minister of propaganda' routinely sends his readers on missions that vary from burning CDs and passing them along to printing out promotional postcards and slipping them onto shelves at the local bookstore." Direct involvement and collaboration are also possible. "To further build reader interest and loyalty, Hutchins recently opened up his fictional world to fans and invited them to add their own stories."⁵²

Giving content away for free, the center of the recording industry's concern, is one of the many strategies that artists can use to stimulate future sales.

For Teen books is publishing the dead-tree version, and it will also be available as a free download in formats that will be easy to read on, say, the screen of a PDA. As with podcasts, the idea is to win over potential converts with free content in the hopes that readers or listeners buy something down the road.⁵³

At the same time that the new technology changes the relationship between artists and recording companies, it weakens the star system because "there is a greater probability of discovering other high quality music items by lesser known artists with the new technology."⁵⁴

The ultimate cost savings in marketing and distribution come from both the supply side and the demand side. On the demand side, the ability to sample "is an information-pull technology, is a substitute to marketing and promotion, an information-push technology."⁵⁵ As the cost structure of the industry changes through the adoption of digital technologies, performance improves since "variable costs relative to fixed costs are more important for music downloads than for CDs. This suggests that acts with a smaller audience can succeed in the digital music market. As a consequence, we could observe more music diversity and a less skewed distribution of sales among artists."⁵⁶

In fact, we do observe this pattern. The payoff for artists and society is increasing diversity. Although the examples above are geared more toward the starving artists, those who may never get onto the charts, the impact has been documented even at the top of the charts. One set of authors states that:

we find strong evidence that over the last decade, the number of unique artists and albums that have appeared on the Billboard Top 200 album charts is statistically related to the number of Internet users. The implication is that with lowering of information sampling costs, consumers become aware of more new albums they like, leading to more artists and albums being ranked on the charts....

The implication is that as sampling becomes less expensive, the superstar effect is eroded overall, and more users purchase music items based on their actual, not perceived, valuations.⁵⁷

THE EXTENT OF PIRACY (SELF-HELP)

From both the consumer and artist points of view, the title of the graph in the '07 New York Times article appeared somewhat ironic. It read: “Less Money in Music,” The change in purchasing and distribution patterns, however, actually indicates that there is conversely “More Value in Music.” We can weave the threads of the previous analysis together to conclude that loss of hoped for sales was smaller than the industry claimed and much smaller than the increase in value that consumers and artists achieved.

Liebowitz has recently provided estimates of the extent of piracy based on an econometric model that uses demographic, economic and media variables to predict the change in media usage. The estimate attempts to derive the impact on file sharing with reference to changes in television and radio usage – “the entertainment diversion impact of the Internet on radio (television) is a reasonable proxy for its impact on sound recordings...”

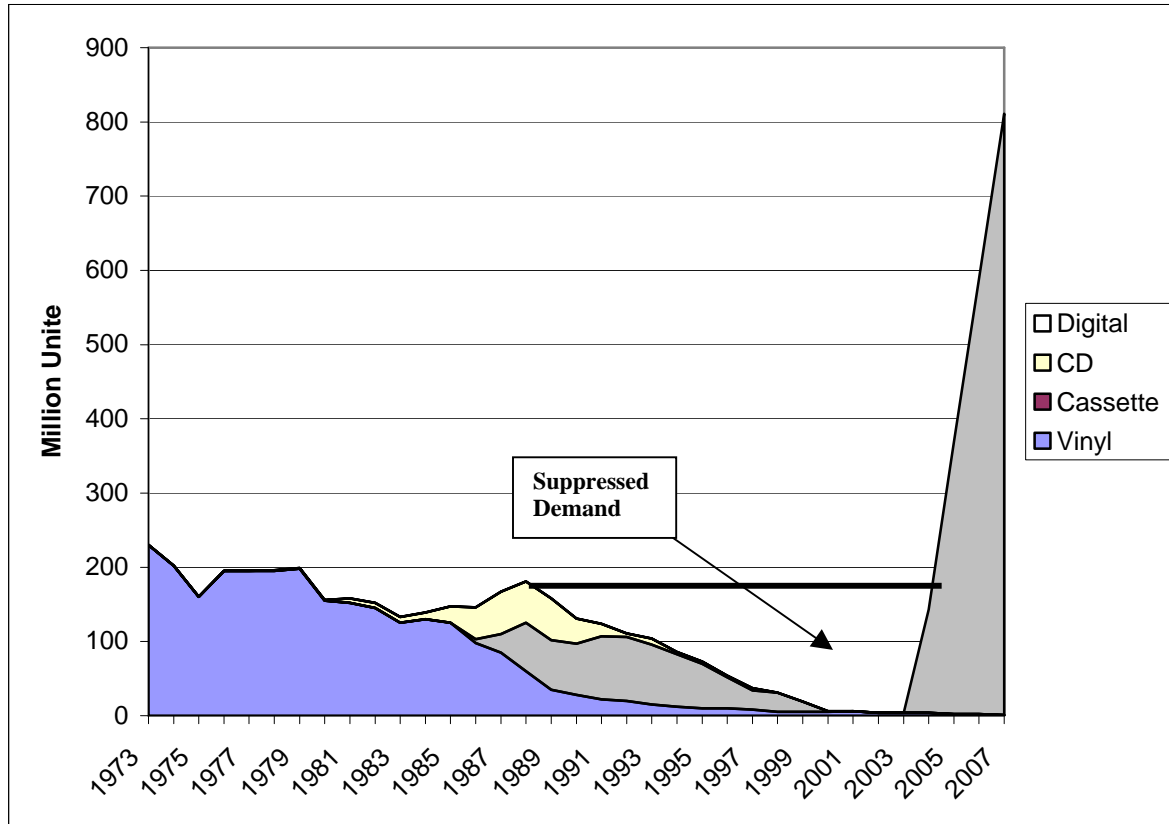
The above analysis suggests that there are two reasons why radio and television are not reasonable proxies for changes in music usage. First, the base from which the impact is predicted (1998) is artificially high, inflated by the library replacement sales of CDs. Second, the music industry was in an anti-competitive, anti-innovation mode in the late 1990s. Not only were prices being artificially inflated (the consent decrees were signed in 2000 and 2002), but also the number of titles released was stagnating. In contrast, radio and TV were expanding their offerings to consumers over this period. The number of national TV networks increased by 38 percent between 1998 and 2003.⁵⁸ The number of television and radio stations and radio formats increased by 5 to 10 percent.⁵⁹

Liebowitz notes that his coefficients have “wide confidence intervals,” so he provides low middle and high estimates. He estimates that in the period 1998-2003, the industry lost between 150 million and 430 million album sales. Because Liebowitz’s prediction models do not recognize the role and value of singles, once the iPod ushers in the era of legal single distribution, this type of predictive model loses touch with reality. Technology replacement and anti-consumer practices need to be taken into account. Vinyl peaked as the dominant form of distribution in the early 1980s and was essentially gone in a little over a decade. Cassettes peaked in the early 1990s and they were essentially gone a little over a decade later. CDs peaked at the turn of the century and they are on path to be essentially gone a little over a decade later.

If we look at the long-term trend in single sales we could easily conclude that a large part of this piracy claim is demand that was suppressed by the exercise of market power to eliminate singles (see Exhibit IV-1). Singles had gone through two transitions (Vinyl to Cassette to CD), but the industry had all but eliminated them by the late 1990s, creating the pent-up demand that exploded once the digital distribution model took hold. Single sales had been well above 150 million in the late 1980s and above 200 million in the 1970s. With CD price falling these levels are not out of the question, had the industry chosen to promote their sales. This estimate of suppressed single sales is well within the range of the estimate of lost album sales. Obviously, the conclusion that consumers shared singles that they could not buy in the market with a value

of a couple of hundred million dollars stands in sharp contrast to the industry claims of mega billions of losses due to “piracy.” It also pales in comparison to the huge consumer and artist gains that we have shown from digital distribution. Technology replacement and anti-consumer practices need to be taken into account.

Exhibit IV-1: RIAA Claimed Shipments of Singles



Source: Recording Industry Association of America, Yearend Statistics, various years.

At the high end of the estimate, assuming 10-12 songs per album, the lost sales between 1998 and 2003 represent about 5 billion songs. In the ensuing four years, once the digital distribution business model came into existence, the public purchased about 5 billion singles. They paid a lower price, were better able to match their purchases to their desires, and a much broader range of artists enjoyed sales. This is the efficiency gain of the digital transformation of the industry, but because Liebowitz’s prediction models that fail to recognize changes in market structure, the claim would be made that more albums should be sold, when the reality is that more singles are being sold, especially by artists who do not produce albums to be sold by record companies

IV. CONCLUSION

The digital downloading war was the first great battle of the digital age. It has both strong historical roots and important implications for the development of content industries in the digital age. The digital downloading debate is the most recent in a series of battles over intellectual property that spans three centuries. It echoes two central themes in the intellectual property debate.

The first general theme is that the granting of intellectual property, especially in America where it is enshrined in Article 8 of the Constitution, is an effort to balance the private rights of creators, artists, and innovators with the societal value that is generated by the circulation of ideas as raw material for social progress. The Constitution grants to the Congress the power “To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the Exclusive Right to their respective Writings and Discoveries.” The monopoly is granted for a limited time and a limited scope to provide an incentive in short-term monopoly rents, but it is limited so that ideas become available for others to build upon, a concept that was eloquently expressed by Thomas Jefferson.⁶⁰

The second general theme is that technological change shifts the balance of interests between private rights and social goals and frequently triggers “piracy panics,” wherein the gatekeepers of content feel the financial security of their intellectual property is at risk. These panics play out in furious legal battles.

The struggle over intellectual property rights in the contemporary music sector also introduces two uniquely twentieth century themes. First, the industrial age introduced oligopolistic structure into the production of content, which expanded the ability to collect rents sharply, some would say excessively, beyond what was necessary to incent creativity. Intellectual property rents become intertwined with rents accruing to market power. When technological change alters industry structure it can affect not only the balance of interests in intellectual property, but also market structure and market power.

The second unique aspect of the digital intellectual property war is that the digital technology accelerates the changes and the consequent disputes dramatically compared to previous struggles. Digital technologies transformed the industry with speed and power that was startling. The resulting legal challenges came quickly. We will never know with precision how much piracy there was, or should have been given the anti-consumer behavior of the industry. It is also arguable whether the transformation would have been as rapid and pervasive if the market power of the industry had not been challenged by consumers. Change was not likely to come from within the tight oligopoly. The music industry response to digital technology moved through stages, from complete hostility toward digital distribution; to DRM-wrapped, device-tied usage fees; to unwrapped, first sales (use anywhere).

Given the immense benefit that has flowed to consumer and artists, it would seem that the policy impetus created by the “piracy panic” was as far off as the estimates of piracy losses put forward by the industry. As one analysis of the effects of file sharing concluded:

Contemporary legal measures to provide increased protection for virtual products represents the use of law to heighten excludability, but in doing so, they run the serious risk of destroying recognized social benefits of the development and spread of information, knowledge, and cultural products previously recognized in all copyright law.⁶¹

Although music production has distinct characteristics compared to other digital products such as video, including lower production costs and bandwidth requirements, there are similarities in the reduction of distribution costs and the participatory potential of the new medium. The conflict over video distribution seems to be following a pattern similar to music, with specific technologies being targeted as causes of the problem (e.g. BitTorrent) and others being relied upon as the solution (e.g. filtering with deep packet inspection). The battle over video content is well under way, with a push to impair the functionality of display devices not unlike the attempts of the recording industry to stifle MP3 delivery.⁶² Business models, meanwhile, are developing on a parallel, if somewhat slower track, but new media companies dominate the streaming video space.

Endnotes

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³ Eric S. Boorstin, *Music Sales in the Age of File Sharing*, Senior Thesis, Princeton University, April 2004.

⁴ Martin Peitz and Patrick Waelbroeck, *The Effect of Internet Piracy on CD Sales: Cross-Section Evidence* (CESifo Working Paper No. 1122, January 2004), *An Economist’s Guide to Digital Music* (CESifo Working Paper No. 133, November 2004); Alejandro Zentner, “Measuring the Effect of Online Piracy of Music Sales,” Unpublished Manuscript, University of Chicago Price, December 2003; Stan Liebowitz, “Will Downloads Annihilate the Recording Industry? *Pitfalls in Measuring the Impact of File-Sharing*,” paper presented at the CESifo Conference, July 2004, Munich Germany.

⁵ Zentner, *Measuring the Effect of Online Piracy*; Liebowitz, “Will MP3 Downloads Annihilate the Recording industry?”

⁶ Rafael Rob and Joel Waldfogel, *Piracy on the High C’s: Music Downloading, Displacement, and Social Welfare in a Sample of College Students* (NBER Working Paper Series, October 2004).

⁷ The Big Four include Universal Music Group, which includes A&M, Decca/London, Deutsche Grammophon, Island, MCA, Motown, PolyGram and others; Sony BMG Music Entertainment, which as of August 2004 consists of the merger between Sony Music Entertainment and BMG Entertainment, and includes Columbia, Epic, Arista, RCA, and others; EMI Group, which includes Angel, Blue Note, Capitol, Odeon, Parlophone, Virgin and others; and Warner Music Group (a.k.a. WEA), which includes Atlantic, Elektra, London, Reprise, Rhino and others (“A Look at Four Music ‘Majors’ Left Following Sony-BMG Merger,” *AP vi SFGate.com*, July 20, 2004).

⁸ Peter J. Alexander, “Peer-to-Peer File Sharing: The Case of the Music Recording Industry,” *Review of Industrial Organization*, 20 (2002) at 151. Note that a subsequent merger rendered the industry a four firm oligopoly.

⁹ State of Florida by Attorney General Robert A. Butterworth, et al., v. BMG Music, et al. at paras 3-7.

¹⁰ State of Florida at para 37.

¹¹ State of Florida at para 38

¹² Because sales of singles had been artificially suppressed, calculating a price elasticity is difficult. The aggregate data reviewed by Alexander, *Music Recording* at 127, indicates a price elasticity of 6.8. The experience of the digital distribution industry is consistent with this level, as Slater, Content and Control A-9 point out “When Real’s Rhapsody cut in half its per-song CD burning rates, CD burning tripled; when the Real Music Store cut its per-song and per-album download prices in half, purchases increased six-fold.” The headlines of the press accounts reporting these experiences tell the story, for example, Stephen Levy, “Forecast: Song Costs May Fall Like Rain,” *Newsweek*, September 27, 2004; Amy Harmon, “What Price Music?,” *The New York Times*, October 12, 2003.

¹³ State of Florida at para 49.

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¹⁵ Bill Werde, “Payola Probe Heating Up: New York Attorney General Investigating Record Labels’ Links with Radio Stations,” *Rolling Stone*, November 1, 2004. The importance of promotion and radio play (and hence payola) is emphasized by Alexander, *The Music Industry* at 137, and the core of the argument presented by Nadel, *How Current Copyright Law Discourages Creative Output*.

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²⁶ Liebowitz, *Will MP3s Annihilate the Record Industry* at 9.

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- ³³ Ram D. Gopal, Sudip Bhattacharjee and G. Laurence Sanders, "Do Artists Benefit From Online Music Sharing," *Journal of Business*, forthcoming.
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- ³⁵ Hull, pp. 259-260.
- ³⁶ Yochai Benkler, *The Wealth of Networks* (),
- ³⁷ Martin Peitz and Patrick Waelbroeck, *File-Sharing, Sampling and Music Distribution* (International University, School of Business Administration, Working Paper 26, December 2004), *Piracy of Digital Products: A Critical Review of the Economics Literature* (CESifo Working Paper No. 1071, November 2003), An Economist's Guide.
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- ⁴¹ Rob and Waldfogel, Piracy on the High Cs at 15-16, 22-25; *Brief of Felix Oberholzer-Gee and Koleman Strumpf; Brief of Intel Corporation*; at 20.
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- ⁴³ Amit Gayer and Oz Shy, *Publishers, Artists and Copyright Enforcement*, Working paper, January 27, 2005.
- ⁴⁴ Even Stan Liebowitz, "Will MP3 Downloads Annihilate the Record Industry? The Evidence so Far," in Gary Libecap (Ed.), *Advances in the Study of Entrepreneurship, Innovation and Economic Growth* (2003) at 27) recognizes this "harm is not the same as fatal harm."
- ⁴⁵ Nadel, How Current Copyright Law Discourages Creative Output; Raymond Shih Ray Ku, "The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology," *University of Chicago Law Review*, 69 (2002).
- ⁴⁶ Peter J. Alexander, "New Technology and Market Structure: Evidence from the Music Recording Industry," *Journal of Cultural Economic*, 18 (1994) at 121.
- ⁴⁷ Brad Stone and Jeff Leeds, "Amazon to Sell Music Without Copy Protection," *New York Times*, May 17, 2007.
- ⁴⁸ Mnoonkin, p.209.
- ⁴⁹ Mnoonkin, p. 209
- ⁵⁰ Gayer and Shy at 2.
- ⁵¹ Mike Musgrove, "Breakthrough of the Podcast Authors," *Washington Post*, April 13, 2008.
- ⁵² Musgrove.
- ⁵³ Musgrove
- ⁵⁴ Gopal, Bhattacharjee and Sanders at 38.
- ⁵⁵ Peitz and Waelbrock, *File-Sharing*, at 5.
- ⁵⁶ Peitz and Waelbroeck, *An Economist's Guide* at 35.
- ⁵⁷ Gopal, Bhattacharjee and Sanders, at 33-37.

⁵⁸ National Cable and Telecommunications Association, *Statistics*, available at <http://www.ncta.com/Statistic/Statistic/NationalVideoProgramming.aspx>

⁵⁹ Levy, Jonathan, Marcelino Ford-Livene and Anne Levine, *Broadcast Television in a Sea of Competition* (Federal Communications Commission, OPP Working Paper Series 37, September 2002); Williams George and Scott Roberts, *Radio Industry Review: Trends in Ownership, Format, and Finance*, Media Bureau Staff Research Paper No. 11, September 2002.

⁶⁰ James Boyle, "The Second Enclosure Movement and the Construction of the Public Domain," Conference on the Public Domain, Duke University School of Law, November 9-11, 2001, citing Letter from Thomas Jefferson to Isaac McPherson (Aug. 13, 1813), in Albert Ellery Bergh, (Ed.), *The Writings of Thomas Jefferson* (1907), pp. 326, 333-34.

If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He, who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been particularly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation.

Inventions then cannot in nature, be a subject of property.

⁶¹ Picard at 216-217.

⁶² Brad Stone, *AT&T AND Other ISPs May be Getting Ready to Filter*, January 8, 2007, *New York Times*, online, Technology.