No. 04-480

IN THE

Supreme Court of the United States

METRO-GOLDWYN-MAYER STUDIOS INC., *et al.*,

Petitioners,

v.

GROKSTER, LTD., *et al.*,

Respondents.

ON WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

BRIEF *AMICI CURIAE* OF FELIX OBERHOLZER-GEE AND KOLEMAN STRUMPF IN SUPPORT OF RESPONDENTS

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INTEREST OF THE *AMICI CURIAE*[1]

Amici are economics professors who teach and research issues relating to the economics of intellectual property. They have written the first, and they believe only, analysis of how file sharing impacts recorded music sales based on a study of actual file downloads by the users of peer-to-peer networks.[2] Their study was not commissioned or sponsored by any of the parties to this case. *Amici* have presented this work at over a dozen academic, industry, and government conferences.

Amici are Felix Oberholzer-Gee, Associate Professor of Business Administration at Harvard Business School, and Koleman Strumpf, Associate Professor of Economics at the University of North Carolina at Chapel Hill. They both have extensive experience analyzing and performing policy analysis using large datasets. Professor Oberholzer-Gee's research examines how business strategies can be adapted to country-specific institutions. He is particularly interested in strategies that help companies deal with uncertain property rights. He has published widely in peer-reviewed journals.

1. The parties have consented to the filing of this brief as indicated in letters previously filed with the Clerk of the Court. No counsel for a party authored this brief in whole or in part, and no person or entity other than *amici curiae*, or their counsel, made a monetary contribution to the preparation of this brief. Printing costs are being defrayed in part by the Baker Foundation and a research grant from the University of North Carolina, Chapel Hill.

2. Felix Oberholzer-Gee & Koleman Strumpf, *The Effect of File Sharing on Record Sales: An Empirical Analysis* (2004), *at* http://www.unc.edu/~cigar/papers/FileSharing.pdf (last visited Feb. 25, 2005) [hereinafter *Study*].

Professor Strumpf has researched a variety of topics and has published over a dozen peer-reviewed articles and book chapters, and an article on his work appeared in *Science*. *Amici's* research has been widely discussed in the major media including the *New York Times*, *Wall Street Journal*, *Financial Times*, *Los Angeles Times*, *Washington Post*, *Business Week*, and *The Economist*. They have also appeared on *ABC Nightline*, *C-NBC*, *CNN*, *C-Span*, and *NPR*.

Amici file this brief as individuals and not as representatives of their respective institutions. They believe that their data and rigorous empirical analysis can help the Court understand the economic impact of file sharing of recorded music and the shortcomings of various factual assertions on that point made by the petitioners in this case. Quantifying the economic benefit or harm from file sharing is a central component in weighing the costs and benefits of restricting the future development of peer-to-peer technology.

SUMMARY OF ARGUMENT

A central tenet of the petitioners' argument is that downloads on file sharing networks have had a significant and negative impact on their sales of recorded music.[3] However, there is no rigorous analysis supporting these claims, and the evidence the petitioners cite is faulty and inconclusive.

3. Brief for Motion Picture Studio and Recording Company Petitioners at 12-13 (empirical studies confirm that services like respondents' have caused a sharp decline in sales of music); Brief of Songwriter and Music Publisher Petitioners at 6 (songwriters and music publishers have seen income from statutory royalties fall precipitously with the rise of file-swapping services); Brief of The American Federation of Musicians, *et al.* at 9 (each infringing free download is most likely a substitute for a purchase).

The purpose of this brief is to make the Court aware of empirical research conducted by *amici* which quantifies the economic consequences of file sharing. Their research considers the specific case of sales of pre-recorded music. Their evidence is based on the first and only detailed study of which files individuals actually download via file sharing networks. If the petitioners' argument were correct, music albums which are downloaded more frequently (in whole or in part) via file sharing networks should experience a greater reduction in sales. Based on a thorough statistical analysis of a large number of downloads from the last third of 2002, *amici* conclude that file sharing has had only a modest impact on music sales. With a high level of statistical confidence, *amici* can reject the claim that file sharing was responsible for a majority of the reduction in sales during the study period. At the same time, *amici* cannot reject the hypothesis that file sharing had no impact on music album sales.

ARGUMENT

In *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984), this Court affirmed a district court finding that, despite the claims of certain copyright owners, harm to them from time-shifting uses of video-cassette recorders was speculative, and, at best, minimal. *Id.* at 454. Petitioners in this case claim that, in "contrast to *Sony-Betamax*, the illegal reproduction and distribution of copyrighted works on respondents' services directly supplants petitioners' markets for the sale of those works, inflicting direct and obvious harm." Brief for Motion Picture Studio and Recording Company Petitioners at 31. *Amici* believe that in striking the proper balance here between copyright holders and persons who distribute peer-to-peer file sharing technology, the Court should be aware that petitioners' claims are materially overstated. *Amici* believe that their empirical research demonstrates that, as with the technology at issue in *Sony-Betamax*, any harm to copyright owners arising from the use of peer-to-peer file sharing software appears to be speculative and, at best, minimal.

1. The Economic Benefit Or Harm Caused By File Sharing Technology Is Difficult To Assess, And Existing Studies Do Not Reach A Uniform Conclusion About The Economic Consequences Of The New Technology.

It is difficult to assess the economic impact of file sharing on sales because, contrary to the suggestion of petitioners and some of their supporting *amici*, not every download is a lost sale. The most basic insight from economic theory is that consumption will increase when prices fall. As the price of consuming music on file sharing networks is very low, many persons download music they would not have bought at regular prices. Studying the economic effects of file sharing is not a trivial task because the researcher needs to construct a counterfactual scenario: How much music would a consumer have purchased if file sharing networks did not exist?

Most studies on the economic consequences of file sharing have relied on phone-based surveys. *Study, supra* n. 2, at 5. The idea is to contrast the music purchases of persons who download files with those that do not. If the latter group buys more music, this is presented as evidence that file sharing hurts sales. Studies using this approach have reached a variety of conflicting conclusions. The main problem with these studies is that they assume, but never demonstrate, that the two groups would buy the same number of albums if file sharing did not exist. This assumption is unlikely to hold because file sharing is particularly attractive to those who are time-rich but cash-poor, and these individuals would purchase fewer albums even in the absence of file sharing. As a result, this methodology systematically overstates the economic harm of file sharing.

A second type of study uses aggregate sales data to measure the effect of file sharing. The petitioners' claims about the economic harm caused by peer-to-peer technology are primarily based on studies of this type.[4] The idea is to link the time series of industry sales to data on prices and summaries of the economy. Any change in sales which cannot be linked to these factors is instead attributed to file sharing.

This type of reasoning never establishes a causal link between file sharing and a decline in sales. It documents that some other factors not considered in the analysis also drive sales, but the identity of those factors remains unknown. Because the market for entertainment is in constant flux with many new products vying for market share, it is likely that aggregate studies exaggerate the role of file sharing. These arguments aside, *amici* show below and in their study that the aggregate data do not clearly point to a negative impact of file sharing.

With the exception of the work by *amici* discussed herein, no study has looked at actual transfers of copies of copyrighted works to assess the economic benefit or harm of file sharing. Looking directly at what people download overcomes the limitations of the studies described above.

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4. Brief for Motion Picture Studio and Recording Company Petitioners at 12-13 and n.10.

2. *Amici's* Work Shows That File Sharing Was Not Responsible For The Majority Of The Decline In Music Sales In 2002.

Amici assembled a dataset of nearly two million file transfers from a large file sharing network. *Study, supra* n.2, at 8. Their data cover a large proportion of all file sharing activity during the fall and winter of 2002, and they show that their data is representative of the world-wide population of downloads during this period. *Id. Amici* matched information on what people download in the United States to sales figures for 680 albums. These albums are a random sample of all commercially relevant titles, those appearing on the Billboard charts. *Id.* at 9-10. The albums on these charts represent over eighty percent of all sales and include virtually every release from the major labels. *Id.* at 9 n.4. The weekly sales data used in the study are based on the authoritative Soundscan figures.

The data used in *amici's* study revealed several important features of file sharing networks. First, file sharing is a truly global phenomenon. United States users download over half of their files from non-U.S. users, with Germany alone supplying a sixth of the files. *Id.* at 11. File sharing in the United States would be able to continue even if all domestic supply was somehow eliminated.

Second, *amici* found that only a few songs are downloaded with any frequency. *Id.* This suggests that file sharing has a limited impact on aggregate record sales. Although they studied a sample of commercially fairly successful albums, a majority of song titles were never downloaded. They found that users typically download only one or two songs from even the more popular albums. *Id.*

Third, the titles that sell well in the stores are also the most popular among those who share files on peer-to-peer networks. *Id.* at 11-12. Downloads and sales follow a similar pattern. A few albums are quite popular and are actively pursued, and a vast number of other albums are largely ignored. The ranking of albums is quite similar in both sales and number of downloads. *Id.* However, downloads are a bit less focused than sales. *Id.* at 12 n.8. This suggests that individuals are using file sharing to explore and possibly sample new kinds of music which they would not typically encounter in the traditional channels of promotion such as radio or video. This means that downloads are less concentrated on the few top albums, and that more attention is paid to the less exposed albums. In other words, file sharing users are accessing a greater variety of albums.

a. *Amici* Use "Shocks" To The Number Of Files That Peer-To-Peer Users Share To Measure The Effect Of File Transfers On Music Sales.

Amici's formal statistical analysis seeks to quantify the causal effect of file sharing: how does the download of a song influence sales of the album on which it is included? To construct the counterfactual purchase behavior that is of interest, *amici* used "shocks" which directly influence the level of downloads, but not sales. These "shocks" are referred to as "instruments" in the statistics literature.[5] Instrumental variable techniques are commonly used in economics. For their purposes only one such instrument was needed, but to ensure that the estimates are robust they considered over a dozen such measures.[6]

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5. WILLIAM H. GREENE, ECONOMETRIC ANALYSIS 591-659 (1990).

6. *Id.* at 621, describes the minimal number of instruments. Section V of *amici's* Study provides details, including the complete set of instruments, on their econometric strategy. *See Study*, *supra* n.2, at 12-17.

Two examples help illustrate the approach. One instrument they use is the frequency of misspellings in the song titles on albums. Unless both the individual searching for a song and the individual sharing a copy agree on the precise name of the song, the search will be unsuccessful and no download will occur. Misspellings can cause confusion about the correct song name and so reduce the number of downloads. There is little reason to suppose that song naming convention has any direct impact on purchasing decisions. A second instrument is international school holidays. When teens, the primary users of file sharing networks, are on vacation, they spend more time on file sharing networks. School holidays result in a greater supply of files, and this makes it easier to find and download files.

Having isolated "shocks" to downloads, *amici* could then study how such shocks influence the sales numbers of an album during the week of the shock and in subsequent weeks. This method isolates the effects of file transfers on sales.

b. *Amici* Conclude That File Sharing Reduced Industry Sales By No More Than Three Million Copies During The Period Studied, Can Statistically Reject The Proposition That Even A Quarter Of The Recent Sales Decline Stems From File Sharing, And Cannot Reject The Hypothesis That Downloads Have No Effect On Overall Sales.

Amici considered a series of estimates linking unauthorized downloads to sales. In virtually every case the predicted effect is positive, but too small to be statistically significant. In the worst case scenario, *amici* conclude that unauthorized downloads would have reduced sales in 2002 for the entire industry by only three million albums. *Study, supra* n.2, at 28. The industry actually sold eight hundred million CD albums that year in the United States, a reduction of eighty million copies from the previous year.[7] Thus, the best estimates of *amici* suggest that downloads have only had a small impact on sales.

Perhaps of more importance is what can be stated with "statistical confidence." *Amici* have an estimate of the true impact of file sharing on sales, and the statistical framework allows them to calculate a range in which the true effect almost surely lies. This approach allows them to explicitly test various hypotheses. In all of their preferred estimates they are able to reject with statistical confidence the claim that the 2002 sales reduction was entirely due to file sharing. *Study*, *supra* n.2, at 28. In their most precise estimates, they can reject the proposition that even a quarter of the sales reduction can be attributed to file sharing. *Id.* at 28-29. In addition, they can never reject the hypothesis that downloads have no effect on sales. *Id.* at 29. There is little evidence in their estimates that file sharing was the main culprit behind the 2002 decline in CD album sales.

Amici consider their results to be robust, from a scientific perspective.[8] They considered dozens of potential criticisms

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7. Recording Industry Association of America, *The Recording Industry Association of America's 2003 Yearend Statistics* (2003), http://www.riaa.com/news/newsletter/pdf/2003yearEnd.pdf (last visited Feb. 25, 2005).

8. *See generally*, Daniel L. Rubinfeld, *Reference Guide on Multiple Regression*, *in* FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 179, 195 (2d ed. 2000) (explaining concept and importance of "robustness" in multiple regression analysis).

of their approach. Their conclusions continue to hold after accounting for the dynamics of consumer choices, omitting data from the holiday shopping season, allowing the impact of downloads to vary by album popularity, and after controlling for the long-term growth in the number of file sharing users. *Study*, *supra* n.2, at 19-25.

Moreover, even though the marketplace has changed since the release of their study, the analysis is still relevant today. The Recording Industry Association of America's data show that sales fell more sharply in 2002 than in any recent year, which was also a period of unfettered growth of file sharing. If there was a negative impact of file sharing on sales, it should be evident in the study period. While paid downloads from services such as iTunes have risen rapidly, these services are not yet economically relevant. In 2004, paid digital downloads accounted for less than two percent of total industry revenues.[9] Almost all albums continue to be bought in their entirety from retailers in the CD format, much as they were during the study period.[10]

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9. Calculated from Soundscan sales figures, (*see* Phil Gallo, *2004 is Music to Diskeries' Ears*, DAILY VARIETY, Jan. 6, 2005, at 1) and from NPD price figures (*see* Band Radio, *Report: Average CD Price Drops 4% in Q3 2004 to $12.95*, Nov. 15, 2004, *at* http://www.bandradio.com/news/?id=2236 (last visited Feb. 25, 2005).

10. Ken Barnes, *2004: A happy-news year for music industry*, USA TODAY, Jan. 5, 2004, *available at* http://www.usatoday.com/life/music/news/2005-01-05-2004-album-sales_x.htm (last visited Feb. 25, 2005).

3. The Claim That File Sharing Technology Caused The Recent Sales Decline Is Inconsistent With Broad Trends In Sales.

The main argument linking file sharing to reduced sales is based upon a timing coincidence. The decline in sales began at roughly the time when file sharing became widespread. A closer look at the aggregate numbers shows this link to be quite tenuous and does not support an inference of causation.

While file sharing was first popularized in 1999, album sales increased in 1999 and 2000 according to Soundscan.[11] Sales also rose by two percent in 2004, the most recent year with complete data.[12] These increases in sales occurred during periods of growth in the number of file sharing users. More generally, it is important to remember that music industry sales are fairly cyclical. The recent reduction in sales is not unusual for this industry, and is in fact smaller than a decline in the 1970s. As of 2003, total industry revenues have fallen by twenty-five percent from their recent peak in 1999 (adjusting for inflation).[13] This was far less than the forty

11. Scoop Marketing, *SoundScan 1999 Year-End Music Industry Report*, Business Wire, Jan. 5, 2000; Neil Strauss, *A Good Year. Or Maybe Not*, N.Y. Times, Jan. 4, 2001, at E3.

12. *Gallo, supra* n.9, at 1.

13. These revenue figures and those in the remainder of this paragraph are based on RIAA figures. Revenue data come from Recording Industry Association of America, *supra* n.7, and Michael Lesk, *Chicken Little and the Recorded Music Crisis*, IEEE Security & Privacy, Sept.-Oct. 2003, at 73-75. Inflation numbers are from Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, *available at* ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt (last visited Feb. 28, 2005).

percent reduction in real revenues four years after the peak in 1978. It took fourteen years for the revenues from recorded music sales to match their peak established in 1978 (adjusting for inflation). Real revenues also fell every year between 1994 and 1997. Clearly file sharing was not the explanation for these sales declines.

The claim that file sharing is destroying the industry is also difficult to reconcile with genre-specific sales trends. *Amici's* study shows that musical genres which are not heavily downloaded on file sharing networks experienced the same reduction in sales as other genres. *Study, supra* n.2, at 26-27. If file sharing had a negative impact on music sales, one would expect that genres which are lightly downloaded would have weathered the recent industry slump relatively unscathed. This is not the case. For example in amici's analysis they show that both country and older ("catalog") music are not particularly popular downloads, yet albums in these categories have fared relatively poorly since the advent of file sharing. *Id.* While country music accounted for more than eleven percent of album sales in the five years prior to Napster, since 1999 its share of sales fell to ten percent. The reduction for catalog sales is even steeper. More generally, the reduction in sales seems to be common to all music genres regardless of their relative popularity on file sharing networks. *Id.*

4. There Are Many Changes In The Market For Entertainment Products Which Can Help Explain Why Music Sales Declined In The Recent Past.

Amici have argued that file sharing has had a limited impact on sales of recorded music. What then can explain the recent reductions in sales? Increased competition is one explanation. Today, young people spend much more money on DVDs, video games and cell phones than they used to. Many new entertainment products have been introduced over the last several years, many of which have experienced sharp reductions in price along with increases in quality. A likely explanation for the troubles of the record industry is that consumers now channel more of their discretionary spending to these new products.

A shift in entertainment spending toward recorded movies alone can largely explain the reduction in music sales. The sales of DVD and VHS tapes increased by over $5 billion between 1999 and 2003. This figure more than offsets the $2.6 billion reduction in album sales since 1999. *Study, supra* n.2, at 29. The shift in spending in part reflects a sharp change in relative prices: since 1999 CD prices increased ten percent while DVD prices decreased by twenty percent and the price of DVD players fell by sixty percent. *Id.* at 29-30. Consumers also spent more on videogames, where spending increased by forty percent, or $3 billion, between 1999 and 2003, and on cell phones. Teen cell phone use alone tripled between 1999 and 2003. *Id.* at 30.

In addition, there are other plausible candidates for causes of the decline in record sales during the study period. One factor is the poor macroeconomic conditions prevailing at the time. While reported incomes had not declined in any year since 1953, they fell in both 2001 and 2002. *Id.* at 29. A second factor is the change in how CDs are distributed. Between 1999 and 2003 a fifth of music sales shifted from record stores to discount retailers such as Wal*Mart. Half of the Recording Industry Association of America's reported decline in CD shipments can be linked to the resulting reduction in store inventories. *Id.* A third factor is that a period of atypically high sales, attributable to consumer replacement of older music formats with CDs, was ending. *Id.* Thus, there are numerous factors which likely had a far more significant impact on the decline in music sales than could plausibly be attributed to file sharing.

CONCLUSION

Petitioners' claim that the market for their goods is being supplanted by unauthorized downloads via peer-to-peer file sharing networks is largely at odds with empirical research undertaken by *amici*. For the period during which music sales declined, petitioners have not presented convincing evidence that file sharing technology caused substantial economic harm. Based on *amici's* own work, their best estimate is that the effect of unauthorized file sharing on music album sales was negligible in 2002. *Amici* understand that an analysis of market harm is but one factor the Court may consider in the present case. However, petitioners claim that file sharing drastically harms the entertainment industries and suggest that rapid, drastic action – that could bar or inhibit adoption of entire distribution technologies – is needed to stem the losses. Based on *amici's* own work and the study of other available evidence, *amici* do not believe these claims are correct or bear up under scientific scrutiny.

Respectfully submitted,

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