

Introduction

Since the launch of Napster, the first widely adopted filesharing service in 1999, the sources of unauthorised music to download for free from the internet have proliferated. The advent of broadband has facilitated music filesharing on a wider scale. It is now easier than ever before to download music without paying for it and burn it to a CD or to transfer it to a portable digital music device.

Since the turn of the decade, the trade value of music sales in the UK has fallen by 25%. Despite the uptake of legitimate digital downloads the record industry continues to lose sales to free, illegal sites and services.

Studies do exist that claim to show that sales are not adversely affected by file-sharing. Perhaps the most well known is the 2004 study by **Oberholzer & Strumpf**, *The Effect of File-Sharing on Record Sales*, which stated that “downloads have an effect on sales which is statistically indistinguishable from zero”. In 2004 a report by **Tatsuo Tanaka** of Keio University of Japan, *Does File-sharing Reduce Music CD Sales* had a similar conclusion, “we found little evidence that file-sharing reduces music CD sales in Japan”. In 2009 a study by **The BI Norwegian School of Management** (*Consumer Culture in Times of Crisis*) found that file-sharers were more likely to have used paid download sites - a telephone survey of almost 2,000 individuals found that those respondents who have used free download sites have, on average used paid download sites 75 times compared to only seven times for people who haven't used free download sites.

However, there have been many studies (some of which have been commissioned by music industry organisations) which have demonstrated the link between lost sales and illegal downloading. Below is a summary of these studies with some of their key findings and, where possible, web links to the reports themselves. Overall, the preponderance of academic and market research strongly suggests a negative relationship between illegal P2P file-sharing and music sales.

2009 JupiterResearch (UK)

The Analysis of the European Online Music Market Development and Assessment of Future Opportunities

http://www.ifpi.org/content/library/Jupiter_Research_study_on_online_piracy.pdf

This IFPI-sponsored study comprised a consumer study of 5,000 face to face interviews with respondents from five European countries (UK, Germany, France, Spain and Italy) as well as a survey of executives from across the European digital music value chain.

The purpose of the report was to evaluate the development of the European online market for digital music and identify opportunities to accelerate the adoption of legitimate digital music consumption. Within the analysis, music piracy is an important component in the barriers to legitimate uptake. The report found that the effect of file-sharing was harmful to music sales, “...the majority of music sharers are “freeloaders” who show little willingness or ability to pay for music.”

Although Jupiter point out that declining music sales are attributable to a combination of factors, illegal downloading is clearly a key contributor, *“A clear associated trend between per capita music spend and music P-to-P penetration is present across most of the European markets surveyed. The markets with the highest incidence of music P-to-P are also those with weakest per capita music spending.”*

“The overall impact of file-sharing on music spending is negative.”

2009 TNO / SEO / IViR (Netherlands)

Ups & Downs – Economic and Cultural Effects of File Sharing on Music, Film and Games

http://www.ivir.nl/publicaties/vaneijk/Ups_And_Downs_authorized_translation.pdf

This study was commissioned by the Dutch Ministries of Education, Culture and Science, Economic Affairs and Justice. The study draws upon previously published information, with file-sharing behaviour being measured by a representative survey of 1,500 internet users in the Netherlands. Other sources included interviews with people working in and representing the three industries covered by the report.

The study establishes the link between the fall in sales and downloading, but claims this is offset by improved ‘consumer welfare’ (a concept previously explored by Rob & Waldfogel in 2006) – ie consumers gain a net benefit because they are able to acquire more music at a low or zero price.

“The study shows that the economic effects of file sharing on Dutch welfare will be largely positive in the short and long term. On the other hand, it is plausible that there will be a fall in receipts from the sales of sound carriers, DVDs and games. Insofar as file sharing does result in a reduction of sales (replacement), this is juxtaposed by a welfare transfer from the producer to the consumer. It is estimated that the increase in consumer welfare is in the order of € 200 million per year. On the other hand, the maximum loss of sales for producers and publishers of music recordings stands at € 100 million.”

2009 Forrester Research

Netherlands Recorded Music Revenues Losses Model

This study is very similar in approach to the 2007 JupiterResearch UK study below (Jupiter is now part of Forrester) with the same assumptions. It was commissioned by the Dutch record industry association NVPI. Forrester attributes that a third of lost recorded music sales in the Netherlands between 2001 and 2008 was accounted for by online music piracy and forecasts that losses to illegal music sharing will continue to grow annually up to 2013.

2007 Institute Center for Technology Freedom (USA)

***The True Cost of Sound Recording Piracy to the US Economy* by Stephen Siwek**

[http://www.ipi.org/IPI/IPIPublications.nsf/PublicationLookupFullTextPDF/51CC65A1D4779E408625733E00529174/\\$File/SoundRecordingPiracy.pdf?OpenElement](http://www.ipi.org/IPI/IPIPublications.nsf/PublicationLookupFullTextPDF/51CC65A1D4779E408625733E00529174/$File/SoundRecordingPiracy.pdf?OpenElement)

This study estimates the damage to the USA economy as a result of music piracy and follows the same methodology established in Siwek's previously published study *The True Cost of Motion Picture Piracy to the US Economy* (2006). It uses IFPI piracy data within the modelling and several consumer surveys. The study also evaluates the impact on jobs, earnings and lost tax revenues.

"Piracy of recorded music costs the US sound recording industries billions of dollars in lost revenue and profits. Imposing as they are however, these losses represent only a fraction of the impact of recorded music piracy on the US economy as a whole. Combining the latest data on worldwide piracy of recorded music with multipliers from a well established U.S. government model, this study concludes that recorded music piracy costs American workers significant losses in jobs and earnings, and governments substantial lost tax revenue."

2007 JupiterResearch (UK)

Music Industry Losses

This study was commissioned by the BPI to assess the degree of impact that online music piracy has had upon UK record music revenues. Jupiter built a model that captured current activity and forecasted future trends over a five year period.

In order to quantify current activity Jupiter fielded a consumer survey to 1,000 UK respondents, asking a number of questions that assessed a wide range of topics including, but not limited to, digital music activity (free and paid), peer-to-peer activity, trends in music buying and music piracy, and reasons for changes in music consumption.

Jupiter applied both 'top-down' and 'bottom-up' approaches to build the loss model. For the former Jupiter principally referred to absolute market sizes. For the latter proprietary consumer survey data was utilised.

In order to quantify the impact that online music piracy has upon actual music spending, Jupiter further segmented the network and non-network piracy audiences each by:

- Buyers: that would increase spend if they were not downloading music illegally
- Non-Buyers: that would start buying music if they were not downloading music illegally

Crucially, Jupiter did not assume either that all non-buyers would start buying if they were not downloading music illegally, nor that buyers would spend the same as other music buyers if they were not downloading music illegally. In order to assess the expected level for both factors Jupiter applied a scorecard methodology. This entailed applying a range of relevant factors to a scoring

system and applying the resultant score to a range of socio-economic variables which included demographics, income level, life stage, working status, digital music activity, average spend by age and average spend by income.

The report concluded that online music piracy cost the UK music industry £1.6bn between 2001 and 2012: in 2007, online music piracy resulted in £159.2m of foregone spend.

2006 Stan J. Liebowitz (University of Texas at Dallas) & Richard Watt (University of Canterbury)

How to Best Ensure Remuneration for Creators in the Market for Music? Copyright and its Alternatives

<http://www.utdallas.edu/~liebowit/surveys.pdf>

This extensive paper discusses the challenge file-sharing presents to copyright. It covers the economic theory of copyright as a remuneration and incentive for creativity and analyses the associated literature, especially with regard to the effects of copying music on the legitimate market. With regard to file-sharing, Liebowitz and Watt concluded, *“The papers that have examined the impact of file-sharing can be categorised by result and by methodology. By results the classification is quite simple. There is one study (Oberholzer and Strumpf, 2004) that claims to find a zero impact, although an outside reading of both versions of their paper could lead one to conclude that they actually find a positive relationship. All the other studies find some degree of negative relationship between file-sharing and sales of sound recordings.”*

2006 Rafael Rob & Joel Waldfogel (University of Pennsylvania USA)

Piracy on the High C's: Music Downloading, Sales Displacement and Social Welfare in a Sample of College Students

http://bpp.wharton.upenn.edu/waldfogel/je_piracy.pdf

Data was collected from a sample of US college students on their music purchasing and downloading. The survey questioned respondents on what they had purchased and downloaded and also how highly they value the music in dollar terms, *“...we show that one downloaded album reduces music purchases by roughly one-fifth of an album, and possibly by much more. Using this conservative estimate and information on the average number of albums purchased and downloaded, we infer that downloading reduced purchases by individuals in the sample by about 10 percent during 2003”.*

The study also looked at the impact of downloading on welfare; they found a consumer welfare benefit of \$70 per person, of which \$45 is social welfare benefit. Welfare economics is concerned with the level of prosperity and quality of living standards in an economy. It can be measured through a variety of factors such as GDP and other indicators which reflect welfare of the population.

2006 Stan J. Liebowitz (University of Texas at Dallas USA)

File-sharing Creative Destruction or Just Plain Destruction?

<http://som.utdallas.edu/centers/capri/documents/destruction.pdf>

This paper from Professor Liebowitz includes a history of file-sharing and evaluates its measurement by companies such as comScore, Nielsen Netratings, Big Champagne, PEW International and others. The report goes on to evaluate whether unauthorised downloading has a negative impact on copyright owners. Liebowitz concludes that file-sharing has no positive effect on purchasing; *“the evidence here supports the current findings from almost all econometric studies that have been undertaken to date, including those in this issue—file-sharing has brought significant harm to the recording industry”*.

Liebowitz also evaluates the economic theory of the impact of file sharing. He concludes, *“In sum, economic theory provides only a very thin set of reeds on which to support any expected impact of file-sharing on sales of sound recordings other than a negative one”*. When comparing file-sharing to other less sophisticated methods of copying music, he adds, *“File-sharing, therefore, would seem likely to exert a more negative impact on sales than did prior analog copying technologies”*.

The paper also evaluates the impact of other factors on declining album sales – competition from DVD, format replacement cycles, prices and so on, but file-sharing is cited as the key factor.

2006 Alejandro Zentner (Center for the Analysis of Property Rights & Innovation - USA)

Measuring the Effect of Music Downloads on Music Purchases

http://som.utdallas.edu/centers/capri/documents/effect_music_download.pdf

This US study uses data from a European consumer mail survey conducted by Forrester in October 2001. Survey data was collected from seven European countries including the UK, Germany and France. More than 15,000 responses were used within the analysis and each contained information on entertainment purchasing, ownership of electronic goods, online activity and type of internet connection.

The objective of the study was *“to estimate the effect of peer-to-peer usage on the probability of purchasing music”*. The results of the analysis *“suggest that peer-to-peer usage reduces the probability of buying music by 30%”*. Zentner also estimates that music sales without illegal downloads would have been around 7.8% higher in 2002.

2006 Norbert Michael (USA)

The Impact of Digital File-sharing on the Music Industry: An Empirical Analysis

<http://norbertmichel.com/files/EmpiricalPaperAug2006.pdf>

This study uses micro-level expenditure data from the US Consumer Expenditure Survey (CEX), which collects data in both diary and interview formats. The data used spans the years 1995 to February 2004. The relationship between computer ownership and household expenditure on music is examined (though the CEX does not directly record file-sharing activity). It was found that in the year file-sharing service Napster went online (1999), CD expenditure of computer owners increased by 1%, but expenditure by non-owners increased by 20%.

The study found that file-sharing had a negative impact on music sales, *“Our micro-level data test suggests that file-sharing may have reduced album sales (between 1999-2003) by as much as 13% for some music consumers. Furthermore we present evidence that this weakened relationship is concentrated among the heaviest music purchasers, and we find no evidence that file-sharing led to a widespread increase in music purchases”*

2006 ARIA Music Survey – Quantum Market Research (Australia)

Legal & Illegal Downloading Behaviour

This survey asked respondents a series of questions about P2P behaviour and music purchasing. Amongst the 25% who hadn't purchased music in the past year, 15% stated that the reason that they hadn't done so was due to downloading music via P2P or illegal websites. Furthermore, 57% of P2P users claimed they do not purchase the CD of a song once they have downloaded it via P2P.

2005 Rochelandet and Le Guel (France)

P2P Music Sharing Networks: Why Legal Fight Against Copiers May Be Inefficient

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=810124

This French study investigates the behaviour on P2P networks of more than 2,500 households, of which 74% stated that they had downloaded via P2P. The authors conclude, *“copying behaviour is negatively correlated with the willingness to pay for an original when a copy is available”*.

2004 Peitz & Waelbroeck (USA)

The Effect of Internet Piracy on Music Sales

http://www.serci.org/docs_1_2/waelbroeck.pdf

This study uses industry data from the IFPI World Report of 2003 which covers the years 1998 to 2002. Music download data was obtained from IPSOS-REID. The 16 countries used in the empirical study represent the largest markets for pre-recorded music (in value), accounting for more than 90% of global value.

Their model includes several variables that affect music sales such as GDP, broadband connectivity, digital media player ownership, proportion of people who have downloaded MP3 files as well as DVD and CD-R ownership. However, some data for the earlier years covered in the analysis were unavailable for some variables.

Their report concludes, *"...we find that music downloading could have caused a 20% reduction in music sales worldwide between 1998-2002. While this is only a crude estimate, we believe that it is a good reference value that other studies, especially microeconomic ones, could use to assess the exact substitution that has taken place between CDs and MP3s"*.

2004 David Blackburn – Harvard University (USA)

Online Piracy & Recorded Music Sales

<http://www.scribd.com/doc/319922/blackburn-fs>

Blackburn evaluates the impact of filesharing on different types of artists (according to their popularity). He finds that *"file-sharing reduces sales for well-known artists relative to unknown artists."* He goes on to say that the impact becomes increasingly negative as popularity rises. For relatively unknown artists he finds that there is a benefit from being introduced to more consumers, but as the majority of albums sales are by well-known artists the overall result is therefore negative.

Blackburn uses national sales information for 197 albums from Nielsen SoundScan with data on file-sharing activity from BigChampagne from a 60 week period between September 2002 and November 2003. He also uses the announcement of RIAA lawsuits against illegal file-sharers as a variable that impacts on downloads as well as airplay data, TV appearances by artists and Grammy award nominations. Artist popularity is determined by US chart positions for the previous 10 years.

2004 Seung-Hyun Hong – Stanford Institute for Economic Policy Research, Stanford University (USA)

The Effect of Napster on Recorded Music Sales: Evidence from the Consumer Expenditure Survey

<http://www.stanford.edu/group/siepr/cgi-bin/siepr/?q=system/files/shared/pubs/papers/pdf/03-18.pdf>

This study quantifies the changes in household expenditure on recorded music in the USA attributable to Napster. The study analyses data from the National Consumer Expenditure Survey and looks at consumer demand for other entertainment products. Three approaches are taken to evaluate the effect of Napster on the demand for CDs.

Under the first approach, Hong found that household expenditure on music fell by an average of \$2.46 per quarter *“as a result of the Internet and plausibly Napster.”* This accounts for 33% of the decline in spending on music in 2000. The other two approaches *“indirectly measure the effect of Napster in that they explicate that more than 80% of music sales decrease in 2000 might have resulted from factors aside of Napster”*.