

IFPI and Economists on File-Sharing and the Music Industry A Literature Review

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Introduction

"If 'piracy' means using the creative property of others without their permission – if 'if value, then right' is true – then the history of the content industry is a history of piracy. Every important sector of 'big media' today – film, records, radio, and cable TV – was born of a kind of piracy so defined. The consistent story is how last generation's pirates join this generation's country club – until now." (Lawrence Lessig, 2004: 53)

Media history is characterized by technological innovations that have disruptive effects, primarily on the incumbent culture industry actors that have based their business models on previous generation technology. Radio, audio recorders, photocopying machines, video recorders, audio and video cassette recorders, cable television, the Internet, the MP3 compression format – in every case the introduction of the new technology has met with resistance and calls for prohibition by incumbents. In every case industries eventually realized that rather than a threat these innovations were a source of new revenue streams. This requires adapting business models and often legislative support by either introducing compulsory licences, e.g. in the case of cable television, or legal licences, e.g. in the form of a private copying exception. For a large number of uses by a large number of individuals of a large diversity of works the conventional response of copyright law is collective management. This is true in the *droit d'auteur* countries, but even the USA chose a private copying exception subject to a levy in its Audio Home Recording Act of 1992.¹

The launch of Napster in June 1999 introduced yet another media technological innovation. Peer-to-peer (P2P) file-sharing² is based on a distributed network architecture in which each node is a server and a client at the same time and shares local processing, storage and bandwidth resources with other nodes across the Internet. For technologists, P2P protocols like BitTorrent are simply efficient means for distributing large volumes of data to large numbers of requesters. Free software projects regularly provide their programmes via torrents.³ Hollywood studios and broadcasters use them for distributing popular content from their websites.⁴ IPTV providers like Zattoo⁵ rely on P2P. Independent documentary filmmakers use it to deliver their commercial offerings,⁶ so do game companies.⁷ The EU is funding a consortium to develop the next generation P2P content delivery platform.⁸ Thus it is evident that P2P networks have a wide range of non-infringing commercial, scientific and free culture uses. At the same time, because current architectures are different from the centralised one of the original Napster, the use of the technology is entirely in the hands of its users, copyright infringements do occur, although the percentage of copyright infringements on P2P versus legitimate uses is unknown.⁹

1 <http://www.copyright.gov/title17/92chap10.html>

2 Timeline of file sharing: http://en.wikipedia.org/wiki/Timeline_of_file_sharing

3 E.g. the popular GNU/Linux distribution Ubuntu: <http://www.ubuntu.com/getubuntu/downloadmirrors#bt>

4 See BitTorrent, Inc. press release "BitTorrent Strikes Digital Download Deals with 20th Century Fox, G4, Kadokawa, Lionsgate, MTV Networks, Palm Pictures, Paramount and Starz Media," 29 November 2006, <http://www.bittorrent.com/pressreleases/2006/11/28/bittorrent-strikes-digital-download-deals-with-20th-century-fox-g4-kadokawa>

5 <http://zattoo.com/>

6 Online Film AG: <http://www.onlinefilm.org/>

7 Like Blizzard Entertainment that distributes World of Warcraft over BitTorrent.

8 <http://www.p2p-next.org/>

9 E.g. the Deep Packet Inspection provider Ipoque simply claims that "the overwhelming proportion of exchanged content violates copyrights," but also reminds the reader that "Not only copyright infringers use P2P but also scientists share their research data this way." (Ipoque 2009: 3)

P2P expectedly triggered the same strong reactions by culture industries as the earlier innovations. Like in the case of home taping, it was claimed that every download is a lost sale. The basis of commercial activity would be undermined. The incentive of exploiters to invest in new talents and products would be destroyed. As a consequence the incentive of authors and performing artists to create new works would be destroyed, causing great harm to cultural diversity. Companies would fail and hundreds of thousands of jobs would be lost, leading to a decrease of gross national product and tax revenues. And to top it off with the kill-all argument in post-9-11 times: since organized crime and terrorist groups are allegedly involved in counterfeiting and copyright infringement, consumers who purchase such goods are funding the attacks against themselves.¹⁰ Finally, first the music industry and eventually all culture industries that are based on unit sales of recorded copyright works would be annihilated.¹¹

The response by industry so far was civil and criminal law suits, first against the providers of P2P file-sharing services and software and then against individual file-sharers, application of technical protection measures, so called consumer education campaigns á la "Pirates are Criminals,"¹² efforts to strengthen the international framework for enforcement in multilateral¹³ and bilateral¹⁴ agreements and calls for stronger legislation. The latter is currently centred on the so called graduated response, popularly known as "three strikes and you're out": after two warnings ISPs are legally required to ban file-sharers from using the Internet for up to one year. This strategy of recruiting the ISPs who are allegedly profiting from file-sharing¹⁵ was first suggested in 2005 by the association of the four global major music recording corporations, the International Federation of Phonographic Industries (IFPI, see IFPI 2010: 7). It was transposed into law first in France,¹⁶ then in South Korea and Taiwan and established in a settlement by industry agreement in Ireland. Its introduction is currently being discussed in New Zealand and the UK, and as part of the highly controversial multi-lateral Anti-Counterfeiting Trade Agreement (ACTA).¹⁷

These measures have failed to reduce file-sharing, nor have they brought revenues to authors and performing artists, but they did lead to alienating many constituents from consumers via artists to public prosecutors. They are justified in the public debate by factual claims about the disruptions the given media innovation causes. If these claims are supported at all, then typically by references

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- 10 See e.g. RAND Corporation 2009 which according to GAO 2010 presents "anecdotal evidence" for the claimed link and is likely motivated not by reality but by funding opportunities: "Because criminal networks are involved, government law enforcement priorities may be affected since more resources are devoted to combating these networks." (GAO 2010: 12 f.) IFPI in its publication on music piracy and organised crime simply declares: "The evidence of organised crime involvement is incontrovertible." (IFPI w.y.: 3)
- 11 IFPI 2010 makes an effort to posit the music industry as the digital avantgarde paving the way for the movie, TV and text sectors, urging their support for the legislative measures the music industry is trying to get.
- 12 "Raubkopierer sind Verbrecher" is an ongoing campaign by the marketing company of the German movie industry: <http://www.hartabergerecht.de/> including videos implying that file-sharers will go to jail and suffer sexual abuse. A US American pendant implies that if you buy a DVD in the streets you support organized crime trafficking in humans, drugs and arms, and even terrorists. For an example see the anti-piracy clip by the UK Federation Against Copyright Theft: <http://www.youtube.com/watch?v=wssfl22Hhp4>.
- 13 E.g. the World Trade Organization's (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which came into force in 1995 and the currently negotiated Anti-Counterfeiting Trade Agreement (ACTA).
- 14 I.e. Free Trade Agreements (FTA) that establish protection beyond that required in TRIPS.
- 15 "A decade's worth of music file-sharing and swiping has made clear that the people it hurts are the creators... and the people this reverse Robin Hooding benefits are rich service providers, whose swollen profits perfectly mirror the lost receipts of the music business." Bono, singer-songwriter, in the New York Times, January 2010 (IFPI 2010: 7)
- 16 French government resources on the Création et Internet law: <http://www.culture.gouv.fr/culture/actualites/conferen/albanel/2008-06-18-Art-Creation-et-Internet.html>; for critical resources on the law see Quadrature du Net: <http://www.laquadrature.net/en/HADOPI>.
- 17 The public critique focussed first of all on the secrecy of the process. After growing civil society pressure, the first public draft of the ACTA text was released in April 2010 (Knowledge Ecology International, Consolidated ACTA text is released, without country positions, 21. April 2010, <http://keionline.org/node/831>).

to studies from market research companies. Others are based on *on-dits* vaguely referenced to government sources that have been repeated for so many years that they came to sound true, like the alleged 750,000 U.S. jobs lost to intellectual property infringements and the alleged US\$ 200 to US\$ 250 billion lost to the U.S. economy every year for the same reason. "And both, as far as an extended investigation by Ars Technica has been able to determine, are utterly bogus."¹⁸ Yet these figures continuously have been cited not only by business groups like the U.S. Chamber of Commerce and the International Anti-Counterfeiting Coalition, but also by government agencies like the U.S. Department of Commerce Secretary, the U.S. International Trade Commission, the FBI, the U.S. Department of Commerce, Customs and Border Patrol and the U.S. Patent and Trademark Office¹⁹ as well as by members of the U.S. Congress actively involved in copyright lawmaking.²⁰ Ars Technica's accusations were officially confirmed in April 2010 when the U.S. Government Accountability Office (GAO) issued a report on the "Efforts to Quantify the Economic Effects of Counterfeit and Pirated Goods."²¹ In it, GAO clarifies that "three commonly cited estimates of U.S. industry losses due to counterfeiting have been sourced to U.S. agencies, but cannot be substantiated or traced back to an underlying data source or methodology." Next to the loss of US\$ 200-250 billion sourced to the FBI and the loss of 750,000 jobs sourced to Customs and Border Protection the third unfounded rumour is a loss of US\$ 3 billion for the US automotive parts industry sourced to the Federal Trade Commission (GAO 2010: 9 f.).

Another strategy is to reduce the complex dynamics in a network of diverse actors to a simple cause-and-effect relation: The decline of the CD roughly coincides with the rise of Napster and Co., thus the culprit is file-sharing. Such handy reduction of complexity²² can only be achieved by disregarding almost all the relevant factors: macroeconomic changes and shifts in formats (e.g. from the single to the album and back again²³), shifts in media (e.g. from vinyl to audiocassette to CD to downloads – where the download market took off only ten years after the Internet turned into a

18 "Try to follow the thread of citations to their source, and you encounter a fractal tangle of recursive reference that resembles nothing so much as the children's game known, in less-PC times, as 'Chinese whispers,' and these days more often called 'Telephone.'" Ars Technica traced the 750,000 U.S. jobs figure, that was still used to support the 2008 PRO-IP bill, back to a 1986 statement by then-Commerce Secretary Malcom Baldrige, estimating the number of jobs lost to the counterfeiting of U.S. goods at the preposterous range of "anywhere from 130,000 to 750,000." A 1988 survey by the U.S. International Trade Commission of several hundred business selected for their likely reliance on IP for revenue yielded a number of only 5,374 U.S. job losses. The US\$200 to US\$250 billion range, often attributed to the FBI and the lobby group "International Anti-Counterfeiting Coalition", Ars Technica traced back to a 1993 issue of Forbes magazine stating without source that "counterfeit merchandise" is "a US\$200 billion enterprise worldwide." It was then prominently cited, with reference to that reputed business journal, in the 1995 congressional testimony urging passage of what became the Anticounterfeiting Consumer Protection Act of 1996, dropping the fact that the Forbes statement referred to the alleged global, not the US American volume and the fact that Forbes never claimed to have arrived at this estimate by original research but likely by calling an industry association and ask for a rough number. Ars Technica points out that US\$250 billion is more than the combined 2005 gross domestic revenues of the movie, music, software and video game industries. (Julian Sanchez, 750,000 lost jobs? The dodgy digits behind the war on piracy, Ars Technica, 8.10.2008, <http://arstechnica.com/tech-policy/news/2008/10/dodgy-digits-behind-the-war-on-piracy.ars>).

19 Ibid.

20 e.g. by U.S. Senator for Vermont Patrick Leahy: http://leahy.senate.gov/search/?q=750%2C000&x=0&y=0&access=p&as_dt=i&as_epq=&as_eq=&as_lq=&as_occt=any&as_oq=&as_q=&as_sitesearch=&client=leahy&sntsp=0&filter=0&getfields=title&lr=&num=15&numgm=3&oe=UTF8&output=xml&partialfields=&proxycustom=&proxyreload=0&proxystylesheet=default_frontend&requiredfields=&site=leahy&sitesearch=&sort=date%3AD%3AS%3Ad1&start=0&ud=1

21 Regular reports are required by the Prioritizing Resources and Organization for Intellectual Property Act of 2008 (PRO-IP Act).

22 For a more complex model of the media industry see Goel et al. 2010:6, figure 1.

23 "It is clear that you cannot earn the same revenue with the same number of single units than with long-play units sold. Therefore the drop in sales is due to the conversion of an album to a single market. File-sharing can be interpreted in this context not as a cause but as a symptom of the digital revolution in the music industry." (Tschmuck 2010).

mass-medium and only after the music industry abandoned DRM), in genres (market segmentation first by the majors, then the indie labels²⁴), in personal monetary and time media budget priorities (e.g. towards mobile phones and computer games) and shifts in the distribution system (e.g. the death of the specialised trade and the concentration in large retail chains²⁵). A mono-causal explanation is not likely to capture these complex dynamics in tumultuous times. These and other simplistic assumptions, like one download is one lost sale,²⁶ have by now been thoroughly refuted by research.

But even if one is ready to accept that there is some harm by copyright infringements, one would then, by the industry's own logic, expect it to cause a measurable decrease of artists' incentive to create and of exploiters' incentive to invest in new works.²⁷ The opposite is the case: "The publication of new books rose by 66% over the 2002-2007 period. Since 2000, the annual release of new music albums has more than doubled, and worldwide feature film production is up by more than 30% since 2003." (Oberholzer-Gee/Strumpf 2009: 1 f., 23 f.)

On the contrary, it was during the music industry's boom years of the 1980s that the majors radically reduced their artists' roster and focussed on a few superstars like Michael Jackson, Prince, Madonna, Elton John, George Michael etc. as well as on hit compilations. As economist and music industry specialist Peter Tschmuck (2010) has shown, this was precisely in response to the cultural diversity brought about by industry's own strategy of market segmentation in the 1960s. The majors had discovered that by addressing diversified target groups with their own genre marketing they could increase their profit. This was good for cultural diversity and differentiated musical tastes, but turned against its inventors in the 1970s when indie labels introduced a range of innovative music genres, shrinking the market segments and thereby the profit margins further. The reduction of diversity to a handful of global superstars was the reaction to the resulting revenue crisis of the late 1970s. The coinciding introduction of the CD brought a new revenue boom – but no re-introduction of cultural diversity by the majors.

It is also important to note that claims by IFPI about the state of the music industry need to be qualified. IFPI speaks for the four market-dominating multinational corporations in the recording industry. The music industry as a whole includes a range of other economically relevant sectors, like self-employed composers and musicians, music publishers, the concert and theatre business, the production and retail of musical instruments and music schools. Looking at revenues from recorded music sales, concerts and collectively managed royalties, a recent Swedish study showed that from 2000 to 2008, i.e. the period in which file-sharing proliferated, the music industry earnings remained stable. The decrease in recorded music was offset by increased revenues from live music and collective management (Johansson/Larsson 2009: 6). The dynamics in other countries are comparable to those in Sweden. Thus claims by IFPI refer only to the development of the major

24 Until the mid-1960s there were only three or four market segments. The majors then introduced new genre-specific segments, like country & western, folk and various sub-genres of rock. The indies then added punk, disco, hip-hop and various flavours of electronic music (see Tschmuck 2010).

25 Such as Wal-Mart and Best Buy in the U.S., Saturn and Mediamarkt in Europe or Lojas Americanas (acquiring Blockbuster in 2007) in Brasil.

26 GAO 2010 identifies only one scenario in which this seems plausible: "if the consumer purchased a counterfeit when intending to purchase a genuine product. In such cases, the industry may lose sales in direct proportion to the number of counterfeit products that the deceived consumers purchased." (11, 17) I.e., in cases where a consumer buys footwear, handbags, electronics or other physical counterfeits in a high-street store. For copyright products one can assume that in most cases consumers knowingly acquire infringing works, many of which they would not have purchased otherwise.

27 "Illegal file-sharing has also had a very significant, and sometimes disastrous, impact on investment in artists and local repertoire. With their revenues eroded by piracy, music companies have far less to plough back into local artist development." (IFPI 2010: 19) "To continue to invest in new artists, we have to tackle mass piracy." (3)

record companies and their popular music repertoire, while the developments are markedly different for the live sector, for the independent labels, for classical and other non-pop genres and for other sectors of the music industry.

In addition, recorded music sale is shifting rapidly from CDs to digital distribution. The Internet started to become a mass medium and a market place in 1994. It took ten years before commercial music downloads started, and it was not a music industry actor but a computer maker who started it. Apple's iTunes Music Store was launched in 2003, i.e. at a time when P2P use was already widespread, and it is still dominating the market, recently announcing its ten billionth song download.²⁸ The main reason for this delay is that the major labels had focussed on the dead-end-street of DRM. Only in 2007 after it had become evident that consumers are not willing to accept these digital restrictions did all the major labels cease this strategy, finally opening up the way to the growth of digital distribution we are observing today.

According to IFPI 2010, album downloads globally rose an estimated 20% in 2009, with Internet and mobile downloads and streams now accounting for more than a quarter (27%) of all recorded music industry revenues worldwide, a market worth an estimated US\$ 4.2 billion, up from only US\$ 20 million in 2003. In the US, the world's largest music market, online and mobile revenues now account for around 40 per cent of music sales (IFPI 2010: 4, 10). This growth occurred in spite of the continuing widespread use of file-sharing networks. One can conclude that even if file-sharing would be legalised,²⁹ commercial download services will remain able to compete with P2P by ensuring quality, speed and freedom from malware, because P2P being open networks will continue to suffer from these three issues. What major labels lack in cultural diversity they make up for by an astounding number of formats. "For example, Beyoncé's "I Am... Sasha Fierce" album is available in more than 260 different products in the US including music videos, mastertones, ringback tones and audio tracks (IFPI 2010: 4).

Thus, we can sum up: Culture since Gutenberg is characterized by accelerating media-technological innovation. The multi-national actors in the culture industry systemically resist change, regularly misjudging its dynamics. At the same time, in the actor network consisting of technology, protocols, popular media practices, markets, politics and laws, they are one of the most powerful. Their money buys the technology, protocols, politics and laws that allow them to control popular media practices and markets. It also allows them to buy the studies that prove their claims. Many of these claims are contested at best, if not outright fabricated with the intent to manipulate public opinion and politics.

We will here take a closer look at some of the core claims, on how these are transposed into public policy (the U.S. Special 301 process), and on how they measure up to the current state of knowledge produced by independent academic research.

The IFPI Claims

"Music is spiritual; the music business is not." (Van Morrison)

28 Apple press release, 25. February 2010, <http://www.apple.com/pr/library/2010/02/25itunes.html>

29 See Grassmuck 2010.

The annual IFPI report is one of the key documents for informing current and near-future industry strategies and desired public policy.³⁰ The 2010 report repeats the claim of a causal link between file-sharing and the drop in music sales and backs it up by reference to academic studies. The core claims are:

1. "The growth of illegal file-sharing has been a major factor in the decline in legitimate music sales over the last decade, with global industry revenues down around 30 per cent from 2004 to 2009." (18)
2. This results in harm to cultural diversity: "Illegal file-sharing has also had a very significant, and sometimes disastrous, impact on investment in artists and local repertoire. With their revenues eroded by piracy, music companies have far less to plough back into local artist development." (19)

The IFPI report speaks on the global state of the major label recorded music market. But it also singles out some countries, including Spain, France, Italy and Brazil. About Brazil it says:

"In Brazil, local full priced artist album releases by the five biggest music companies slumped 80 per cent between 2004 and 2008." (6)

"In Brazil, music sales fell by more than 40 per cent between 2005 and 2009, with a disastrous impact on investment in local repertoire. In 2008 there were only 67 full priced local artist album releases by the five biggest music companies in Brazil – just one tenth of the number (625) a decade earlier. This has been particularly damaging in a market where 70 per cent of music consumed is domestic repertoire." (19)

"Brazil is the biggest digital market in the region and saw the successful development of services including Nokia Comes With Music and Terra Sonora in 2009." (11)

Music certainly is an important market for Brazil.³¹ The Brazilian chapter of IPFI is the Associação Brasileira de Produtores de Disco (ABPD).³² The five biggest music companies mentioned are the global majors (Universal, Sony, Warner and EMI) plus the Globo company Som Livre. Again, the astounding number of a mere 67 albums released in a whole year by the joint powers of the global and national oligopolies is explained by a drop in market which is allegedly caused by a high infringement rate. It implies a causal chain where the result – 80 percent less albums released – is pre-determined by objective factors. However, it is entirely up to the decision of these corporations how many albums they release. While it is not evident why a 40% drop in sales would cause an 80% reduction in album releases, they might just as likely counter-cyclically increase investment in

30 Another set of key documents are the annual country reports by the International Intellectual Property Alliance (IIPA), in spite of its official sounding name, also an industry association, but likewise directly impacting US policy, here in its Special 301 process (http://www.iipa.com/2010_SPEC301_TOC.htm; see sections 3 and 4 of this report). A number of other organisations are similarly working to influence policy making, including the Global Intellectual Property Center (GIPC), established in 2007 as an affiliate of the U.S. Chamber of Commerce (<http://www.theglobalipcenter.com>) and the International AntiCounterfeiting Coalition (<http://www.iacc.org>).

31 Minister of Culture Juca Ferreira at the Feira Música Brasil in Recife in December 2009: "A indústria da música precisa evoluir, porque ela tem potencial. Hoje representa 5% do PIB e 6% do emprego da mão de obra formal". (Ferreira anuncia criação do Fundo Setorial de Música, O Estado, 14 de dezembro de 2009, <http://www.estadao.com.br/noticias/arteeazer,ferreira-anuncia-criacao-do-fundo-setorial-de-musica,481648,0.htm>)

32 <http://www.abpd.org.br/>. ABPD published the only study on the music market in Brazil. The figures on physical products sold by the five major labels show an inconclusive dynamic. While there were years of an annual decline (by 23,40% in 2003 and 28,86% in 2006) there were also years when record sales rose (by 17,85% in 2004) or remained the same (in 2002 and 2008) (Tabela 2.9 in Relatório Música). In 2008 digital distribution made up 12% of all recorded music sales in Brazil (Ibid. p. 36.).

new artists in the expectation of growing the market in the near future. Instead they apply the same strategy the industry started globally during the 1980s: reducing repertoire and focussing on a few superstars. One could also speculate that the four global majors prefer to sell international repertoire in the Brazilian market.³³

Whatever the rationale, the strategy of reduced diversity seems to pay off: "Sim, estamos investindo menos, mas tivemos lucros nos dois últimos anos," said Alexandre Schiavo, presidente de Sony Music Brasil, que lançou apenas 13 títulos novos brasileiros no ano 2009.³⁴ An alleged lack of revenues due to "piracy" keeping majors from "ploughing back" into local artist development is clearly not the issue here, but rather a short-term strategy of investing less and maximizing profits from a few risk-free sure-sellers.

Indeed, recent signals from ABPD are much more optimistic than the picture IFPI conveys. In 2008, year-on-year major label revenues rose by 6.5%, CDs sales by 4.9% and the digital Internet and mobile market by a staggering 79.1%.³⁵ In January 2010, at the same time when the IFPI released its report on the "disastrous impact" of file-sharing on the recording industry in Brazil, the CEOs of the companies that make up the Brazilian chapter of IFPI signalled optimism: "the worst is over."³⁶ The strategies leading to rising revenues mentioned by these managers include price reductions and high-price "premium" packages, expansion of the concert business and 360-degree contracts, and the exploration of new music segments.

Like in most of its 2010 report, IFPI leaves out the independent labels, that according to their own global trade association MERLIN represent 80% of album releases and 30% of sales in the global market.³⁷ The Brazilian chapter of MERLIN is the Associação Brasileira de Música Independente (ABMI),³⁸ which has 112 members out of the estimated 200 small to medium sized record labels in Brazil. ABMI estimates that in 2009 indie labels released 800 albums in the country. "A Biscoito Fino, sozinha, por exemplo, no ano passado, botou 98 títulos no mercado, mais que a soma das quatro multinacionais, EMI, Sony, Universal e Warner, lançaram no mesmo período. Em bom português, as grandes botaram o pé no freio."³⁹

33 "A proporção entre produtos nacionais e estrangeiros deve voltar aos níveis do passado, com predominância do catálogo internacional. Discos de artistas como Lady Gaga, Rihanna, U2 chegam ao Brasil como sucessos, já têm suas fatias do mercado garantidas," said presidente da Universal Music, José Antônio Éboli. Wagner Vianna, diretor artístico da Warner Music, confirma que é o catálogo internacional predomina. (Antônio Carlos Miguel, Indústria fonográfica em crise. Com o pé no freio, gravadoras procuram novos modelos para o negócio da música, Globo 30.01.2010, <http://oglobo.globo.com/cultura/mat/2010/01/29/com-pe-no-freio-gravadoras-procuram-novos-modelos-para-negocio-da-musica-915734730.asp>)

34 Antônio Carlos Miguel, Indústria fonográfica em crise. Com o pé no freio, gravadoras procuram novos modelos para o negócio da música, Globo 30.01.2010, <http://oglobo.globo.com/cultura/mat/2010/01/29/com-pe-no-freio-gravadoras-procuram-novos-modelos-para-negocio-da-musica-915734730.asp>

35 "Otimismo não falta à Associação Brasileira de Produtores de Discos (ABPD)." (Ailton Magioli, Adeus ao pessimismo, Estado de Minas, 10.11.2009, http://www.abmi.com.br/website/noticia_detalhe.asp?id_secao=13&id=651.)

36 "Segundo os executivos do meio ouvidos pelo GLOBO, o pior passou, e o momento é de encontrar novos modelos para a música, que não parou. Marcelo Castello Branco, presidente da EMI (também responsável pela companhia na América do Sul e Central), garante que a fase negativa é passado." (Antônio Carlos Miguel, Indústria fonográfica em crise. Com o pé no freio, gravadoras procuram novos modelos para o negócio da música, Globo 30.01.2010, <http://oglobo.globo.com/cultura/mat/2010/01/29/com-pe-no-freio-gravadoras-procuram-novos-modelos-para-negocio-da-musica-915734730.asp>)

37 http://www.abmi.com.br/website/abmi.asp?id_secao=3&id=69

38 <http://www.abmi.com.br/>

39 O diretor executivo da ABMI, Jose Celso Guida, in: Antônio Carlos Miguel, Indústria fonográfica em crise. Com o pé no freio, gravadoras procuram novos modelos para o negócio da música, Globo 30.01.2010, <http://oglobo.globo.com/cultura/mat/2010/01/29/com-pe-no-freio-gravadoras-procuram-novos-modelos-para-negocio-da-musica-915734730.asp>

The president of the Brazilian major Som Livre, Leonardo Ganem, confirms that the reason for the major labels' reduction of repertoire is a short-term oriented business decision not the lack of attractive music: "O número de lançamentos caiu tremendamente no Brasil. Simplesmente não há fôlego para apostas e erros. Por outro lado, nunca se ouviu tanta música no Brasil. Só temos de explorar novas maneiras de se pagar a conta."⁴⁰

Indie labels are the ones who develop this cultural diversity and the new ways for paying the bill. And they are less affected by the CD sales slump, says Roberto Carvalho, presidente da ABMI and director of the Carioca indie-label Rob Digital. Carvalho sees problems not from file-sharing, but rather from the concentration in the retail sector which escalates competition for shelf space and the Zona Franca de Manaus which created an oligopoly of CD factories controlling the distribution and impeding diversity. Like his colleagues from ABPD he urges politics to introduce a tax exemption for the music industry like the one already in place for books.⁴¹

While the majors wrap their up- and coming superstars into 360-degree contracts, some of their established superstars go the independent way. Like Gilberto Gil who has set up his own label and only maintains a distribution contract with his former label Warner. The former Minister of Culture and promoter of free software and Creative Commons is showing the way for the future of music, as an art and a source of livelihood: self- or indie-label publishing and reduction of the majors to what they seem best at: global marketing and distribution of a few superstars on physical media. Sony Music Brazil president Alexandre Schiavo confirms that the digital revolution causes the recording industry to lose one of its central functions, the actual recording: "Cada vez mais, artistas chegam com discos gravados; gente como Roberto Carlos, Jota Quest e Skank, por exemplo, têm seus estúdios."⁴² In digital distribution the majors have already lost their function to a computer maker who opened up the Internet and to a mobile phone maker who opened up the mobile market.

While the IFPI's claims of damages by file-sharing to the well-being of the Brazilian major labels and to musical diversity thus need to be qualified, a third obvious inconsistency is that, given such high and damaging infringement rates, Brazil would grow into the biggest digital market in Latin-America and the biggest market globally for Nokia's Comes With Music.⁴³

What is most important for our current research is that the IFPI report bases its core claim that file-sharing is the single most important factor in the slump in demand for its products not only on industry's own unverifiable numbers and on commissioned studies by market research companies,⁴⁴ but also by reference to academic studies:

"All but a few of the independent surveys confirm that the net impact of illegal file-sharing is to reduce spending on legitimate music. Most academic studies exploring the dramatic fall in sales of recorded music conclude that the damage caused by illegal file-sharing is a major factor in the decline." (18)

40 Ailton Magioli, Adeus ao pessimismo, Estado de Minas, 10.11.2009, http://www.abmi.com.br/website/noticia_detalhe.asp?id_secao=13&id=651

41 Ailton Magioli, Adeus ao pessimismo, Estado de Minas, 10.11.2009, http://www.abmi.com.br/website/noticia_detalhe.asp?id_secao=13&id=651

42 Antônio Carlos Miguel, Indústria fonográfica em crise. Com o pé no freio, gravadoras procuram novos modelos para o negócio da música, Globo 30.01.2010, <http://oglobo.globo.com/cultura/mat/2010/01/29/com-pe-no-freio-gravadoras-procuram-novos-modelos-para-negocio-da-musica-915734730.asp>.

43 IFPI 2010: 17.

44 IFPI 2010 cites Jupiter Research, GfK, Harris Interactive, Entertainment Media Research and others.

"A variety of third-party research conclusively indicates that the net effect of illegal file-sharing is reduced purchasing of music. This is despite the obvious fact, also borne out in research, that some file-sharers are often also buyers of music." (5)

IFPI specifically mentions Norbert Michael [sic!] (The Impact of Digital File-Sharing on the Music Industry: An Empirical Analysis, 2006), Rob & Waldfogel (Piracy on the High C's, 2006) and Alejandro Zenter [sic!] (Measuring the Effect of File Sharing on Music Purchases, 2003 [sic!]). Their most important academic source is Stan Liebowitz, Professor of Economics at the University of Texas at Dallas and Director of its Center for the Economic Analysis of Property Rights and Innovation. The IFPI report quotes the following passage from his paper "File-Sharing: Creative Destruction or Just Plain Destruction?" (2006):

"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 but it has been frequently discredited. All the other studies find some degree of negative relationship between file-sharing and sales of sound recordings."

IFPI is an industry lobbying organisation. Its task is not to discover the truth in a scientifically sound way and inform the public about it, but to create an atmosphere of alarm and urgency that makes politicians pass the laws they desire, i.e. currently Three Strikes legislation across the planet. Their claims concerning the situation in Brazil do not hold up against a brief look at anecdotal evidence in the press. Given this first impression and the bogus claims IFPI has been circulating repeatedly, their statements and their sources of information need to be subjected to closer scrutiny.

Is it true that all independent academic studies except for one prove that illegal file-sharing is the cause of the decline of music sales? What role does the "obvious fact" play that "some" file-sharers "often" also buy music? Where do the two most visible academic contenders – Liebowitz and Oberholzer-Gee/Strumpf whose most publicized study he claims to have frequently discredited – stand in the state of the art in economics research? Given the current knowledge as reflected in these diverging studies, is it responsible to make any statement about the impact of file-sharing on the different culture industries and on the economy as a whole at all? And in consequence: Is it responsible to base public policy decisions concerning our digital knowledge environment on claims founded in such contested academic evidence?

The studies

"Central to any discussion of the annihilation hypothesis should be empirical examinations of the industry." (Liebowitz 2003: 2)

Ten years after the start of P2P file-sharing, there is a significant body of economics research, ranging from studies showing, unsurprisingly, that capital (as reflected in stock price responses) values enforcement and legislative actions as positive for the media industries (Goel et al. 2010) to those showing the positive social welfare balance of file-sharing (Huygen et al. 2009).

Starting from the evidence presented in the first law suits over file-sharing⁴⁵ there have been two opposite hypotheses on its effect: Conventional wisdom makes one expect that unauthorized

45 RIAA v. Napster, 1999, and A&M Records, Inc. v. Napster, Inc., 2000.

copying and distribution harms sales. The counter-hypothesis states that P2P file-sharing through network⁴⁶ and discovery effects⁴⁷ positively impacts culture industries. A third possibility is that sharing is a largely separate cultural practice from buying and thus has no significant effect on sales at all. Most studies find a complex mix of all three dynamics: A significant number of sales were substituted by downloads, a significant number of downloads would never have been bought and a significant number were bought because of artists discovered through file-sharing. Thus all studies but one attempt to determine the net effect of these dynamics. The lone exception is Liebowitz (2008) who claims that file-sharing has not only caused the entire decline in record sales but also the failure of an extrapolated growth that should have occurred without it.

A first glance at the more than six dozen academic studies in our sample shows a great diversity of scopes, data, methods and findings. There is no consensus, only one conclusion that all agree on: more empirical examination is needed.

Most studies focus on one media genre because it is evident that the usage practices, markets and demand structures vary greatly between software, games, books, music and movies. There are no academic studies on the effects of unauthorized file-sharing of books, and systematic monitoring and evaluation by the publishing industry is only just beginning. In an early thought-provoking essay, the founder of book publisher O'Reilly Media, Tim O'Reilly, summarised his ideas in a number of key points: 1. "Obscurity is a far greater threat to authors and creative artists than piracy." 2. "Piracy is a kind of progressive taxation, which may shave a few percentage points off the sales of well-known artists (and I say 'may' because even that point is not proven), in exchange for massive benefits to the far greater number for whom exposure may lead to increased revenues." 3. "File sharing networks don't threaten book, music, or film publishing. They threaten existing publishers." (O'Reilly 2002) These assumptions have been proven and refined by more systematic data collection and research, finding that there is only a low volume of P2P sharing of books⁴⁸ and its impact on sales seems to be positive: "We found that free distribution, on average, coincided with sales growth of 19.1 percent in the promotion period and 6.5 percent across the combined promotional period and the following four weeks." (O'Leary 2009: 5)

There are only a few studies on the effects of street sales of infringing CDs and DVDs.⁴⁹ There are no academic studies on the situation in Brazil⁵⁰ and very few indeed on the situation in countries outside North America, Western Europe and Japan.⁵¹ There are a number of studies on the effect of infringing copies on computer software and a few on movies and TV programmes, but since neither of these are object of the present report, we will exclude them here. Therefore this review will focus

46 Network effects imply that the value of a good and therefore the willingness to pay for it rises with the installed base of users. This has been shown particularly for computer software but also music and movies profit from popularity, reputation and word-of-mouth effects that are enhanced by file-sharing.

47 Also called exposure effect (coined by Liebowitz in 1982), penetration effect (Blackburn 2004) or sampling effect: Experience goods suffer from consumer's high costs of finding the products they might enjoy to consume. Sampling unknown works on file-sharing networks decreases these discovery costs, making it more likely that consumers pay for products and performances of artists they discovered to like, but also less likely to buy from artists they like less.

48 O'Leary 2009: 4; see also Magellan Media 2010.

49 Dejean 2009: 329 ff. discusses studies on hard goods infringements in software, pointing out that most are based on statistics provided by the Business Software Alliance (BSA) which have been shown to be biased.

50 Exceptions are the section on Mercado Informal in the present report and the upcoming US Social Science Research Council study "Toward Detente in Media Piracy," a multi-country comparative study with research teams in seven countries including Brazil (<http://www.ssrc.org/programs/intellectual-property-markets-and-cultural-flows>. Project lead Joe Karaganis gave a first presentation of the findings at Harvard Law School in February 2010: <http://blogs.law.harvard.edu/mediaberkman/2010/02/03/joe-karaganis-on-media-piracy-in-emerging-economies>.)

51 E.g. Rizk (2010) on the music industry in Egypt, Balázs/Zoltán (2009) on P2P and cinematic movie distribution in Hungary and Fink/Correa (2009) on developing countries in general.

on the literature about the music sector and how it is affected by P2P file-sharing, which also constitutes the oldest and largest body of research.

For selecting the papers for this review, we have chosen the conventional indicator for academic relevance, the number of citations (based on ISI and Scopus) of papers published in peer-reviewed journals. We add to it the papers mentioned by IFPI (2010) and a few others that were not published in peer-reviewed journals but were nevertheless influential in the debate.

Similar reviews of the research literature are found in Png (2006), Oberholzer-Gee/Strumpf (2009), Tschmuck (2009), Huygen et al. (2009) and Dejean (2009). The most recent and most official review of the state of knowledge comes from the US Government Accounting Office (GAO). In its report "Intellectual Property: Observations on Efforts to Quantify the Economic Effects of Counterfeit and Pirated Goods," GAO acknowledges that no one knows what the impact of "piracy" on the economy is. They interviewed representatives from U.S. government agencies, industry associations, nongovernmental organizations, academic institutions and a multilateral organization (OECD) and conducted a literature search on studies published since 1999. The result: "We determined that the U.S. government did not systematically collect data and perform analysis on the impacts of counterfeiting and piracy on the U.S. economy and, based on our review of literature and interviews with experts, we concluded that it was not feasible to develop our own estimates or attempt to quantify the economic impact of counterfeiting and piracy on the U.S. economy." (GAO 2010: 2)

In more detail, the GAO writes: "There is no government agency that systematically collects or tracks data on the extent of digital copyright piracy." (8) Even seemingly hard data like the numbers of seizures by US Customs and Border Protection (CBP) are called into question: "It is difficult to determine whether CBP's annual seizure data ... reflect the extent and types of counterfeits entering the United States in any given year, the counterfeit products that were detected, or the level of federal border enforcement effort expended." (16, 19 f.) "There is little information on the extent and sources for domestically produced counterfeits." (8) "There is little information available on potential positive effects," (9) which would need to be weighted against a negative impact in order to determine the net effect. Another source of uncertainty are the assumptions about the substitution rate⁵² and the value of counterfeit goods⁵³ that need to be made in order to calculate a possible economic loss. "Employment effects are unclear, because employment may decline in certain industries or rise in other industries as workers are hired to produce counterfeits. Another expert told us that effects of piracy within the United States are mainly redistributions within the economy for other purposes and that they should not be considered as a loss to the overall economy. He stated that 'the money does not just vanish; it is used for other purposes.' Other experts we spoke with focused more on the difficulties of aggregating the wide variety of effects on industries into a single assessment." (28)

The GAO refers repeatedly to the 2008 OECD report "The Economic Impact of Counterfeiting and Piracy," the authors of which also state that one of the key problems is that data have not been systematically collected or evaluated and, in many cases, assessments "rely excessively on fragmentary and anecdotal information; where data are lacking, unsubstantiated opinions are often treated as facts." (16) The GAO calls the whole exercise into question: "One expert characterized the attempt to quantify the overall economic impact of counterfeiting as 'fruitless,' while another

52 In all but one narrowly defined and conditioned case, "the likelihood that the consumer would have purchased the genuine product at full price is not clear." (17)

53 GAO gives an example of CBP announcing a seizure of 252,968 DVDs, the value of which, based on the manufacturer's suggested retail price, was estimated to be more than US\$ 7.1 million while the domestic value was estimated at only US\$ 204,904 (17).

stated that any estimate is highly suspect since this is covert trade and the numbers are all 'guesstimates.'" (27)

Data and methodology

Economists need numbers. Any attempt to show file-sharing as the possible cause of a decline of the culture industries has to first establish that there is actually such a decline. Research thus has to start from data on unit sales, prices and revenues of legal culture industry products which are only available from industry associations like IFPI, MPAA and BSA. As interested parties these organisations report data in line with their current agenda.

Liebowitz, who the IFPI calls in for support, in his 2003 analysis examines the sales of albums as reported by the Recording Industry Association of America (RIAA). But he also questions the legitimacy of these numbers compiled by PricewaterhouseCoopers, arguing that "naturally, the RIAA tend to use these numbers in a way that is most consistent with the picture they wish to portray about the conditions of the industry. At the present time the condition they wish to portray is one where the industry is reeling from the impact of MP3 downloads." (Liebowitz 2003: 4) He points out that e.g. for 2001, RIAA chose total units (vinyl, music cassette and CDs, singles and albums) to trumpet a ten percent drop in sales, whereas CD revenues fell by only two percent while vinyl records, music cassettes and singles had been falling continuously for years, being replaced by CDs, and "clearly, most of [the decline in singles] has nothing to do with MP3 downloads." Even the same data source can lead to widely diverging estimates about the fundamental variables that researchers attempt to explain.⁵⁴ In somewhat of an understatement, Liebowitz concludes that "somewhat greater concern must be in evidence when there is so much depending on these numbers." (2003: 5)

Also for "piracy" rates researchers and government agencies often work with data provided by the same industry associations.⁵⁵ The GAO writes: "Commerce and FBI officials told us they rely on industry statistics on counterfeit and pirated goods and do not conduct any original data gathering to assess the economic impact of counterfeit and pirated goods on the U.S. economy or domestic industries. However, according to experts and government officials, industry associations do not always disclose their proprietary data sources and methods, making it difficult to verify their estimates. Industries ... may be reluctant to discuss instances of counterfeiting because consumers might lose confidence." (GAO 2010: 16)

In turn, looking at the work based on these numbers might make the reader lose confidence. Kranenburg/Hogenbirk (2005) is an example. They attempt to examine the variations in "piracy" rates and revenue losses across 44 countries for U.S. copyright-related products in four industries (business software applications, recording and musical compositions, motion pictures and entertainment software). They focus on the United States "because of its size in copyright-related products and the availability of data." These data are those provided by the International Intellectual Property Alliance (IIPA) in its Special 301 country reports. They acknowledge that "these data are probably biased in favor of the industries," but they are "the most commonly accepted piracy indicators" (111) and "no other data are available." (127) They match these data with four groups of country-specific variables – economic development and stability, legal issues, trade relations and penetration of related products – taken from the World Bank.

⁵⁴ Both giving RIAA as their source, Goel et al. (2010: 1) state that U.S. music industry shipments dropped from a high of US\$ 14.6 billion in 1999 to US\$ 8.5 billion in 2008, i.e. a minus of 41,78%, while Dejean (2009: 326) writes that the U.S. music industry has seen a decline of 28% between 1999 and 2007.

⁵⁵ Png (2008) has shown major statistical biases in the "piracy" rates reported by BSA.

Two of their findings seem interesting in our context. One is their result of testing the hypothesis that "countries that are characterized by a high density of computers exhibit higher piracy rates and revenue losses for foreign copyright-based companies than countries that have a low computer density." (115) They do not consider Internet penetration, but for computers they find that the density of PCs in a country has no influence on "piracy" rates (121) and on revenue losses (123) in any of the four industries. They try to explain this "by the fact that computers are still a relatively new phenomenon. They are not nearly as widespread as televisions, and not every household currently has access to a computer, the Internet, or the necessary software to engage in illegal activities, in particular for the countries listed on the 301 report." Thus, they first introduce PC density as an explanatory variable and then, not satisfied with their findings, discard them by arguing that PCs are not widespread enough to have an effect.

The second interesting point is their contradictory result on the hypothesis that "the existence of an extensive copyright protection system in a country reduces the piracy rates and the revenue losses suffered by foreign copyright-based companies." While a strong legal system does seem to result in lower "piracy" rates (121), it does not reduce revenue losses of U.S. copyright companies (123). This counter-intuitive result calls for an explanation. Are the revenues gained from less infringements entirely consumed by industry's "anti-piracy" campaigns? Does the reduction of infringement lead to increased consumption of local rather than US copyright products? Kranenburg/Hogenbirk do not even raise such questions but instead comment: "Intellectual property rights protection is a tremendously fluid concept strongly affected by cultural values. It is very much rooted in the Western cultural values of liberalism and individual rights. A majority of countries in our sample are middle-income countries that do not value liberalism and individual rights as high as Western countries do. In general, even when they are export-oriented, they still have problems accepting the legitimacy of the monopoly claims over intellectual property as asserted by companies." (126) One might conclude that the monopoly of "intellectual property" is bracketed by a majority of countries which are "not quite there yet" on the one side and on the other by a growing number of Western individual rights-oriented intellectuals and activists like the Pirate Party who challenge this ever-expanding monopoly and free-license their own works.⁵⁶ Alternatively, one might avoid drawing any conclusions at all from conceptionally weak research based on biased data.

Empirical research on copyright infringements in general and on P2P file-sharing in particular is faced with a number of problems. The illicit nature of these activities makes estimating their extent, let alone their economic impact extremely difficult. P2P networks with millions of individual participants pose their own challenges.

Much of the inner-disciplinary debate among economists focusses on the applicability of certain methods and the validity of chosen instruments. GAO assesses that many standard econometric methods like economic multipliers, general or partial equilibrium models or a "rule of thumb" are either not suited to the issue or not applicable because of lack of data (GAO 2010: 23 ff.). Trying to establish a causality between two variables (downloads and sales) gives rise to what is known in economics as the endogeneity problem: Both might be dependent on a third variable and independent of each other. Advertising for an album increases popularity in shops as well as on P2P networks.⁵⁷ It could well be that both are unrelated forms of acquiring music, i.e. that sales would

⁵⁶ See Grassmuck 2010.

⁵⁷ Oberholzer-Gee/Strumpf give the example of a movie soundtrack starring rapper Eminem that had leaked onto P2P networks six weeks prior to the album release, but only saw a small number of downloads until he marketing campaign began (2009: 15).

have been exactly the same without any file-sharing at all. To avoid a loop of causality, exogenous instrument variables need to be introduced that are related to downloading but not to purchasing. Tanaka (2004) uses music genres that are not likely to be popular with file-sharers. Blackburn (2004) uses RIAA announcements of prosecution campaigns against file-sharers which led to a decrease in P2P activity which he in turn sees responsible for an increase in album sales of approximately 2.9%. Rob/Waldfoegel (2006) use the speed of the Internet connections available to students at different colleges. Finding that US file-sharers download to a significant degree from peers in Germany, Oberholzer-Gee/Strumpf (2007) use the school holidays in Germany as an instrument, assuming that they impact the availability of files in a way not correlated with album sales in the US. All these instruments have given rise to criticism. They show that even if reliable numbers were available, assumptions have to be made in order to establish causality.

The studies in our review use one or a combination of three approaches. A large group is based on conjectures, using proxies for which official statistics are available to draw conclusions about the unmeasured phenomenon in question. Another large group is based on surveys that might or might not be representative for a national population, for Internet users or for file-sharers. A minority of studies uses actual empirical data from P2P usage.

The lack of data often leads researchers to focus on theoretical aspects, modelling their assumptions on readily available macroeconomic data from government offices or international agencies like ITU or World Bank and choosing proxies for infringing file-sharing which is deemed to be not directly observable. Typically, per capita or per household Internet or broadband access⁵⁸ or even computer ownership⁵⁹ is equated with the use of P2P file-sharing. This reminds one of the story every student gets to hear in methodology class about the drunk man who has lost his keys in a dark corner but searches for it under a lamp post because there he can see. Critics indeed have pointed out that many computer and Internet users do not file-share and even most of those who do, use them for other purposes most of the time. On the other hand, the growing time spent online itself competes with time for consumption of other entertainment goods. Thus, while there might be a relation between Internet use and decreasing record sales, it might have nothing to do with illegal music downloads.

Liebowitz (2008) is the last so far to use the number of Internet users as proxy for file-sharing. Aware that this construct has already been dismissed by most of his colleagues, he considers a possible P2P-unrelated competition of Internet use with other media, calculating that "the maximum decline would be 10% for radio and 20% for television," (14) which he then subtracts from the P2P effect he finds. Because he does not have a measure on the intensity or frequency of P2P use he first excludes a number of other possible causes for the decline in album sales and assumes that young people have a higher propensity to download. By comparing pre-P2P numbers from 1998 with those from 2003, he finds: "Surprisingly (because young people are supposed to be the more intense record purchasers), having more young people has a negative impact on record sales, but with a much greater magnitude in 2003." (20) By using, in effect, youth as proxy for illegal file-sharing, Liebowitz finds that his result "indicates that file-sharing has caused the entire decline in record sales and appears to have vitiated what otherwise would have been growth in the industry." (1)

58 Boorstin 2004, Zentner 2005, Liebowitz 2008. Peitz/Waelbroeck 2004 also use it, but conclude that Internet penetration is not a suitable proxy (75).

59 Michel (2006).

Surveys are the second most widely used approach. They are either based on a controlled sample representative of a given population,⁶⁰ on the student population at the researchers' university⁶¹ or on an open sample, e.g. by putting a questionnaire online and asking for participation through various channels.⁶² Questionnaires ask for demographic information, for retro- and prospective behaviour, motivations, knowledge e.g. about copyright law etc. Their advantage – that respondents' self-reporting is the only way of gaining insights into subjective factors motivating file-sharers – is also their disadvantage. GAO (2010) is rather critical about the use of surveys, including those on which the "piracy" estimates of the Business Software Alliance and the Motion Picture Association are based, citing that "one expert stated that the bias in surveys is hard to identify. For example, he commented that students, who are often the subjects in surveys of illegal file sharing, may either not admit that they are engaging in illegal activity, or may admit to such behaviour because it may be popular for this demographic." (21) Liebowitz in his devastating critique of Andersen/Frenz (2007) points out that their Canadian survey was taken right after the lawsuits against file-sharers in the US had begun and the issue was very much in the public debate. "People taking surveys will have their own opinions. Downloaders know what they should say if they want to make it seem that downloading does not harm sales – they would say that they purchase many more albums than they do while also reporting on their downloading activities. To the extent that survey takers lie in this manner, the results will be biased in favor of a positive impact of file-sharing. ... As evidence that survey takers do lie about downloading we know that after the lawsuits started American survey takers reported a much larger decrease in file-sharing activity than actually occurred (according to other measurement techniques)."⁶³

Very few studies so far have used actual data from P2P file-sharing networks, allegedly because they are hard to get. In the original Napster, the transactions between the peers were mediated by a central index. Here, (privacy and other issues having been solved) primary data from the complete network was in principle available. Oberholzer-Gee/Strumpf (2004/2007) were able to use the log-files of two OpenNap servers, free software descendants of Napster. Today, eDonkey is one of the last P2P systems still using central index servers.⁶⁴

Juridical pressure led to a diversification of P2P architectures and to decentralisation, encryption, obfuscation, closed networks and a shift towards other forms of sharing (file-hosting, Newsgroups). In a decentralized P2P systems like Gnutella or BitTorrent it is impossible to get a complete picture of the activities. Also the diverging characteristics of P2P protocols make some better suited to transfers of smaller files (MP3, text on eDonkey), while others are optimized for large files (video, software, games on BitTorrent).⁶⁵ Therefore a comprehensive picture would require data from at least a range of different networks.

The main method for acquiring data on P2P activities is (automated) participation in the networks: The data collector acts as a node, sending out requests and downloading results in order to eliminate

60 Zentner (2006) for seven European countries, Andersen/Frenz (2007) for Canada, Bahanovich/Collopy (2009) for the 14 to 24 year olds in the UK.

61 Rob/Waldfoegel (2004), Bounie/Bourreau/Waelbroeck (2005), Leung (2009).

62 Volz (2006).

63 Liebowitz writes that Andersen/Frenz report that, according to the survey, the average Canadian purchased 8.3 albums in 2005. Based on the sales figures from the Canadian Recording Industry Association for that year he then calculates an average number of 2.2 albums per person. "This means that the claimed sales of CDs are off by a factor of 270%, which is a very large deviation. Clearly, respondents were not giving accurate answers to this question." (<http://www.utdallas.edu/~liebowitz/intprop/main.htm>).

64 Aidouni/Latapy/Magnien (2008) have captured almost 9 billion messages involving almost 90 million users and more than 275 million distinct files off an eDonkey server. This data set is currently being analysed by economist Aigrain (2010).

65 See Ipoque 2009a: 7 ff. for a comparison of content on eDonkey and on BitTorrent.

malware, fakes and other miss-labeled files, as well as recording search requests by other nodes. The market research company BigChampagne⁶⁶ developed this method into a successful business, monitoring works for their clients from the culture industries. Blackburn (2004) utilised data from BigChampagne. After mid-2006 the company no longer makes its figures publicly available. However, querying a P2P network with a sample of works and recording hits, is a method readily available to any researcher. Tanaka (2004), Bhattacharjee et al. (2007), Smith/Telang (2008) and Balázs (2009) have used it to acquire their own data sets. Aigrain (2010) is working with a large high-quality data set made available by Aidouni/Latapy/Magnien (2008). Thus it is unclear why so many economists are still working with questionable proxies for behaviour that is in fact observable.

Oberholzer-Gee/Strumpf (2009) list four studies that use actual P2P data – with a surprisingly clear result: "While the majority of papers reports some sales displacement, the four studies using actual measures of file sharing (Tanaka, 2004; Bhattacharjee et al., 2007; Oberholzer-Gee and Strumpf, 2007; Smith and Telang, 2008) find that file sharing is unrelated to changes in sales." (18)

A brief evolution of P2P research

A new phenomenon is naturally at first approached with existing methods, pre-conceptions and data readily at hand. With peer-review and inter-disciplinary criticism, methods are refined and the conception of the phenomenon is becoming more differentiated.

Liebowitz, whose 2006 paper IFPI (2010) quotes in their support, has published the largest number of papers on the issue. For only one of them (2008) he has conducted original empirical research. All the others are based on common sense, informed guesswork, deduction and selective reading of his colleagues' empirical work. In 2002 ("Policing Pirates in the Networked Age") the arguments for Napster as a "potentially serious threat" "remain basically theoretical. ... The evidence that has been put forward to this point does not clearly point to the direction of the impact, to say nothing of the magnitude." (22) Liebowitz does predict that in the not too distant future DRM will end any harm to copyright owners brought about by unauthorized copying. In his 2003 paper ("Will MP3 downloads Annihilate the Record Industry? The Evidence so Far") there was still no proof of harm. Liebowitz finds that the recording industry's evidence in the 2000 lawsuit against Napster "failed to support any claim of harm," nor was there evidence of any decline in record sales. Nevertheless, he sees "good economic reasons to believe that online file sharing would be harmful to the industry" even though "the evidence to support this claim had not yet surfaced." (2) This was in 2003, the fourth year of P2P file-sharing with participation ranging in the tens of millions,⁶⁷ the year The Pirate Bay is founded and the iTunes Music Store goes online. Even so, evidence of harm had not yet surfaced. In his 2005 paper "Pitfalls in Measuring the Impact of File-sharing on the Sound Recording Market" Liebowitz by sheer theoretical reasoning rejects four other possible explanations for the slump in record sales that by now did surface, argues that – "one novelty from this analysis" – the impact of the sampling effect is not positive as everybody else expects but negative, and he critiques the research of his colleagues, in particular Boorstin (2004), which after Liebowitz' corrections states the opposite from what it does, and a 2004 pre-print of Oberholzer-Gee/Strumpf (2007), in which he finds conceptual errors, faulty use of methods, fallacies and erroneous conclusions that are not even remotely plausible.

66 <http://www.bigchampagne.com/>

67 Peitz/Waelbroeck (2004: 76, table 2) give 44.6 million clients for seven P2P protocols active in June 2003, with Kazaa (35 million) being the largest.

In his 2006 paper, the one cited prominently by IFPI (2010), Liebowitz demagogically speaks about "organized file sharing" (10) and tells his readers: "Common sense is, or should be, the handmaiden of economic analysis. When given the choice of free and convenient high-quality copies versus purchased originals, is it really a surprise that a significant number of individuals will choose to substitute the free copy for the purchase?" (24) He does not support this "basic intuition" by empirical research but deductively excludes three other possible effects of file-sharing (sampling and network effects and indirect appropriability) and simply repeats the substitution hypothesis, i.e. what common sense would expect.⁶⁸ Nevertheless, he is careful to point out in his conclusion: "We do not yet have enough evidence to draw any but a preliminary conclusion. ... With a technology this young, and markets changing this fast, it would be most unwise to claim too much given the risk that the future may prove a current conclusion to be incorrect." (2006: 24)

After the Oberholzer-Gee/Strumpf paper has been revised a number of times and been published in one of the top journals in the profession, Liebowitz dedicates a lengthy critique to it (2007). In it he does not mention their main line of argument because they did not make their data available to him. He focusses on four quasi experiments that Oberholzer-Gee/Strumpf use to support their core finding that file-sharing causes no reduction in record sales. Liebowitz then attempts to replicate these experiments based on published industry data. Three of them lead him to the opposite conclusion. The fourth he dismisses as based on a false premise. His critique was in turn critiqued by Tschmuck who concludes that Liebowitz did not at all refute Oberholzer-Gee/Strumpf.⁶⁹

After focussing on common sense and on finding fault with other economists' work, in 2008 Liebowitz presents his only original research. At a time when the contrivance of using the number of Internet users as proxy for file-sharing has already been widely dismissed, he goes to great length in arguing that it is indeed a valid method. Nevertheless, he seems to be aware of the weakness of the claim of a causality of Internet use and file-sharing. Because he does not have a measurement of file-sharing intensity, he takes the assumption that young people are more likely to file-share than older people to derive a file-sharing "propensity," thus in effect using youth as a proxy. Comparing data on Internet access and age from 99 US-American cities in the years 1998 and 2003 he finds youth to be negatively correlated with record sales. His calculations yield a "reduction in sales due to file-sharing [that] appears to be larger than the actual measured decline in record sales." (29) He explains this as indicating that file-sharing has not only caused the entire decline in record sales but also the failure of an extrapolated growth that would have occurred without it. In all modesty he writes on his home-page: "While I am partial to my own work, I believe this paper provides the strongest analysis to date of these issues."⁷⁰

Macro data lends itself to comparisons between cities and countries. Researching the pre-file-sharing situation, Hui/Png (2003) look at 28 countries in 1994-98. Zentner (2005, 2006) uses international time-series aggregate data in conjunction with Internet penetration, finding that countries with more broadband-connections have experienced stronger reductions in album sales. Peitz/Waelbroeck (2004) look at 16 countries, Boorstin (2004) and Liebowitz (2008) each at 99 US cities. Comparisons across territories cannot simply build on numbers on GDP and Internet connections but have to take into account more complex variables like institutional frameworks and cultural traditions and their differing effects on buying and sharing. E.g. studies on software

68 For a detailed critique of this paper see Tschmuck who finds it "ludicrous" that Liebowitz extrapolates the growth rates of the 1990s, that were characterized, as he has shown in his research (Tschmuck 2010), by substitution purchases of CDs and a strong reduction of new repertoire by the major labels. In his analysis the shrinking supply in major label releases is the reason for a shrinking demand, that the growing number of indie label releases can only partially absorb. (<http://musikwirtschaftsforschung.wordpress.com/2009/04/07/wie-bose-ist-das-file-sharing-teil-2/>)

69 <http://musikwirtschaftsforschung.wordpress.com/2009/04/09/wie-bose-ist-das-file-sharing-%E2%80%93-teil-3/>

70 <http://www.utdallas.edu/~liebowitz/intprop/main.htm>

infringement have shown that a large middle class in many countries is associated with a higher rate of software infringement, but has the opposite effect in Western Europe and North America (Dejean 2009: 329 f.). An institutional framework that favours the enforcement of copyrights (weak corruption, civil rights, quality of bureaucracy, high index of software protection) is usually correlated with lower infringement rates but this might be counter-acted by tradition: "Countries exhibiting a collective culture – that is to say countries which favour sharing over individual ownership – also have a higher piracy rate." (Dejean 2009: 330).

Oberholzer-Gee/Strumpf (2004/2007), Blackburn (2004) and Tanaka (2004) were the first to use primary P2P data. While Tanaka and Oberholzer-Gee/Strumpf find no effect of downloading on sales, Blackburn finds a negative effect on stars and a positive effect on less known artists. Bhattacharjee et al. (2006) monitored Kazaa for effects of legal actions, showing that while file-sharing intensity decreased for a short time, an ample supply of all chart albums remained available for download. When file-sharing is the object of analysis then data directly derived from transactions on P2P networks obviously provide a much more reliable basis than shaky towers of assumptions erected on proxies or self-reporting by respondents.

That the discovery effect of file-sharing may actually stimulate sales was already assumed by Shapiro/Varian (1999). It was first shown by Blackburn (2004) for unknown artists, in the survey of Tanaka (2004) and in Boorstin (2004) for those older than 24 years. Bounie/Bourreau/Waelbroeck (2005) in their survey find two distinct types of file-sharers: the "pirates" who keep most of their music downloads, substituting them for purchases, and the "explorers" for whom downloading leads to an increase in purchases of CDs. 88% of their respondents obtained free MP3 files (among these, 70% downloaded them from P2P networks, 74% from Intranets and 58% got them on physical media). Nearly all of them reported discovering new artists and 70% said that this led them to purchase CDs that they would not have purchased otherwise. "This result illustrates a strong 'sampling effect' among the respondents of the survey." (10) Their two types could thus be rephrased as "music lovers" who download *and* buy a lot, and "casual music listeners" who download less than half the number of files of the "music lovers" and would not have purchased them. Peitz/Waelbroeck (2006) again observe that music is an experience good characterised by a two-sided asymmetric information problem between sellers and buyers that can be solved by sampling. "The property that sampling allows consumers to find a better match to their tastes, tends to lead to higher profits under file-sharing." (908) There is a countervailing effect of consumers downloading without purchasing. "We show that the former effect dominates the latter and that the introduction of file-sharing technologies leads to higher profits if there is sufficient taste heterogeneity and sufficient product diversity. We then extend the model to allow for variable demand and show that file-sharing can lead to lower prices, higher unit sales and higher profits." (908)

The importance of product discovery in culture markets with frequent inflows of new products was again shown by Hendricks/Sorensen (2009). The release of a new album causes a "backward spillover": a substantial and permanent increase in sales of the artist's previous albums. This indicates an information problem both on the consumption and the supply side. "In particular, mid-range artists' albums are dramatically undersold (to the tune of hundreds of thousands of units) relative to what sales would have been if consumers were fully informed." (366) Labels might not be able to meet the demand created by discovery because they truncated the artists' career for lack of initial success. Hendricks/Sorensen study album sales from 1993-2002, a time when consumers learned about albums primarily through radio. Their conclusion – "The recent development of Internet technologies for sharing and sampling music has largely eliminated the information

bottleneck." – makes them expect spillovers to become smaller, long-term label contracts to become less important, variety to increase and the skewed distribution of success to flatten. (367)

Blackburn (2004) was the first to differentiate by popularity of artists, showing that well-known artists suffer substitution, while unknown artists benefit from a discovery effect. Because the popular artists sell more albums he finds the overall market effect to be negative. For cultural diversity, one can conclude, the effect is positive, as it curbs the crowding-out effect of superstar sales on other albums⁷¹ and makes it easier for new and previously unknown artists to break through. Gopal/Bhattacharjee/Sanders (2006) confirm 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," (1528) favouring lesser known artists.

That also a differentiated look at genre preferences is required for estimating effects on sales and downloads was first shown by Bounie/Bourreau/Waelbroeck (2005). They find that those who download rap music have a significantly higher probability to have reduced CD consumption than those who download pop/rock music (13). Like Zentner (2005) they find a differential effect on international and local repertoire: "Around 8% of [file-sharing] respondents got music from French artists, whereas according to the French recording association (SNEP), French songs represented more than 40% of total CD sales in France in 2003." (8) The survey in Huygen et al. (2009) sheds some more light on file-sharing and genre preference (68 ff.).

Boorstin (2004) was the first to show that the impact of file-sharing varies with age. Using Internet access as proxy, he finds that those below 24 years use P2P to substitute music purchases, while those above, because of a sampling effect, complement it with CD purchases. Because the buying power of the older group exceeds that of the younger the overall effect on CD sales is positive.

Bayaan (2004) is the first to not simply ask for economic effects on "the music industry" or on "rights-holders" – implying that authors, performing artists, publishers and labels, large and small are one homogeneous actor – but specifically on artists. By not only looking at the gains or losses of firms but of those of other actors as well, he opens up the research perspective to a welfare analysis.

Economics traditionally defines social welfare as the sum of consumer surplus and producer surplus. The seminal reference for the welfare implications of unauthorized reproductions is Takeyama (1994). She assumes network effects, i.e. an increase of consumers' valuations of a product with the number of other consumers who adopt the same product. The effect is most obvious for interoperating products like fax machines and computer software, but, writes Takeyama, "there are many less obvious sources of network externalities, including the psychological desire to 'join the bandwagon.'" (155) Earlier studies had reached varying conclusions with regard to the effect of unauthorized copying on social welfare, but did show a consensus that firm profits necessarily decline with copying. In contrast, her paper demonstrates "that, even without indirect appropriation, when demand network externalities are considered, not only can copying lead to greater firm profits, it can produce a Pareto improvement in social welfare." (156)

Taking into account that the goods in question are easily reproducible, that originals and copies are imperfect substitutes and that they show network effects, Takeyama concludes that "the firm has a greater incentive to expand output because marginal revenue is higher, and in some cases the firm may wish to create a preemptive installed base. With copying, this can be achieved by the existence of marginal consumers who make reproductions (at zero cost to the firm), while inframarginal

71 He points out that "the last album to sell even 7 million copies in one year was 'N Sync's 'No Strings Attached,' which sold 9.9 million copies in 1999, just as file sharing was born." (Blackburn 2004: 13)

consumers purchase originals at a price that may largely appropriate the externality of increased network size created by copiers." (156) This strategy of price discrimination among consumers' different levels of willingness-to-pay is increasingly deployed today. A prominent case is the band Nine Inch Nails who in March 2008 released their four-volume album "Ghosts I–IV" in a variety of packages, from free download⁷² via a FLAC lossless download for 5 US\$ and a deluxe set for 75 US\$ to a 300 US\$ ultra-deluxe limited edition package⁷³ – all DRM-free and under a Creative Commons Attribution Non-Commercial Share Alike license. The 2,500 copies of the ultra edition sold out in only three days, alone grossing the band 750,000 US\$.⁷⁴ Or again Takeyama: The increase in the size of the network resulting from copying increases the valuations of high-valuation consumers, enabling the firm to sell to them at a higher price than it could charge without copying (160 f.). "This would imply that standard measures of the harm to producers and society from unauthorized reproduction of intellectual property may be overstated." (165) Such overstatement is in the interest of firms which prefer full enforcement of copyright, assuming that deterred "pirates" would purchase. But this might not even be in their own best interest, let alone that of society: "In the present model, profits may be greater with copying *even if all deterred pirates subsequently purchase.*" (156)

Bayaan (2004) does not look at firms and consumers alone but brings two more actors into the welfare balance: musicians and technology. His models show "that the variety of artists signed by [major labels⁷⁵] decreases in any scenario involving file-sharing," (13) but this reduction of variety is counter-acted by advances in recording technology that allow artists (like Nine Inch Nails) to self-publish their music in order to increase concert revenues, finding that "this progress leads to more artists and more variety within the music industry." (1) He also finds that in the best case scenario the "gain for consumers is more than enough to offset the loss of profit incurred by firms and signed artists so society as a whole benefits." (17)

This has been confirmed by Rob/Waldfoegel (2006), who IFPI (2010) cites in its support. Asking for consumer valuation of certain albums, they do find that downloading reduces their respondents' per capita expenditures (on hit albums) by 25 US\$, but also that it raises their surplus by 70 US\$. The reduction of 45 US\$ per capita in deadweight loss, i.e. in socially beneficial, but otherwise foregone transactions, is nearly double the reduction in industry revenue (32). They start their analysis from "two features of the CD market [that] make the welfare analysis of downloading interesting. First, substantial price discrimination was impracticable and was not exercised. As a result, firms priced albums as single-price monopolists, leaving some socially beneficial transactions (with buyer valuation above marginal cost but below the monopoly price) unconsummated. This problem was exacerbated by CDs' second feature: the product has a low marginal cost, so the market without illegal downloading has the potential for substantial deadweight loss." (30) Because file-sharing allows consumers to engage in a "do-it-yourself" form of price discrimination, Rob/Waldfoegel conclude that "illegal downloading may actually alleviate the monopoly deadweight-loss problem." (30) The harm done to firms is limited because downloaded albums tend to be low valued, i.e. not candidates for being purchased in the first place (31). Thus they show that file-sharing increases aggregate welfare.

72 Writes band leader Trent Reznor in the torrent on The Pirate Bay: "Now that we're no longer constrained by a record label, we've decided to personally upload Ghosts I, the first of the four volumes, to various torrent sites, because we believe BitTorrent is a revolutionary digital distribution method, and we believe in finding ways to utilize new technologies instead of fighting them." http://thepiratebay.org/torrent/4059158/Nine_Inch_Nails_-_Ghosts_I_%282008%29

73 Which includes multitrack audio files, a DVD, a Blu-Ray disc with high definition audio, a hard-cover book and an autograph of Trent Reznor.

74 <http://ghosts.nin.com/>

75 He points out that indie labels are not included in his analysis because they are "distinctively different". (18)

Also for Oberholzer-Gee/Strumpf (2007) a key question is how social welfare changes with property rights for information goods – de facto, if not de jure – weakened by P2P file-sharing. Based on their results they do not expect an effect on the production of recorded music. Since they find no measurable effect of downloads on sales, they can also not have an effect on artists' incentives to create new works. "And for new bands that are about to launch their career, the probability of success is so low as to make the expected income from producing music virtually zero, so file sharing will not change the relevant incentives." (40) Thus they agree with Rob/Waldfoegel (2006) that file-sharing likely increases aggregate welfare. "The limited shifts from sales to downloads are simply transfers between firms and consumers. But the sheer magnitude of P2P activity, the billions of songs downloaded each year, suggests that the added social welfare from file sharing is likely to be high." (40)

They pick up the issue in their research review (Oberholzer-Gee & Strumpf 2009) and remind us that "copyright exists to encourage innovation and the creation of new works; in other words to promote social welfare. The question to ask is thus whether the new technology has undermined the incentives to create, market, and distribute entertainment. Sales displacement is a necessary but not a sufficient condition for harm to occur. We also need to know whether income from complementary products offset the decline in income from copyrighted works. And even if income fell, welfare may not suffer if artists do not respond to weaker monetary incentives." (24) Only if all three conditions – substitution, no shift to income from complements like concerts and artists reducing production because of falling income – hold will file sharing hurt social welfare. Their reading of the empirical research so far shows that none of them hold. "Consumer access to recordings has vastly improved since the advent of file sharing. Since 2000, the number of recordings produced has more than doubled. In our view, this makes it difficult to argue that weaker copyright protection has had a negative impact on artists' incentives to be creative." (25)

Liebowitz, although he has been studying the effects of reproduction technologies on culture industry markets for a long time, seems to be one of the few economists in this field with little interest in the question of social welfare. In his 1981 study on the impact of photocopying on journals in libraries he starts from text book knowledge: "Economic criticism of copyright is often based on the monopoly granted to the copyright holder. As described earlier in this chapter, monopoly leads to a smaller quantity and a higher price for a particular copyrighted commodity (as well as a welfare loss in its production) than would exist if the commodity was produced competitively." (7)

The ideal of the monopolist is complete control over his product. Thus Liebowitz asks: "Would the creator of any good not be better off with no resale or lending the product allowed? Any person who wanted to use the product would then have to buy a new one from the original creator. However, the relationship between property rights and appropriability is not a simple one. It may well be that creators of goods are worse off with a more complete set of property rights." (7) His reason seems to be the exposure effect of lending and copying that might lead readers to subscribing to journals, but he dismisses it: "The exposure effect, however, affects only the amount that the goods are used and does not influence the transmission mechanism between payment and use. For this reason it is not the proper concern of copyright policy. It is of interest to those concerned with the welfare of copyright holders since it influences the resources society spends on intellectual works." (12)

Since Liebowitz is not concerned with readers or society but only with payments to publishers his solution is a different one: "Price discrimination is frowned upon by the law. Economists, as well, treat price discrimination as a welfare-reducing activity because it is indicative of monopoly power.

A market with price discrimination will usually produce a smaller quantity than a competitive market. However, in the case of copyright holders, price discrimination must be evaluated against the monopoly model which is the prevailing situation as a result of government legislation in this area. If price discrimination allows both greater output and greater returns to copyright owners, copyright policy and economic welfare will be enhanced." (71) Because photocopying raises the value of journals to library patrons, publishers can charge libraries a higher subscription price.

No mention is made of welfare in Liebowitz (2006) and (2008), but it does feature in a revealing way in Liebowitz (2005): "Although measuring the impact of file-sharing on the sound recording industry provides important information, it is only part of the analysis that would be required to answer the question about file-sharing's impact on social welfare *or even* its impact on the industry's ability to appropriate value. Even if it were the case that file-sharing had no effect on recording industry revenues, it might still have a large impact on appropriability. In the simplest case, assume that half the population purchases CDs and that these individuals do not change their behaviour in the face of file-sharing. Then, due to file-sharing, the other half of the population listens to music downloaded from file-sharing sites. The producers appropriate none of this additional value created by their product, so appropriability, which might be defined as producer revenues relative to total value, has fallen." (454, emphasis added) In a remarkable volte-face – "or even" – he bends his focus back from social welfare to the interest of industry. Where other economists discuss file-sharing as a mechanism for alleviating an economic inefficiency (deadweight loss), Liebowitz sees not even harm to industry, but value that escaped its appropriation.

Huygen et al. (2009) in a study commissioned by three Dutch ministries⁷⁶ looked at the economic and cultural effects of file-sharing in the three sectors of music, film and games. The Netherlands is particularly interesting for two reasons. Its early and wide broadband adoption makes it rank very high in international comparison. By household penetration, average download speed and subscription price in 2008 it was nearly twice as well equipped for file-sharing than the United States. Yet Huygen et al. find that "the number of music downloaders in the Netherlands is slightly higher than the number most recently found in the US ... Whereas the percentage of film sharers in the United States was more or less the same as in the Netherlands between late 2003 and early 2006, the most recent figures [2008] show that the percentage is now substantially higher in the US. The only known figures for the US show that the percentage of game downloaders is also much higher than in the Netherlands." (86 f.) If another proof that Internet penetration is an unsuitable proxy for file-sharing had been needed, this is it. The second reason that makes the Netherlands stand out against most other countries is that its copyright law permits downloading of copyright protected works from file-sharing networks for personal use. Thus the downloading behaviour is largely unaffected by fear of prosecution.

The Dutch survey confirmed the existence of two distinct groups of intensive and of casual media users, where the former download *and* purchase a lot. "Buyers still outnumber file sharers by a wide margin. This is true for music, films and games, with 84% of the Dutch population over the age of 15 having bought – or paid to download – a CD, DVD or game in the past year [versus 35% who had downloaded]. In fact, buying and file sharing often go hand in hand. Music sharers are no less or more likely to be buyers of music than other people: 68% of downloaders also purchase music. And file sharers who buy music do not buy any more or less of it than non-file sharers [but the 15-24 old sharers buy more music than non-sharers (74).], although they buy more merchandise and go to concerts significantly more often. As for films, file sharers turn out to buy DVDs no less or more

⁷⁶ The Ministry of Education, Culture and Science, the Ministry of Economic Affairs and the Ministry of Justice of the Netherlands.

often than anyone else: 61% of film sharers also buy DVDs. But if they buy, they buy significantly more DVDs than non-file sharers. On average, file sharers and non-file sharers go to the cinema equally often. Game sharers also buy games, and significantly more frequently too: 67% of file sharers are buyers as well. And if they buy, they buy significantly more games than non-file sharers." (82)

While the majority of respondents in the Dutch study report discovering new genres and artists as their reason for file-sharing, 13% of music and film sharers mention "making social contacts." (77) This shows that file-sharing as a cultural practice is significantly different from the use of streaming or all-you-can-eat download services that are often mentioned as legal alternatives.

As for the dynamics in the three sectors, Huygen et al. find that only the markets for CDs and for DVD rentals are suffering from a slump. "The markets for DVDs and console games continued to grow impressively after P2P services were introduced, and the cinema market showed sustained growth between 1999 and 2007. The total entertainment market has remained more or less constant, suggesting budget competition among the various products. ... File sharing has significantly enhanced access to a wide and diverse range of products, albeit that access tends not to have the approval of the copyright holders." (103)

Their estimates on the aggregate welfare balance of file-sharing in the Netherlands are strongly positive in the short and long terms, amounting to about 100 million Euro per year. "The consumer surplus created by music sharing in the Netherlands would then amount to an estimated minimum of €200 million per year. Based on the above assumptions, this is a conservative estimate ... At most half this amount is generated at the expense of the producer surplus and therefore constitutes a transfer of welfare. The remainder constitutes welfare gains. ... In other words: the gains enjoyed by consumers are more than twice as large as the losses suffered by producers." (107 f.)

A final remark from Huygen et al. (2009) concerns public funding of cultural goods: "Chapter 2 showed that the Dutch film industry would not survive without government subsidies (accounting for about 40% of total funding), which are granted with a view to promoting cultural diversity and protecting the country's national heritage. More widespread consumption of this heritage – even if achieved through file sharing – not only generates welfare gains but is also in line with the arguments for government funding." (113)

Their conclusion: "The survey held among Dutch internet users has shown that file sharing is here to stay and that people who download are at the same time important customers of the music industry. ... File sharing and P2P networks have become generally accepted practices and important drivers for innovation. It would therefore be ill advisable to criminalise file sharing by end users. ... The fact that file sharers in the United States buy fewer products may be related to their harsher treatment in that country." (121 f.)

Goel et al. (2010) also argue that unauthorized file-sharing is beneficial to public welfare. They point to the deadweight loss that copyright creates by preventing downloads of works that downloaders are unwilling or unable to purchase which "results in lower social benefits without any increase in revenue for media providers." (4) And they point to the monopoly of copyright and the oligopoly that emerged from it in culture industries: "Further, large media companies may historically have stifled creativity by having excessive influence on deciding what types of works get produced and marketed as well as maintained artificially high prices – e.g., by paying radio stations to play certain numbers, selling more expensive albums rather than the single tracks desired by music fans, and promoting more popular artists at the cost of those with niche followings (and

smaller potential profits). Lower search, promotion, and distribution costs associated with the Internet may loosen the stranglehold of large companies and promote creativity while providing works that better cater to diverse consumer tastes at competitive prices." (4)

Social welfare thus turns out to be a common theme for nearly all studies on the impact of file-sharing. It is a traditional issue when economists look at the trade-off between under-production and under-utilization of public goods, which creative works sans copyright are by nature and which they have de facto become thanks to file-sharing. Moreover, social welfare is of primary concern for public policy makers who cannot look at record label and publisher profits alone, but have to seek to optimize the aggregate surplus of all actors involved: of authors and performing artists, of consumers, of commercial users of copyright works like radio stations and ISPs and of industries that provide complementary goods and services like MP3 players and mobile phones. Policy makers most of all have to consider the current and future welfare of society as a whole, of education, access to knowledge, cultural diversity and innovation. As Benkler has shown so aptly, the special feature of information goods is that they are both the input and output of their own production process. "In order to write today's academic or news article, I need access to yesterday's articles and reports. In order to write today's novel, movie, or song, I need to use and rework existing cultural forms, such as story lines and twists. This characteristic is known to economists as the 'on the shoulders of giants' effect." (Benkler 2006: 9)

If the purpose of copyright is to serve the public interest by encouraging the creation and dissemination of new works, it is thus not surprising that the analysis of file-sharing has led many of the researchers in this review to challenge the economic rationality of the current copyright regime. We will look at their findings and proposals at the end of this section.

Overview of the studies

Study	Data	Result	Comment
Empirical Observations of File-Sharing			
Blackburn 2004	Downloads from BigChampagne + sales from Nielsen SoundScan + artist information from Billboard charts in 9/2002-11/2003 for 197 albums.	Impact on well-known artists is negative, on unknown artists positive. The net effect is negative.	RIAA lawsuit announcements curbed file-sharing, increasing album sales by 2.9% and profits by US\$ 37 million over 23 weeks.
Tanaka 2004	Sales on top 30 titles from Original Confidence + downloads collected on Winny in 6-11/2004 + user survey (501 students at Keio University in 2003 and 2004).	Instrumented data: no correlation between downloads and sales. Survey: use of file-sharing increases CD purchases.	Winny, the most popular Japanese P2P file-sharing system is "almost completely decentralized and highly anonymous," so it is used without fear of legal prosecution.
Oberholzer-Gee/Strumpf 2007 (2004)	Representative sample of 1.75 million file downloads in the US from 2 OpenNap servers in 9-12/2002 + sales from Nielsen SoundScan + charts + German school vacations as instrument.	"Downloads have an effect on sales that is statistically indistinguishable from zero." "While downloads occur on a vast scale, most users are likely individuals who in the absence of file sharing would not have bought the music they downloaded."	In support they point to the 2004 US Consumer Expenditure Survey that shows that households without a computer report that they reduced their spending on CDs by 43% since 1999.
Bhattacharjee et al. 2006	2,056 user IDs on Kazaa in the US in 3/2003-3/2004 before and after 4 RIAA-related events + Billboard charts	Legal action reduced the average number of files shared and the frequency of P2P usage but all the chart albums remained available for download.	Observed the possibility of a backlash from RIAA's heavy-handed actions against its own potential customers.
Bhattacharjee et al. 2007	Downloads from WinMx collected in 7-12/2003 + US Billboard Top 100 charts.	Comparing pre- (1995–1998) and post-Napster (2000–2003) they find that "sharing has no statistically significant effect on survival."	Albums from indie labels show a significant jump on the charts for post-Napster period.

Smith and Telang, 2008 (on movies)	Movies shown on US TV and cable + downloads from 2 BitTorrent trackers + DVD sales from Amazon from 7/2005-3/2006.	TV broadcasts of movies increase DVD sales by 118%, while availability on P2P has no effect.	TV broadcast is sufficiently differentiated from DVD, thus "'competing with free' is possible through product differentiation and customer segmentation."
Empirical Modelling based on Industry and Macroeconomic Data			
Hui/Png 2003	Sales and "piracy" data from IFPI and Global Market Information Database for 28 countries in 1994-98.	Copying of music CDs resulted in a loss of about 6.6% in 1998.	Pre-dates file-sharing. Disregards legal and remunerated private copying.
Liebowitz 2003	RIAA album sales + "educated guesses" (26).	It would appear that 17-20% of sales are lost (28).	Finds a large increase in concert revenues in 2000-2001 without asking whether this was due to P2P.
Peitz/Waelbroeck 2004	IFPI on sales + survey by market researcher Ipsos-Reid on downloads + household broadband access as proxy + survey for 16 countries in 1998-2002.	downloading could have caused a 20% reduction in music sales worldwide between 1998-2002.	Non-infringing Internet use substitutes watching TV and listening to CDs, thus Internet penetration is not a suitable proxy.
Boorstin 2004	Internet access as proxy from U.S. census + CD sales from Nielson SoundScan for 99 US cities in the years 1998, 2000 and 2001.	For below 24-year-olds the effect of Internet access on CD sales is negative, for those above positive. The net effect is positive because older music fans have greater purchasing power.	Comparing his results to Oberholzer-Gee/Strumpf (2007/2004) he reasons that Internet access might signal other information than file-sharing.
Zentner 2005	Internet access as proxy from ITU + music sales in 71 countries in 1997-2002 from IFPI + software "piracy" from BSA.	Finds a reduction in music sales of between 6% and 9% at the mean level of broadband penetration. For the US broadband penetration in 2002 (6.9%), this implies a reduction in sales of between 14% and 23%.	Finds evidence that the share of international major label repertoire in total music sales has been decreasing by 9.7% in 1997-2001, while the share of local or domestic repertoire increased.
Mortimer/Sorensen 2005	CD sales from Nielsen	Artists revenues from recorded music declined	In 1993, total concert revenues for bands are

	SoundScan + concert performances from Pollstar for 1,806 artists in 1993-2002 in the US + broadband penetration	after 1998 is striking, but appears to have been more than offset by a concomitant increase in concert revenues.	roughly equal to total CD revenues, while in 2003, concert revenues are over 2.5 times larger than CD revenues.
Michel 2006	Household PC ownership as proxy and CD purchases from US Consumer Expenditure Survey in 1995-2003	File-sharing may have reduced album sales (between 1999 and 2003) by as much as 13% for some music consumers.	Mentions that PCs are widely used for CD burning but does not take it into account.
Liebowitz 2008 (2006)	Internet access as proxy from US Census + album sales, TV and radio consumption from Nielsen for 99 US cities in 1998-2003.	"File-sharing appears to have caused the entire decline in record sales and appears to have vitiated what otherwise would have been growth in the industry."	Taking youth as his actual proxy for file-sharing "propensity" he finds having more young people in a city has a negative impact on record sales.
Representative Surveys			
Zentner 2006	Consumer Technographics survey by Forrester Research with 15,000 observations from 7 European countries from 10/2001, which contains no data on the intensity of music purchasing and downloading.	"The percentage of people who bought music is much larger among the group who regularly download MP3 files (55.8 percent) than among those who do not (37.7 percent)." "Without downloads, sales in 2002 would have been around 7.8 percent higher."	He admits to numerous data limitations, calling his estimates the results of "back-of-the-envelope calculations."
Andersen/Frenz 2007	2,100 Canadians surveyed by Decima Research in 4-6/2006 representative of the Canadian population.	For every 12 songs downloaded from P2P networks, music purchases increase by 0.44 CDs.	People who purchase music also purchase DVDs, concert and cinema tickets and video games. Thus, these are not substitutes but complements.
Huygen et al. 2009	1,500 Dutch representative of the Internet population	44% of the Dutch Internet population download, while 84%	The effects of file-sharing for welfare are strongly positive. With consumer

	aged 15 upwards in 4/2009 + interviews in the 3 industries and with file-sharers + literature review.	purchase. Downloaders pay more often for concerts, DVDs, games and merchandise than non-downloaders. Music-downloaders on average buy as much music and up-to-24-olds buy more music than non-file sharers. From 1999-2007 the total entertainment market has remained constant, with decline in music and strong growth in games and cinema.	welfare estimated at €200 million a year and industry turnover losses at most €100 million, the net is a gain of €100 million.
Bahanovich/Collopy 2009	1,808 respondents representative for 14-24 year olds across the UK (a follow-up to a study by the same authors in 2008).	61% file-share music, unchanged from 2008. Most still buy CDs, with the average collection significantly larger than in 2008 and spending split 50:50 between live and recorded music.	There is no remunerated private copying permission in UK. It seems more than half of respondents want that changed. 85% of file-sharers are interested in paying for an unlimited, all-you-can-eat MP3 download service. 77% would still buy CDs.
Non-Representative Surveys			
Bounie/Bourreau/Waelbroeck 2005	352 French graduate students in 5-6/2004.	88% got free music, 93% discovered new artists, leading 70% to buy more CDs.	International repertoire is downloaded disproportionately more than local music. Downloads differ significantly by genre.
Rob/Waldfoegel 2006 (2004)	412 students in 4 US colleges in 12/2003-2/2004 + sales from RIAA.	A download reduces purchases by between .1 and .2 units. Infer that downloading reduced purchases by about 10% during 2003. At least some of the music that is downloaded would not have been purchased.	Downloading reduces students' per capita expenditures by US\$25, but raises their surplus by US\$70, leading to a per capita decrease of US\$45 in deadweight loss, which is nearly double the reduction in industry revenue.
Gopal/Bhattacharjee/Sanders 2006 (2004)	200 US college students (no date given) + Billboard charts + Internet access from	Decreasing sampling costs lead more consumers to sample and buy unknown music, more unique artists and	Find that in the presence of online music sampling, uniform pricing for all music items is a suboptimal strategy.

	Euromonitor	albums to appear on the charts and to erosion of the superstar effect.	
Volz 2006	Online survey with 630 respondents worldwide with a focus on Germany (66%) and the US (14%).	Intense music consumers prefer non-stars to stars and CDs to downloads. Online music consumers prefer a more diverse selection than offline consumers.	Cultural diversity is enhanced by providing fans with ways to meet and communicate online, e.g. chats and discussion boards.
Leung 2009	884 US undergraduate students.	59.8% buy music, 61% download from P2P, more than 70% own an iPod. "When students pirate 10% more music through P2P web sites, they buy 0.7% fewer iTunes songs and 0.4% fewer CDs." "Music piracy contributes approximately 22% to iPod sales."	Tests 2 alternatives to the current regime: No Music Piracy (Three Strikes) and Free Music-Royalty (complement providers like Apple pay for legalised P2P). Total welfare decreases in the first and increased in the second case.

Summary

Is P2P file-sharing responsible for the slump in music sales or does it create demand? The empirical research literature is inconclusive. If one were to simply add up studies showing a negative effect and those showing no or a positive effect one would find that the two camps are on par. But that is, of course, not a meaningful exercise. What has clearly emerged is that there are quite a number of different dynamics at work yielding a mixed result with respect to album sales, a likely positive result for the music industry as a whole through gains in concert and merchandising revenues, and a clearly positive effect on social welfare through improved market chances for non-star music, greater cultural diversity and increased consumer surplus.

Even the IFPI grants that file-sharing functions as a discovery tool for digital music buyers and "the obvious fact, also borne out in research, that some file-sharers are often also buyers of music," (2010: 5) and it only claims that the net impact of the negative and positive effects of illegal file-sharing is negative, which in turn is allegedly a large, but certainly not the only factor in the major label's decline. Only one lone author – against all basic intuition and common sense – attributes the entire decline in recorded music sales and even more to file-sharing.

Summing up, we find as likely effects on the negative side: Some downloads substitute for the purchase of music; some downloads lead to deferred purchase at a lower price than the price at launch; some sampling leads consumers to discover that they do not value music enough which they otherwise would have bought.

Neutral effects include: Consumers download music that they do not value enough to buy; some downloaders simply do not have the money to buy; some downloads (out-of-print repertoire, bootlegs) are not commercially available.

On the positive side, likely effects include: Some downloads lead to discovery of music of artists from whom consumers subsequently buy; some downloads enhance artists' popularity and thus increase revenues from concerts and related products; since the discovery effect is stronger for non-stars than for highly promoted stars, market chances of non-major labels and thus cultural diversity is enhanced; P2P networks provide new artists and small labels with the opportunity to promote their work at no cost to them because the cost is borne by file-shares; some downloads increase reputation and by word-of-mouth lead other consumers to buy.

Alternative explanations for the decline in CD sales

Not only the positive effects of file-sharing on album sales but also our earlier discussion of the IFPI claims with respect to Brazil call the assumption of a causal link into question. Tschmuck (2010) lists further empirical "anomalies": Japan, the second most important music market in the world, suffered an 8.2% decline in CD sales pre-Napster between 1997 and 1999, but an increase by 7.9% in 2000. In France CD sales reached a historic high in 2001. The UK-market dropped by 17.7% in 2001, remained at the same level until 2003, rose by 4.4% in 2004 and showed its first strong dip in 2007. These diverse changes are difficult to reconcile with a continuously and globally growing P2P file-sharing population.

If file-sharing is not the cause, or at least not the only one, for whatever slump in record sales there was, what other factors are likely to have been affecting it? Liebowitz (2003) enumerates several "textbook candidates for factors likely to alter the quantity of records sold," other than illegal file-sharing (5). These include changes in price and quantity of records, income changes, changes in recording formats, changes in the quality of music or in musical taste and changes in the price of complements or substitutes, such as television, movies, radio, video-games and so forth. He rejects all of them. But looking at the development of album sales on a larger time scale (from 1973 to 2002), he finds "at least four dips in sales prior to the current dip," (Liebowitz 2003: 10) and thus confirms that other factors than file-sharing must be at work.

Oberholzer-Gee/Strumpf (2007: 39) identify several plausible candidates. One is the shift in distribution after 1999 with most record stores disappearing and trade becoming concentrated in large retail chains such as Wal-Mart and Lojas Americanas. Amazon.com which launched in 1995 as an online bookstore, but soon diversified to include CDs and DVDs, is an important factor as well. These drive down unit prices and concentrate on bestsellers while not offering niche and indie label albums. Together with the strategy of the major labels to limit their releases to a few superstar albums this development reinforced an impoverishment of the cultural landscape, thus leaving an ever more differentiated demand unsatisfied. Those looking for non-star music have to go to the indie labels on the one hand and P2P networks on the other.

A second factor mentioned by Oberholzer-Gee/Strumpf is that a period of atypically high sales, when consumers replaced older music formats with CDs, ended at the turn of the millennium. The replacement of formats is illustrated very clearly by Table 2 in Tschmuck (2010), showing the global sales development for multiple record

formats based on IFPI data: The vinyl LP reached its historic high in 1981 with 1,140 million units. By this time the LP's successor, the pre-recorded music cassette, was already coming up, reaching its high in 1991 with 1,493 million units. And again by this time the next generation, the CD, had started its rise to its all-time high in 2000 of 2,454 million units, thus more than twice as many units as the LP had sold in its best year. By this time the CD's successor, Internet and mobile downloads were – nowhere in sight.

Recall that the Internet turned into a mass-medium after the first web-browser was released in 1993. The Fraunhofer Institute that had developed the MP3 audio compression technology made a software encoder freely available in 1994 and MP3-encoded music started to spread on the Internet, much of it freely offered by independent artists and much of it encoded from commercial CDs and redistributed without authorization. Therefore anybody interested in music had been aware of the powerful features of digital files and was waiting for the logical transition from the CD to the new format to occur. But it did not, until Apple opened its iTunes Music Store in 2003. What did the major record labels do during the intervening ten years? Two things. For one, they tried to suppress the new technology, suing producers of MP3 players and attempting to outlaw the file format altogether.

Second, they bet their business on a different technology, Digital Rights Management (DRM). By means of cryptographic encapsulation it promised an unprecedentedly fine-grained control over copyright works after delivery to the customer. When it became clear that DRM by itself would not be able to fulfil this promise the music industry sought additional legal protection against its circumvention, which was granted in 1996 by the WIPO Copyright Treaty. A number of industry consortia were set up to establish DRM solutions in various sectors of the culture industry. One of the largest was the Secure Digital Music Initiative (SDMI) established in 1998 by the IFPI and joined by more than 200 companies, including all major computer makers, but quietly disbanded in 2001 after failing to reach its ambitious goals. DRM was primarily used for controlling downloads but also CDs. Sony-BMG's root kit fiasco of 2005 was likely the last nails in the coffin of DRM. A root kit is a set of tools typically installed by a malicious intruder on a compromised computer, hiding its existence and execution from the owner of that system. Sony BMG had been selling several million CDs that, when first inserted into a computer installed such a root kit, remotely controlled by the major label. The exposure of this malicious DRM triggered a public outcry, a consumer boycott and a series of law suits against Sony BMG. This was the climax of a long series of public relations disasters, giving DRM and the companies using it to technologically bully their customers a bad name. EMI announced at the beginning of 2007 that it would stop using DRM on its music products and the other three music majors followed throughout the year (s. Grassmuck 2006).

If one extrapolates the ten year cycle of LP, MC and CD, 2010 should have been the peak of digital download albums. The gaping hole in the fifth column of Tschmuck's table can therefore likely be explained by the music industry refusing to sell their products online without DRM for ten years. Consumers balancing the harm of DRM against the risk of being caught getting a DRM-free version from an illegal download site or, since 1999 from a P2P network, likely chose for the latter. 'Because it's free' the IFPI claims to be the main motivation for file-sharing. But during the same period mobile music downloads turned into a mass market with consumers often paying ridiculously high prices for a few seconds of ringtone of their favourite songs. Thus P2P filled a gap created by industry itself. It is remarkable that none of the studies asking for alternative explanations for the slump in music sales considered the retarding effect of the dead-end street of DRM.

Tschmuck offers another format-related explanation. The last column in his table shows the development of the single format, which rose to a high of 800 million units in 1983 after which it nearly disappeared. He explains that "the single was turned into a test market for yet unknown, non-established artists. Only when the first and perhaps also the second single sold quite well, an album was brought forward for the music consumers ... Especially with the established acts, single-sales played virtually no role." Because in the 1980s, the majors stopped marketing new artists and because the ratio of cost and returns is much better for an album than for a single, majors faded it out. Listeners however, dislike albums which they often consider to contain only one or two tracks of interest while the others are dispensable fillers. With massively marketed superstar albums, CD replacements for the scratched vinyl collection and hit compilations the market expanded nonetheless. Until at first Napster and then iTunes re-introduced the single. "Since 2004, when digital sales were reported for the first time, single sales more than quadrupled (!) to 1.5 billion units" in 2008, the same number as that of albums in all formats sold in that year. "It is clear that you cannot earn the same revenue with the same number of single units than with long-play units sold. Therefore the drop in sales is due to the conversion of an album to a single market. File-sharing can be interpreted in this context not as a cause but as a symptom of the digital revolution in the music industry." Both Napster and iTunes gave consumers what they really wanted: a large diversity to choose from in single tracks not bundled with fillers. Tschmuck cautions against replacing one mono-causal explanation (file-sharing) by another (shift from albums to singles). "However, the 'single market'-thesis contributes a much better explanation for the declining sales in the recording industry than the 'filesharing' thesis." Finally he points out that this trend favours greater diversity: "Whereas superstars have benefited in the past from selling albums, the emerging track-culture on the Internet put them under economic pressure. In contrast, newcomers can take advantage of the emerging single market and the highly fragmented and diverse genre-landscape."

In contrast to Liebowitz' reading of the data, most studies do find a strong impact on record sales from other media competing for consumer's time and budgets. "The sales of DVDs 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. Consumers also spent more on video games, where spending increased by 40 percent, or \$3 billion, between 1999 and 2003, and on cell phones. Teen cell phone use alone tripled between 1999 and 2003." (Oberholzer-Gee/Strumpf 2007: 39) The Dutch studies confirms this by finding a decline only in CD sales and in DVD rentals whereas revenues from concerts, merchandise and other sectors have been rising. "The markets for DVDs and console games continued to grow impressively after P2P services were introduced, and the cinema market showed sustained growth between 1999 and 2007. The total entertainment market has remained more or less constant, suggesting budget competition among the various products." (Huygen et al. 2009: 103)

A final, fairly obvious candidate for replacing a certain share of record sales is the market for used CDs. Yet, like the DRM hypothesis, it has not been tested or even mentioned in any of the research papers in our review. While a second-hand market emerged together with the CD itself, it has experienced intensification and globalization with the Internet. Searching for an album on Amazon.com, one is presented with Amazon's own offer, which is often already significantly discounted over the list price, and next to it new as well as used offers from third parties.

The only paper we are aware of that analysed an online market for used cultural goods is Ghose/Smith/Telang (2006) who studied second-hand books, their possible "cannibalization" of the market for new books and their welfare impact. They write that, compared to brick-and-mortar bookstores, "IT-enabled markets for used books offer low search costs, nearly unlimited (virtual) inventory capacity, global coverage, and – through competition among sellers – relatively low

prices. These market characteristics are clearly attractive for consumers. Internet sales of used books made up an estimated 67% of all used-book sales in 2004. This represents the highest Internet penetration for any physical product category that we are aware of, and compares to a penetration of only 12.7% for Internet sales of new books." (4) Their findings from an innovative empirical methodology lead them to conclude that "only 16% of used-book sales at Amazon cannibalize new-book purchases. The remaining 84% of used-book sales apparently would not have occurred at Amazon's new-book prices. Further, our estimates suggest that this increase in book readership from Amazon's used-book marketplace increases consumer surplus by approximately \$67.21 million annually. This increase in consumer surplus, together with an estimated \$45.05 million loss in publisher welfare and a \$65.76 million increase in Amazon's profits, leads to an increase in total welfare to society of approximately \$87.92 million annually from the introduction of used-book markets at Amazon.com." (3)

Their research has implications for the second-hand market of other cultural goods as well: "We speculate that cannibalization may be particularly acute for digital products, such as CDs and DVDs. Higher cannibalization levels might arise on the demand side because digital content typically does not degrade from use, reducing the importance of quality differentiation. On the supply side, most digital content (including CDs and DVDs) can be easily copied (and thus effectively retained) before they are resold, potentially making them more likely to be introduced for resale by (unscrupulous) sellers." (17)

Preliminary findings on trends in the music industry

"File sharing networks don't threaten book, music, or film publishing. They threaten existing publishers." (O'Reilly 2002)

While the reviewed studies have been selected for their focus on the interaction between P2P file-sharing and record sales, they have also shed some light on the fundamental changes taking place in the knowledge environment as it becomes increasingly digital and networked. Much remains inconclusive and contradictory. Significant factors are yet unresearched and it has become clear that future work is needed, from systematic data collection via theoretically conceptualising the dynamics at work to methodology. Nevertheless, some general trends in digital culture can preliminarily be identified from our review. The following observation in a nutshell may serve to guide their discussion in the remainder of this chapter: "Piracy is a symptom of the change in the way information is acquired and transmitted. Some intermediaries become less important as new information and communication technology allows a more direct matching between artists and audiences." (Dejean 2009: 340)

From industry to audiences

Both audiences and providers of cultural goods do not know beforehand which goods audiences desire. Traditionally, industry attempts to overcome this uncertainty by creating demand through information-push techniques which involve large fixed costs and large wastage. Today, the possibility to search the Internet for items of interest, finding them in locations ranging from Amazon and eBay via MySpace pages to P2P networks, finding related items and being able to immediately experience them, changes the pre-conditions of this strategy. Duchêne/Waelbroeck call P2P "an information-pull technology where consumers spend resources to acquire information on products they have a potential interest in." (2006: 566) Furthermore, they do not only acquire but

also provide information on products they have a manifest interest in, including these digital products themselves. While all of the studies in our sample look at downloads, the complement, the making available for download, the motivations for it and the promotional effects it has, remains under-researched.

"The cultural industry not only lost a part of its revenue but also its ability to select, promote and impose cultural production of its choice." (Dejean 2009: 345) It lost this ability to its customers who can now take the selection and the promotion of what they like into their own hands. Whereas downloading might be motivated by obtaining an item for free, making it available to others involves a significantly higher cost. It can be taken to signal: "I like this. Have a look." In addition, some of the studies mention the significance of more explicit forms of communication. Volz (2006) finds that in particular fans of non-stars music highly value communication possibilities such as chats and discussion boards which allow them to find each other and have a conversation. The Dutch study finds that 13% of music and film sharers report as their reason for file-sharing "making social contacts." (Huygen et al. 2009: 77)

Showing others what one has discovered and likes is an important part of cultural appreciation. Therefore one can assume that conversation, gift exchanges, social distinction by showing off rare items and other social mechanisms are important in file-sharing communities and that they therefore constitute more complex cultural practices than just acquiring something for free. Furthermore, one can conclude that subscription streaming or all-you-can-eat download services, that are often suggested as legal substitutes for P2P, are not. They might satisfy some of the consumptive motivations for using P2P but because they do not allow making available, the second set of motivations is not met.

The dynamics in audience communities certainly warrants further research. It might even have methodological implications. In analysing their data harvested from the three most popular Hungarian BitTorrent trackers, Balázs/Zoltán (2009) encountered the problem of having to disambiguate the wide variety of torrent file names to the movies they contain. With a data set of more than 7,000 items, to do this by hand would have been an arduous task. Automatic pairing algorithms provided noisy results. "Therefore we decided to crowdsource the task of pairing and asked the file-sharers themselves to participate in connecting torrent files with titles. The result was beyond any expectation: several hundred anonymous users finished this task in less than a week, with very few (less than 1%) errors." (16) Thus, instead of approaching file-sharers as objects of research by passively monitoring their actions or, even further removed, utilizing macroeconomic data, one could view them as partners and solicit their cooperation in the exploration of this terra incognita.

From mono-culture to diversity

"Obscurity is a far greater threat to authors and creative artists than piracy." (O'Reilly 2002)

Major labels throw a spotlight on a small number of superstars with global mass-appeal. By playing (and paying) their presence on all channels (radio, TV, popular music press, shelf space), they crowd out other cultural products. They do so because their business model requires an economy of scale, not necessarily to harm competitors. The effect is nevertheless that the indie labels, which are responsible for 80% of all album releases, are left in the dark. "The music industry's business model is to produce stars. ... Stardom leads to a limitation of available diversity and variety." (Volz 2006: 659) Starting from this observation, Volz asks how the online environment might increase demand

for and availability of a larger diversity of music. As variables determining the ratio between stars to non-stars he identifies the completeness of the repertoire to choose from, a listener's knowledge and experience of music, which he calls her "music capital," the possibilities to communicate about music, which feeds into music capital but he finds to be of such extreme importance that he treats it as a variable on its own, the money available for and the time devoted to music consumption.

P2P networks with their virtually complete repertoire allow consumers to "download unknown music without the risk of diminishing their disposable consumption capital. This will add to recipients' music capital and eventually lead consumers to go to concerts they would not have gone to without knowing the music. Since the main income source for most musicians is from performances and not recorded music, P2P networks will help to generate an income for nonstars, allowing them to further perform and establish a greater diversity of music." (Volz 2006: 664) But also CD sales, especially to the most intensive listeners are improved. Volz' survey shows that the ratio between MP3 downloads and CD purchases is positively correlated to the usage of P2P file sharing networks. Both the numbers of purchased CDs and of downloads have a negative correlation with the star-factor. "One can conclude that more intense music consumption leads to a preference for nonstars." In short, "online music consumers do prefer a more diverse selection than offline music consumers," (665) and "while iTunes appears to be a tool to distribute popular music especially, P2P networks are a tool to promote less popular music." (664)

The Internet does not have the limitations of the old promotion channels. In principle, everything can be, and in fact, most everything is out there. Here it is not scarcity but over-abundance that leads to obscurity. Artists, indie labels and netlabels have to struggle against not being found. The answer is wide dissemination, discovery through information pull in which music lovers engage most actively, who are also the most faithful music buyers, re-distribution by listeners and communication in fan communities. The discovery effect of file-sharing has been shown by many of the studies (Blackburn (2004), Tanaka (2004), Boorstin (2004), Bounie/Bourreau/Waelbroeck (2005), Hendricks/Sorensen (2009)). Superstars who are promoted via all channels have little extra to gain from it, therefore discovery naturally works in favour of lesser known artists.

For audiences this means a greater variety on which they can develop their taste, find more specialized products that fit it and avoid bad buys. For artists it means the skewed distribution of success flattens and therefore their chance of being discovered by audiences and building a reputation rises. Clearly social welfare is improved, which would still have to translate into improved income for artists. Several studies indicate that it does. Peitz/Waelbroeck (2006): "The property that sampling allows consumers to find a better match to their tastes, tends to lead to higher profits under file-sharing." (908) Gopal/Bhattacharjee/Sanders (2006): "As sampling becomes less expensive, the superstar effect is eroded overall, and more users purchase music items based on their actual, not perceived, valuations." (1528) They see this reflected in the sales charts: "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." (1526)⁷⁷

One year later, Bhattacharjee et al. confirm this result in their detailed analysis of chart survival of albums before and after Napster. "The average survival has decreased between the two periods,

⁷⁷ "The number of unique artists on the charts has shown some changes with the introduction of new technologies such as the graphical Web browser (1993), widely available MP3 playback software (1997), and peer-to-peer (P2P) file sharing software (1999). These technologies represent watershed events, since the browser made Internet surfing easier for all, created online fan clubs, and lowered sampling costs; MP3 players spurred the conversion of digital music files into smaller MP3 format files; and P2P software blossomed by enabling the sharing of such files, further lowering sampling costs." (Gopal/Bhattacharjee/Sanders 2006: 1522 f.)

from about 14 to 10 weeks, suggesting that albums do not last as long on the charts in the post period. Conversely, debut rank has improved from 49 to less than 40 on average, indicating that albums debut at a better position but drop more steeply in post period. ... The number of superstars appearing on the chart has decreased marginally in post period. ... Finally, albums from minor labels show a significant jump on the chart during post period." (Bhattacharjee et al. 2007: 11 f.)

When major labels can no longer control channel and attention scarcity, popularity and sales of an artist depend on the perceived intrinsic value of a music item. For higher valued music file-sharing leads to more sales, while lower valued downloads are either kept or deleted without inducing purchases. This observation leads Gopal/Bhattacharjee/Sanders like other authors to the need for price discrimination: "If a producer is aware of the true value of a song to consumers, he can set the price accordingly to maximize profits. For producers, the model shows that, in the presence of online music sampling, uniform pricing for all music items is a suboptimal strategy. The key challenge is to obtain priors on this realized value, so that differential pricing schemes can be effectively implemented based on music valuations." (Gopal et al. 2006: 1529)

The prominent example of the Nine Inch Nails' album release proves this point impressively but with a twist: Without any elaborate and costly research on priors the band offered their product in packages priced from 0 to 300 US\$ and simply let their fans self-select their valuations. In studying three music sites that deploy pay-what-you-like schemes for free licensed works, Belsky/Kahr/Berkelhammer/Benkler (2010) find that this self-valuation works even without any differential packaging, leading to a mix of non-payments, perceived 'normal' payments and 'hyper generous' payments that on average are higher than the forced payments in services such as iTunes.

From recorded to live music

"Much has been made of the idea that growing live music revenues can compensate for the fall-off in recorded music sales, but this is, in reality, a myth. Live performance earnings are generally more to the benefit of veteran, established acts, while it is the younger developing acts, without lucrative live careers, who do not have the chance to develop their reputation through recorded music sales." (IFPI 2010: 19) Note that IFPI is not saying that selling records would be lucrative for young musicians, which it is not even for established acts,⁷⁸ but only that a record label would be a chance, the only chance, to develop a reputation. In fact, the major labels IFPI is representing ceased to develop new talent in the 1980s and now only sign those who already have a lucrative reputation. Major labels traditionally viewed concerts as advertising for records, for the obvious reason that selling records is how they earn their money and they did not participate in their bands' revenues from concerts and merchandise. In this statement IFPI is implying that this is turning around: Records, the revenues of which are largely consumed by the cost of producing and marketing them, become advertising for lucrative live careers.

What do the studies in our review tell us about myth and reality? Liebowitz (2003: 21) based on data from Pollstar finds a large real increases in concert revenues in the US in the years 2000 and 2001. Volz (2006), without referring to data, remarks that discovery through file-sharing leads consumers to go to concerts they would not have gone to without knowing the music. "Since the main income source for most musicians is from performances and not recorded music, P2P networks will help to generate an income for nonstars, allowing them to further perform and establish a greater diversity of music." (664)

78 E.g. the band Snow Patrol did not recoup their advance even though they sold six million copies of their latest album, and so they did not see any money from record sales (Guardian Blog, 25 July 2008, <http://www.guardian.co.uk/music/musicblog/2008/jul/25/dealornodeal>).

The Dutch study states that alternative sources of revenue that still guarantee excludability such as live concerts, ringtones and merchandise have been virtually ignored in the analyses that they have reviewed (Huygen et al. 2009: 23). They do find that the music economy appears to be facing a shift in spending away from recordings to concert tickets and, to a lesser degree, merchandise. "Note, however, that the evidence for this is anecdotal at present, as hard figures for these markets are in short supply." (13) They do cite that research by GfK Germany revealed that the market for concerts outstrips that for music recordings. (42) They also note that ticket prices for live concerts have shot up in recent years. In their survey they find: "As for concerts, file sharers go quite a bit more often than non-file sharers: an average of 3.8 times compared with 1.6 times a year, file sharers buying merchandise 0.36 times compared with 0.23 times for non-file sharers." (74)

The Swedish study also states that it is difficult to get exact econometric data on the live music market but it does show a significant increase in ticket sales and ticket prices. The revenues of both the five largest Swedish live promoters and the royalties collected for live music by the collecting society STIM doubled from 2001 to 2008 (Johansson/Larsson 2009: 5, 6). Curien/Moreau (2005) show that P2P file-sharing has a positive impact on the music industry as a whole (recorded music, live music and ancillary goods such as ringtones, etc.). They cite data that shows that between 1999 and 2004 in the US the average ticket price rose by more than 40% and concert tour revenues nearly doubled (23).

One of the studies that specifically address the interaction of file-sharing and live performances is Mortimer/Sorensen (2005). They base their analysis on US concert data from Pollstar for 1,806 artists in 1993-2002, covering a wide range of artists from relative unknowns to major superstars, playing in venues ranging from small auditoriums and clubs to large stadiums. They find that "the number of artists on tour more than doubles from 1993 to 2002, with the total number of bands in those years increasing from 408 to 1000." (15) For their sample of bands that both tour and sell CDs they find a sharp rise in the years 2001 and 2002 in the number of concerts and in concert revenues. The ratio of concert revenues to CD sales is increasing from 1.10 in 1993 to 2.66 in 2002, with the most dramatic change coming in 2001. "In other words, in 1993, total concert revenues for bands are estimated to be roughly equal to total CD revenues, while in 2003, total concert revenues for bands are estimated to be over 2.5 times larger than CD revenues." (16)

Because Mortimer/Sorensen want to test for the effect of file-sharing, they pool their data into 1993-1998 vs. 1999-2002. They find that in the second period both the total number of concert tickets sold and the total number of concerts performed increased, in spite of sharply increasing ticket prices. The number of different artists performing concerts also increased dramatically. (22) Bands were more likely to tour in the later period. "The largest increases in touring activity were seen by young bands (28.4 percent relative increase in touring activity), and among Jazz/Latin and Urban/Rap bands." (26)

Concerts stimulate demand for CDs and vice versa sales/downloads of albums boost demand for concerts. They find a contrarian effect of file-sharing on both these spillovers. "Averaged across all artists and markets, the increase in local CD sales around the time of a concert was around 163 units in the years 1993-1998. After the advent of file-sharing, the spillovers from concerts were roughly half as large." (20) Conversely, "the estimates indicate that before 1999, a 100 percent increase in the number of CDs sold within six months prior to a concert event is associated with a 16 percent increase in concert revenue. After 1999, this number increases to 21 percent, and the difference is statistically significant." (24 f.)

In their cross-sectional analyses they use Internet access as proxy for file-sharing. "We do not find large differences in the probability of touring across cities with high vs. low broadband penetration." (26) They do find that the declines in the spillover effect on CD sales were much stronger in cities with high broadband penetration. (21) But they also caution against these results. Unlike the simple time trends, which are uniformly consistent with their predictions, the evidence from the cross-sectional analyses is mixed: "Some of the tests appear to confirm our interpretation (that the changes over time reflect the impact of file-sharing), but others are noisy and/or difficult to interpret." (13)

Finally they look at the differential effect on established musicians and newcomers: "Some authors have suggested that file-sharing should be most important for young bands, since downloading is a way of costlessly sampling new music. Of course, similar reasoning suggests that concert spillovers will be largest for young bands: the impact of increased airplay and promotional activity around the time of the concert is greatest when many consumers have not yet heard of or purchased the artist's music. The numbers in table 2 appear to be consistent with both of these ideas: spillovers were in fact largest for young artists, but young artists also experienced the largest decline in the spillover effect." (21) They conclude: "For artists, the decline in revenues from recorded music after 1998 is striking, but appears to have been more than offset by a concomitant increase in concert revenues." (32)

It used to be that artists can sell live performances only after having sold a significant number of albums. The Internet provides them with a range of options for building a reputation from MySpace, Facebook, Archive.org, YouTube and Last.fm to P2P networks. Duchêne/Waelbroeck (2006) call these "information-pull technologies" where consumers bear the cost of acquiring information as opposed to traditional information-push technology where major labels use promotion and advertising campaigns, "which involve large fixed costs, so that only a handful of artists (with a large potential audience) are profitable to market." (566) As an example for information-pull they cite the then recent success of the Arctic Monkeys who made their music freely available on file-sharing networks. The band had built a sizeable following already when they released their first album which sold more than 360,000 copies during the first week – a U.K. record which topped the record set by the Beatles.

While the effect of commercial and artist self-publishing services are another reason why Internet access cannot be used as proxy for file-sharing, artists like Nine Inch Nails and Arctic Monkey using file-sharing for promoting their works make it clear that P2P practices cannot be equated with copyright infringement.

Furthermore, the strong evidence that spending is shifting from recorded to live music indicates that recordings, both as CDs and downloads, are now turning into advertising for concerts. In their conclusion, Curien/Moreau (2005) recommend to record companies that rather than fighting P2P they should embrace it and exploit its ability to ensure a large scale diffusion of music at a very low cost. Labels could permit free downloading and increase their profits by saving on distribution costs and to a lesser extent on marketing expenses and by renegotiate contracts with artists in order to participate in ancillary revenues.

This is exactly what has been happening. After the advent of file-sharing, major labels have been concluding so called 360-degree deals with new artists and with their stars, all-encompassing contracts which ensure them a significant share of the revenues from concerts, merchandise, publishing and fan-clubs. In 2002, Robbie Williams was one of the first to sign a 360-degree

contract worth £80 million with EMI for a stake in his entire output.⁷⁹ Not only the majors, but indie labels as well have been moving towards the 360-degrees model.⁸⁰

While some stars like Paul McCartney, Gilberto Gil and Radiohead left their major labels to set up their own, others trust their careers directly to concert organizers. Most spectacularly, in 2007 Madonna left Warner to sign a US\$120 million deal with the global concert promoter Live Nation and became a shareholder in that company.⁸¹ Live Nation Inc. owns concert venues, ticketing agencies and merchandising companies and has similar contracts with U2, Shakira and Jay-Z. Music TV network MTV, which grew big with the music videos that the labels also considered to be mere advertising, has signed a multi-rights contract with Snoop Dogg that includes support for his latest album production and release, inclusion in the next "Rock Band" computer-game and a new TV show.⁸²

The shifts to file-sharing and concerts are therefore only two elements in a fundamental re-organisation of the music industry that neither threatens music nor artists nor the business as a whole.

The copyright regime

With the digital revolution causing such fundamental shifts in cultural practices and markets, it is of little surprise that the empirical findings in our review lead many of the economists to question whether the current copyright regime is still adequate. On the contrary, it is a surprise that copyright law, which recently celebrated its 300th anniversary⁸³ and has gained such significance for both the economic wellbeing of those who create the cultural works it protects and those who economically exploit them, as well as for the knowledge environment at large, i.e. for social welfare, has been subjected to economic analysis since only a few years. Landes/Posner's seminal text "An Economic Analysis of Copyright Law," – defining the task thus: "Striking the correct balance between access and incentives is the central problem in copyright law." (326) – dates from only 1989. A specialized academic society, the Society for Economic Research on Copyright Issues⁸⁴ was established only in 2001. Since only twenty years the economic literature in this area has been growing,⁸⁵ addressing such fundamental issues as the optimal copyright term⁸⁶ and challenging the economic sensibility of intellectual monopoly altogether.⁸⁷ In the final section we will look at the conclusions the studies in our review are drawing for the copyright regime.

Takeyama has already shown in 1994 that even if copyright could prevent copying entirely and if all deterred pirates would subsequently purchase, profits would be less than with copying (Takeyama

79 Robbie Williams signs £80m deal, The Guardian, 3 October 2002, <http://www.guardian.co.uk/uk/2002/oct/03/arts.artsnews>

80 Music giants change their tune, BBC News, 13 September 2007, <http://news.bbc.co.uk/2/hi/business/6948097.stm>

81 Madonna announces huge Live Nation deal, MSNBC Today, 16 October 2007, <http://today.msnbc.msn.com/id/21324512/>

82 Facing The Music: The Recording Industry's Power Struggle, Financial Edge, 3 March 2010, <http://financialedge.investopedia.com/financial-edge/0310/Facing-The-Music-The-Recording-Industry-Power-Struggle.aspx>

83 <http://www.counterpoint-online.org/copyright-1710-2010/>

84 <http://www.serci.org/>.

85 For the emerging bibliography on the economics of copyright and copying see: <http://www.serci.org/abajo%28biblio%29.html>.

86 E.g. Pollock (2009) calculating an optimal protection period of up to 38 years.

87 E.g. Boldrin/Levine (2008) finding that intellectual property in the form of copyright and patent is not only not necessary for innovation but damaging to growth, prosperity and liberty and should be eliminated.

1994: 156). Duchêne/Waelbroeck (2006) model the effect of the major labels' strategies of deploying DRM and lobbying for strong copyright law on major and indie label profits and on consumers' surplus. They show that increased copyright protection could decrease industry profits and have a negative leverage effect on consumers' surplus through technological protection. Instead they see increasing the degree of differentiation between originals and copies as a way forward. This, they suggest, can be achieved by offering features that cannot be copied, like an access code to online chat rooms, forums, additional music and discount on live performances, customized recommendations, etc. Offering a login to a site with additional features makes digital products rival. "The marketplace is thus changing from a commodity market to a service one, as illustrated by MP3.com, which offers complementary services to the music, which represent additional value for users." (576) It seems that major labels had come to a similar cost-benefit analysis with respect to DRM. One year after Duchêne/Waelbroeck's paper (not implying a causal relation), one by one, all of them dismissed this technology.

Chen/Png (2003) test three possible responses by public policy to unauthorized copying: raising legal sanctions, imposing levies on copying equipment and media and subsidizing the purchases of information goods. Calling for civil and criminal penalties is the daily bread of culture industry lobbying organisations across the globe. Levies have been in place for decades throughout Europe, in Canada and other countries, including since the 1992 Audio Home Recording Act in the USA.⁸⁸ The third option has been advocated as a way to discourage copying of databases as well as books. Chen/Png analyse the interactions of these policy options with the producer's pricing and other business strategies and with users' choices.

For a publisher a price reduction and an increase in infringement detection are simply two alternative strategies for boosting legitimate demand, both with their costs and benefits. But for social welfare the three policy options yield significantly different results. Chen/Png assume "that illegal copying affects social welfare in three ways. First, it reduces publishers' incentive to produce intellectual property ('underproduction'). Second, some users who value the product at more than the publisher's marginal cost, but less than the price, get to consume the product ('improved utilization')." (114) Third there is the cost of detection and enforcement. "Then, social welfare is the sum of the net expected benefit among the ethical and unethical segments [among consumers], the publisher's profit, and the government's net revenue." (114) Their work leads them to three conclusions with respects to social welfare: 1. "By reducing the expected benefit among those who copy, an increase in detection imposes greater social losses than a price cut." (118) 2. A levy on media is welfare superior to a fine on individuals who are detected to have made copies. It "has less effect on the legitimate price and encourages the publisher to reduce spending on detection." 3. "Our final result is that it is optimal to subsidize legitimate purchases. Besides stimulating usage, the subsidy leads the publisher to reduce spending on detection. Generally, then, our analysis suggests that policies focusing on penalties alone while ignoring [levies] and subsidies would miss the social welfare optimum." (118)

Bayaan (2004) also questions the industry's litigation strategy and concludes: "An interesting result of this paper is that the best case scenario for society involves firms not using legal methods to combat the free-rider problem. This would suggest that firms are harming society currently as the RIAA steps up its legal assault on file-sharers. In effect, firms are stifling the spread of a more efficient technology in an attempt to protect their market power. In fact, the results raise questions in terms of copyright protection under law. Perhaps society would be better off if copyright

⁸⁸ For a proposal for legalising file-sharing by implementing a collectively managed levy on Internet access, see Grassmuck 2010.

protection did not extend to digital media and file sharing was allowed to spread to all households." (18)

Likewise, Curien/Moreau (2005) suggest that labels rather than fight P2P and sue downloaders should embrace it and permit free downloading. One way they could profit from it, as was mentioned already, is participating in increased live revenues through 360-degree contracts. Another recommendation they make is that "record companies should support the implementation of a *global licence*. ... In such a system, which is already used by the radio industry to pay for the music they broadcast, revenues yielded from the fixed fee that internauts would pay when subscribing to an Internet broadband access, could accrue to artists as well as to record companies and partially compensate for the alleged losses due to piracy." (21)⁸⁹

In discussing copyright and its alternatives for ensuring remuneration for music creators, Liebowitz/Watt (2006) address levies on copying devices (533 ff.) referring primarily to proposals by US law scholars Neil Netanel and William Fisher. It seems to them that media levies are "a possible way to provide compensation for creators if more traditional market mechanisms fail to do the job. However, determining the correct amount of any such tax is a completely separate issue that does not provide for an easy solution. It is clear that this solution is one that should only be seriously examined after other avenues have proven fruitless." (534 f.) They thereby completely ignore that private copying levies on recording devices and recordable media have been in place in most of Europe ever since their invention in Germany in 1964.

Leung (2009) argues that providers of complements of music like MP3 players, Internet Providers and live music performances benefit from file-sharing and could be made to pay royalties in order to legalize it, assuming that they would pass the costs on to their customers. While his analysis shows that a Three Strikes regime that would eradicate file-sharing would decrease total welfare, what he calls a Free Music-Royalty Regime would increase it. "most students love the Free Music-Royalty Regime. An average student gains \$506 when the government adopts the Free Music Regime. Even though some students are worse off, as they are more sensitive to higher prices of iPods (from \$200 to \$335.4), most students find it worthwhile to pay \$135.4 more for an iPod for free and legal online music. In other words, the gains from enjoying more music outweighs the losses from the distortion in the iPods market." (22) "Music producers' profits increase in the Free Music-Royalty Regime. The incentive to create is not stifled." (23)

The respondents in the largest academic survey of young people's music experiences in the UK seem to have the same idea about a fair relation with the artists and about flat-rate remuneration. Bahanovich/Collopy (2009) report that 56% of respondents agree that manufacturers of copying devices should pay a fee to the artists whose music is copied for free. This would finally remove the moral worries (if not the legal worries, of which there are few) about artists not getting paid when doing ordinary things like copying a CD from or for a friend or recording from radio or TV. Note that currently there is no levied private copying permission in the UK. It seems that the majority of young people want to see that changed. 61% file-share music, unchanged from 2008. 85% of file-sharers are interested in paying for "an unlimited, all-you-can-eat MP3 download service." Asked whether such a service would stop them using unlicensed P2P services, 57% said 'yes', 38% 'maybe' and only 15% 'no' (2009: 18 f.) A year earlier, 80% of P2P users had said they would be interested in a "file-sharing service where you could download any music in the world to own and keep." (2008: 32). One has to wonder why the survey designers changed the wording from "file-sharing" to "download service," but the follow-up question in 2009 can be read as an indication that while for

⁸⁹ "Licence globale" is the name of a levied file-sharing permission that was supported by a broad alliance of artists and consumers in France in 2005. See Alliance Public Artistes, <http://www.lalliance.org/>.

the majority P2P is about downloading free music, for a large group it is a more complex social practice that includes sharing with others. 77% said that they would continue to buy CDs, giving a variety of reasons including that by doing so 55% feel they are supporting the artist (2009: 20).

Thus a number of authors in our review see the need for copyright's protection of access and incentives to be re-balanced in order to meet the requirements of the digital age. Assuming that P2P file-sharing is here to stay, further attempts to suppress it are not only futile but harmful to society. Instead, they find that a number of alternatives, including public funding and permitting file-sharing in exchange for a collectively managed flat-rate levy would improve the welfare of consumers, artists, the music industry and society.

Conclusions

"Without a perception of risk, comparable to speeding fines or other forms of social deterrent, consumer behaviour remains largely unchanged." (IFPI 2010:30).

We have to be very clear on what the goal of the IFPI's network of law making, technology and consumer education campaigns is: a giant global re-education programme. The culture industry, this machinery of "mass deception" (Horkheimer/Adorno 1944), that has proven times and again that it mis-judged and rejected each new media technology after its own birth in the shellack record; that in its global major label structure is inherently not inclined to cultural diversity because it needs the economy of scale of globally saleable products; that missed the digital revolution by running into the dead-end-street of DRM for more than ten years; that has lost its core function, recording, to the digitally enabled musicians and has lost the initiative in the Internet market to Apple and in the mobile market to Nokia – this industry is trying to re-shape the emerging information infrastructure of the Turing Galaxy according to its perceived needs.

The goal of its re-education campaign is to change "consumer behaviour". The means for doing this are technologies like DRM, depicted as "speed bumps," so called "consumer education campaigns which include video-clips insulting to every reasonable viewer but also mass-criminalization (IFPI actually lists under "Consumer Education": "Since 2003, the industry has taken more than 100,000 civil and criminal legal actions against individual illegal high volume file-sharers in 22 countries." (2010: 30), and law making like the "Three Strikes" legislation as a "social deterrent", depicted as creating "a perception of risk" which is "comparable to speeding fines". The massive interventions into the digital shared space by DRM and the exclusion of citizens from the Internet for up to one year are down-played as "speed bumps" and "speeding fines": IFPI treats the global society like a teenager learning to drive. It is waging a war on copying that it sees itself as losing. This industry is lost in the midst of the digital revolution.

Like we all are. With the convergence of the information and communication infrastructures in the universal medium of the networked computer, culture is entering a new phase. We are inventing the ways and rules of this unknown territory as we go along. We need to do this as a society, as a global and as an informed society.

- We need to get the facts right.

The research overview has made it clear that much of the emerging dynamics in the digital environment is still in the dark. Systematic data collection on all observables is needed. Where high-resolution data already exist, like in collecting societies, copyright registries, identification

systems such as the International Standard Recording Code (ISRC) or the Creative Commons licensing database, but also in marketing research companies and in the culture industry companies themselves, access by researchers should be enabled. Empirical research has to be expanded, subject to rigorous peer-review and open publication requirements for data so as to allow replication of calculations. As was shown, seemingly obvious factors like DRM, the second-hand market, the live music sector but also effects on independent labels, free-licensed works and the public domain are still under-researched. Refining and to a certain degree standardising methodology would be highly desirable so as to make comparisons across studies possible. Cooperations of economists, computer scientists, law scholars, sociologists, culture studies researchers and others would help avoid disciplinary blind spots.

- We need a society-wide debate.

The regulatory design of our information environment is of vital interest to all of us. Therefore the debate on a new social contract has to be all-inclusive. This debate has started. Copyright law has moved from an exotic corner even within law to the centre of the public debate. When Duke law scholar James Boyle in 1997 called for an "Environmentalism for Net" he did draw comparisons to the history of the environmental movement but intended this as a metaphor. His essay turned out to be a good prediction of things to come. The number of civil society groups such as Knowledge Ecology International⁹⁰ has greatly increased. Just as the numerous initiatives in the environmental movement since the 1960s in the late 1970s formed into the Green Parties, the same is happening with the knowledge environment movement. Starting around The Pirate Bay the first Pirate Party was founded in 2006 in Sweden. Today the party has two seats in the European Parliament and there are Pirate Parties and initiatives in more than 40 countries, all centred around the reform of copyright and patent laws.⁹¹ While facts and reliable analyses are essential for responsibly shaping the digital revolution, the future does not compute from them. We need a common vision of where we want the digital revolution to go and what society we want to live in.

- We need a facts-based, social-welfare-oriented public policy.

This review has shown that the alarmist rhetoric of the IFPI and other industry associations does not hold up to scientific scrutiny. Public policy makers should be cautious not to take their claims at face value and pass the panic-driven, extremist legislation they are demanding. A politics based on the faith that stronger copyright protection automatically generates innovation and jobs is no longer sustainable. Companies may decide to reduce their artists' roster, repertoire, workforce and investments in order to increase profits, as the president of Sony Brazil has publicly stated. From a public perspective, there is no reason to reward such a decision that is diametrically opposed to cultural diversity which is of the highest priority for public policy since the 2005 UNESCO Convention.

Public policy makers are tasked by society with improving the welfare of all citizens. Policy needs to be based on facts and solid knowledge and directed at organizing an inclusive public negotiation about the future course of the digital revolution. While public consultations in law making are now the norm, the potential of the digital environment for inclusion and interactive deliberation needs to be further developed. And since the Internet-based digital environment is truly global, it needs to be a global public policy. It can neither be determined by one single country and its public, industrial and political microcosm alone, nor can members of the United Nations family be given the freedom

90 <http://keionline.org/>

91 <http://www.pp-international.net/about>

to indiscriminately grant or withhold its citizens, whether natural or corporate, the freedoms fundamental to participating in this global formation of the Turing Galaxy.

- What we do not need...

– since the digital revolution is not a social disease like the one that afflicted Germany, Italy and Japan in the first half of the 20th century – is a re-education campaign.

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