

Copyright and Digital Copying Technology

A Critical Introduction to the Economic Literature with Reference to the British and German Record Industries

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Introduction

Copyright plays a pivotal role in the contemporary cultural industries. It applies to virtually all cultural creations that have been published over the last five to ten decades.¹ It defines who is entitled to reproduce a protected creative work, who may make it available to the public and who may modify it. This has obvious implications for the commercial use of creative works and ultimately for who gets to consume them. It does not get much more central than this.

According to the seminal European Directive on copyright in the information society (DIR 2001/29/EC), the official aim of copyright is to promote innovation and creativity in the regulated sector². Over the last years, however, much of the copyright regime has been put into question. Right holders have found it difficult to enforce their exclusive rights to digitally captured copyrighted works. Many users circumvent copyrights on the Internet or by forwarding copies of protected works on CD-Rs and

¹ Copyright applies automatically and without prior test of the quality of an original publication. The duration is harmonised among EU member states to cover 70 years after the death of the author or 50 years after the publication date for performers' 'related rights'.

² With this Directive, the EU has begun to regulate central issues of copyright (especially relating to the digital environment) on the supra-national Union level. The Directive does not mention the protection of certain 'natural rights' of authors to the works they created that are an additional justification for copyright in much of continental Europe.

DVDs to third parties. A surge in unauthorised copying³ has probably been the most significant recent development in the markets for music. Industry representatives have claimed that they lose billions each year in the process. This new wave of unauthorised copying is also starting to affect the markets for television broadcasts and feature films. Many regard unauthorised copying via the Internet or CD-burners to pose a threat to commercial suppliers of reproducible cultural works generally unless restrictions are imposed. The response in most major markets has been to bring copyright extensions under way and to increase investments into enforcement measures.

These measures are of strategic importance for the way cultural works will be incorporated into new digital information networks. Copyright is a cornerstone of the cultural industries as we know them. Nevertheless, there remain unsettling gaps in our knowledge of the extent to which copyright safeguards innovation and creativity in practice, and how it affects the cultural industries otherwise.

In the context of a substantial shift in the copyright regime, it is hardly satisfactory to take copyright for granted. In order to understand recent developments in the cultural industries, we need to take account of changes to the copyright regime. This holds for researchers as well as policy makers. The purpose of this paper is to link the discourse on cultural industries presented in this volume with some of the economic literature on copyright. It attempts to provide an introduction to fundamental arguments and particularly pressing questions. In so doing, it draws on several forthcoming publications on the economics of copyright and the record industry (co-)authored by the author of this article.⁴ Economists seem to have taken the lead regarding empirical

³ In the long-run, file-sharing is probably the more fundamental challenge to the copyright regime and established business models. File-sharing has received a lot more attention in the economic literature. For convenience, unauthorised copying and file-sharing are sometimes used interchangeably below.

⁴ Ch. Handke, P. Stepan and R. Towse, "Development of the Economics of Copyright", *Handbook on Intellectual Property and Competition Law*, ed. J. Drexl (München: Max-Planck-Institut für Geistiges Eigentum, Wettbewerbs- und Steuerrecht, forthcoming).
Ch. Handke, "Plain Destruction or Creative Destruction? Copyright Erosion and the Evolution of the Record Industry", *Review of Economic Research on Copyright Issues* 3.2 (December 2006): 29-51.

contributions to the debate. They are reasonably well equipped to promote our understanding of copyright in many respects. Nevertheless, as will be apparent below, many pressing questions relating to the copyright regime and its consequences probably require greater input by specialists on the cultural industries and from other academic disciplines.⁵

There seem to be two broad and salient gaps in much of the economic literature. One is that several idiosyncrasies of the cultural industries – the peculiar incentive structure of creators, the current industry structure and issues of competition, as well as broader technological changes – seem to receive little attention in economic studies of unauthorised copying. The other is that empirical evidence on the effect of unauthorised copying (e.g. via file-sharing networks) on consumers' interests has received little attention.

Section two introduces the example of the record industry and some of its relevant economic characteristics. The record industry serves well to illustrate the apparent relevance of copyright. A surge in unauthorised copying notoriously coincides with falling turnover in most major markets for authorised copies of sound recordings. This development has provided an important impetus to a series of copyright reforms and an intense debate on the future of the copyright regime more generally.

Section three presents a broad-brush account of the economic understanding of copyright. It comes out clearly in this literature that simple slogans such as “you would not steal a chocolate bar, so do not steal cultural works” are unlikely to provide sustainable guidelines. Instead, the theoretical literature evokes trade-offs between competing ends. From this perspective, a set of reasonably well defined empirical

Ch. Handke, *Wachstum gegen den Trend – Grundlegende Ergebnisse der VUT-Mitgliederbefragung 2005 unter kleinen und mittleren Tonträgerunternehmen*, online, 16 January 2006, available http://www.vut-online.de/studie_wachstum_gegen_den_trend_-_vut.pdf.

Ch. Handke, “Bad for Universal – but Universally Bad? The Uneven Effects of the Current Crisis in the German Phonogram Industry”, *RECIDA Working Paper 9* (2005).

⁵ Regarding the music industry, the interested reader will find a useful, broader introduction to copyright from the perspectives of various disciplines in Frith and Marshall (eds.), *Music and Copyright*, 2nd ed. (Edinburgh: Edinburgh University Press, 2003).

questions need to be addressed in order to determine whether increasing levels of unauthorised copying justify a strengthening of the copyright regime.

Section four points out two remaining gaps in the research agenda on unauthorised copying and the record industry. This section refers back to the idiosyncratic characteristics of the record industry introduced in section two and attempts to develop links to the literature on file-sharing. The basic point is that the assessment might be incomplete if the focus remains on the industry at large, rather than allowing for consumers' interests and divergent interests among different types of producers to enter the analysis.

Section five reviews some data with relevance to consumers' interests and divergent interests among suppliers. For what this first glimpse at some of the evidence is worth, the findings seem at odds with frequently made assumptions regarding the effects of unauthorised copying. It goes to show that in spite of falling revenues, only very limited – if any – adverse developments on the supply side are apparent. The paper concludes by suggesting several topics for further research.

The Record Industry and Unauthorised Copying

The record industry has become emblematic in the debate on reforming copyright. This is due to two roughly simultaneous events. First, a surge in unauthorised copying via CD-burners and file-sharing networks has occurred. What this means is that users enjoyed an unprecedented catalogue of works at their disposal at comparatively minuscule costs and without compensation to right holders. The record industry was affected as the first of the traditional cultural industries.⁶ Second, the record industry has reported a worldwide recession in the market for phonograms (International Federation of the Phonographic Industry [IFPI]). According to many, there is a causal link between a greater intensity of unauthorised copying and falling sales. The

⁶ The software industry has had this problem from the moment it started serving a mass market.

example of the record industry has inspired highly politicised debates on copyright reforms.

The prevailing notion is that something needs to be done. Legislators throughout the major markets have extended the scope (and sometimes the duration) of copyright entitlements. Important copyright owners have lobbied for such extensions. Many also invested in enforcement measures including technical measures such as Digital Rights Management (DRM), ran awareness campaigns and filed suits against downloaders. As it is, copyright reforms will affect all types of protected works. They do not only aim to revert recent dramatic developments in the record industry. They will also set the rules under which other types of copyrighted, creative works enter the digital realm.

The following section addresses some basic economic characteristics of the record industry, many of which they share with other cultural industries and which seem of particular relevance in the debate on reforming copyright.

Basic Economic Characteristics of the Record Industry

The record industry produces and commercialises sound recordings, mainly of musical performances. Media technologies that allow to store, reproduce, distribute and consume sound enable them to do so. The focus of this paper is on the primary market for records, in which copies of recordings are sold to end-consumers.

The record industry shares several basic characteristics with other typical cultural or creative industries (cf. Caves 2000). The cultural goods and services marketed are highly differentiated and so are the skills of creators. Suppliers face uncertain demand conditions especially for new creations and have to deal with great risks. Creative workers are often self-motivated. Their production decisions cannot always be explained by a rational maximisation of pecuniary rewards alone (cf. Frey; Caves; Throsby; Towse, *Creativity, Incentive and Reward*) and many create value as more or less unpaid amateurs (cf. Brosio). Furthermore, recordings are durable and

reproducible information goods that cannot easily be turned into exclusive private property. Copyright can in large parts be understood as a measure to alleviate the problem associated with the provision of such ‘public goods’ by private suppliers. This point will be developed further in section three. Copyright is another uniting feature of the cultural industries. It automatically applies to the vast majority of new publications.

The contemporary record industry is of general interest because it clearly displays several trends throughout the cultural and creative industries. First, the record industry has grown substantially over much of the 1980s and 1990s (for a time-series of turnover in the UK and Germany, see figure 2). More recently, the data published by industry lead-bodies suggests that this expansion has come to an end and made way for a recession that is particularly pronounced in Germany (British Phonographic Industry [BPI], *Statistical Handbook 2006*; Bundesverband der Phonographischen Wirtschaft [BV Phono]). Second, the record industry has a long history as a truly global industry in which multinational firms distribute media content in virtually identical form worldwide (e.g. Malm and Wallis; Negus; Towse, *Cultural Economics*).⁷

Yet, this global aspect of the record industry is only one of its aspects because, third, it exhibits a polarised industry structure. On the one hand, a handful of relatively large multinational record companies – the so-called ‘majors’ – account for around three quarters of the world market and cover most aspects of the value chain in-house (IFPI). At the moment, these majors are Universal Music, SonyBMG, Warner Music and EMI. These companies excel especially in international distribution and provide related services even to many of their smaller competitors. The other extreme is found in the creation of musical recordings. This occurs in a multitude of small organisational units. Creators and intermediary firms such as record companies form temporary exclusive cooperation agreements (e.g. a ‘record deal’). A vast number of smaller record companies – with or without links to the major actors – create a middle

⁷ The integration of an important part of the record industry does not mean that there is no scope for local traditions, styles and trends, however. In Britain and Germany about half of the market value is comprised of “domestic repertoire” (47% and 48% in 2003 respectively) according to the IFPI (157).

layer between the two extremes of multinational corporations and small creative projects. Locally operating small, independent companies seem to have an advantage in niche markets and in the discovery and development of new creative projects, new styles and trends (e.g. Negus 42ff.; Burnett). Ideally, a dynamic balance between majors and so-called ‘indies’ leads to a mutually beneficial co-existence. Burnett (*The Global Jukebox*) draws an analogy to a “symbiosis”. This certainly does not preclude fierce competition and conflicts, in particular during recurrent periods of crisis due to broader changes in the industry (see e.g. Chapple and Garofalo; Caves; Tschmuck).⁸

Fourth, the record industry appears to be in a period of relatively swift technological change. The diffusion of powerful copying technology is one momentous aspect of this. Another one is the authorised delivery of musical recordings without a specially dedicated tangible carrier – via the Internet or mobile telephone networks – that is relatively well advanced.⁹ ‘Digital’ distribution has often been predicted to bring pervasive change to the industry (Goldstein; Alexander; Burnett; Tschmuck). One way to determine the significance of technological change in the record industry is investigating its interplay with the industries’ creativity, i.e. the creation of new cultural goods and services. Another is what the consequences of technological change and innovation are for various types of market participants, competition and efficiency. At first sight, it might seem likely for example that consumers’ interests with respect to the regulation of file-sharing diverge from those of many suppliers, or that creators have different interests from those of some intermediary firms.

Not all contributions to the debate on file-sharing and the record industry take account of the industry’s idiosyncrasies. Arguably, this omission leaves important gaps in the assessment of the situation. Before the implications of these points are developed

⁸ A recent example is the intervention of the industry lead-body for independent record companies IMPALA with the European Competition Authorities that looks likely to force Sony Music and BMG to retract from their merger executed in 2004.

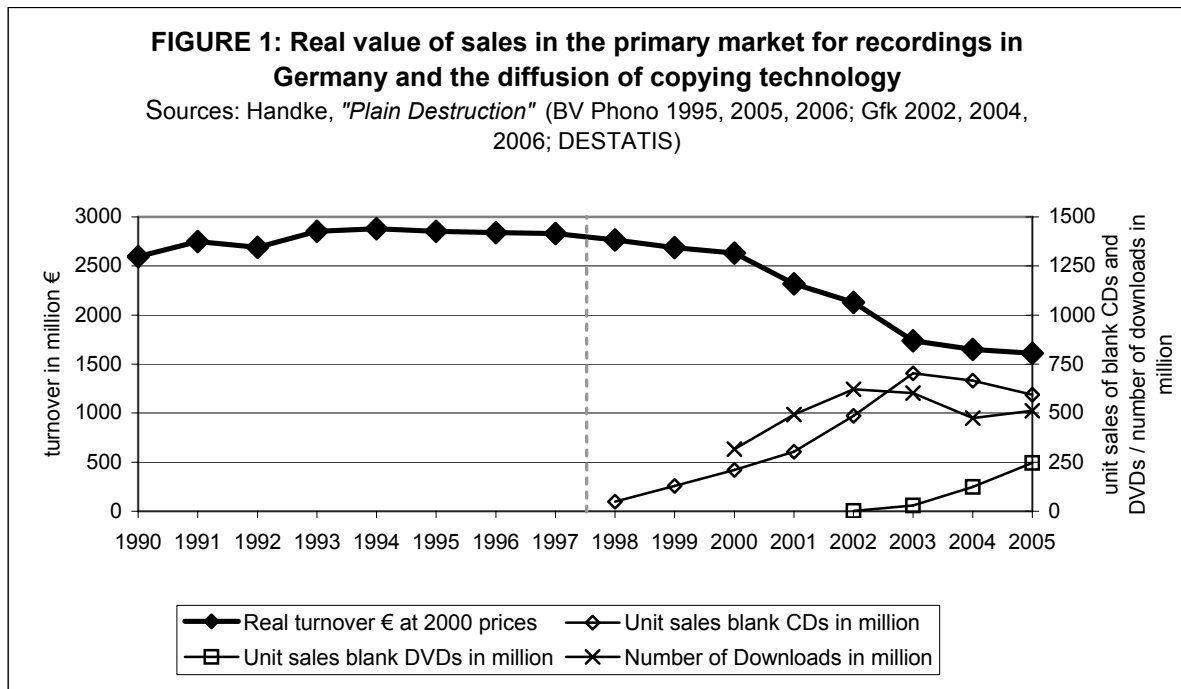
⁹ Of course, unauthorised copying and authorised digital distribution make use of essentially the same ICT devices and networks, the main difference being whether right holders retain some control over who gets access so that they can enforce their commercial interests. Undoubtedly, the application of ICT has had similarly broad, but much less well documented, implications beyond the distribution of recordings, e.g. concerning the recording process or back office tasks.

further, this paper reviews some of the basic empirical observations that sparked the debate on file-sharing in the first place.

The Surge in Unauthorised Copying and Demand for Authorised Copies

In many major markets for recordings, the surge of unauthorised copying with the diffusion of CD-burners and of file-sharing networks coincide with a slow-down in sales for authorised copies. This supports the view that unauthorised copying diminishes demand for authorised copies. The coincidence is especially striking in the German market – the second largest in Europe and fourth largest worldwide. For this market, relatively detailed data is available – probably because right holders sought to communicate their difficulties effectively. See figure 1 for a time-series of the real value of sales in the primary market of recordings¹⁰ where authorised copies – e.g. on CDs, cassettes, vinyl records or as downloads – are sold to end-consumers for private use. Figure 1 also includes various indicators for unauthorised copying (for a more detailed discussion of the data see Handke, “Plain Destruction”). According to roughly simultaneous developments in the use of copying technology among end consumers and turnover in the market for authorised copies, it seems possible to distinguish between two periods: first, the (end of) boom period during which turnover hummed along at historically high, if stagnating, levels; second, the recession period during which first CD-Burners, then – since June 1999 and the emergence of Napster – file-sharing networks and more recently DVD-burners were widely used and sales of authorised copies fell by more than 2% annually in real terms. A dotted grey line separates the boom years 1990 to 1997 and the recession period 1998 to 2005. During the years 2001 and 2003, sales fell especially fast. Overall, the market value decreased by more than 43% between 1997 and 2005.

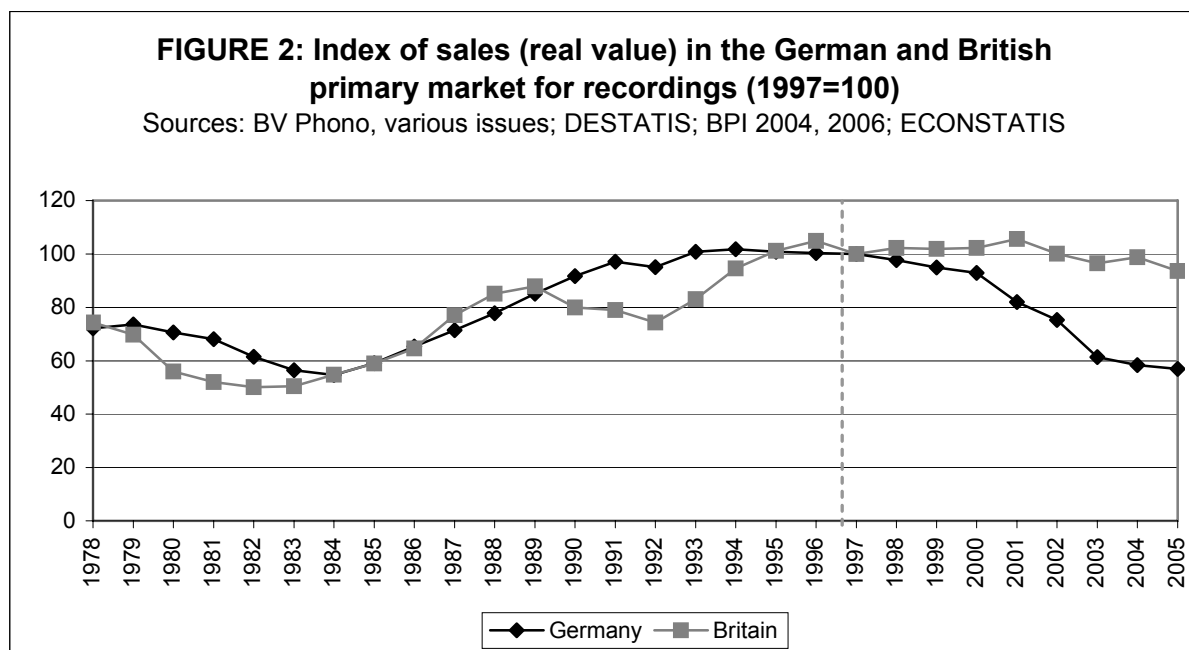
¹⁰ At retail value.



Not all major markets have experienced a similarly pronounced recession since the late 1990s. See figure 2 for a time-series of the sales in Britain and Germany. A dotted grey line marks the beginning of the mass distribution of digital copying technology. To facilitate comparisons, the data is presented as an index setting the year 1997 (the year before unauthorised copying via CD-burners and file-sharing was first acknowledged as a problem for the record industry) at 100. In Britain – the largest primary market for recordings in Europe – sales¹¹ fell after 1997, too. Yet, they did so considerably later and so far less severely than in Germany. These divergent experiences cannot be explained by lower levels of unauthorised copying in Britain alone. To be sure, for this country no complete time-series of the estimated number of downloads was available (the results of the main studies are proprietary) and the methodologies of German and British surveys are not comparable. Nevertheless, it seems that the diffusion of copying technology in Britain is not radically different from that in Germany. Unauthorised copying via file-sharing networks or CD-burners also seems to be widely practised in the UK. The BPI (*Statistical Handbook 2006* 86) quotes data that “downloaders reduced spend may have cost the industry as much as £1.1 billion in lost retail sales over the past three years”, which amounts to nearly 20%

¹¹ Trade deliveries at retail value.

of actual sales between 2003 and 2005. According to their sources, in 2005, 360 million blank CDs were sold in the UK, up from 251 million in 2000. Of these blank CDs, 62% (223 million) are supposed to have been used for “home recording” in 2005. The BPI (*Statistical Handbook 2004 and 2006*) emphasises problems with professional counterfeiting of CDs, which seem less intense in Germany.



Divergent experiences in different national markets are only one of several reasons to be cautious with firm statements on the effect of unauthorised copying on demand. Generally speaking, it is anything but easy to determine what things would have been like without the intervention of a surge in unauthorised copying. Turnover in the two markets investigated has fluctuated substantially in the past. Neither was particularly dynamic in the years immediately preceding the mass diffusion of digital copying technology, even though the general trend over the last fifteen years or so had been positive. Nevertheless, at face value the data is reasonably consistent with the view that the diffusion of copying technology reduces suppliers' revenues. In Germany, the size of the market has fallen dramatically. In Britain, the industry stopped growing with a surge in unauthorised copying.

Most elaborate empirical contributions studying the short run impact of file-sharing on record sales find that file-sharing has had some adverse effect on record sales. (For surveys of the literature see Peitz and Walbroek, “Piracy of Digital Products”, and Liebowitz, “Economists”). Estimates of the extent of this effect differ considerably, however. The majority of the available studies focus on the US market. They attempt to control for various factors that might have influenced sales such as the size and wealth of relevant age groups in the population, the operation of effective promotion channels such as broadcasts featuring attractive music, the retail infrastructure, or the availability of competing entertainment goods and services. Beyond this task, there are two further challenges to empirical studies. First, the data available on the record industry and unauthorised copying of recordings are a prime example of the more general difficulties with access to reasonable comprehensive and reliable data on the cultural industries (Towse, *Cultural Economics*; Caves; Liebowitz, “MP3 downloads”). Much of the publicly available data has been assembled by interested parties. Second, it seems particularly difficult to isolate the effects of unauthorised copying at this point in time. On the one hand, the record industry is highly concentrated in a handful of multinational firms and concerns for market power are rife. That competition authorities have thwarted several proposed mergers between major record companies over the last years provides a good illustration. On the other, the record industry appears to be in a state of technological and structural change. In this context, two basic abstractions that facilitate econometric analyses – perfect competition and market equilibrium – cannot easily be taken for granted.

In short, empirical evidence suggests that the interests of suppliers at large have been harmed somewhat by unauthorised copying. To many, the examples of the relatively well researched US market or the particularly hard-hit German market establish that file-sharing is a serious threat and deserves careful attention. Yet, a considerable degree of uncertainty remains regarding the exact scale of its adverse effect, which is another good reason to pay attention to file-sharing, especially because the issue plays such an important role in driving the debate on copyright reforms. The following account of the basic economics of copying and copyright will illustrate that this

uncertainty is even more fundamental than acknowledged so far. That is because establishing the effect of unauthorised copying on sales of authorised copies is not enough to guide public copyright policy.

The Basic Economics of Copying and Copyright and its Application to the File-Sharing Debate

Copyright endows creators with temporary monopoly rights – the rough equivalent of property – to their original creations. Creators often pass on large parts of their copyright entitlements to firms that specialise in the exploitation of such rights (e.g. publishers and record companies) so that intermediary firms are important right holders, too. A range of economic concepts has been invoked to justify copyright or to explain its function. Below, an attempt is made to lay out the foundations of the understanding of copyright as developed on the basis of economic theory while restricting the use of the specialised terminology.¹² The focus is on the question of how to determine the effect of unauthorised copying and by implication the adequate level of investments into countermeasures such as copyright. The natural rights argument that few economists have addressed (and even fewer endorse as providing a useful function) is not included.¹³ Alternatives to copyright (e.g. Plant; Shavell and van Ypersele; Farchy and Rochelandet; Varian) or the details of copyright law (see Towse, “Copyright and Artists”; Landes and Posner) are also beyond the scope of this account.

The basic argument starts out with two characteristics of information goods such as reproducible creative works. First, while creators have to invest time and resources to produce a new work, these creations are difficult to turn into exclusive private property. Once a creation has been published, it can be reproduced and disseminated at

¹² For a more extensive survey see Handke, Towse and Stepan; Gordon and Bone; Towse and Holzhauser; Liebowitz and Watt; Towse, “Copyright and Artists”; and the wide-ranging Landes and Posner.

¹³ As mentioned in section 2.1, creators do not seem to be responsive to pecuniary incentives alone. It is imaginable that privileges reserved to creators in copyright law that have no apparent commercial use safeguard their intrinsic motivation.

relatively low costs by whoever has access to a copy and the adequate ICT. Controlling this process is beyond the scope of most individual right holders. The question arises how right holders can recoup their investments into creativity if many can benefit from the output without compensating the creator. Second, information is not depleted by use. In contrast to a material object – say an apple that is eaten – use by one individual tends not to preclude the use by others. These two characteristics of reproducible cultural works mean that in contrast to material goods, the exhaustion of information through excessive use is not a problem but safeguarding pecuniary incentives to create might be. Musical recordings are a prime example: they require input by skilled contributors as well as the use of instruments and recording technology. Once the recording process is completed, the costs of copying the work to a CD or to put it online and download it are relatively low.

Copyright aims to foster incentives to create by endowing creators with temporary monopoly rights to their creations. It allows right holders to bar others from using and distributing a copyrighted work. They can charge prices in excess of the costs of producing additional copies, which gives them the opportunity to recoup their initial investment in the creative process.¹⁴

However, a copyright system is costly (Watt; Landes). To start with, it entails administrative and enforcement costs. A copyright system needs to be defined and administered by governmental (legislative) and judicial bodies. Laws have to be backed up by enforcement efforts, i.e. infringements need to be identified and sanctioned. Some of these costs fall onto the general public. Others fall onto each participant of a regulated market, who needs to administer her own rights or to ensure compliance with other rightholders' entitlements. What is more, a copyright system creates access costs. Consumers who value the work by more than the cost of making additional copies, but less than the price being charged are excluded. The point of copyright protection is to keep those unwilling to pay the asking price from using

¹⁴ In practice, income to creators is skewed so that looking at individual creators, a situation where costs are recouped is the exception. Most published copyright works do not recover their costs, while a minority generates great profits to right holders. Over the entire repertoire of a larger publisher or record company, the concept of recouping costs might be more realistic.

protected works. It thus usually generates a state of underutilisation of the existent pool of cultural creations. Policy makers are faced with a trade-off between underproduction in the context of unauthorised copying and underutilisation in the context of (temporary) monopolies. Sometimes this is taken to mean trading off suppliers' and consumers' interests. Access costs also incur where creators are deterred from building upon prior works because they are unwilling to pay the price the copyright holder demands. It follows that over time, "(p)aradoxically, too much copyright protection can reduce the number of new works created" (Landes 13).

In short, a system of property to intangible information goods such as cultural works tends to be a lot more costly than it is in the case of material goods. It is more difficult to establish because information cannot easily be fenced in. The opportunity costs of doing so are also relatively great because once a creation is captured in reproducible form, no amount of use would devalue it. That is, one basic argument in favour of private property – avoiding overuse and the depletion of resources in the public domain – does not apply. Many economists take this to believe that copyright entitlements should be weaker than property to material assets, as in fact they are.¹⁵ This reasoning leads most economists to address copyright in terms of a cost-benefit trade-off, where the costs of unauthorised copying need to be set into relation to the costs of effective countermeasures. That is, economic theory alone makes no clear-cut prediction as to the net effect of unauthorised copying on producers or for society at large. Assessing this effect and by implication the desirability of countermeasures requires an analysis of the specific circumstances of the market affected. It is an empirical question (cf. Towse, "Copyright and Economic Incentives"; Liebowitz, "MP3 downloads").

¹⁵ These limits include the limited duration of copyright and so-called "fair use" that permits unauthorised copying under certain circumstances without the right holder's permission.

Does a Surge in Unauthorised Copying Justify Strengthening the Copyright Regime?

In the record industry, the current diffusion of a more powerful copying technology has led to a surge in unauthorised copying. In this context the question arises whether increased levels of unauthorised copying justify efforts to strengthen the copyright regime. To answer this question, the effect of unauthorised copying needs to be specified. For the argument developed in this paper, it is useful to clearly distinguish between three steps in this assessment:

1. Cheaper unauthorised copies can substitute the purchase of authorised copies. Where this happens, unauthorised copying displaces demand. The extent of this substitution effect depends on the relative costs of unauthorised and authorised copies, the extent to which consumers favour originals, and the deterrence of would-be infringers through existent enforcement measures.
2. Second, if there is a significant substitution effect, unauthorised copying makes it more difficult for producers to recoup the costs of producing the first original. Creators and intermediary firms that finance them are at a cost disadvantage in comparison to free-riding competitors that make copies available without investing in the creation of the original. The economic literature on copying suggests that there are some factors that might offset the adverse effect of unauthorised copying on those investing in creativity. Network effects might apply so that the value of some information goods increase with the number of people that use them (say if people appreciate talking about music they are familiar with). Furthermore, when right holders are aware that a particular type of users passes on the copyrighted works to many others, they might simply charge this group higher prices. Liebowitz (“Copying and Indirect Appropriability”) coined the expression ‘indirect appropriability’ and observed that this was precisely what publishers of academic journals have done with the arrival of photocopiers in most libraries. They simply charged libraries higher subscription fees. Finally, consumers might come to value some authorised copies more if they are able to sample them via free streams or downloads. If

authorised copies are perceived to be more valuable than unauthorised downloads, sampling might have a similar promotional effect as airplay on broadcasting channels is supposed to have. It is a contentious question whether any of these potentially mitigating factors do play a significant role in the case of the record industry affected by file-sharing.

The effect of unauthorised copying on producers' interests is addressed in these first two steps in the reasoning for copyright. The related questions – whether copyright displaces demand and suppliers lose revenues – has attracted copious attention. Section 2.2 presented some of the widely debated *prima facie* empirical evidence and referred to the results of existent studies that by and large find that file-sharing has harmed suppliers' interests to some extent. Subject to the scale of the problem and the costs of private countermeasures, right holders can decide whether private enforcement measures make good business sense.

However, concerning the justification of public investments into fighting unauthorised copying cannot be the end of the story. That is because consumers probably benefit from unauthorised copying in the short run. File-sharing facilitates access to a great number of recordings – perhaps many more than are available via conventional outlets – at low costs. These benefits to consumers have received little systematic attention. As a rare exception, Rob and Waldfogel (“Piracy on the High C’s”) estimate that consumers' welfare gains from file-sharing are considerably higher than producers' losses. This type of argument has not caught on among economists due to a crucial extension to the reasoning for copyright in a third step.

3. If revenues to producers fall due to unauthorised copying, pecuniary incentives to produce and disseminate works will be diminished. Some of the producers that find it harder to recoup their costs will cease to operate. There will be fewer investments into creativity than would be ‘socially desirable’.¹⁶ The extent of this problem depends on how responsive producers are to pecuniary incentives.

¹⁶ What economists mean with this is that some resources, which would generate greater value for society if they were dedicated to the production of cultural works, are put to alternative uses.

Subject to the sensitivity of supply to falling pecuniary rewards, the underproduction of inexcludable cultural goods and services will be the outcome of unauthorised copying. Less new creations will be supplied. Landes (13) predicts with a view to file-sharing that “[...] given the speed and low cost of copying, as well as the difficulty of employing private measures to prevent copying, we would expect a decrease in the number of new works created [...]” unless copyright protection is reinforced.

This extension to the argument is crucial for determining the adequate level of public investments into copyright protection, because public policy does not aim to maximise revenues to private corporations but social welfare more generally – which includes consumers’ interests. In the short run, consumers might benefit from unauthorised copying. In the long run however, after suppliers have had the time to adapt their production decisions to changes in the market, this might not be the case. To the extent that the supply of new creative works does dry up in an environment of intensive unauthorised copying, unauthorised copying is not only a problem of suppliers but becomes a problem for consumers, i.e. society at large. That falling revenues to suppliers will translate into a diminished supply of creative works has largely been taken for granted in the debate on file-sharing. The extent to which this occurs in practice remains largely unspecified. That is one of the gaps in the research agenda on file-sharing, which the following section addresses.

Gaps in the Research Agenda on File-Sharing and the Record Industry

The economic literature on file-sharing and the record industry has focused on the harm of unauthorised copying for suppliers – the first two steps in the above account. Hardly any empirical work has been published on the obvious immediate benefits of file-sharing to consumers. It seems reasonable to expect that consumers’ interests will eventually be adversely affected if suppliers cease to make reproducible creative works available. The extent to which an adverse effect on suppliers comes to adversely

affect consumers' interests has not been specified, however. Arguably, this is one of the most uncomfortable gaps in our knowledge concerning current copyright reforms. It harks back to the extensive and inconclusive literature on whether intellectual property such as patents or copyright does in practice foster innovation and creativity. Even if that were the case, public policy-making would benefit from specifying exactly how sensitive supply is to suppliers' income and what role copyright protection plays in determining it.

Nevertheless, this might appear to be an awkward question under the assumption that the record industry is competitive and production methods are stable as the impact of file-sharing is playing out. Under such circumstances, a displacement of demand due to increased unauthorised copying would certainly diminish supply. As seen in section two, however, these assumptions might not reflect the reality of the record industry to a satisfactory degree. Competition in the record industry is probably significantly less than perfect if recent objections to further mergers by competition authorities are anything to go by.¹⁷ At the same time, the industry seems to be caught up in a period of relatively swift technological change.

Much of the literature on file-sharing does not address issues of competition and broader technological change (beyond the diffusion of copying technology). This is a second significant gap in the research agenda. It is worthwhile to go through a short reasoning why such an omission might matter. Innovation and technological change can imply that productivity increases – costs fall or the quality of products increases. Radical technological change further tends to subvert market power (e.g. Abernathy and Utterback; Freeman and Perez; Klepper). Many accounts of the history of the record industry find that to have been the case during past periods of swift technological change in the record industry. These saw the entry of a great number of small new firms that challenged and sometimes even did away with the predominant position of incumbents (see Gillet; Peterson and Berger; Chapple and Garofalo; Caves; Tschmuck). Both the erosion of market power and thus greater efficiency or

¹⁷ Strictly speaking, due to product differentiation the industry would be in state of monopolistic competition in the absence of barriers to entry.

technological change and greater productivity could mean that costs fall. If costs fall, suppliers' profits need not be affected by falling revenues. Supply might remain stable or even grow in spite of falling revenues.

This is a complex argument. Without empirical evidence supporting it, it holds little sway. The following section presents some exploratory empirical evidence regarding the record industry and the supply of sound recordings. It appears that supply has been surprisingly resilient in spite of falling revenues and high levels of unauthorised copying. The data suggests that the diffusion of copying technology is very likely to coincide with other significant changes in the record industry.

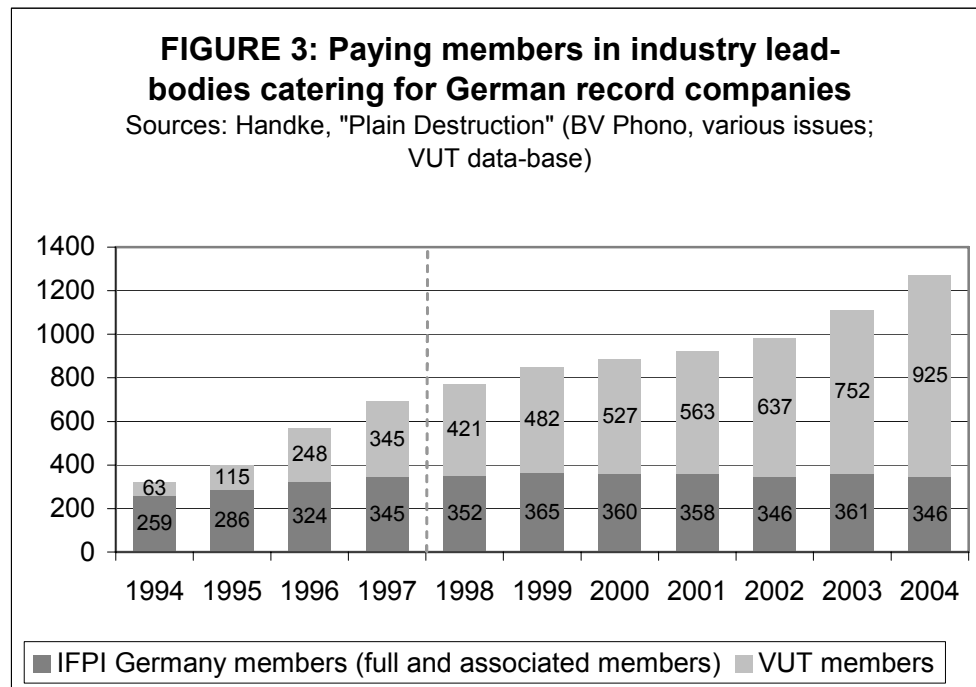
Supply and Market Entry in the Presence of File-Sharing

The following section of the paper addresses some quantitative data on the number of record companies in Germany and the supply of new publications in Germany and Britain. More than seven years after Napster established file-sharing as a mass phenomenon and after eight years of a severe recession in the market for recordings, to what extent has a problem on the supply side materialised?

Market Entries (the Number of Record Companies)

Record companies (i.e. organisations that acquire and commercialise rights to sound recordings) traditionally play a pivotal role in the record industry. They tend to coordinate the various specialised activities concerning the creation, reproduction and distribution of recordings. Figure 3 presents the number of paying members in two industry lead-bodies catering for record companies in Germany: the German division of the International Federation of the Phonographic Industry (IFPI Germany) and the German Association of Independent Labels, Publishers and Producers (VUT). A dotted grey line marks the beginning of the recession period. The IFPI Germany mainly attracts larger record companies. All major firms are members and so are their

subsidiaries as well as some of the larger, more commercially orientated indies. The VUT predominantly provides for smaller, independent record companies.



According to this data, the number of record companies in Germany has increased in spite of a severe recession and in the presence of high levels of unauthorised copying after 1997. Data on the number of record companies that are members with the collecting society Gesellschaft zur Verwertung von Leistungsschutzrechten (GVL) confirms that there seems to have been alleviated numbers of market entries during the recession period. (For a more detailed discussion of the data, see Handke, “Plain Destruction”).

An alleviated number of market entries is inconsistent with common-sensical expectations in the context of a severe recession and alleviated levels of unauthorised copying. What is more, apparently the population of larger record companies developed differently from that of smaller firms. The number of IFPI Germany members stagnated during the recession, while the number of VUT member firms that are mostly smaller record companies increased substantially. There seems to have been a greater number of market entries by smaller firms during the recession than in the preceding boom years in the German record industry. Handke (“Plain Destruction”)

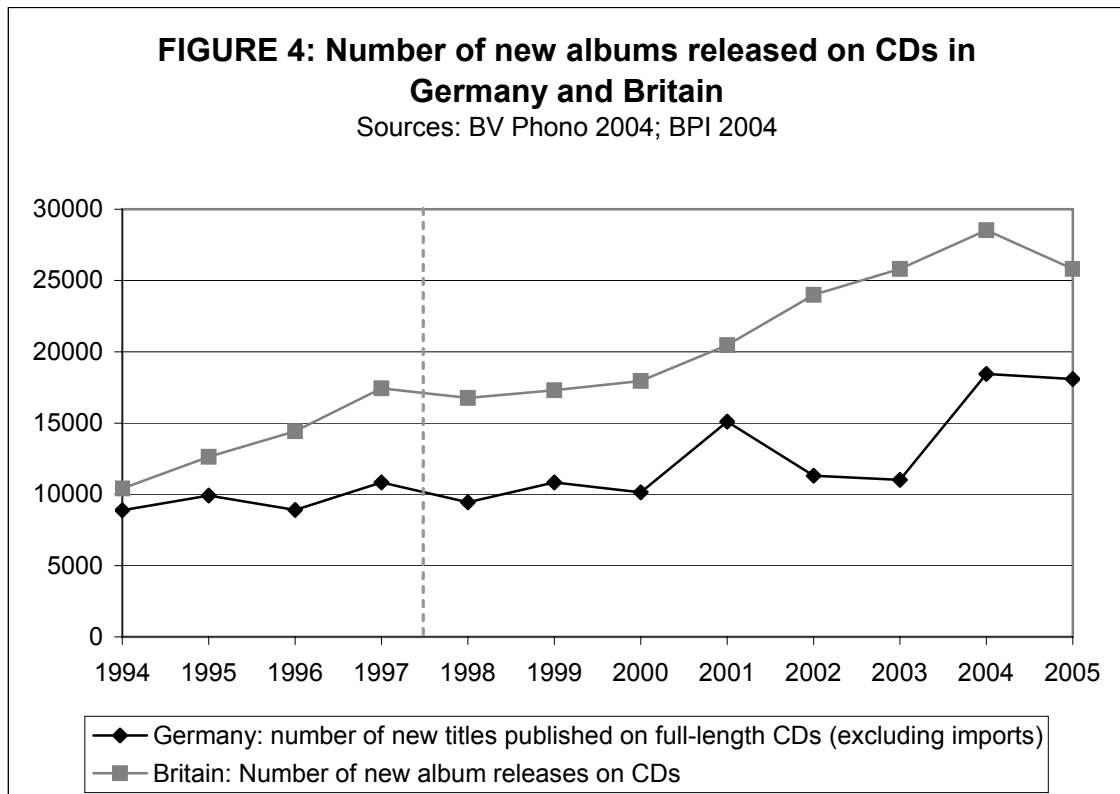
suggests that this is more consistent with creative destruction in the context of technological change rather than with the demise of an industry due to unauthorised copying.

The Number of New Publications in Both Britain and Germany

Figure 4 exhibits a time-plot of the annual number of new albums released on the most widely used sound-carrier format of CDs in Britain (BPI, *Statistical Handbook 2004* and *2006*) and Germany (BV Phono, *Jahrbuch 2005* and *2004*). To avoid double counting of the same content, singles and releases on other sound carrier formats than CDs (cassettes, vinyl records or minidisks) are excluded.¹⁸ So are any musical recordings that are published only as downloads. The data does not invite detailed cross-country comparisons because underlying methods differ and the data for Germany excludes imports whereas the data for Britain does not.¹⁹

¹⁸ The BV Phono ceased to provide separate figures for CDs and cassettes after 2003. For 2004 and 2005, the new category of album releases is presented.

¹⁹ What is more, the BV Phono explicitly acknowledges important limitations to their measures of publications. They estimate that their figures capture only about half of the entire number of releases. Presumably, they capture the bulk of those releases that eventually become easily available to a wider public on tangible sound carriers, however.



Neither of these two short time-series provides any evidence for any significant and permanent fall in the number of new releases in absolute terms with a surge in authorised copying after 1997. If anything in Britain, an expansion in the number of new publications might have slowed somewhat in the late 1990s but if that had something to do with unauthorised copying the effect was probably not permanent. After the year 2000, the average number of new publications per year in both Britain and Germany were very high in comparison to earlier years.

Again, this conflicts with common-sensical predictions in the context of weak growth and a surge in unauthorised copying. Certainly, the descriptive analysis of the limited number of observations presented here does not support any firm conclusions. Nevertheless, this empirical evidence is clearly at odds with the view that falling revenues due to unauthorised copying would severely affect the supply of new sound recordings. This issue requires further attention.

Investigating the number of publications helps to make this point. Quantitative methods of the type that is championed by economists will have its limits regarding

the resolution of this issue, however. Ultimately, the quality of the creative works supplied needs to be addressed. Other academic disciplines are better equipped to do so and the debate on unauthorised copying and changes in the record industry might benefit considerably from their contributions.

Conclusions

Changes to the copyright regime are among the most significant recent developments for the cultural industries. Today it is hardly possible to address those cultural industries that supply reproducible media content without acknowledging this issue.

The predominant notion is that copyright is essential for commercially viable cultural production, because it defines property to cultural creations and allows suppliers to recoup investments into creativity. A recent surge in unauthorised copying – via CD-burners and file-sharing networks – appears to require extensions of copyright law and more vigorous efforts to enforce these rights. Copyright matters even if one does not underwrite this view, simply because of the ongoing political and legal process that aims at nothing short of setting out the playing field for the way that reproducible aspects of cultural creations are handled in the future.

Economic theory suggests that copyright relates to a trade-off of competing ends and that the right level of copyright protection depends on the specific conditions of the affected market. Empirical studies are crucial to guide copyright policy. There are at least two important gaps in the available literature: the first regards the extent to which unauthorised copying affects the supply of creative works and thus how consumers' interests are affected; the second regards broader changes within the industry. Technological change and increasing competition might make it more difficult to isolate the effect of unauthorised copying.

In fact, this paper presents some evidence that conflicts with the view that a recent period of falling sales and high levels of unauthorised copying would have had an

adverse impact on supply. There are three unexpected observations in the recession period: first, in Germany, the number of record companies has grown rapidly, and, second in particular many small firms have entered the market. Third, in both Britain and Germany, the number of new full-length releases on CDs has increased.

In as far as these observations hold, the current recession in the record industry has neither been uniformly nor unambiguously harmful. Many smaller firms are entering the market and the number of new creative works supplied seems to have increased. Concerning the effects of the diffusion of powerful copying technology it seems that either this erosion of the copyright regime does not have the predicted adverse effects on the supply side, or other significant factors overlap with recession and diminished copyright protection.

It remains to be seen whether the provisional empirical findings presented above can be confirmed in more comprehensive investigations. If the general drift of these observations is confirmed, the question is what explains the apparent resilience of supply. Regarding the basic economic characteristics of the record industry introduced in section 2.1, several hypothetical explanations come to mind. First, growth in alternative sources of revenue to suppliers might be an explanation. Yet for much of the time period under investigation, revenues generated via sales of downloads have been of minuscule size (and the German turnover figures include sales of downloads since 2004). There is also little evidence for additional earnings from the secondary market for copyrighted works (where performing or synchronisation rights are sold mainly to commercial users) that would have compensated for much of the losses in the primary market. Second, cost-reductions due to process innovation or lowered barriers to entry and increased competition in the context of technological change might be an explanation. Here, an important question is whether the Internet and perhaps even file-sharing actually foster competition because they diminish the reliance on the traditional promotion channels and retail outlets in which the products of smaller firms are rarely visible. Blackburn (*A Study of Online Piracy*) finds that sales of publications by previously well-known artists are diminished in the presence of file-sharing networks while file-sharing appears to boost record sales for previously

unknown artists. Third, the intrinsic motivation of many creators could provide an explanation for some of the resilience of supply. The costs of recording seem to have fallen with the diffusion of PCs and specialised software. Together with lower costs of promotion and distribution via the Internet, amateurs that do not rely on recovering all their costs when they supply recordings might become more important. Finally, copyright protection as it was before file-sharing might simply not have maximised incentives to produce. The costs of copyright protection might have been underestimated or its benefits overestimated.

There is ample scope for further research on this and a multitude of other questions related to recent changes within the record industry. Specialised expertise on the idiosyncrasies of the cultural industries from a range of academic disciplines seems indispensable and could be fruitfully employed.

Finally, the market value of music is probably not its most outstanding feature, as even economists readily admit (Liebowitz, "MP3 downloads"; Liebowitz and Watt). What is spent on music makes up a miniscule part of the economy. Nevertheless, as media content music is virtually omnipresent in daily life (Burnett 1; Vogel 192). Arguably, the most interesting questions relate to this wider meaning of music in society. Copyright reforms in the face of file-sharing are likely to exert an important influence on who consumes what, who contributes and who gains in the music industry and in other cultural industries. This field should not be left to the ploughs of economists or legal scholars alone.

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