Oxera

Is there a case for copyright levies? An economic impact analysis

April 2011

Executive summary

Summary of main findings

The distribution of licensed digital music is evolving rapidly. New business models are emerging for downloading, streaming and other forms of accessing music. People have the ability to listen to and transfer their music collections using a variety of devices, ranging from PCs to portable MP3 players and mobile handsets. This increases flexibility and opens possibilities for new value propositions for music offerings. In this context, the existing system of copyright levies has come under particular scrutiny in recent years—it transfers payments to rights holders (via collecting societies) through levies charged on hardware and devices that can be used for copying. From an economic perspective, the copyright levy system is not well suited to the digital age, as it creates distortions and inefficiencies affecting consumers, device manufacturers and rights holders alike, hindering innovation, investment and the development of a European digital market.

To contribute to the policy debate, Nokia commissioned Oxera to provide economic evidence on the impact of copyright levies. Oxera developed a model to assess the welfare effects of these levies on the EU economy as a whole, and on specific groups of market participants—in particular, consumers, device manufacturers, and rights holders.

Taking into account current and future dynamics in the market, the main 'base case' scenarios modelled by Oxera are shown in the table below. The effect of removing copyright levies is positive in all scenarios. In the bottom row, this is shown as a welfare gain to the EU economy of between €975m and €1,880m per year. Consumers gain in each scenario. Without copyright levies, consumers would buy more devices at lower prices and consume more digital music. Manufacturers gain because they sell more devices and can take part in new business models for distributing music.

Effect of removing copyright levies (€m per year):	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
on consumer surplus	601	809	1,088
on manufacturers' surplus	166	166	166
on song writers' revenues	–16	7	30
on performers' revenues	1	24	48
on producers' (record labels') revenues	223	384	548
Total EU-wide impact (€m)	**975**	**1,389**	**1,880**

Rights holders as a group can also make significant gains from the removal of copyright levies. The two biggest drivers are the growth in digital music sales and the effective compensation that rights holders can extract from selling music through the various new business models. The analysis indicates that, if there is further dynamic growth in the European digital market, song writers, performers, record labels and music publishers will all benefit directly from the removal of copyright levies (scenarios 2 and 3). The market dynamics and empirical evidence discussed in this report suggest that these scenarios are realistic. Removal of copyright levies would enhance the growth in licensed digital music, and enable and incentivise rights holders to engage in alternative business models. Finally, an increased offering of innovative digital services and the resulting boost to the sales of licensed digital content would be expected to contribute to the reduction of piracy. Even if this last effect were modest, it would significantly enhance rights holders' revenues, and hence make scenarios 2 and 3 more likely.

Policy-makers can promote dynamic growth in the European digital market by removing copyright levies and other impediments to innovative business models in the distribution of digital content.

Objective of the report

The way people obtain and consume music has changed rapidly in recent years, and continues to evolve. One important development is that people have the ability to listen to and transfer their music collections onto a variety of devices, ranging from PCs to portable MP3 players and mobile handsets. In economic terms, the possibility of listening to music on various devices increases flexibility and opens new value propositions for music offerings to consumers.

There have been long-standing policy and theoretical debates on how rights holders—in this context, song writers, performers, record producers and music publishers—can obtain commercial benefit when their music is acquired or consumed by others. One mechanism for transferring payments to rights holders (via collecting societies) has come under particular scrutiny in recent years: namely, copyright levies. Instead of being charged directly to end-consumers of the music, copyright levies are charged on the hardware that can be used for the private copying of music, including blank CDs, MP3 players, and, in some countries, mobile phones and PCs.

The legal basis for copyright levies (as embedded in the EU Copyright Directive 2001/29/EC) is that rights holders may be 'compensated', for example, for the 'harm' suffered as a result of 'private copying'—ie, copying unlicensed content, as permitted by national law. From an economic perspective, there is 'harm' to rights holders only if copying replaces a music purchase that would otherwise have been made. This may have occurred more frequently in the analogue age when copyright levies were first introduced (when music was copied onto media such as cassettes), but is perhaps less prevalent in this digital age when consumers can be licensed to transfer their collections onto multiple devices. Furthermore, copyright levies are a 'crude' way of addressing any 'harm' caused by private copying, since they target the devices, not private copying itself. This creates a number of inefficiencies and distortions, as set out in this report.

The copyright levy system has a material financial impact. In some countries levies that represent as much as 5–10% of the retail price of an electronic device (or even more for certain products) are not unusual. Collecting societies in Europe collected around €0.5 billion in copyright levies in 2009. However, a much larger amount is *claimed* every year from device manufacturers (and is the subject of legal dispute). There is currently also pressure to apply copyright levies to newer devices with music-playing facilities, such as tablet computers.

To contribute to the policy debate, Nokia commissioned Oxera to provide economic evidence on the impact of copyright levies. Oxera developed a model to assess the welfare effects of copyright levies on the EU economy as a whole, and on specific groups of market participants—in particular, consumers, device manufacturers, and rights holders. The analysis, undertaken in the period from September 2010 to March 2011, covers both static effects, in terms of how money currently flows among market participants, and dynamic effects, in terms of the impact of copyright levies on investment, innovation and creative output. While the analysis focuses on the music market and on hardware with music-playing facilities, the conceptual framework employed could be generalised to any products that are subject to copyright levies, including those used for audiovisual and printed content.

The Oxera welfare model

Oxera's model captures the main market mechanisms in the hardware and music distribution markets, and the interactions between the market participants. The focus is on measuring the effects of copyright levies on consumers, hardware manufacturers, and rights holders (in this third group, the emphasis is on song writers—ie, creators). These effects are measured by analysing what would happen in the absence of copyright levies. The model is calibrated

using current data on levy rates and sales of hardware and music. Several assumptions had to be made on some key parameters in the model, and the sensitivity of these assumptions has been tested. Three main scenarios are presented as base-case scenarios (see further below).

Main market mechanisms captured in the model
The following are some of the market mechanisms reflected in the model.

- **Consumers** are affected by copyright levies insofar as hardware vendors pass the levies on in the form of higher retail prices. This in turn reduces the sale of electronic devices, and hence the demand for music downloads and other forms of music files.

- **Device manufacturers** are affected because they absorb the levies as extra costs, or pass them on to retail prices, and hence make fewer sales. Either way, this diminishes their incentives to invest in, and introduce, new device models, and to launch new music distribution platforms. This in turn affects consumers as well.

- **Rights holders** receive a direct financial benefit from copyright levies (to the extent that collecting societies do indeed distribute their revenues to principal rights holders—this varies by country and plays a role in the model, but is not the main focus of this report). However, the higher device prices resulting from the copyright levies may diminish sales of digital content, and therefore also the overall revenues of rights holders.

Modelling the diversity and behaviour of song writers
The model contains a detailed module capturing the music market, and in particular the relationship between song writers' remuneration and their incentives to engage in creative activity. This module takes into account the diversity among song writers, and, to Oxera's knowledge, this analysis is the first of its kind in the debate about copyright levies. Within this module, Oxera has been able to analyse the effects on music creation in the EU.

The welfare model assesses the impact of copyright levies on song writers. It explores whether a writer is likely to stop composing music as a result of the removal of levy payments. This depends on the type of song writer, and is captured in the model by simulating a population of song writers with varying income levels and opportunity costs. Another important factor driving the modelling results is the fact that, for the majority of song writers, copyright levies represent only a small proportion of their total income.

Further findings that feed into the analysis

Music industry revenues overall have been growing
Despite the concerns about the effects of private copying and piracy on the music industry, worldwide this industry has grown in revenue terms over the past few years and is estimated to grow by about 4% per year on average over the period 2007–11. Thus, insofar as song writers and performers generate revenues from live performances (singer-song writers directly, and song writers through royalties) and various other revenue sources, including sales of licensed digital music, any lost revenues of physical sales are partly or entirely offset by these other forms of revenue.

Countries with high copyright levies do not have better-performing music industries
There is evidence that, on average, better music industry performance (measured by growth in sales) coincides with a low ratio of copyright levy revenue to overall revenue from music sales. Put differently, there is no evidence that higher revenues from copyright levies lead to better performance of the music industry or indeed greater production of domestic content.

Fragmented application of the private copying exception distorts pan-European licensing

Music licensing and distribution exhibit economies of scale (eg, high fixed contracting costs). As such, music service providers benefit from the ability to reach as broad a base of potential customers as possible. A single market across the EU allows for such economies of scale; a fragmented market does not. The EU, which is broadly comparable to the USA in terms of market size by GDP, is three times smaller in terms of sales of digital music. Unlike the USA, EU countries have complicated licensing regimes coupled with high and fragmented copyright levies.

The devices that are subject to copyright levies are often not used primarily (or at all) for private copying

A fundamental feature of the copyright levy system is that the levies are charged on hardware and devices, and therefore only very imprecisely targeted at private copying. The case for levies relies on the presumption that the majority of consumers do indeed use the equipment for private copying. If this is not the case, the system instead introduces distortions to efficient market functioning.

Consumer surveys have been undertaken in relation to, for example, the use of mobile handsets. The evidence suggests that the proportion of mobile phone users who use their phones to listen to legal unlicensed music (ie, for private copying) is relatively small. As a result, copyright levies give rise to inefficient redistribution effects, since they are not targeted at those who actually legally copy unlicensed music.

The variability and unpredictable nature of copyright levies affect manufacturers' incentives to invest

Both the size of the copyright levy and the fact that it is unpredictable are factors that distort the investment incentives of device manufacturers. Oxera understands that the plans to introduce devices with a particular specification are often made significantly in advance of the actual launch date of the product. This includes having to anticipate copyright levies being due in the various countries. The collecting societies' methods of calculating the levy tend not to be transparent or predictable and vary from country to country. In addition, the data on which copyright levy calculations are often based (such as hardware sales) is volatile.

Oxera has explored the effects of this uncertainty on manufacturers' business planning. Where the size of the copyright levy is linked to the size of memory in the device, this may not only discourage manufacturers from including large memory in phones, but could also prevent them from producing advanced technology that relies on large amounts of memory to function. Even if the copyright levy were applied as a fixed amount per device (ie, not proportionate to the memory size), the existence of the levy might cause the manufacturer to downgrade the specifications of the device.

Copyright levies deter rights holders and music service providers from introducing new licensing-based business models

There are economic reasons to suggest that the copyright levy regime, as currently implemented in a number of Member States, acts as an impediment to the exploration and development of new licensing models. These reasons include the following.

– **Copyright levies 'crowd out' licensing**—collecting societies may perceive copyright levies as a more lucrative mechanism to generate revenues than licensing and view licensing as a threat to the generation of revenues from copyright levies. As a result, they may have limited incentives to engage in innovative digital licensing models.

– **The status of the private copying exception under EU law**—some collecting societies wish to license digital services only in part (eg, limiting licences to the initial download from the service) in order to attempt to benefit from the private copying exception. Consequently, collecting societies can attempt to claim additional

compensation for the same digital services by means of copyright levies, on the basis that they are not within the scope of the licence. This practice effectively impedes digital licensing and the application of schemes based on digital rights management, which results in a direct obstacle for licensing agreements covering private copying.

– **Knock-on effect from the sub-optimal take-up of devices**—insofar as new business models of music distribution are not introduced or are not successful as a result of the levy, there is a knock-on effect on song writers, given that lower licence-based revenues would be generated though advanced digital distribution platforms (eg, digital music services, including à la carte and streaming offerings). By reducing the take-up of (advanced) devices, the copyright levy system distorts the incentives of service providers.

– **Consumer perception**—insofar as consumers perceive that they are eligible to make copies, given the levy payment embedded in the price of the device, they may prefer private copying over alternative, digital models of music distribution.

– **Licensing revenue is aligned with usage**. A further economic rationale for licensing-based models stems from the usage-based nature of licence income. If rights holders' revenue streams are linked directly to the sales of music, they have stronger incentives to distribute content to as wide an audience as possible. This contrasts with the current copyright levy system where (part of) the income is correlated with sales of hardware, rather than sales of music. If the levy system were replaced by market-based licensing, rights holders' incentives to increase the exposure of their music would be stronger, with the likely effect of expanding output (ie, creation) in the market.

– **Reducing piracy**—even a small reduction in piracy achieved through the new business models would have a significant positive effect on overall remuneration to rights holders. Any substitution effect from illegal to legal downloads resulting from new business models could result in considerable increases in the sales of online music. The potential is vast, given the considerable size of the illegal 'market'.

Main results of the welfare modelling

Song writers' incentives are only marginally affected by levies
Oxera has analysed the impact of removing copyright levies on different groups of song writers, who are disaggregated into several earnings categories. The majority of writers are at the lower end of the earnings distribution, and this group is less affected in percentage terms by the removal of the levy. Overall, even without taking into account the significant positive dynamic effects that arise through the enhanced licensing market, only 0.02% of registered song writers would cease to produce music. The greatest impact (but still only 0.43%) is on 'middle-income' song writers, the logic being that, for this group, the opportunity costs of spending time writing music are the highest of all those writers affected.

Removing copyright levies has unambiguously positive effects on total welfare, on consumers, and on device manufacturers
The table below presents an overview of the main 'base case' scenarios modelled by Oxera. The following results stand out.

– The effect of removing copyright levies on total welfare is always positive. In the bottom row of the table this is shown as a gain to the EU economy of between €975m and €1,880m each year.
– Consumers gain in each scenario. In the absence of copyright levies, consumers buy more devices at lower prices, and also buy more digital music. (Depending on the scenario, this could increase consumer welfare by between €601m and €1,088m.)
– Manufacturers gain because they sell more devices (€166m of additional producer surplus).

	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
Assumptions			
Dynamic growth in digital music	50%	75%	100%
Change in the effective compensation from music	0%	2%	4%
Hardware pass-on	75%	75%	75%
Hardware elasticities (demand and supply)	Medium	Medium	Medium
eg, Mobile phone price elasticity of demand	–2.00	–2.00	–2.00
eg, Hardware price elasticity of supply	2.00	2.00	2.00
Hardware market			
Change in average price (% of previous)	99%	99%	99%
Change in units sold (% of previous)	106%	106%	106%
Total change in manufacturers' revenues (€m)	426	426	426
Welfare			
Effect on manufacturers' surplus (€m)	166	166	166
Effect on consumer surplus (€m)	375	375	375
Music market			
Loss of active song writers (%)	0.02%	0.02%	0.02%
Effect on writers' revenues from levies (€m)	–70	–70	–70
Effect on writers' revenues from music sales (€m)	54	77	100
Effect on performers' revenues from levies (€m)	–52	–52	–52
Effect on performers' revenues from music sales (€m)	54	77	100
Effect on producers' (record labels') revenues from levies (€m)	–52	–52	–52
Effect on producers' (record labels') revenues from music sales (€m)	275	436	601
Effect on consumer surplus (€m)	226	434	713
Applications market			
Advertising revenues gained (€m)	1.19	1.19	1.19
Total results			
Effect on consumer surplus (€m)	601	809	1,088
Effect on manufacturers' surplus (€m)	166	166	166
Effect on writers' revenues (€m)	–16	7	30
Effect on performers' revenues (€m)	1	24	48
Effect on producers' (record labels') revenues (€m)	223	384	548
Total impact (€m)	**975**	**1,389**	**1,880**

Note: The final 'Total impact' includes the sum of consumer and manufacturers' surplus and the revenues of rights holders. Whether the revenues of producers (record labels) should be considered surplus depends on the extent to which they incur additional costs associated with producing additional output. These additional costs are likely to be low since content creation is characterised by large up-front costs and limited incremental costs subsequently.
Source: Oxera.

Welfare effects on rights holders

The above table shows that rights holders as a group can also make significant gains from the removal of copyright levies. This depends on the assumptions, in particular those related to the growth in digital music sales and the effective compensation that rights holders can

extract from selling music through the various business models (including advertising-based models). The removal of copyright levies would be expected to result in an increase in digital music distribution.

The analysis indicates that performers and record labels benefit from the removal of copyright levies in all scenarios. If there is further dynamic growth, song writers will benefit directly as well. This occurs in scenarios 2 and 3. The market dynamics and empirical evidence discussed in this report suggest that these scenarios are realistic. The removal of copyright levies is expected to enhance growth in licensed digital music, and to enable and incentivise rights holders to engage in alternative business models that enhance their direct revenues, as implied by the empirical analysis and the current gap between the EU and the more dynamic US digital market. Finally, a further boost to the sales of licensed digital content would be expected to contribute to reducing piracy. Even if this last effect is modest, it would add significantly to rights holders' revenues, and hence make scenarios 2 and 3 more likely.

In all, therefore, Oxera concludes that policy-makers can promote dynamic growth in the European digital market by removing copyright levies and other impediments to innovative business models in the distribution of digital content.

Contents

List of tables

List of figures

List of boxes

1 Introduction: an economic perspective on the policy debate about copyright levies

1.1 Policy debate: copyright levies in a changing music industry

The way we obtain and consume music has changed rapidly in recent years, and continues to evolve. Music content has been digitalised. Physical purchases of music are gradually being replaced by the downloading and streaming of songs and albums from online music stores. Recent innovations include 'cloud-based' services, which will offer further consumption options to consumers. Digitalisation has the potential to increase the consumption of music in two ways: by enabling more efficient distribution models and larger markets, and by increasing the degree of competition in distribution.

Another important development is that people now have the ability to listen to and transfer their music collections using a variety of devices, ranging from PCs to portable MP3 players and mobile handsets. This can enhance the enjoyment that they derive from the music they buy on CD or download, and from their existing music collections, which can be 'format-shifted'. This increases flexibility and opens possibilities for new value propositions for music offerings.

There have been long-standing policy and theoretical debates on how rights holders (in this context, song writers, performers, record producers and music publishers) can obtain commercial benefit when their music is acquired or consumed by others.[1] Over time, and across different jurisdictions, a complex system has developed of multiple charging mechanisms for copyrighted music content, and different flows of money from users to rights holders through a range of intermediaries, including collecting societies.

Within this system, one mechanism has come under particular scrutiny in recent years: namely, 'private copy levies', which are often referred to as 'copyright levies'. Instead of being charged directly to end-consumers of the music, copyright levies are charged on the hardware and blank media that can be used for the private copying of music, including blank CDs and MP3 players.

From an economic perspective, a number of questions have been raised about whether these copyright levies are an efficient mechanism for transferring commercial benefit from users to rights holders. (Here, 'efficiency' refers to the price signals and incentive effects that copyright levies create.)

– By targeting the devices on which music can be copied, irrespective of the private copying behaviour of consumers themselves, copyright levies are likely to have a negative effect on the incentives of device manufacturers to invest in the further development of such devices, and on the incentives of consumers to purchase them.

– Inefficient price signals may be given as copyright levies are charged on devices that are not used exclusively, or even primarily, for the private copying of music (such as

[1] The term 'rights holders' is used in this report to include song writers, performers, record producers and music publishers. Where points made in the report relate more specifically to song writers and/or performers, this is made explicit in the text. The term 'rights holders', as used here, does not mean or include collecting societies, which may manage rights in an intermediary capacity on behalf of the principal rights holders. For comparison, the European Commission has defined 'rights holders' as 'authors, composers, performers, record producers, film producers and broadcasters' who are 'the persons to whom the copying levies are distributed. In most instances, their views are expressed by collecting societies acting on their behalf'. European Commission (2006), 'Stakeholder consultation on copyright levies in a converging world', June.

handheld computers, multi-function printers, mobile phones, navigators with music features, and memory cards and sticks).

– Income from copyright levies may 'crowd out' initiatives by rights holders and other market participants to develop licence-based business models that are more suited to the digital age and its technological possibilities.

– The copyright levy system is fragmented across European countries, and could act as an impediment to pan-European licensing and thereby distort cross-border trade.

To contribute to the current policy debate, Nokia commissioned Oxera to provide economic evidence on the impact of copyright levies, and, specifically, to examine whether the levy system is an appropriate way to address the market failures inherent in the distribution of licensable content—in particular, music—in the digital environment. While the economic modelling focuses on music and the hardware and blank media on which it can be stored, the conceptual framework is applicable to different forms of copyrighted content, including audiovisual and printed content.

This report presents Oxera's analysis of the economic welfare effects of copyright levies. These effects are assessed for the EU economy as a whole, and for specific groups of market participants, including consumers, device manufacturers, and rights holders (with a particular emphasis on song writers). The analysis covers both static effects, in terms of how the money currently flows among market participants, and dynamic effects, in terms of the impact of copyright levies on investment, innovation and creative output.

1.2 Why copyright levies matter

1.2.1 The legal basis for copyright levies is subject to intense debate

Copyright is an extremely complex field of law. At the risk of oversimplification, Oxera understands that the current system of copyright levies came about because certain acts of private copying are subject to a 'private copying exception', a concept covered in the EU Copyright Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the Information Society. According to Article 5(2)(b) of this Directive, Member States may provide for an exception to the exclusive right of reproduction (ie, the copyright):

> In respect of reproductions on any medium made by a natural person for private ends that are neither directly or indirectly commercial, on condition that the rights holders receive fair compensation which takes account of the application or non-application of technological measures referred to in Article 6 to the work or other subject matter concerned.[2]

Against this background, three types of copying can be distinguished:

1) usage of illegal sources (piracy), is in general prohibited and not covered by the private copying exception;

2) the copying of licensed content, subject to an agreement between the licensor and licensee and according to the agreed terms;

3) the copying of content from legal sources which is not licensed but is nonetheless permitted within the scope of the 'private copying exception' prescribed in national law or practice (applicable in some countries)—for example, copies of private music collections or libraries on vinyl that have been transferred to blank cassettes.

This third category is what qualifies as 'private copies'—ie, legal, but unlicensed, copies, for which copyright levies are traditionally due. However, the exact legal definition and scope of

[2] European Commission (2008), 'Background document—Fair compensation for acts of private copying', February.

private copying varies from country to country. There is also a debate about whether copyright levies can or should include an element to compensate for piracy, or to subsidise cultural activities that are not related to copying.

These debates are outside the scope of this economic analysis. There is some emerging, albeit limited, guidance from case law, including the recent judgment by the European Court of Justice in the *SGAE/Padawan* case (C–467-08). The Court stated that 'fair compensation' is an autonomous concept of EU law within the limits of such law. The ruling further states that compensation must be calculated on the basis of the criterion of 'harm' caused to authors of protected works by the introduction of the private copying exception.

While the legal debate is as yet largely unresolved, the general situation in most Member States currently is that, instead of charging consumers who engage in private copying, copyright levies are charged on some hardware and devices that can be used for such copying. A few Member States (Cyprus, Ireland, Luxembourg, Malta and the UK) do not have copyright levies of any form at all.

The manufacturer or importer of the products in question is generally liable to pay the copyright levy. The levy then goes to collecting societies rather than directly to song writers, performers, record producers or music publishers. There is a debate about the extent to which the levies are actually passed on to song writers, as opposed to being retained by the collecting societies (this extent is referred to as the 'retention rate'). This debate is not the main focus of Oxera's analysis, but the retention rate has some influence on the economic impact of the levies, as shown in the modelling presented in this report.

The copyright levy regime was first introduced at a time when content was stored and listened to in analogue format (eg, on audio and video cassettes). The purpose was to address a market failure as it was impossible in practice to license end-users or music retailers to make legal copies. The solution was to introduce the private copying exception discussed above, which meant that consumers could make legal private copies without a licence. Instead, levies were introduced on blank media. Currently, there is significant confusion, and (again) legal dispute, about whether it is appropriate for copyright levies to apply to digital IT and entertainment hardware and storage media as well, such as PCs, handheld computers, single- and multi-function printers, mobile phones, navigators with music features, MP3 players, and memory cards and sticks. Most of this equipment is not primarily intended or used as a private copying device, but merely includes a storage capacity. Furthermore, the content is increasingly licensed or at least licensable (given new technological developments), so the same market failure rationale for copyright levies no longer applies. Nevertheless, collecting societies claim substantial levy amounts for such devices and media every year (see below).

Another, also largely unresolved, issue is the fundamental question of what copyright levies are actually meant to be.

– Are they a mechanism to ensure that song writers receive a share of music industry revenues?

– Alternatively, are they a mechanism to 'compensate' rights holders for the 'harm' they suffer from private copying? For example, previously, a song broadcast on the radio and recorded onto a cassette could instead have been purchased, so the song writer may have lost a sale. However, from an economic perspective, the rights holder would suffer harm only if the person copying the song would actually have purchased the music in the absence of copying it. This may have been the case for some (but not all) instances where music was copied from the radio onto a cassette, but is perhaps less likely where consumers copy their existing music CD collection onto a new device. These days, consumers may purchase a CD or pay to download music with the express purpose of listening to it on a certain device, rather than on the format of purchase.

– In many countries, copyright levy revenues have been regarded as a means to fund cultural initiatives and diversity—ie, in addition to some of the levy revenue being retained by the collecting society (as noted above), some of it may have been spent on cultural programmes and not reached the song writers themselves.[3]

It is not the aim of this report to comment on these legal and policy rationales for copyright levies. Rather, Oxera has focused on analysing and quantifying the actual economic impact of these levies. There is as yet little robust economic analysis on the following fundamental questions, and this report aims to contribute to answering them.

1. Does the copyright levy system achieve its objective of 'compensating' the creators themselves rather than the collecting societies for 'harm' suffered because of private copying?

2. What are the implications of the levy system for social welfare in general, and for consumers, hardware manufacturers, song writers and performers in particular? Is there a possible reduction in demand for copyrighted content through the negative impact on the take-up of the electronic devices and hardware used to download this content?

3. How important are copyright levies in order for song writers to earn sufficient remuneration and have the right incentives to compose music? Which types of song writer would be most or least affected by any removal of copyright levies?

4. Are there alternative, economically more efficient, mechanisms to fund cultural diversity?

5. In this digital age, does the copyright levy regime undermine song writers' and collecting societies' incentives to engage in innovative licensing arrangements for digital content?

6. Does the levy system have unintended consequences by distorting the incentives for innovation in the market for electronic equipment, or innovative business models of music distribution?

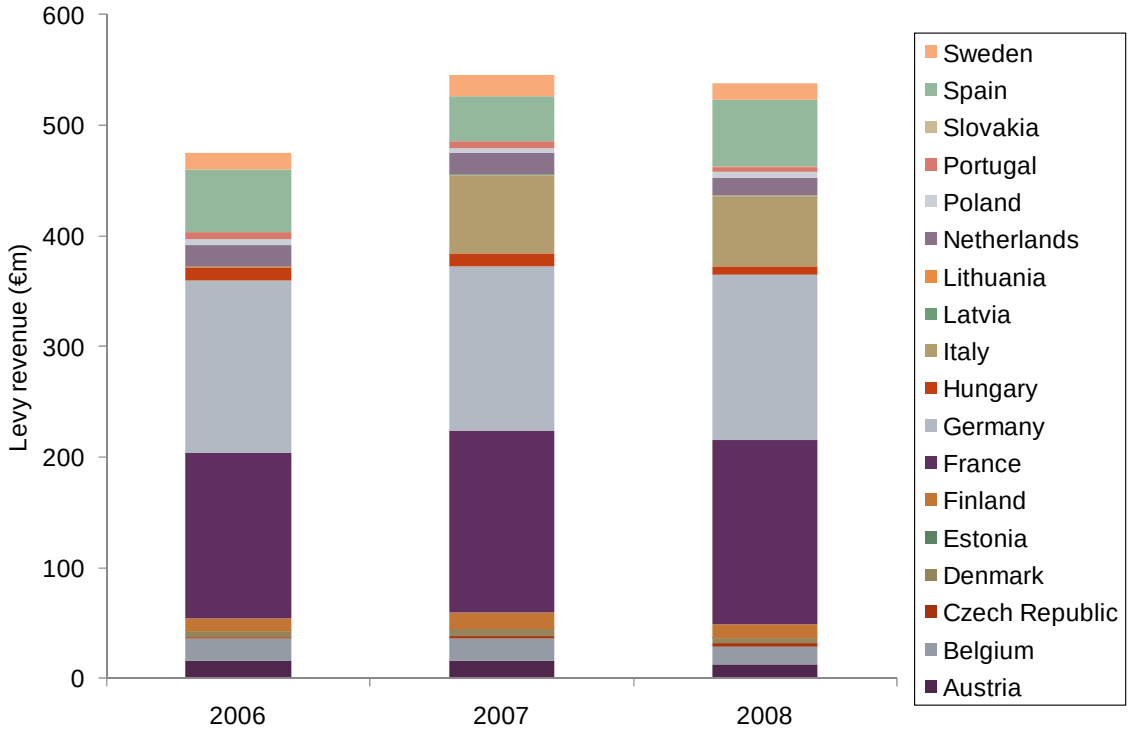
1.2.2 The economic significance of copyright levies

The copyright levy system has a material financial impact. In 2009, collecting societies in the EU collected around €0.5 billion in copyright levies (see Figure 1.1 below).[4] However, given that many of the levy claims are disputed and unpaid, the amount of claimed levies is likely to be significantly higher. Levies that represent as much as 5–10% of the retail price of a device are not unusual in some countries.[5] As an extreme example, the levy in Spain can be as high as €90 for an electronic device with 30GB or more of memory.[6]

As Figure 1.1 illustrates, the total amount of collected levy revenues in the 18 EU countries where copyright levies are collected has increased over the past few years. Levies have not been imposed on all new devices. However, the growing sales volumes and higher storage capacity of devices with music-playing facilities are likely to increase the levy claims. At the same time, there is strong growth in the distribution of digital licensed music (ie, music sales online), which can lead to additional claims of copyright levies on licensed content and generate royalties and other forms of revenue for rights holders (often still via the collecting societies).

[3] See, for example, Copyswede, 'Private copying levy in Sweden 2007 Collection and Distribution', available at http://www.copyswede.se/fileadmin/user_upload/pdf/private_copying_2007.pdf.
[4] This refers to collected, as opposed to claimed, levies.
[5] See Copyright Levies Reform Alliance (2007), 'Copyright Levies Backgrounder', February. There is variation across countries as to whether the levy applies to mobile handsets. For example, in Finland, copyright levies are applied to electronic devices but not, as yet, to mobiles.
[6] See Copyright Levies Reform Alliance (2007), op. cit.; Nokia website.

Figure 1.1 Total levy collection by country, 2006–08 (€m)



Note: The data covers collected levies only (not claimed but unpaid levies).
Source: Compact media group (2010), 'Missing opportunities in Digital Britain', January, Table 3.

Another important factor is that the structure and level of copyright levies vary significantly across Europe (and some countries have no levies), as is illustrated in Table 1.1 below. The table also shows significant differences in the proportions of the levy revenues that are distributed to rights holders as opposed to being retained by the collecting societies or used for cultural purposes. There are equally marked differences in the proportions of levy revenues that are paid out to song writers, producers and performers abroad (without this necessarily reflecting the share of foreign creators in total music consumption in each country).

This lack of harmonisation is in itself an important policy issue (it goes against the grain of the EU single market objective). It is not the main focus of this report, except to the extent to which it distorts investment and innovation incentives (a topic addressed in section 5). The diversity across countries also provides an opportunity for a comparative empirical analysis of the relationship between copyright levies and the performance of the music industry in the various countries (see section 4).

Table 1.1 Collection and distribution of copyright levies, 2004

Country	Collecting society (representing song writers)	Copyright levy revenues collected (€m)	Management and other fees (%)	Cultural and/or collective purposes (%)	Total distributed to rights holders (€m):	of which in the domestic territory (%)	of which in foreign territories(%)
Austria	AUSTRO-MECHANA[1]	5.45	6.8	51.0	2.11	76.6	23.4
Belgium	SABAM (multirepertoire) SCAM (multimedia)	The total collection for private copy in 2004 was €16,631m, to be distributed once the audio/video split for collections on CD-R/DVD-R data media had been established and approved by the Minister for Economic Affairs					
Cyprus		**No remuneration scheme for private copying**					
Czech Republic	OSA[2]	1.12	10.0	0.0	0.64	73.9	26.1
Denmark	KODA	1.20	5.0	33.3	0.74	44.0	56.0
Estonia	EAÜ	**No information available**					
Finland	TEOSTO[3]	1.96	5.0	0.0	1.86	83.0	17.0
France	SACEM[4]	51.45	5.0	25 + 5	35.57	54.0	46.0
Germany	GEMA	33.15	19.4	4.6	25.22	70.1	29.9
Greece	AEPI (multirepertoire)	Monies have not been collected since 1999 due to lack of agreement with importers and manufacturers of equipment and carriers. A lawsuit has been filed for which judgment was still pending in 2004					
Hungary	ARTISJUS (multirepertoire)	4.33	16.3	7.2	3.31	55.0	45.0
Ireland		**No remuneration scheme for private copying**					
Italy	SIAE[5] (multirepertoire)	27.92	4.2	0	26.76	87.8	12.2
Latvia	AKKA-LAA[6] (multirepertoire)	1.56	9.6	0.6	1.33	92.5	7.5
Lithuania	LATGA-A (multirepertoire)	0.25	16.0	20.0	0.160	50.0	50.0
Luxembourg		**No remuneration scheme for private copying**					
Malta		**No remuneration scheme for private copying**					
Poland	ZAIKS (multirepertoire)	The shares of the different authors' societies for monies collected in 2004 were being negotiated following a Regulation issued by the Minister of Culture on June 2nd 2003. The total share for all authors' societies in 2004 was €1.205m					
Portugal	SPA (multirepertoire)	No remuneration for private copying was distributed to rights holders until October 2005					
Slovakia	SOZA	0.19	14.7	0	0.16	n/a	n/a
Slovenia	AAS	**No information available**					
Spain	SGAE (multirepertoire)	29.3	5.6	20.0	21.79	21.0	79.0
Sweden	STIM	1.89	0	0	1.89	55.0	45.0
UK		**No remuneration scheme for private copying**					

Note: [1] AUSTRO-MECHANA deducted €0.188m as reserves to be distributed at a later date. [2] OSA gave €0.36m to literary authors' society, DILIA. [3] TEOSTO's share already takes into account the deduction for cultural purposes made by the Ministry of Culture, hence the 0% in the corresponding column. [4] SACEM deducts 25% for cultural purposes, as set by the French Intellectual Property Code, and 5% for social purposes, as set by its statutes. This 5% is distributed in the domestic territory. [5] Italy's information comes from calculations using information provided by SIAE. Actual figures may vary. SIAE's domestic/foreign distribution refers to musical works only. [6] AKKA/LAA deducted 0.07m as reserves to be distributed at a later date.
Source: European Commission (2006), 'Stakeholder consultation on copyright levies in a converging world', June.

1.3 An economic perspective on the copyright levy system

This report focuses on measuring the economic impact of copyright levies. As an introduction, some further observations on the copyright levy system from an economic perspective are presented below.

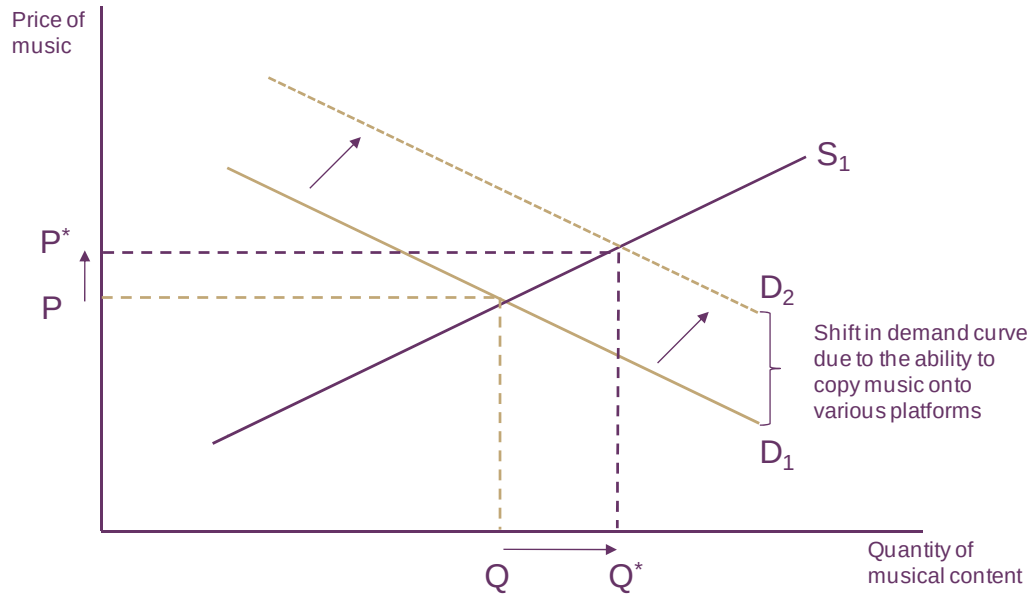
1.3.1 Does private copying result in economic 'harm' that warrants compensation?

The notion that private copying can result in 'harm' for which 'fair compensation' may be due—as reflected in the Copyright Directive—does raise questions from an economic perspective. In contrast to normal goods, a particular feature of artistic content is that the number of songs (or any form of audiovisual content) supplied may be different from the amount of content consumed. One particular song may be listened to only ten times in total, while another song may be listened to ten million times. In the digital environment, many end-users own a number of music players, and often purchase new content on the presumption that they can legally 'platform-shift' it onto several different devices (eg, a new CD or certain downloaded songs may be copied onto a PC and a mobile phone).

A consumer purchasing music—for example, via digital download—in theory has a higher willingness to pay for a song that has more than one permitted use. As a result, insofar as the licensor of the copyrighted song can increase the price in accordance with the end-customer's higher valuation, the revenues achieved with the higher price will offset (or exceed) any loss in sales.[7] This economic reasoning is central to the critique on copyright levies and is analogous to the concept referred to as *indirect appropriability*.[8]

Thus, from an economic perspective, the ability to make private (legal) copies enhances the value proposition of the offering to the consumer, and is thereby analogous to an improvement in the quality of the product. Applying a simple economic framework of demand and supply, this improvement in quality can be manifested through a shift of the demand curve to the right, as illustrated in Figure 1.2.

Figure 1.2 Stylised illustration of a market equilibrium in the presence of private copying



Source: Oxera.

[7] Varian R.H. (2005), 'Copying and copyright', *Journal of Economic Perspectives*, **19**:2, pp. 121–38.
[8] The reasoning is that the initial purchase of copyrighted work will embody all the benefits. In economic papers, such as Boldrin and Levine (2003), it has been argued that the first sale of a work can embody the entire subsequent flow of revenues from copying and re-selling that work. Boldrin, M. and Levine, D. (2003), 'Perfectly Competitive Innovation', University of Minnesota and UCLA, January.

The resulting market equilibrium is the intersection of demand and supply at (P*, Q*). In this stylised illustration, rights holders sell more of their music and are also able to extract a higher price (P*). It is important to note that, even if they were not able to raise the price (ie, if the price remained at P), the increase in music sales would still represent an increase in total economic welfare: more transactions take place (more music is being sold), which benefits producers and consumers alike. An increased demand for their products in itself does not constitute a 'harm' to producers; on the contrary, it benefits them. The only harm that would occur is when the subsequent private copying replaces an *additional* purchase by the same customer of the same piece of music.

This leads to the question of how producers (in this context, rights holders) can indeed raise the price (ie, by commercially negotiating higher fees). A relatively new, and economically efficient, means of achieving this would be through a well-functioning digital licensing market, supported by digital rights management (DRM). DRM can measure, and possibly also control, the amount of copying by a user who has purchased a piece of music.

From this perspective, the copyright levy is a rather blunt and imprecise method of getting higher revenues to rights holders. It can lead to double-charging of customers, and hence deter new business models (including variants of DRM) from being tried and developed.

The stylised welfare effects discussed above are captured in more detail in the welfare model presented in section 2. The impact of the copyright levy on the incentives to develop new business models is discussed in section 3.

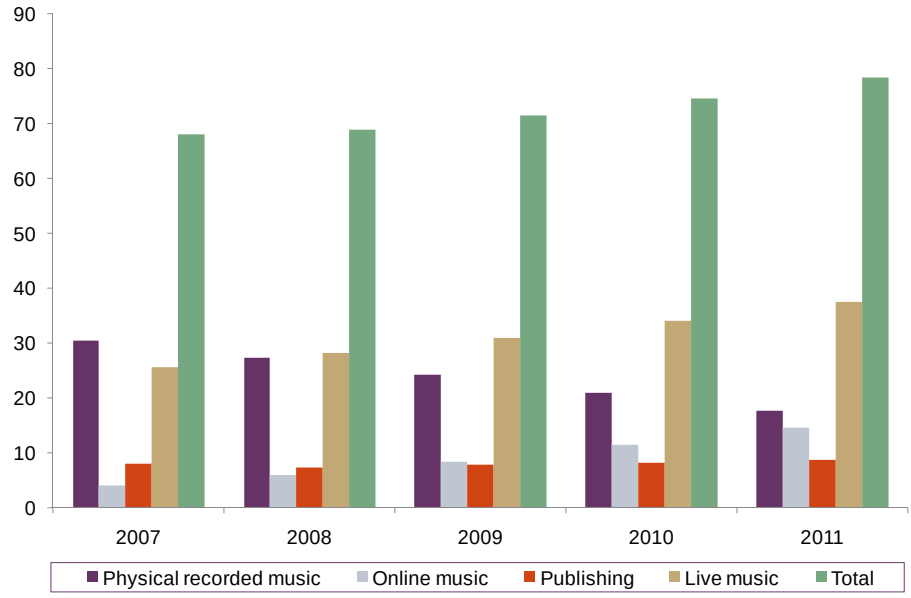
1.3.2 What is the impact of private copying on song writers and performers?

A levy on blank media or electronic devices may not reflect the heterogeneous preferences of the creative community nor the variety of music consumed. Different rights holders have different objectives and motivations with regard to the distribution of music through copying. There is a body of economics literature indicating that copying may have little effect on artists' creative propensity.[9] Indeed, it may not be in the interest of all creative artists to object even to illegal file-sharing given the positive impact that any form of music distribution has on their exposure and consequent revenues from, for example, live performances.[10] Yet it is also recognised that there are well-founded arguments against piracy, and the implications of illegal copying are outside the scope of this report.

In fact, despite the concerns about the effects of private copying and piracy on the music industry, worldwide this industry has grown in revenue terms over the past few years and is forecast to grow by an average of 4% per year over the period 2007–11, as shown in Figure 1.3 below.

[9] See, for example, Oberholzer-Gee, F. and Strumpf, K. (2010), 'File-sharing and copyright', January, working paper.
[10] Legros, P. (2006), 'Copyright, Art and Internet: Blessing the Curse?', chapter 9, pp. 285–308, in V.A. Ginsburgh and D. Throsby (eds.), *Handbook of the Economics of Art and Culture*, Elsevier, p. 13.

Figure 1.3 Revenue estimates for the worldwide music market (US$ billion)



Source: Oxera, based on IDATE (2009), 'DigiWorld Yearbook 2009: The digital world's challenges'.

Thus, insofar as song writers and performers generate revenues from live performances (singer-song writers directly and through royalties, and song writers through royalties), any lost revenues from physical sales can be offset partly or completely by these other forms of revenue. Furthermore, as explained in section 2 (and Appendix 1), song writers receive only a fraction of revenues generated through physical sales.

Some commentators predict that the technologies that enable format-shifting and sharing of content will tend to erode the 'superstar' phenomenon that is prevalent in the music business. This implies that top writers and artists may lose from file-sharing, but less popular song writers and artists may gain from the additional exposure and lower distribution costs that the Internet and other technologies offer.[11] Thus, aside from the question of whether copying and file-sharing should be deemed illegal, there is a more general question of whether it is in the interest of song writers and performers to impose an indirect tax on the ability of consumers to have content on various devices and in various formats, which copyright levies seek to do by placing a 'tax' on devices that can be used for private copying.

The heterogeneity of song writers and performers is captured in the welfare model presented in section 2, as is the effect of the copyright levies on their incentives to create music.

1.3.3 Who should pay for private copying?

A fundamental point about the copyright levy system is that the levies are charged on hardware and devices and are therefore only imprecisely targeted at the act of private copying itself. In other words, any 'fair compensation' relies on the assumption that the majority of the customers do indeed use the equipment for private copying; if not, the system introduces a distortion to efficient market functioning. Demand for such devices falls because end-consumers are not willing to pay extra for the ability to copy materials that are subject to copyright.

Even if the notion that legal private copying results in 'harm' were accepted, the imposition of a copyright levy on hardware would be economically efficient only if a majority of device owners actually used their devices for making private copies of copyrighted content. However, the fact that the copyright levy system is not targeted at those who make private

[11] Gopal, R., Bhattacharjee, S. and Sanders, G. (2006), 'Do Artists Benefit from Online Music Sharing?', *Journal of Business*, **79**:3, pp. 1503–33.

copies undermines its effectiveness as a tax to address a negative externality (in this context, the 'harm' from legal private copying). In economics, such a targeted tax is known as a 'Pigouvian' tax.[12] If only a small proportion of customers use their devices for private copying, the imposition of the copyright levy creates distortions in the market, which in turn raises concerns about the efficiency properties of the copyright levy system.

Box 1.2 summarises some recent consumer survey evidence made available to Oxera on the use of mobile phones.

Box 1.2 Empirical evidence on the use of mobile phones as music players

A number of consumer surveys indicate that only a relatively small proportion of people listen to music on their mobile phones. The results from two such surveys are summarised as follows.

– **Italy**—an online survey of 1,032 respondents conducted for Nokia by RS Consulting in June 2009 found that 62% of mobile users do not use a music player on their phone, or use it less than once a month. The survey found that 19% of respondents did not know whether their mobile phone had a music player and 35% did not know whether their mobile phone had a video player.[13]

– **Belgium**—research carried out by TNS Dimarso for Auvibel in March 2008, based on 1,523 observations, found that only 4% of respondents used a mobile phone MP3 or MP4 to record or copy any music, films or other audio or audiovisual content. Only a fraction of this is private copying, since this covered all files from various sources, including licensed files and self-produced files and material. Only 18% of respondents recorded any music, films or any other copyright content on any device at all in the three months prior to the interview.[14] Only 23% of these interviewees used a mobile phone MP3 and MP4 for the recording. (Again, this includes all sources, not just private copying.)[15]

The above evidence suggests that the proportion of mobile phone users who use their phones to listen to music is relatively small. As a result, the copyright levy may give rise to redistribution effects, given that it is not targeted at those who actually copy music.

The evidence reflects recent consumer private copying behaviour. While historical evidence can provide an indication of possible impacts, the industry is constantly evolving.

These concerns about the rationale for imposing copyright levies on hardware and devices can be summarised as follows.

– **Redistribution of the surplus between manufacturers and consumers**—if only a small proportion of customers is willing to pay extra for the functionality to listen to music on their devices, manufacturers will have a limited ability to raise prices on the multi-purpose devices (such as mobile handsets) with this functionality, since they may lose the majority of customers who do not have this higher willingness to pay. As a result, the manufacturer's ability to charge a higher price to consumers with higher willingness to pay could be inefficiently constrained.

– **Double payments for licensed music**—the levy system results in some consumers or service providers paying twice (as also noted earlier). Many music distributors negotiate with rights holders or collecting societies to obtain licences that cover the full scope of the uses made available to consumers. Thus, usage of such files in accordance with the licence should not result in any private copy levies. However, with the co-existence of a

[12] An academic study by Legros et al. indicates that if copying could be considered as a 'pollution', it could be addressed by imposing a tax on those who pollute (ie, engage in copying). However, when not targeted at those who copy, the levy fails to produce the desired outcome. Legros, P. and Ginsburgh, V. (2011), 'The Economics of Copyright Levies on Hardware', ECORE Discussion paper, 2011/34.
[13] RS Consulting (2009), 'Usage Profiling for Mobile Phones: Italy', prepared for Nokia, June.
[14] Devices in the survey included blank CDs, USB keys, MP3 players, blank DVDs, video recorders, laptops with CD writer, K7 tapes/VHS, memory cards, mobile phones with MP3 and MP4, external hard discs, CD recorders (linked to TVs) and 'other' devices (including portable multimedia players, recorders linked to TVs with hard discs and DVD recorders).
[15] TNS Dimarso (2008), 'Comportement de copie en Belgique', prepared for Auvibel, April.

levy placed on all devices capable of copying music, consumers end up paying twice, which reduces the overall demand for digital content. Furthermore, levies apply to all device sales, and hence consumers replacing their devices end up paying levies several times.

The quantum of these distortions is an empirical question, and is addressed further in this report.

1.3.4 Links between copyright levies and other forms of taxation

The design of 'optimal' taxation on any product should recognise that a marginal increase in the tax rate would lead to a reduction in tax revenue from a decrease in volume, to some extent offsetting the increase in revenue from the higher tax rate. Given this, the tax level that maximises revenues to society depends on the price elasticity of demand of the product subject to taxation—ie, how responsive demand is to price changes.

In many European countries, copyright levies are imposed in addition to other taxation, such as VAT. The levels at which both the levy and VAT are set have implications for the effectiveness of each in generating revenue when considered within the framework of an optimal tax level. The two principal implications of this are as follows.[16]

– **The higher the underlying VAT rate, the lower the revenues received by the collecting societies**. Any levy that leads to a total greater tax-take than the optimal level is inefficient from the perspective of song writers. The higher the initial VAT rate, the less efficient the levy is at generating revenue for song writers because every additional increase in the levy rate results in a marginal decrease in the revenue generated, and the levy revenue generated is less than it would have been if the VAT rate had been lower.[17]

– **The higher the copyright levy, the less effective the VAT is in collecting tax revenue for the state**. Assuming that VAT is set at the optimal tax level, the effect of imposing a levy of any amount will lead to a reduction in the total tax revenue collected. The introduction of a levy may result in an increase in revenue for collecting societies, but lead to a decrease in the tax revenue generated for the state.

1.3.5 Dynamic implications of copyright levies for the development of digital licensing

When copyright levies were first introduced in the 1960s, it could not be foreseen that music distribution would be digitalised or that the use of a digitally sold copy could be measured and controlled by means of DRM.[18] Some proponents of copyright levies seem to downplay the role of digital licensing and DRM.[19] Nevertheless, the sales of digitalised content have been expanding and, consequently, consumers purchasing legally downloaded content are effectively paying multiple times for the ability to make copies.

A feature of the collection of copyright levy revenues is that they are typically based on sales of devices as reported by hardware manufacturers, and sometimes on survey evidence on the usage of this equipment. These are crude approximations that cannot distinguish between the use of devices for private copying (the rationale for copyright levies) and the increasing use of them for downloading licensed digital content from online distribution platforms (eg, iTunes, Amazon Music, and Ovi Music).[20]

This highlights the dynamic relationship between copyright levies and the development of the licensing market going forward. Licensing is a more appropriate and efficient way for rights holders to obtain revenues than copyright levies; the latter were originally envisaged as a

[16] Legros and Ginsburgh (2011), op. cit. The authors formalise this, assuming that the tax revenue function is concave in the level of the levy. The results are likely to hold in more general specifications.
[17] In some cases, VAT is applied on copyright levies.
[18] For a discussion, see Finnish Ministry of Education and Culture (2010), 'Yksityisen kopioinnin hyvitysmaksu-jarjestelaman kehittamistarpeet', November.
[19] ECONLAW (2009), 'Economic Analysis of Private Copy Remuneration', September 26th.
[20] See, for example, Finnish Ministry of Education and Culture (2010), op. cit.

substitute for licensing when licensing was neither technically nor practically possible, but are not suitable for the digital age.

1.4 Overview of the methodology and report structure

As discussed above, there appears to be little economic justification for copyright levies in the digital environment. Levies create inefficiencies for the economy as a whole (social welfare), and have an impact on the division of economic surplus between rights holders, consumers and hardware manufacturers. Providing insight into the questions set out above, this Oxera report assesses the implications for these parties and, in order to inform the policy debate going forward, quantifies the extent of economic distortions.

To assess the economic impact of the levy regime, Oxera has undertaken three main analytical workstreams.

1. An **in-depth review of the economics literature** looking at copyright, copyright levies and market mechanisms inherent in music distribution forms the basis for the analytical framework used in this report. This analysis has involved close cooperation with Oxera's academic associates, alongside insights provided by industry experts.

2. A fundamental part of the project has been the analysis of the economic impact of copyright levies, involving the construction of a **welfare model**, to explore the implications resulting from the copyright levies for consumers, rights holders, and device manufacturers. This analysis has explored both static and dynamic implications of the levy system.

3. The economic impact assessment has been supported by **empirical analysis**. This workstream—exploring the relationship between copyright levies and performance of the music industry—has drawn on a comprehensive set of cross-country data.

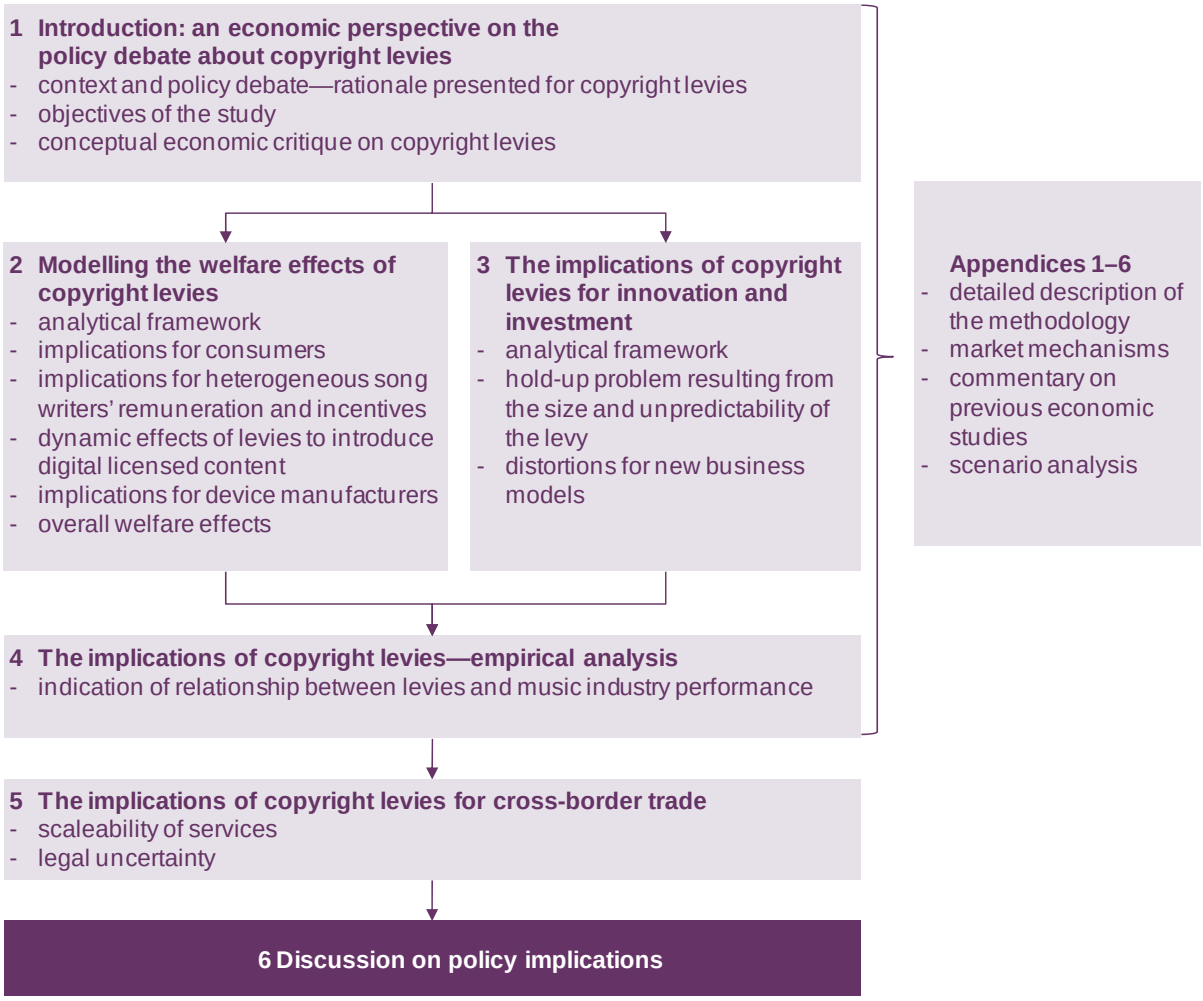
Each of these analytical steps and the underlying data are described in detail in the following sections and in Appendices 1 to 6.

All workstreams of the report have been supported by Oxera's academic advisers, Dr Walter Beckert and Professor Patrick Legros. The analysis presented in this report also partly draws on research by Professors Patrick Legros and Victor Ginsburgh.[21]

Figure 1.4 below illustrates the structure of the report.

[21] Legros and Ginsburgh (2011), op. cit.

Figure 1.4 Report structure



Source: Oxera.

2 Modelling the welfare effects of copyright levies

2.1 Criteria for assessing the economic impact of copyright levies

This section sets out the analytical framework employed by Oxera to assess whether, from an economic perspective, copyright levies result in a socially desirable outcome.

2.1.1 Description of criteria

The economic effects have been analysed to assess welfare consequences to consumers and creators of music content, as well as hardware manufacturers and developers of complementary software. Figure 2.1 presents the methodological approach employed for each of the main aspects of the analysis.

Figure 2.1 Economic criteria for assessing copyright levies

Economic criteria	Principal method of assessment	
Consumer surplus	Welfare model taking into account hardware and music markets	Empirical cross-country analysis
Producer surplus	Welfare model taking into account hardware and music markets	
Rights holder remuneration	Welfare model and simulation-based music supply model	
Innovation and investment	Conceptual assessment supported by incentive modelling	
New business models	Conceptual assessment based on market analysis	
Competition	Conceptual assessment based on competition economics and market evidence	
Cross-country trade	Conceptual assessment based on case studies and evidence	

Source: Oxera.

These criteria are outlined below, followed by a presentation of the analytical framework and the results of the welfare modelling.

– **Economic efficiency in terms of consumer and producer surplus**. Consumer surplus arises when consumers can purchase the product at a price below what they are willing to pay. Producer surplus arises when producers can sell a product at a price above what they are willing to offer (usually determined by their costs of production). Although producer and consumer surplus often offset one another (ie, there can be distribution of surplus from consumers to producers as the price increases, and vice versa), there can also be universal welfare gains, typically when total output is increased. From an economic perspective, the copyright levy system would be expected to have an impact similar to that of taxation imposed on a particular group of products. In simple terms, the levy may have the effect of raising the prices of electronic devices above the optimal price level. As a result, the quantity of these devices sold may fall below the level that would prevail in the absence of levies. Also, some 'deadweight' welfare loss may be created, which represents an inefficiency to the economy as a whole: there are consumers who would have bought the product at the optimal price but are no longer willing to do so at the new price level.

– **Remuneration of rights holders**. Conceptually, from the point of view of content producers, the total compensation (comprising royalties for licensed content and any other payments such as copyright levies) should enable rights holders to earn a fair return on their efforts in composing a song or any piece of art. Therefore, the appropriate level of compensation could, in principle, be estimated by considering 'investments' that rights holders make in creating licensable content, together with a fair compensation for risks taken. However, while this approach is conceptually rigorous and suitable for many tangible and intangible investments, music creation and production pose difficulties when conducting such 'cost-plus' estimations of how much rights holders should earn. Hence, the analysis presented below does not explicitly address the question of how much a song writer (or equally a performer, record producer or music publisher) should earn; rather, it focuses on assessing how the copyright levies contribute to creators' revenues relative to alternative mechanisms.

– **Innovation and investment**. If the copyright levy can be passed on in full to consumers and is predictable for the manufacturer (such that it can be calculated in advance), its impact on the financial viability of the device manufacturer's business would be limited to the sub-optimal level of device take-up, depending on consumers' price responsiveness. However, if the amount of the levy is difficult to forecast (in light of frequent changes to the rate, for example, or variable and uncertain bases for the application of the levy in different countries), and an unknown proportion of it is expected to be absorbed by the business, this is likely to place a financial strain on the manufacturer and its ability to fund the necessary investment for continuous innovation. This may result in sub-optimal amounts of advanced devices being brought to the market. A particular distortion arising from levies is their link with the storage capacity of hardware. The effects of copyright levies on innovation and investment are discussed further in section 3.

– **New business models**. There are a number of examples of new digital music distribution platforms provided by a variety of service providers. The principal concerns discussed in this context relate to how copyright levies may impair the incentives to launch such services, through the legal status of the private copying exception in some countries, and by altering the incentives of service providers, rights holders, and consumers. This is also discussed in greater detail in section 3.

– **Competition**. The copyright levy system may influence the competitive conditions between device manufacturers active in a given market. The collecting societies have not, in some cases, claimed compensation from smaller importers and manufacturers. In the short term, a manufacturer subject to levy claims (that passes the levy on to its customers) may lose some of its customers to other manufacturers that do not pay the levy, or may have to absorb the cost of the levy (if it does not pass it on), which would lead to a reduction in profitability. In the longer term, the financial strain of the levy may have an impact on a device manufacturer's ability to invest in research and development (R&D). Competitive conditions are factored into the Oxera model as part of the scenario analysis, in particular through the assumption on cost pass-through, and as manifested in the shape of the industry supply curve.

– **Implications for trade**. The report touches on the question of whether, and to what extent, the copyright levy system gives rise to distortions to international trade between Member States, in the context of the European Commission's objective to promote a digital single market.[22] The analysis of this aspect is predominantly qualitative, and focuses on highlighting the most apparent shortcomings of the prevailing situation (see section 5).

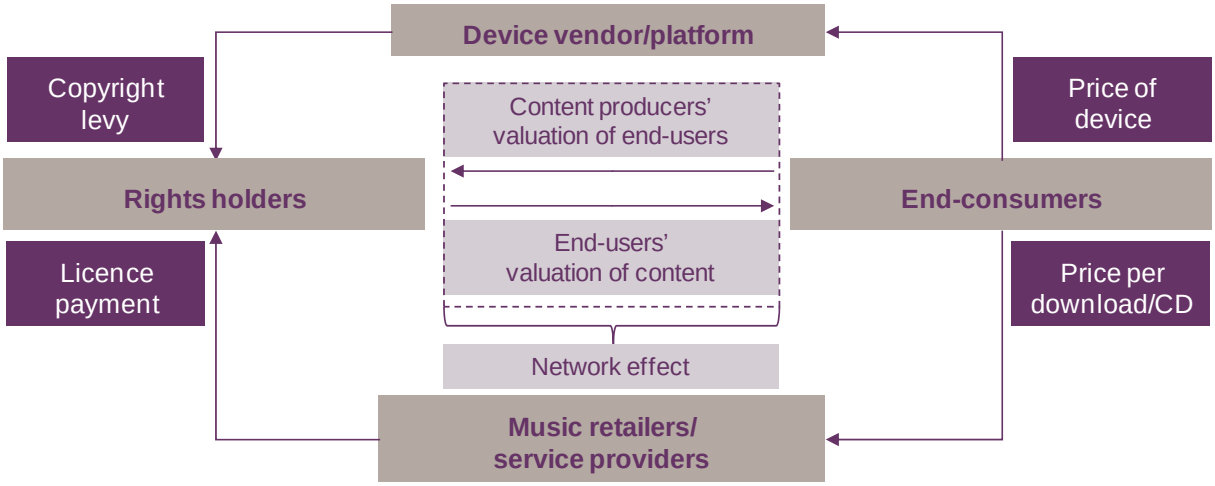
[22] See, for example, European Commission (2010), 'Creative Content in a European Digital Single Market: Challenges for the Future', October 22nd.

2.1.2 Analytical framework

In economic terms, the relative merits of copyright levies depend on the private profit incentives of the rights holders (represented by collecting societies) and device vendors, as well as on overall economic welfare, incorporating both static consumer surpluses (prices paid, quantity of content consumed, device take-up) and the dynamic benefits of further investment and innovation.

Conceptually, it is important that the framework for the assessment of copyright levies recognises the 'two-sided' nature of the market in music distribution. This is because electronic devices operate in effect as a platform, and the pricing and take-up of devices (such as mobile handsets) are influenced by the value that end-users place on the ability to play music using a device (or media), and, vice versa, the extent to which content producers/providers value the enhanced take-up of these devices among consumers.[23] A stylised illustration of this is provided in Figure 2.2.

Figure 2.2 Stylised illustration of payment flows in a two-sided market



Source: Oxera.

The analysis presented in this report recognises the two-sided nature of the market, and some of the key interdependencies are captured in the modelling, where possible. Oxera's analysis covers a wide range of market participants, who are affected in the following ways.

i) **Rights holders** generate revenues through, for example, royalty payments and, of more relevance for the present purposes, copyright levies. These revenues are influenced by the distribution (exposure) of music, which, in turn, is a function of the take-up of devices on which music can be played. The more handsets or other devices with music-playing facilities that are sold, the larger the user base that can legally download or stream music via digital music services.[24]

ii) To the extent that copyright levies lead to lower sales of (advanced) handsets, they undermine **device manufacturers**' expected returns, and hence their incentives and abilities to invest in, and introduce, new device models, and to launch new music distribution platforms. Furthermore, higher device prices resulting from the copyright levies may erode sales of digital content and hence royalty payments to rights holders.

iii) **Consumers** are affected through two main channels: first, insofar as hardware vendors pass the levies on to retail prices, there is a consumer detriment through lower sales of

[23] Device manufacturers are also acting increasingly as music service providers (eg, Apple's iTunes and Nokia's Ovi Music).
[24] Rights holders are compensated by royalties (eg, song writers) and other sources of licensing income streams (eg, producers/record labels) when their work is accessed through download services such as Ovi Music, and similarly when consumers use streaming services such as Spotify.

devices; and second, this has a knock-on negative effect on legal music downloads. Furthermore, as explained below, copyright levies have implications (both static and dynamic) for the supply of music, which, in turn, affects consumer welfare in terms of the utility derived from music consumption.

iv) **Online service providers and application developers** are affected indirectly: the more the levies erode the take-up of music players, the fewer consumers there are downloading or streaming online music, or purchasing other forms of complementary software.

v) The role of **collecting societies** as intermediaries has further implications for market outcomes. While there are apparent savings in transaction costs in collecting compensation through an organisation representing a variety of rights holders, the returns generated by collecting societies are not passed on in full to the rights holders (see also Table 1.1 in section 1). The proportion of copyright levy revenues that is retained by the collecting societies (known as the 'retention rate') is taken into account in the welfare analysis, and discussed further in Appendix 2.

2.2 The Oxera welfare model

2.2.1 Introduction to the welfare model

A fundamental part of Oxera's analysis has been the construction of a welfare model to explore the impact of copyright levies on consumers, rights holders, and hardware manufacturers. The model enables an assessment of the impact of different levels of copyright levies on various types of media and equipment. To demonstrate the impact of the current levy system, the analysis mainly compares the prevailing levies as applied in EU Member States with a scenario in which the levies are removed altogether. Such a welfare analysis is a standard economic tool for evaluating policy changes or changes in market outcomes.[25]

In terms of individual markets, economic welfare has a specific meaning relating to consumer and producer surplus. The impact of the levies in terms of sales (and therefore revenue) has been calculated across two main markets: the market for hardware and the market for music (both physical and digital sales).The assessment here examines consumer and producer surpluses under different scenarios of demand and supply of these two markets. The effects of the copyright levy are assessed by simulating scenarios where the current levies are removed.

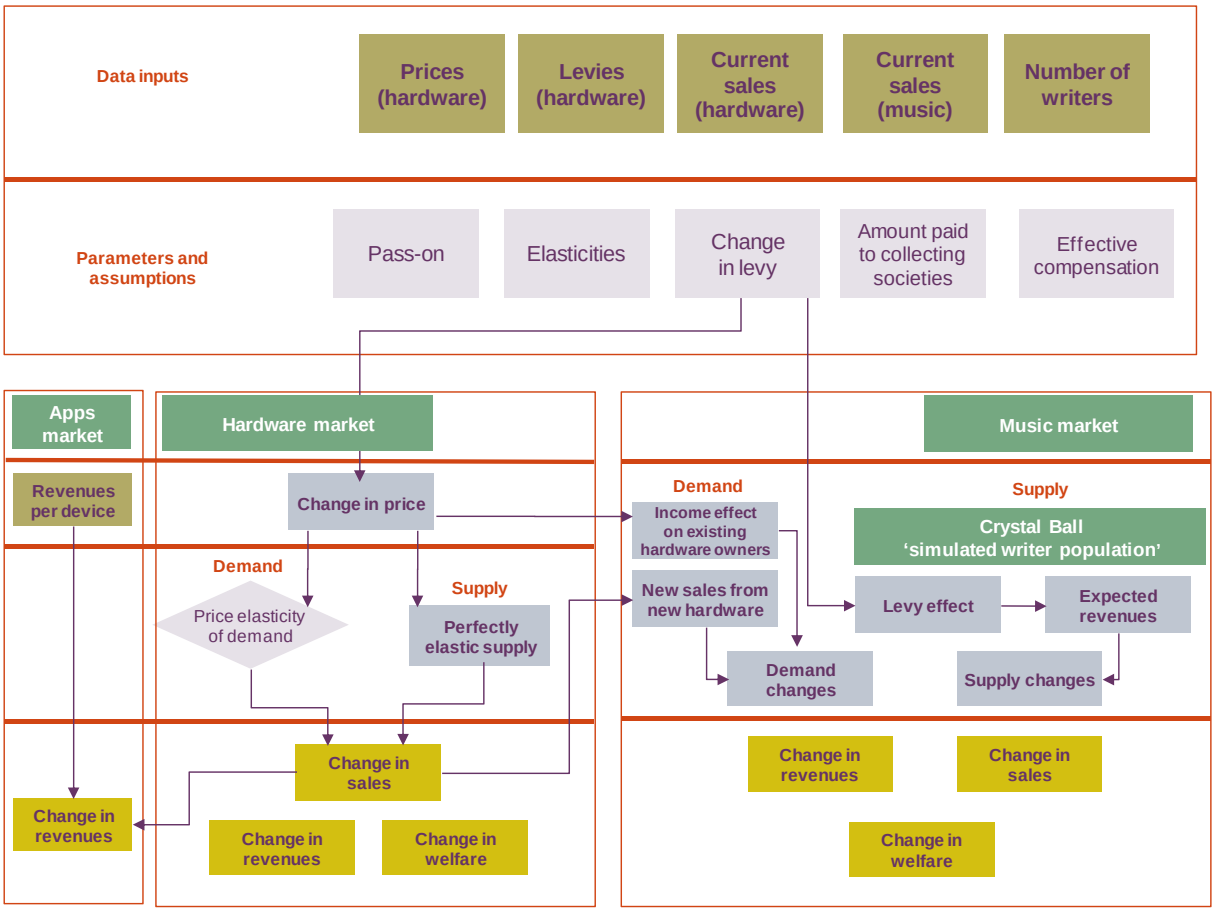
The modelling was undertaken for the EU25.[26] This allows the aggregate effects across Europe to be approximated, while also evaluating the countries where the effects are largest. For example, some countries currently have no copyright levies (as noted in section 1), or have levies imposed on a narrower set of products, and are therefore shown in the model as being unaffected (or less affected) in the scenario where levies are removed. However, their inclusion in the model allows other scenarios to be tested.

In the hardware market, the model covers 15 product types, some of which are split into sub-categories based on memory size. The imposition of the levy is not uniform across these categories or across countries: while most countries have levies on recordable media such as blank CD-Rs, fewer countries have levies on consumer electronics (see section 1).

Figure 2.3 below provides a stylised representation of the flow of the model. More details of the modelling can be found in Appendices 3 and 5.

[25] Indeed, several previous studies have used similar, although less comprehensive, welfare analyses in relation to copyright levies. These include Nathan Associates (2006), 'Economic Impact Study: Private Copying Levies on Digital Equipment and Media', May 4th; and ECONLAW (2009), op. cit.
[26] The geographic area of the EU25 was selected for data availability reasons.

Figure 2.3 Stylised flow of the welfare model



Source: Oxera.

The model itself is calibrated using current data on levy rates and sales of hardware and music. Subsequent scenarios are then compared against this base case to determine any change in welfare or revenues if the levy is removed.

In practical terms, as illustrated in Figure 2.3, the model starts in the **hardware market** and then:

– determines the change in the consumer hardware price following a change in the levy, which in turn depends on the extent to which the manufacturers are able to pass the levy rate on to the price of the final product (ie, the device);

– determines the associated change in units sold as a result of the new price, which depends on the price elasticity of demand (ie, consumers' responsiveness to price changes);

– calculates this welfare effect in the hardware market in terms of changes in consumer and producer surplus.

In the **music market**, the modelling proceeds as follows:

– the static revenue loss to rights holders as a result of removing the levy is modelled, followed by a quantification of the impact of the lost revenues on the heterogeneous

population of song writers.[27] This is determined through a simulation exercise (explained in further detail below), resulting in an impact on the supply of music;

– the impact on demand is determined from the changes in hardware sold and income level of consumers. First, there is a direct knock-on effect of forgone handset take-up on downloads of legal digital content (ie, there are fewer devices onto which music can be downloaded). Second, higher prices paid for hardware imply that consumers have less disposable income for other purposes, such as music purchases (an income effect);

– the dynamic effects resulting from the removal of levies are assessed. This scenario-based modelling element draws on the conceptually established relationship between copyright levies and digital licensing, and is further supported by the indicative results of the empirical analysis presented in section 4;

– lastly, the changes in supply and demand are interacted to calculate the new equilibrium in the music market and, similar to the modelling for the hardware market, the welfare impact of this new equilibrium is determined in terms of consumer and producer surplus.

In the **applications market**, the model examines the loss to producers of applications from the reduced hardware sales (here, specifically, mobile handsets). The applications category covers all complementary software, including, for example, advertising-based music distribution platforms. The mechanisms through which the welfare effects are felt are explained further below.

2.2.2 Data inputs used in the welfare model

The main data used in the model relates to the current observed market outcomes in each of the hardware and music markets. The hardware data used includes prices, unit sales and levies for a range of products, including storage media, MP3 players and PCs. The music market data incorporates the current total sales for physical music and digital downloads.

For the purposes of this report, Oxera has collected new data, using the following in its analysis:

– data on the structure and size of the levies, based on a report by Stichting de Thuiskopie that includes information on levies applied in European countries in 2009;[28]

– unit sales data calculated as implied unit sales from estimates of total collected levies and the levy rates by product. Since the majority of countries do not have levies on all products, the rate of sales has been applied in proportion to the population in the countries without data compared with those countries with data;

– price data collected from UK retail websites. This allows an approximation of pre-levy prices to be obtained, given that the UK does not have levies. These prices are then adjusted to reflect differences in prices across EU Member States. The adjustment is based on an index of consumer electronics prices compiled by Eurostat;[29]

– data on the sales and revenues of digital and physical music based on International Federation of the Phonographic Industry (IFPI) data;[30]

[27] Because this amount is determined endogenously, it does not necessarily correspond to exogenous data, such as the total provided in Stichting de Thuiskopie (2009), 'International Survey on Private Copying Law & Practice'.
[28] Stichting de Thuiskopie (2009), op. cit.
[29] Eurostat (2008), 'Consumer electronics and household products—Comparative prices in 37 European Countries for 2007', *Statistics in focus*, **63/2008.**
[30] IFPI (2010), 'Recording industry in numbers 2010'.

– elasticity estimates informed by the values used by Nathan Associates and in the academic literature generally, and Nokia's own analysis on handset elasticities. However, given the unavoidable uncertainty surrounding these estimates, sensitivities have been tested with respect to these assumptions;

– the numbers of registered music writers in each country collated from the relevant collecting societies. Where membership data was unclear, the number of writers has been assumed to be equivalent to the per-capita rate of the average of the other countries;

– other standard economic data, taken from various sources. This includes data on populations (World Bank) and on incomes (Eurostat).

Although using such a range of sources means that consistency between them cannot be guaranteed, they are all independent sources and should report unbiased data. Appendix 5 describes the input data in more detail.

2.2.3 Model parameters

The nature of the analysis undertaken here contains inherent uncertainties, due to data quality and availability, and because some assumptions have to be made. To test the sensitivity of results to various assumptions, different scenarios have been examined. The most relevant assumptions with respect to which scenarios have been tested include the following.

– **Elasticity of demand**. In previous economic impact studies, the elasticity of demand of products to which the copyright levy applies was estimated to lie in the range –0.4 to –6.3, depending on the type of media.[31] Thus, if the copyright levy accounts for 1% of the total product price, the impact of the levy is a reduction in overall demand for the products by between 0.4% and 6.3%. This is a large range for an elasticity, but given the uncertainty surrounding its true value, low, medium and high ranges of estimates have been tested.[32]

– **Pass-on rate**. Another important consideration is the extent to which the copyright levy is passed on by manufacturers to end-consumers, since the more that is passed on, the greater the welfare loss. In general, the pass-on rate depends on how, in the normal course of business, manufacturers determine selling prices, and may be influenced by factors such as the degree of competition in the downstream market, and the levy costs as a proportion of the total cost of the end-product. An additional factor influencing the pass-though assumption is the asymmetric treatment of manufacturers, since (as far as Oxera is aware) the collecting societies do not always claim levies from the smaller device vendors. Evidence suggests that in the markets for high-tech devices, even smaller players can influence the market price and quality.[33] This is then likely to constrain the larger manufacturers from full pass-through of the copyright levy in the end-user price. On the other hand, the levy is sometimes explicitly added to the manufacturer price, just as VAT is, and in such circumstances a degree of pass-on would be more likely. Also, the copyright levy represents a mark-up on variable (as opposed to fixed) costs, which tend to be directly taken into account when setting prices. In light of the assessment of market characteristics, an assumption of 75% pass-on is employed in the base-case scenario in the model.[34]

[31] See, for example, Nathan Associates (2006), op. cit.; ECONLAW (2009), op. cit.

[32] This is noted as a critical shortcoming of some previous studies. Indeed, as also noted by Rogers et al., without undertaking empirical elasticity analysis for different products in various markets, it is not appropriate to rely on a single estimate. Rogers, M., Tomalin, J. and Corrigan, R. (2009), 'The economics of consumer copyright exceptions: A literature review', November, Consumer Focus.

[33] For example, Apple's entry into the smartphone market seems to have changed the market dynamics in terms of both price and offering since the launch of iPhone.

[34] In Appendix 2, scenarios are presented for pass-on assumptions of 50% (ie, the rate a monopoly facing linear demand and constant marginal costs would pass on, as established in microeconomic theory), and 100% (the assumption employed in other

– **Division of retail revenue from music sales**. No accurate estimates are available in the public domain of how the retail revenues from music sales are distributed between different parties in the supply chain. On the basis of available information, Oxera has assumed that the revenues are divided such that, on average, 40% of the retail revenue (excluding VAT) accrues to producers (labels), while performers and song writers each receive 7% of the value.[35] While there is a degree of uncertainty with respect to the division of revenues, it is noted that this does not significantly affect the welfare results in terms of consumer and producer surplus. The assumptions employed have been considered conservative and are likely to underestimate rather than overestimate the extent of revenues from music sales that are distributed to rights holders.

– **Collecting societies' retained revenues**. Collecting societies do not necessarily pass 100% of the collected levy revenues on to writers (see section 1); they retain some revenues to cover their costs or for other purposes, such as cultural programmes. Sensitivities are tested with respect to this parameter. (Appendix 2 explains the basis for the ranges of estimates employed.)

– **Dynamic effects: growth in digital licensing effective compensation**. There are links between copyright levies and digital licensing. The removal of copyright levies and associated impediments to digital licensing would be expected to result in an increase in the distribution of licensed digital music, an effect that is also incorporated in the modelling.

  In addition to increased volumes of digital music, a potential feature of replacing copyright levies with more advanced licensing models is to increase the 'effective compensation' for rights holders. More specifically, by 'change in effective compensation', Oxera means the average incremental revenues to rights holders generated through different types of business model (whether paid by consumers or advertisers, and whether sold in digital or physical format), and, thus, the additional income to rights holders associated with new models of music services.[36] Increasing the effective compensation would be consistent with the above conceptual reasoning—ie, that the retail value of music reflects the value and quality of music and the ability to consume it on various devices and formats.[37] This in turn enables greater price extraction at the retail level, and hence further income streams to rights holders.

  As the extent of these dynamic effects is subject to a degree of uncertainty, it is appropriate to present scenarios around these assumptions. Three base scenarios for a variety of potential outcomes are presented below, all of which are realistic given the conceptual reasoning and empirical evidence presented in this report.

A number of other parameters in the model can be flexed, although these are generally of more factual than economic significance, and hence are not discussed in detail here. These include rights holders' share of the value of music sales (including royalties); music download rate per device; application revenue per handset; download price; proportion of marginal income spent on music; and elasticity of supply of hardware.

economic studies on this topic). According to economic theory, when there are constant marginal costs of production, there is full pass-through only if the producer operates under conditions of perfect competition.

[35] For example, the following sources have been used as references: PRS for Music: http://www.prsformusic.com/creators/membership/MCPSroyalties/mcpsroyaltysources/musicaudioproducts/AP1/Pages/AP1.aspx. Information is Beautiful (2010), 'How much do artists earn online', April 13th. The model applies an average revenue split assumption covering both physical and digital sales; typically, rights holders' share is higher for digital sales.

[36] The welfare model does not explicitly capture all types of business model and licensing structure. In reality, the enhanced value of music content does not necessarily translate into a higher price per unit of recorded music sold; rather, the change in effective compensation should be interpreted more broadly as incremental revenue that can be generated through licence-based sales. At the retail level, this could be reflected, for example, in increased average revenue per user (ARPU) from a subscription-based service.

[37] An example of such a price change is the revision in early 2009 to the tariff for Apple's iTunes. See http://www.guardian.co.uk/technology/blog/2009/apr/08/apple-itunes-amazon-prices.

The structure, data and assumptions outlined above have been used to construct a model that estimates the impact of the levy on the relevant market participants.

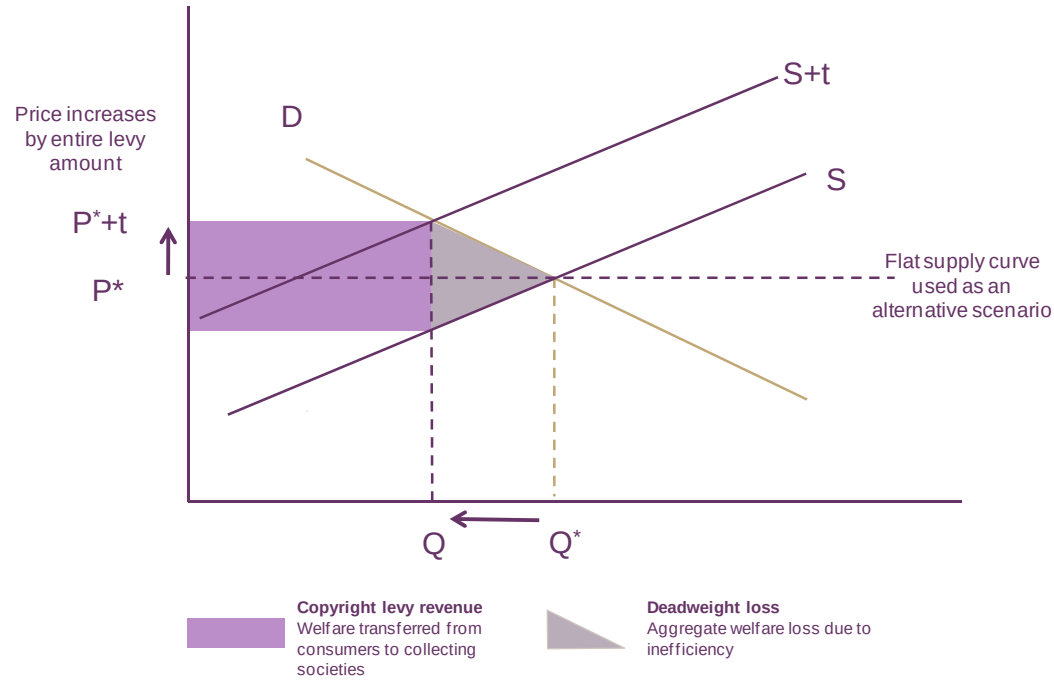
2.3 Impact on consumers

2.3.1 Aggregate impact on hardware and music consumers

The impact on consumers would be felt in the hardware market directly and in the music market indirectly. In the hardware market, the copyright levy system would be expected to have an impact similar to that of taxation imposed on a particular group of products. In simple terms, the levy may have the effect of raising the price of hardware, as manufacturers need to recover the costs of the levy from consumers. As a result, output will tend to fall in line with the reduction in quantity demanded.

This form of taxation will usually result in a 'deadweight' welfare loss in that individual market, since output is below the optimal level. This loss reflects customers who would have bought the product at the un-levied price, but are no longer willing to do so at the levied price level (see Figure 2.4). The size of the deadweight loss provides an indication of the reduction in social welfare resulting from the tax.

Figure 2.4 The impact of copyright levies on economic welfare in the hardware market and the music market



Note: The slightly upward-sloping supply curve is in line with the default scenario in the Oxera model. A flat supply curve assumes a constant marginal cost for producers and that there is competition in the consumer electronics market. Other supply curves are evaluated in the scenarios presented in Appendix 5. Oxera's modelling conducts the welfare analysis as illustrated in the figure for the hardware market and for the music market.
Source: Oxera.

This demand–supply framework has been employed to assess welfare implications resulting from the copyright levy system with respect to all product markets affected. In other words, a separate demand curve—representing consumers' preferences in a price–quantity space—has been constructed for each type of hardware on which copyright levies are imposed.

The assessment of welfare in the music market is somewhat more complex, given the indirect connection between consumers and music writers, although the main principles are the same. In the music market, the welfare effects are manifested through changes in the consumption of digital content, and changes in the supply of music. The latter effect is driven

by the financial incentives of rights holders, which in turn depend on the expected revenues from copyright levies and various other sources such as royalties.

The main effect of the copyright levy on consumers is to suppress demand for digital music. This is a result of fewer consumers being capable of receiving digital music, given the reduced sales of download-capable devices. There are also (marginally) lower sales of music than without levies, given that more income is spent on the hardware due to its higher prices (the 'income effect').

Table 2.1 shows the outcome for consumers after the removal of copyright levies, as calculated by the welfare model.

Table 2.1 Welfare effects of removing copyright levies—consumers (per annum)

	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
Assumptions			
Dynamic growth in digital music	50%	75%	100%
Change in effective compensation from music	0%	2%	4%
Hardware pass-on	75%	75%	75%
Hardware elasticities	Medium	Medium	Medium
eg, mobile phone price elasticity of demand	–2.00	–2.00	–2.00
Hardware market			
Effect on consumer surplus (€m)	375	375	375
Music market			
Effect on consumer surplus (€m)	226	434	713
Total welfare results			
Effect on consumer surplus (€m)	**601**	**809**	**1,088**

Source: Oxera.

2.3.2 Equity and distributional considerations

The above analysis has assessed the impact that copyright levies could be expected to have on consumer welfare in aggregate terms. They may also have a distributional (equity) impact on consumers.

The first equity consideration arises from the fact that the levy applies to all devices with memory, not just those used in private copying of audiovisual content. This implies that consumers who are private copying music are effectively subsidised by non-copying consumers.

Second, if the levy is passed on to the handset prices, it may disproportionally increase the cost of ownership and, as shown above, have a negative impact on the take-up of handsets. Where the levy is a fixed fee independent of the device price, it constitutes a disproportionally high share of the price of a low-end device, to the detriment of lower-income consumers.

A further distributive effect stems from the copyright levy's failure to target those consumers who use their devices for private copying (nor is the levy commensurate with the amount of copying). More specifically, because the levy is imposed on hardware, rather than copied

music, it is, by construction, uniform across consumers. To the extent that the hardware prices are uniformly distributed across consumers, high-income consumers in effect pay less per shared copy than low-income consumers; hence, the levy on hardware is a regressive tax.[38]

The approach in the Oxera welfare model is to estimate consumer welfare as the sum of the surpluses received by individual consumers, using a single average price and the overall market quantity. This approach is consistent with the 'Kaldor-Hicks criterion'; namely, that a policy should be adopted if those who gain fully compensate those who lose and are still better off overall.[39]

While not done here, there may be sound reasons to consider different customer groups differently in certain circumstances. The economics literature has put forward at least two arguments for giving €1 received or paid by low-income individuals greater weight in a cost–benefit analysis than €1 received or paid by high-income individuals.

– **Income has diminishing marginal utility**—the marginal benefits to low-income consumers of being charged €1 more on their music player, or on a downloadable song, are greater than the benefits of a similar increase in charges to high-income consumers. The implication is that the reduction in the take-up of devices or usage of music for a low-income (or low-usage) customer could have more weight, in utility terms, in the welfare analysis than an increase in usage or reduction in tariffs of a similar magnitude for a high-income (usage) customer.

– **The 'one person, one vote' principle**—because high-income users have more money to spend than low-income users (reflected in the amount of money they spend on hardware or music), the measured impacts of policies on their consumer surplus are typically larger than the measured impact on low-income individuals. In economic terms (see Figure 2.4), the demand schedule of a high-income consumer will be to the right of that of a low-income user. Conceptually, an appropriate weight could be set according to the 'one person, one vote' principle such that, after weighting, the policy change has an equal impact on each consumer in terms of consumer surplus.

Thus, to the extent that copyright levies act as a regressive tax, the results of Oxera's welfare analysis—which gives each consumer equal weight—may understate the distributional welfare effects across consumers of different income levels.

2.4 Impact on rights holders

2.4.1 Main effects through the value chain

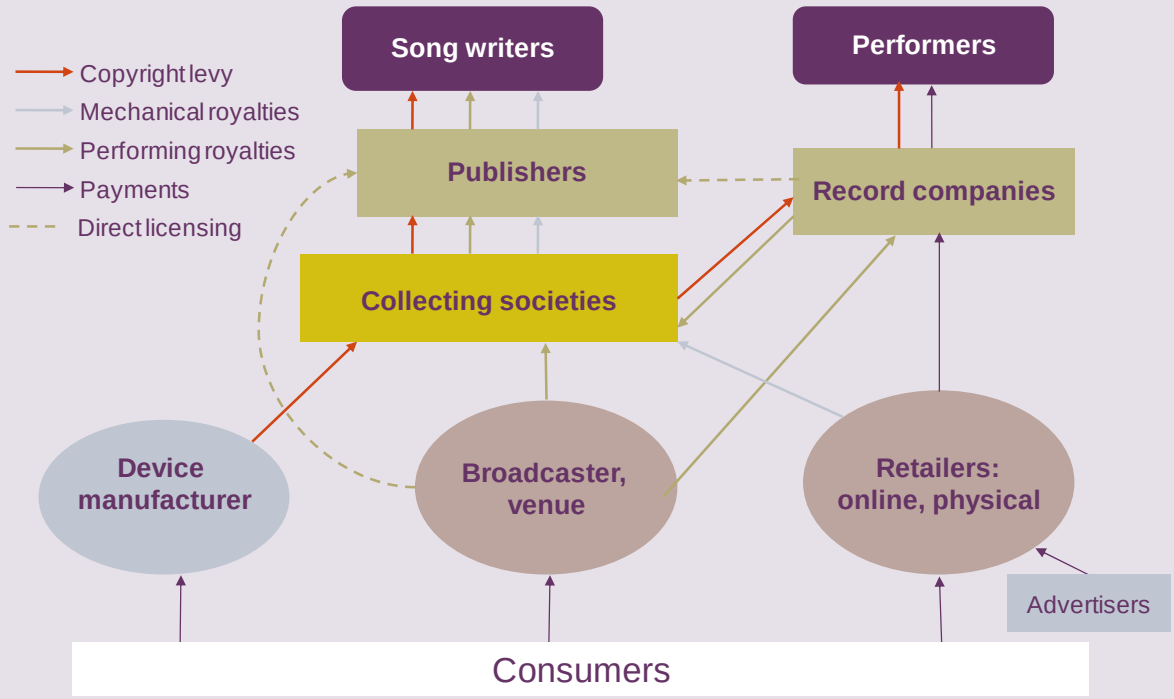
The analysis of the effects of copyright levies on rights holders (with emphasis on song writers) forms a fundamental part of Oxera's welfare model. Any distortions to rights holders' incentives and ability to create music may have wider implications for society, given the recognised public value of the amount and diversity of music content. The welfare analysis conducted by Oxera in this regard consists of four elements:

– a direct financial impact in terms of copyright levy payments—a static effect;
– forgone handset take-up—ie, there are fewer devices onto which music can be legally downloaded or digitally consumed—a static effect (which also contributes to dynamic effects);
– an effect on the supply of music by various types of song writer—a static effect;
– the impact of copyright levies on the incentives and ability to engage in licensing agreements and alternative business models, manifested through the value of digital sales—a dynamic effect.

[38] This theme is developed in Legros and Ginsburgh (2011), op. cit.
[39] See, for example, Boardman, A.E., Greenberg, D.H., Vining, A.R. and Weimer, D.L. (2001), *Cost–benefit analysis—Concepts and practice*, Pearson Prentice Hall, pp. 488–504.

For the purposes of the subsequent analysis, Box 2.1 provides a stylised illustration of the value chain of the copyrighted music industry. It shows the intermediary levels through which consumers ultimately remunerate rights holders for consuming their content, the various methods through which song writers are remunerated, and how the market participants are all linked.

Box 2.1 Value chain of the copyright content industry—an illustration



Source: Oxera.

– Consumers purchase music in digital and physical formats from music distributors (online and physical). The price paid for a song or album consists of the retailers' costs and their (potential) profit margins, while a certain proportion is paid to publishers and composers in the form of royalties to compensate for the reproduction and consumption of copyrighted content. The record company obtains the majority of the remaining revenue and distributes a proportion of this to the performer based on their contract.

– When consumers purchase a storable media device, the collecting society may make a claim against the device manufacturer to pay a copyright levy to rights holders. Collecting societies also make claims to collect copyright levies from hardware manufacturers, and (further to administration fees and funding societal purposes and cultural activities) distribute them to the relevant rights holders (song writers, music publishers, record producers, and/or performers). Collecting societies also collect other forms of remuneration.

Overall, the above demonstrates the multiple channels through which the creators and rights holders of music are remunerated, and how copyright levies make up only part of their overall remuneration. The value chain is further described in Appendix 1.

The impact on rights holders is somewhat more complex than that on consumers, whose welfare implications are modelled as a response to a price change with product-specific assumptions about their demand characteristics (ie, the slope and position of the demand curve). For song writers, a number of different factors influence their supply decision, of which the copyright levy is only one.

An argument put forward by the proponents of copyright levies is that, by contributing to rights holders' overall remuneration, these levies incentivise the creators of music to produce more diverse content. To explore the merit of this argument, Oxera's analysis addresses the

question of whether copyright levies do indeed constitute an incentive for the rights holders to produce content, and whether, given the tax-like distortion and other distortions caused by the levies (as discussed above), any such positive impact on rights holders might be outweighed by economic detriment caused by the levies, and indeed by additional revenues that rights holders would gain if copyright levies were removed.

The following questions are analysed in this respect.

- What drives song writers' incentives to create content?
- To what extent does financial remuneration contribute to a song writer's decision to pursue creative projects?
- What are the mechanisms through which copyright levy payments can have a negative financial impact on the creative community?
- What type of song writer, at the margin, would not produce an additional piece of music in the absence of copyright levy revenues?

2.4.2 What drives song writers' incentives to create content?

There is a large body of economics literature discussing the economics of creativity.[40] Further to employing 'standard' labour market frameworks—including the estimation of labour supply functions and earnings functions—the research has recognised the role of creativity. Writers' decisions are not taken entirely on monetary grounds. While financial remuneration is important, additional factors drive artistic decisions, and these are not captured by standard labour market frameworks. In economic terms, these factors form artists' utility function. The following factors may have an influence on writers' decisions to create.

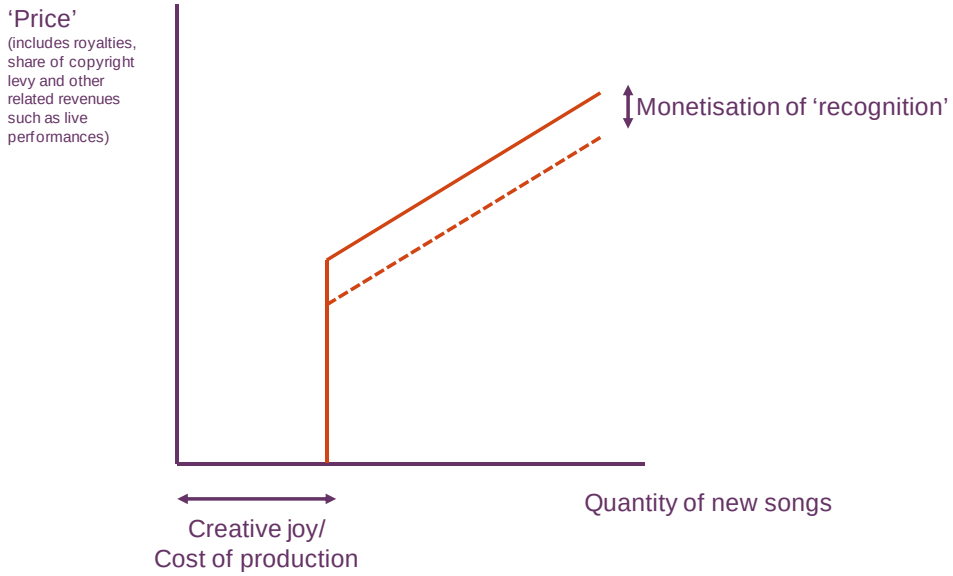
- **Creativity and talent**. There are ways in which creativity and talent have been brought into economic analysis. While the creation of artistic content requires time and effort, as does the production of any other goods or services, the link between the time spent and the success of the song in question is less apparent, for two principal reasons:
  - while creativity is often regarded as a 'black box' of human capital whose contents are best left undisturbed in economic studies, the prominence of creativity as an element in artistic production would seem to suggest that ignoring it is likely to compromise the explanatory power of models intending to represent artistic behaviour;[41]
  - the distribution of creative talent is naturally skewed across the population, and any lack of talent in music composition cannot be fully compensated by additional efforts (time spent).
- **Joy of creation**. The process of creation is not necessarily costly nor does it necessarily require costly effort on behalf of the song writer. Many writers may find the pursuit of writing enjoyable in itself. This is evidenced by the existence of amateur music writers who create music and yet receive no associated revenues. This may be because they do not officially release material or because they are not registered writers.
- **Opportunity cost**. By spending time writing music, composers are forgoing opportunities to earn income elsewhere. The maximum income that they can earn from the next-best source is known as the 'opportunity cost'. This cost will differ between composers, although the mean (average) income could be expected to be the same as the mean income in the economy generally. It does, however, seem appropriate to correlate this variable with a writer's revenues. Globally, successful rights holders who are both writers and performers may have opportunities for large incomes, such as additional tours.

[40] For a summary, see, for example, Legros (2006), op. cit.
[41] See Bryant, W.D.A. and Throsby, D. (2006). 'Creativity and the behavior of artists', chapter 16, pp. 507–29, in V.A. Ginsburgh and D. Throsby (eds.), *Handbook of the Economics of Art and Culture*, Elsevier.

– **Reputational value**. As established in the economics literature, artists' preferences, and hence their incentives to create new content, depend on non-monetary factors such as recognition among the creative community's audiences. This reputational value has two components: exposure of artistic work can create further revenues for a song writer, particularly if they are also a performer; and there is the pure value of achieving fame and recognition.

The above factors feed into any song writer's decision to supply content to the market as a function of price, as illustrated in Figure 2.5.

Figure 2.5 Stylised illustration of the 'supply curve' of a song writer



Source: Oxera.

Figure 2.5 shows how a number of people with creative talent and desire to create music (or other types of creative content) produce a certain amount of songs regardless of the financial remuneration. In this example, the supply curve can be described as 'kinked'—ie, inelastic supply until a certain 'price' level is reached, representing those writers who are not financially motivated, and upward-sloping from there on, representing writers who are more financially motivated (the higher the remuneration per song, the higher the volume of songs composed).

2.4.3 To what extent does financial remuneration contribute to song writers' decisions to pursue creative projects?

As discussed above, song writers' incentives to create new music depend on a variety of factors, one of which is financial remuneration. Even where copyright levies are applied, they represent a relatively small proportion of a music composer's total revenue. Furthermore, importantly, the revenues that song writers generate from levies *on average* do not reflect the distribution of writers. Indeed, as indicated by empirical evidence, only a small fraction of musicians receive any significant revenues from copyright levies.[42] These are established, rather than new, rights holders whose marginal incentives to produce new audio content are unlikely to be driven by copyright levies.

The split of revenues among rights holders may not be even. It can be biased towards the highest-selling writers, such that they receive a share greater than their proportion of sales.[43] Based on discussions with industry experts, it is Oxera's understanding that best-selling rights holders often have stronger bargaining power in negotiating statutory payments, both individually and in gaining a larger share in collective arrangements, whereas new entrants

[42] ENTER – IE (2010), op. cit.
[43] Indeed, many musicians are not members of collecting societies.

are often assigned rights and given a take-it-or-leave-it offer.[44] The available evidence is indicative of a very uneven distribution of income across all song writers—where the top 10% of writers account for around 80% of total income, and around 60% of writers collectively earn less than 2% of total income.[45]

2.4.4 Can copyright levies have a negative financial impact on the creative community?

There are a number of important interdependencies in the value chain of the music sector, and song writers generate revenues from a variety of sources.

The market mechanisms inherent in the value chain have some important implications for the assessment of incentives resulting from copyright levies, and, more generally, the trade-off between protecting copyrighted content and ensuring sufficient distribution of music. Importantly, song writers' revenues are driven by the distribution of music, since technical and performance royalties are both based directly on volumes of consumption.

Furthermore, the extent to which song writers receive revenue from live performances is linked with the distribution of music (whether through physical or digital sales), and possibly also with illegal file-sharing. This has been observed in the economics literature:

> Different IPR holders may have different objectives; some want a strict ban on copying, while others may value copying and sharing as a way to boost their reputation. For a given price of tapes, compensations between IPR holders seem needed in order to have all of them agree.[46]

The key finding here is that the copyright levy has a negative impact on the creative community from reduced distribution of music, since it results in sub-optimal take-up of music-playing hardware. To the extent that copyright levies do indeed reduce the demand for music, they therefore negatively affect rights holders. As discussed in further detail below, in addition to this direct ('static') effect, the negative effect of the levy on rights holders is exacerbated insofar as it distorts the incentives to launch business models involving digital licensing.

2.4.5 Effects on rights holders in the context of the welfare model

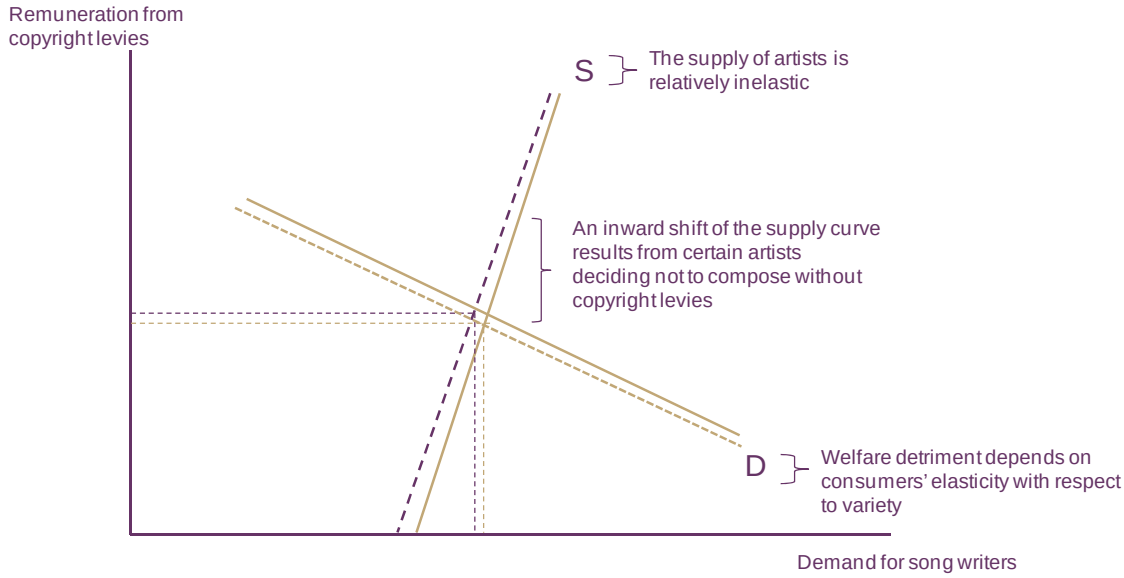
An economic assessment of welfare incorporates all individuals involved in a market and thus includes producers as well as consumers. In the case of the music market, the producers concerned are the song writers and performers. These rights holders are affected by the copyright levy in several ways, not only via the impact on consumer demand described above, but also directly through the transfer of revenues that they receive from the collecting societies. The size of these effects will determine the net financial impact on song writers in a static sense.

The welfare modelling undertaken considers the impact on song writers in a stylised framework. It assesses, in a binary way, their decision to remain active as content providers in response to changes in the levy: the simulation-based modelling projects whether or not a writer would stop composing music as a result of the removal of levy payments.

The approach taken in the welfare model allows simultaneous interaction between demand and supply (that is, the analysis is not constrained to only one of these aspects). This is important because the demand curve does not stay constant when the levy changes, and therefore determining a new equilibrium is not as straightforward as analysing a shift in supply only. The assumed reduction in music supply resulting from the estimated new equilibrium is then incorporated in the new estimates of music sales. Figure 2.6 below illustrates this modelled effect. (Note that the changes are relatively small, as illustrated in the stylised figure.)

[44] See, also, SABIP (2010), 'The relationship between copyright and contract law', April.
[45] Monopolies and Mergers Commission (1996), 'Performing Rights'. SABIP (2010), op. cit., p. 64.
[46] Legros (2006), op. cit.

Figure 2.6 Demand and supply for song writers



Source: Oxera.

In terms of the *static* welfare result, song writers' producer surplus is affected by the overall lost levy revenues and the impact of the decision of some writers to stop composing. In a static sense, there are revenues lost from levies, and, on the other hand, revenues gained from digitally licensed content that is consumed because of the higher take-up of devices in the absence of the copyright levy. Neither of these effects, however, as yet takes into account the more dynamic effects resulting from the removal of levies—see section 2.5 below.

In the course of the modelling, the supply decisions of several song writers have been evaluated individually. This provides more granular information than the final aggregate numbers. This disaggregate analysis is a new contribution to the copyright levy debate in itself, and is discussed below.

2.4.6 Welfare implications across the heterogeneous population of song writers

The impact of the levy is unlikely to be uniform, because song writers are heterogeneous. As a result of the differences in incentives and revenue composition between the different types of song writers, the existence, size or removal of a copyright levy may affect groups of song writers differently.

A sub-module of the welfare model is an evaluation of writer heterogeneity. The purpose of the heterogeneity analysis is twofold:

– an important aspect of Oxera's analysis is to draw a distinction between writers with different sales levels. In particular, the analysis seeks to distinguish between established commercial singer-song writers, publishers and composers who create music for more niche audiences, which may nevertheless be important for national-level cultural objectives—similar to a 'public good';

– the heterogeneity module contributes to the overall welfare model by identifying those groups of rights holders (if any) whose marginal incentives to create content could, under plausible assumptions, be driven by copyright levies.

A simulation-based approach has been employed in the analysis to incorporate heterogeneity across song writers. This means that a population of song writers is artificially created to represent the actual artistic community. Further details of the simulation approach are given in Appendix 3. This approach involves assessing a writer's expected annual

revenues and comparing them with an opportunity cost from an outside option. It therefore treats the labour supply decision as binary.

A binary approach to writers' decisions could be justified as a reasonable approximation to a more continuous supply decision. It is used for pragmatic purposes with the expectation that its results will still be meaningful. In this regard, it is worth noting that binary approximations to continuous problems have been successfully employed in other contexts.[47] Furthermore, as explained in Appendix 3, there is an implicit assumption that each rights holder creates the same amount of music content. Table 2.2 shows the impact on different groups of song writers, categorised by earning levels.

Table 2.2 Types of song writers most affected

Writer's current monetary and reputational earnings (€)	Number of simulated writers	Number of simulated writers whose incentives could be affected without the levy	% of registered song writers whose incentives could be affected without the levy
<30,000	9,471	0	0.00%
30,000–50,000	233	1	0.43%
50,000–75,000	108	0	0.00%
75,000–100,000	63	0	0.00%
>100,000	125	1	0.80%
Total	**10,000**	**2**	**0.02%**

Note: The simulated results presented here are scaled accordingly when used over the whole writer population.
Source: Oxera.

Table 2.2 shows that the majority of writers are at the lower end of the earnings distribution. This group is less affected in percentage terms by the removal of the levy. The copyright levy makes up a small percentage of their total earnings and its removal has a limited impact on their marginal decision.

The impact on more successful writers is greater in percentage terms, although still negligible. These writers receive the most significant share of the copyright levy, since it is assumed that the allocation of levy revenue is, to some extent, commensurate with the rights holder's sales. They may also arguably have the greatest opportunity cost if they could be considered the more gifted individuals. This is captured in the modelling by a correlation between actual earnings and opportunity cost.

2.4.7 The impact of music variety on demand

One issue that arises from this module is how consumers respond to changes in the number of song writers who are producing music. This has been a feature of previous economic impact studies, whereby the demand for music increases in line with the variety of music available.

In Oxera's model, the impact on demand resulting from an increase in the variety of music is implicitly captured in the interaction between demand and supply for song writers, since the demand for song writers is related to the number of writers of new music that consumers are willing to support financially. The outcome of this heterogeneity module is a percentage reduction in the music supply of writers that can be disaggregated by the type of writer based on their sales or revenues.

[47] See, for example, Nelson, D. and Ramaswamy, K. (1990), 'Simple binomial processes as diffusion approximations in financial models', *The Review of Financial Studies*, **3**, pp. 393–430.

2.4.8 Conclusion from the song writer heterogeneity analysis

The message of the above analysis is that, even without taking into account the dynamic effects, the copyright levy revenues affect the incentives of only a negligible share of song writers. The removal of copyright levies would therefore have virtually no impact on the provision of music, and would not—even under a static framework—result in reduced welfare or music variety that would offset the benefits to consumers.[48]

2.5 The dynamic effects of copyright levies on digital licensing

The above analysis has presented the welfare effects in a static sense. It assessed the economic effects of changes in the copyright levy system, assuming that the removal of the system would not result in any changes in the behaviour of the rights holders going forward. While these analytical stages are necessary, they do not suffice in providing a full basis for the impact assessment. More specifically, should the levies be removed, rights holders would be expected to try to adopt alternative remuneration mechanisms. Indeed, the existence of copyright levies may currently act as an impediment to seeking such alternative forms of licensing. The dynamic effects likely to result from the removal of copyright levies are discussed below, followed by quantification of the overall effects on rights holders (both static and dynamic).

2.5.1 Growth potential of digital music

The assessment of the extent of dynamic effects needs to recognise the ongoing developments in the sales of digital and physical content. The digital music market has grown over recent years, and is forecast to grow further in the future. Given the reasoning above, it is possible that the private copying exception and associated levy payments and restrictions to licensing have acted as a dampening effect on the speed of this growth.

It is difficult to estimate accurately how much the market would have grown, or would grow in future, in the absence of copyright levies. In this respect, evidence shows that rapid and substantial changes are possible, and that there is increasing consumer demand for digital music, whether in the form of streaming or services with unlimited downloads.

Table 2.3 below highlights how digital music markets grew strongly over 2008 and 2009. This trend is set to continue over the next few years, with the world digital music market anticipated to grow at an annual rate of 37.1% up to 2014.[49] While these forecasts are estimates, they provide an indication of the scope for dynamic growth within the industry.

[48] This is contrary to a result derived by the ECONLAW study (referred to above), which assessed the same question but employed a different approach. More specifically, ECONLAW assumes that the supply of songs is relatively elastic with respect to income, and hence even a small change in revenues results in significant changes in the supply of songs. While ECONLAW's approach could be appropriate in some contexts, the specific characteristics of the music industry (the importance of creativity, in particular) suggest that an approach assessing the incentives of content producers, as Oxera has done, is more realistic and rigorous.

[49] IE Market Research, 'Global Digital Music Forecast for online, mobile and subscription channels, 2010-2014'.

Table 2.3 Digital music market revenue forecasts, 2009–14

	2009/10	2014 forecast	Compound annual growth rate (%)
Digital music revenues, 2009–14 (US$ billion)			
World	7.8	32.5	37.1
Western Europe	1.3	4.8	31.4
Eastern Europe	0.1	0.8	55.5
USA and Canada	4.0	11.9	26.2
South and Central America	0.1	1.1	73.7
Number of paid users of digital music (m)			
World			16.9
Western Europe	87.4	173.2	13.8
Eastern Europe	37.2	71.8	13.6
USA and Canada	105.4	272.2	16.6
South and Central America	41.3	98.9	18.7

Source: IE Market Research, 'Global Digital Music Forecast for online, mobile and subscription channels, 2010-2014'.

The consumption of music has not decreased in previous years, despite the decline in physical sales, as consumers have accessed music through legal and illegal forms of downloading and file-sharing. Licensing-based business models that are funded, for example, by subscription payments or advertisements can reduce consumers' incentives to obtain illegal content. Subscription and advertising models offer consumers a zero, or very close to zero, marginal cost of consuming songs—comparable to the marginal cost of illegal downloading.[50]

Consumers may consider the costs of either subscription or listening to advertisements preferable to the potential costs of illegal downloading, such as the threat of getting caught, or the intrinsic costs associated with carrying out illegal activity (eg, the risk of fines or even a prison sentence). One survey of consumers found that reasons for illegal downloading included a good availability of music (46% of illegal downloaders), and the ability to try music before deciding whether to buy it (42%).[51] Subscription models offer services that legally meet these consumer demands, again reducing incentives to obtain illegal content.

This substitution effect (from illegal to legal) may result in considerable increases in the sales of online music. The potential is vast, given the considerable size of the illegal 'market'. For example, the IFPI estimated that 95% of all songs downloaded from the Internet in 2008 were illegal downloads, equivalent to a sales retail value of approximately $12.8 billion.[52] Furthermore, it has been estimated that the total revenue loss due to the illegal consumption of music each year ranges between €120m and €440m per country in the five largest EU Member States (in terms of GDP).[53] Revenue loss is calculated by multiplying an estimate for the number of copyright infringements each year by the substitution rate between illegal and legal consumption and the unit retail price.

The implication is that even a modest substitution by consumers from illegal to legal downloading would result in significant growth in the digital market. The magnitude of such figures underlines the potential for generating substantial growth in the digital industry.

[50] The relationship between copyright levies and illegal file-sharing is explored further in Appendix 4.
[51] Ipsos Media CT (2009), 'Digital Music Survey'.
[52] IFPI (2009), 'Digital Music Market 2009', http://www.ifpi.org/content/section_resources/dmr2009.html.
[53] Pasche, H.C. (2009), 'Music Industry v. File-Sharing. Why we need a new approach to copyright protection in the new digital era', University of Toronto.

2.5.2 Impact of copyright levies on licensing

From a dynamic perspective, it has been suggested that the revenues from copyright levies increase song writers' incentives to create.[54] This assumes that rights holders would not replace forgone levy revenues with alternative sources of remuneration—in particular, with digital licensing. Furthermore, it ignores the role of hardware manufacturers and other service providers in the music supply chain. Investment in technology is often complementary to the emergence of new business models.[55] Insofar as new business models of music distribution are not introduced as a result of the levy, there is a negative knock-on effect on rights holders, given that less licence-based revenue is generated through advanced digital distribution platforms (eg, online music stores and cloud-based services).

Thus, while content producers might benefit from copyright levies in the static sense, the dynamic effects in terms of opportunities in advanced distribution mechanisms could offset any short-term gains. As discussed in section 5, the issue of copyright levies has been considered a contributing factor to the relatively limited success of the digital licensing market in Europe. In particular, it has been highlighted that the EU digital music market is only one-third the size of the US market. While it is outside the scope of this report to analyse the current problems in the digital licensing market, Oxera identifies several links between the copyright levy regime on the one hand and the (absence of) incentives to engage in digital licensing arrangements on the other.

Indeed, there are economic reasons to suggest that the copyright levy regime, as currently implemented in a number of Member States, may act as an impediment to the development of such licensing models.

– **Private copying exception as an impediment to licensing**. Collecting societies may perceive copyright levies as a more lucrative mechanism to generate revenues relative to licensing, and may view licensing as a threat to the generation of revenues from copyright levies, and as a result have limited incentives to engage in innovative digital licensing schemes. By contrast, in the digital realm, rights holders and service providers can, in effect, negotiate licences for all digital uses enjoyed by consumers without the need for private copy levies.

– **Marginal incentives for licensing**. If collecting societies are offered the ability to determine and rely on revenues from copyright levies, their marginal incentives to engage in alternative licensing arrangements are lower than in the absence of such levies. Put another way, it would be unrealistic to assume that, in the absence of copyright levies, publishers and composers would not seek to offset the (perceived) revenue losses by alternative means of remuneration, such as market-based licensing agreements.

– **Knock-on effect from sub-optimal device take-up**. Insofar as new business models of music distribution are not introduced or not successful as a result of the levy, there is a knock-on effect on song writers, given that less licence-based revenue would be generated through advanced digital distribution platforms. As explained further below, by reducing the take-up of (advanced) devices, the copyright levy system may distort the incentives of service providers.

– **Consumer perception**. Insofar as consumers perceive that they are, or should be, eligible to make private copies, given the levy payment embedded in the price of the device, they may prefer private copying and even unauthorised copying over alternative, digital models of music distribution. Furthermore, insofar as consumers perceive copying and sharing as authorised and appropriate, this may reinforce sharing more broadly,

[54] ECONLAW (2009), op. cit.
[55] For further discussion, see Legros and Ginsburgh (2011), op. cit.

both legal and illegal. The substitutability of streaming-based and downloaded content may lead consumers to stick with private copying rather than purchase legal content.[56]

– **Double payments by hardware manufacturers**. The device manufacturers, already compensating for private copying in the form of copyright levy payments, may have insufficient incentives to engage in licensing agreements with rights holders as they may in effect have to pay twice.

– **Licensing revenue is aligned with usage**. A further economic justification for licensing-based models stems from the usage-based nature of licence income. More specifically, if the rights holders' revenue streams are directly linked with the sales of music, they have stronger incentives to distribute content to as wide an audience as possible. This contrasts with the current model where (part of) the income is correlated with sales of hardware, rather than music. The implication is that, should the levy system be removed and replaced by market-based licensing, the rights holders' incentives to increase the exposure of their music would be stronger, with the likely effect of expanding total output in the market.

There are therefore sound reasons to suggest that the removal of the levy system could enhance the digital licensing market. An indicative quantification of this effect is presented below.

2.5.3 Quantification of dynamic effects on rights holders

The above analysis has identified mechanisms through which the levy regime can function as an impediment to digital licensing, which has implications for rights holders. The quantitative analysis presented below recognises different types of rights holder, and hence includes writers, performers, publishers, and producers. These are all parties that contribute to the creation of music, and currently receive some compensation through copyright levies. Indeed, different rights holders receiving copyright levy revenues are affected differently by the removal of these levies. For song writers, increases in music sales imply further income in the form of royalties.[57] For producers, the net revenue impact is also significant given the high market value that goes to record labels.

A number of assumptions and parameters can be adjusted to affect the results, and a variety of scenarios have been tested. In this context, the two most relevant factors appear to be the growth in digital music sales and changes in the effective compensation—ie, the incremental value to rights holders associated with innovative business models.

– **Growth in digital sales volumes**. Following the above reasoning, the removal of copyright levies and associated impediments to digital licensing would be expected to result in an increase in the distribution of digital music. There would be increased demand for advanced services and enhanced supply of licensed content. The extent of this effect is subject to a degree of uncertainty, and hence it is appropriate to present scenarios around this assumption.

– **Changes in effective compensation**. In economic terms, the improvements in licensing are manifested through a shift in the demand curve resulting from enhanced quality of service. In other words, more value can be extracted from end-users who have a higher willingness to pay for better quality. To some extent this effect is influenced by a shift in the supply curve to the right, given, for example, the lower distribution costs. Both effects lead to higher volumes, but the impact on the effective compensation is ambiguous and hence a number of scenarios are presented.

[56] The cross-country analysis presented in section 4 provides an indication of the potentially counterproductive effect that levies may have on the performance of the music industry.
[57] For singer-song writers, an increase in music sales means more exposure, which may in turn lead to further performance revenues. This positive externality is not incorporated in the modelling of dynamic effects, and hence the approach can be considered conservative.

Intuitively, 'better quality' involves greater transparency and ability to use content on several devices and media (see section 1); greater variety of licensed songs available in digital format; better-functioning online sales platforms (whether by song or over a streaming-based service); or, for example, higher-quality encoding of songs. Thus, 'quality' here refers to all types of improvement in the consumer's experience associated with a well-functioning digital licensing market. Revenues are also generated through advertising, which provides another considerable income stream associated with (some) digital, licensing-based business models. Many of these digital services, and associated licensing models, are still in their infancy, and it is not feasible to predict accurately their potential impact on rights holders' revenues. Therefore, given the uncertainty surrounding the likely evolution of the music distribution models and how they might generate additional revenues to rights holders, scenarios are presented with respect to an increase in both the volumes of music sales and the effective compensation.

Table 2.4 shows the impact on rights holders of the removal of levies under three different scenarios. The impact is twofold: rights holders directly lose the revenues they previously received from the copyright levies; and digital sales increase as a result of the sale of additional devices and dynamic growth stimulated by new business models. The scenarios show that, with significant dynamic growth and modest changes in the effective compensation (through new business models), rights holders can gain a net benefit from the removal of the existing levy system.

Table 2.4 Welfare effects of removing copyright levies—impact on rights holders (per annum)

	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
Assumptions			
Dynamic growth in digital music	50%	75%	100%
Change in effective compensation of music	0%	2%	4%
Music market, effect on:			
writers' revenues from levies (€m)	–70	–70	–70
writers' revenues from music sales (€m)	54	77	100
performers' revenues from levies (€m)	–52	–52	–52
performers' revenues from music sales (€m)	54	77	100
producers' (record labels') revenues from levies (€m)	–52	–52	–52
producers' (record labels') revenues from music sales (€m)	275	436	601
Net revenue impact (€m)	**209**	**416**	**627**

Source: Oxera.

Of the various rights holders, record producers benefit most in terms of revenue because they receive the highest share of the retail revenue. Song writers are also better off in most of the scenarios, with a well-performing, licence-based digital market.

Insofar as the removal of levies results in enhancements in the digital music market, this would create opportunities and incentives for more composers and artists to create new content, and have their music distributed. While the impact on the diversity (as opposed to the quantity) of music is not explicitly addressed by the quantitative analysis, expanded music sales would be expected to trigger further music creation, which, in turn, would lead to greater diversity of music content.

It is noted that the results presented above reflect the changes in the music market that would result from the removal of levies, not the underlying growth or ongoing development of business models. Furthermore, the above illustration assumes that the increase in value is fully reflected in rights holders' income, and has no impact on service providers' average revenue (per unit of output/song).

2.6 Direct impact on hardware manufacturers

As outlined above, an important shortcoming of the copyright levy system is that it is not specifically targeted at those who copy—'rough justice', as noted by the European Commission.[58] Consequently, manufacturers of different types of hardware are affected in a number of ways. Box 2.2 summarises the characteristics of the various types of media and equipment on which the levies are applied.

Box 2.2 Implications of levies for different types of hardware

Blank media such as blank CDs or DVDs may be used for 'dedicated' private copying. As such, insofar as private copying is detrimental to song writers, imposing a levy that makes blank media more expensive should reduce the amount of private copying. It could thus be argued that a copyright levy on blank media is targeted at dedicated private copying, insofar as blank media is not used in conjunction with multi-purpose devices (eg, memory cards).

Media players such as MP3 players are also used for private copying, in that content cannot be bought with them directly. However, most consumers may purchase copyrighted content (through whichever method) with the intention of consuming it using their media player. A main role of online music stores is to provide licensed content for consumers to use on their media players—such use should be represented in the price of the content. While the occurrence of side-loading content from other formats, such as recorded CDs, onto media players could be considered private copying, consumers have already paid for the use of content on their media players and are thus paying twice.

Multi-purpose devices such as mobile phones or PCs, as the name suggests, have multiple functions beyond consuming music or other copyrighted content. Consumers who own a multi-purpose device but do not use it for private copying or any consumption of copyrighted content may still be subject to a copyright levy, to the extent that the device manufacturer passes the levy through to the final price of the product.

If only a small proportion of customers use their devices for legal private copying, the imposition of the copyright levy could cause distortions in the markets, which in turn raises concerns about the efficiency properties of the copyright levy system.

– **Reduced producer surplus**—if and when the levy is passed on to handset prices, it disproportionally increases the cost of ownership and has a negative impact on the take-up of handsets. This results in sub-optimal producer surplus in a static welfare framework (see above), and decreases expected returns, hence distorting manufacturers' investment incentives.

– **Redistribution of the surplus between manufacturers and consumers**—if only a small proportion of consumers are willing to pay extra for the functionality to listen to music on their mobile phones, manufacturers will have a limited ability to raise prices on the phones with this functionality since they may lose the majority of customers who do not have this higher willingness to pay.

If the current levy system were removed, hardware manufacturers would be able to make more sales in terms of volume and revenue. Whether their economic welfare increases depends on the nature of supply in these industries. A perfectly elastic supply curve would imply that there is no additional surplus (profit) for manufacturers, since the additional revenue simply covers costs. This could be true for relatively competitive markets, such as

[58] European Commission (2008), 'Background Document: Fair Compensation for Acts of Private Copying', February 14th, p. 8.

for CD-Rs. If a market is not perfectly competitive (eg, as is the case for MP3 players), the supply curve may not be flat. This could result in some welfare gains to manufacturers. Table 2.5 shows the results of the welfare analysis for manufacturers under different assumptions.

Table 2.5 Welfare effects of removing copyright levies—manufacturers

	Low elasticity of supply	Medium elasticity of supply	Perfectly elastic supply
Hardware market			
Impact on manufacturer revenue (€m/annum)	426	426	426
Impact on manufacturer producer surplus (€m/annum)	333	166	0

Source: Oxera.

In addition to these static effects on sales, by eroding the (expected) returns of hardware manufacturers, copyright levies distort the investment and innovation by hardware manufacturers. This effect is assessed separately in section 3.

2.7 Knock-on effect from sub-optimal device sales on online services and applications

As examined above, insofar as levies are passed through to the prices faced by end-users, the copyright levy acts as a tax with the effect of reducing the device sales below the optimal level. There are important interdependencies across the markets for device sales and content played on the devices. In economic terms, the markets exhibit characteristics of a two-sided market, whereby the music-playing device is effectively a platform, serving end-users on one side of the market and content producers on the other (see the illustration in Figure 2.1 above).

A further stakeholder group whose incentives and returns are affected by the copyright levy are developers of complementary software ('applications'). A number of these applications are used as a means of music distribution, whether in the form of streaming-based services or as gateways to access online music sales platforms. Since the conceptual framework is analogous for a range of applications, including music services, the following assessment refers to 'applications' for the sake of presentational clarity.

2.7.1 Conceptual framework for assessing distortions in the applications market

Crucially, the expected returns of application developers are higher, the more customers there are to attract—ie, users of advanced devices with music-playing capability and access to the Internet (eg, iPod Touch, smartphones). This 'cross-group externality' works the other way around as well: the greater the demand for high-end devices, the more applications there are available for the platform. Given these links, any distortion to the take-up of devices damages the value chain more widely. This 'vicious circle' is illustrated in Figure 2.7.

Figure 2.7 'Vicious circle' resulting from distortions to the applications market

Source: Oxera.

The fewer advanced devices sold in the market, the smaller the potential customer base for application developers. As shown above, the copyright levy leads to a sub-optimal take-up of

devices. Given that the applications market is characterised by high fixed costs relative to variable costs—ie, relatively high costs of R&D incurred in software development but low marginal costs of distribution—developers' decisions to bring new services to the market depend on the achievable customer base.

Insofar as the copyright levy leads to fewer devices capable of running applications such as music streaming services, the less profitable it is for the developers to incur the fixed cost of software development. The vicious circle is complete—the fewer applications available, the lower the demand for high-end devices.

To estimate the quantum of harm resulting from the indirect impact of copyright levies on the applications market, a conservative approach has been employed. The forgone revenues from applications have been estimated by multiplying the lost handset sales by an estimate of the average advertising-based revenue per mobile handset. Table 2.6 describes the estimated loss in application sales. The calculations are based on the estimated loss of handset sales in Oxera's welfare model in combination with estimates of the average ARPU from Thomas Weisel Partners, an equity research company.[59]

Table 2.6 Applications market: revenues gained as a result of removal of levies (€m per annum)

	2010 ARPU scenario	2014 ARPU scenario (base)	2014 ARPU scenario (bold)
ARPU (€)	14.2	23.8	44.1
Base case (scenario 2) (€m)	1.19	1.98	3.68
Higher uniform levies (€m)	5.80	9.68	17.98

Note: The higher uniform levies scenario refers to the revenue loss between levies being applied across the EU25 at the current rates in France relative to a scenario with no levies at all.
Source: Oxera analysis based on Thomas Weisel Partners – Equity Research (2010), 'Mobile Advertising: The Hype, The Hope, and the Financial Reality', March 9th.

Given the conservative assumptions, the impact is relatively small, and does not alter the results significantly. It is noted that the modelling is one-sided in this respect and likely to underestimate the true negative commercial effects. In particular, while the application revenues are currently largely subscription- or per-download-based, industry commentators have projected that significant revenue streams in future will be generated through subscription- and advertising-based business models.[60] However, a conservative approach has been considered appropriate, given that the advertising-based business models are still in their infancy, and any future revenues associated with such business models are subject to a degree of uncertainty.

2.8 The results of welfare analysis

The preceding discussion described the background to the welfare modelling. Further details of the modelling are provided in Appendices 3 and 5. This section presents the results of the default modelling (the 'base case').

2.8.1 The results of the aggregate welfare analysis

Table 2.7 below presents the overall results of the welfare analysis for three scenarios, all of which set out the welfare effects of removing the current levy system (ie, the level and structure of the levies as currently applied). For completeness, alternative scenarios are presented in Appendix 5.

[59] Thomas Weisel Partners – Equity Research (2010), 'Mobile Advertising: The Hype, The Hope, and the Financial Reality', March 9th.
[60] Business Models Inc (2010), 'Will Spotify beat iTunes?', October 20th.

Table 2.7 Welfare effects of removing copyright levies (per annum)—summary overview

	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
Assumptions			
Dynamic growth in digital music	50%	75%	100%
Change in the effective compensation from music	0%	2%	4%
Hardware pass-on	75%	75%	75%
Hardware elasticities (demand and supply)	Medium	Medium	Medium
eg, Mobile phone price elasticity of demand	–2.00	–2.00	–2.00
eg, Hardware price elasticity of supply	2.00	2.00	2.00
Hardware market			
Change in average price (% of previous)	99%	99%	99%
Change in units sold (% of previous)	106%	106%	106%
Total change in manufacturers' revenues (€m)	426	426	426
Welfare			
Effect on manufacturer surplus (€m)	166	166	166
Effect on consumer surplus (€m)	375	375	375
Music market			
Loss of active song writers (%)	0.02%	0.02%	0.02%
Effect on writers' revenues from levies (€m)	–70	–70	–70
Effect on writers' revenues from music sales (€m)	54	77	100
Effect on performers' revenues from levies (€m)	–52	–52	–52
Effect on performers' revenues from music sales (€m)	54	77	100
Effect on producers' (record labels') revenues from levies (€m)	–52	–52	–52
Effect on producers' (record labels') revenues from music sales (€m)	275	436	601
Effect on consumer surplus (€m)	226	434	713
Applications market			
Advertising revenues gained (€m)	1.19	1.19	1.19
Total results			
Effect on consumer surplus (€m)	601	809	1,088
Effect on manufacturers' surplus (€m)	166	166	166
Effect on writers' revenues (€m)	–16	7	30
Effect on performers' revenues (€m)	1	24	48
Effect on producers' (record labels') revenues (€m)	223	384	548
Total impact (€m)	**975**	**1,389**	**1,880**

Note: The final 'Total impact' includes the sum of consumer and manufacturers' surplus and the revenues of rights holders. Whether the revenues of producers (record labels) should be considered surplus depends on the extent to which they incur additional costs associated with producing this additional output.
Source: Oxera.

Table 2.7 focuses on the effect on three different groups of removing the levy: consumers, manufacturers and rights holders (divided into song writers, performers, and producers). There may be other affected parties, such as recipients of levy revenues that go to cultural purposes. These recipients have not been included in the welfare analysis. This is because the way in which levy revenues that do not get distributed to rights holders are split between administration costs and cultural purposes is unclear and varies by country.

It is not within the scope of this analysis to assess the extent to which the revenues allocated to cultural funding are efficiently managed and succeed in delivering welfare benefits. Moreover, there are no apparent economic reasons as to why hardware manufacturers should fund general cultural initiatives—hardware sales are unlikely to exhibit negative externalities to local, non-commercial song writers, for example, which would need to be compensated for. This is further discussed in section 6.

Furthermore, the analysis does not assess explicitly the implication for distributors of digital content—ie, digital providers. Given that these parties currently do not receive any copyright levy revenue, any enhancement in the digital music sales resulting from the removal of levies would have a positive profit impact on these distributors.

3 The implications of copyright levies for innovation and investment

This section discusses how copyright levies may distort the incentives both of hardware manufacturers to invest and innovate, and of market participants in general to develop new business models for the digital age.

3.1 Hardware manufacturers' incentives to introduce advanced equipment

The copyright levy system can affect innovation in several ways, notably:

– by having a negative impact on a company's financial performance and therefore affecting its ability to invest in R&D; and

– by altering manufacturers' incentives to produce and introduce devices with particular characteristics (such as high storage capacity) to the market.

How these mechanisms work in practice is explored as follows.

3.1.1 Impact on business planning

If the copyright levy can be passed on to consumers in full, it would not be expected to have an impact on the financial viability of the manufacturer's business, other than constituting a cost that needs to be covered. However, if the levy is absorbed in full or in part by the manufacturer, it could have a substantial impact on the manufacturer's financial performance and ability and incentives to invest in and introduce advanced devices to the market.

Several aspects of the copyright levy would need to be considered when assessing the impact on a manufacturer's financial performance and incentives—most notably:

– the size of the levy; and
– the predictability of copyright levy payments.[61]

The size of the payments relative to the value of the device, and the extent to which this reduces the volume of the devices purchased, will have an impact on the financial performance of the manufacturer.

The relevant question to consider is the impact of the levy on the profitability of the investment—in this context, it must be asked whether the levy affects profits relative to the hurdle rate of introducing a particular device model. Put another way, if the investment in, and introduction of, a particular device becomes unprofitable due to the copyright levy, the industry output would be at a sub-optimal level, to the detriment of device manufacturers.[62]

Another important consideration is predictability of the copyright levy payment. If the amount of the levy is difficult to forecast, and an unknown proportion of it is expected to be absorbed by the manufacturer, this might place a financial strain on the manufacturer and its ability and incentives to fund the necessary investment for continuous innovation. There are at least two possible reasons why copyright levy payments are unpredictable:[63]

– the copyright levy itself can be unpredictable because the method of calculating the levy is not transparent (inter alia, to manufacturers), or because of the unpredictable changes

[61] Further related significant costs to manufacturers include, for example, litigation costs.
[62] Broadly, the levies are typically around 5–10% of the device price.
[63] A further distortion arises from the fragmented application of copyright levies in Europe, as explained in section 5.

in the copyright levy rates as set unilaterally (monopolistically) by the collecting societies;

– the data on which copyright levy calculations are based (such as hardware sales) tends to be volatile. Since the manufacturers' sales may be unpredictable and cannot be forecast with accuracy, the copyright levy subsequently cannot be calculated with great accuracy. Oxera understands that the way in which collecting societies issue their claims for copyright levies is not fully transparent.

Overall, both the size of the copyright levy and the extent to which it is unpredictable would be expected to distort the investment incentives of device manufacturers. In particular, it is Oxera's understanding that the plans to introduce devices with a particular specification are made significantly in advance of the actual launch date of the product.

In economic terms, this situation is analogous to what is referred to as a 'hold-up problem'. The party considering an investment (in this context, the device manufacturer) may refrain from doing so given that the investment might result in increased bargaining power on the part of the trading partner—in this context, more advanced devices may result in higher claims by collecting societies.[64]

3.1.2 Impact on the technical specifications of devices

The basis on which the levy is charged may also distort manufacturers' incentives for producing products with particular characteristics. For example, if the size of the copyright levy is linked to the size of memory in the device, this could not only discourage manufacturers from including large memory in the devices, but also prevent them from producing any new and advanced technology that relies on large amounts of memory to function.[65] This results in a detriment to consumers (lower-quality devices) and to rights holders (less advanced handsets being available with music-playing facilities and access to music stores).

As established by Moore's Law, the cost of memory is decreasing while, at the same time, the capabilities of digital electronic devices are improving. Indeed, these technological developments tend to be so strong that the copyright levies are unlikely to completely erode the incentives to introduce devices with greater memory capacity. Nevertheless, it is appropriate to assess the extent to which the levies could hinder the introduction of devices with high capacities by comparing a scenario with copyright levies (the 'factual') with a scenario where no levies are imposed (the 'counterfactual').

Even if the copyright levy were applied as a fixed amount per device (ie, not proportionate to the memory size), the existence of the levy might cause the manufacturer to downgrade the specifications of the product (eg, a phone). To illustrate this, it is assumed that, in order to achieve sufficient economic profitability in the long term, the device manufacturers take into account the following business planning considerations.

– Before a new device is introduced to the market, the price of a device with a particular specification is typically set by taking into account the cost of the specifications, bill-of-materials and the target margin necessary to recoup the investment in R&D and other fixed costs.

– The estimated gross margin for a particular product category is evaluated against the target gross margin for the product. If the estimated margin is below the target gross margin, the specifications of the handset may be re-evaluated and modified in order to reduce the costs of production.

[64] See, for example, Hart, O. and Holmström, B. (1987), 'The Theory of Contracts', pp. 71–155, in T. Bewley (ed.), *Advances in Economic Theory*, Cambridge University Press.
[65] Indeed, memory is used not only for copying of licensable content, but to a large extent also for saving images, and for downloads of music, applications and games.

– Therefore, if a copyright levy is applied to a device, this may reduce the gross margin expected to be obtained on the device, which may lead to features of the device being downgraded to keep the expected gross margin in line with the target margin.

It is possible to demonstrate this impact with a stylised model, as described below.

3.1.3 Stylised illustration

A stylised model, which is based on a combination of data obtained from Nokia[66] and public domain sources, demonstrates how copyright levies could be expected to affect the size of the memory in devices put on the market. Although the illustration is discussed with reference to memory size, in a situation where copyright levy is applied as a constant charge per device (ie, unrelated to the memory size), the reduction in the memory size resulting from the application of a copyright levy can alternatively be interpreted as a downgrade in the specification of the device.

The model compares the memory size of a handset using data on the actual prices of handsets and forecast revenues from European handset sales between 2008 and 2010 in the scenarios with copyright levies (the factual scenario) and without copyright levies (the counterfactual scenario). The memory size per handset in the two scenarios is calculated using the following steps.

– The cost of a gigabit of memory is calculated using public domain sources. In the factual scenario, the cost per gigabit of memory also includes the cost of the copyright levy, where this levy is related to memory size.

– The total cost of a handset is estimated by deducting the required gross margin from forecast revenues. The total cost of a handset is reduced further by deducting the amount of the copyright levy, where this levy is unrelated to memory size.

– The amount available to purchase memory is calculated using a fixed ratio of memory cost to total handset cost.

– Lastly, the amount available to purchase memory is divided by the cost per gigabit of memory to obtain the amount of memory per handset.

The outcome of the model is that the cost of memory per gigabit increases due to the additional cost in the form of the copyright levy. This means that less memory can be purchased per handset in the situation with copyright levies, given that the 'memory cost allowance' is the same in both scenarios. This is consistent with the hypothesis that the copyright levy has a negative impact on the specification of the handsets. The outcome of the model relies on the following assumptions.

– The device manufacturers' revenues, prices and volumes of handsets sold are the same in the counterfactual as they are in the factual scenario. This assumption has the effect of restricting the 'memory cost allowance' such that it is the same in the counterfactual and factual scenarios (which in turn leads to the finding of less memory per handset when a copyright levy is applied).[67]

– The required gross margin is the same in the counterfactual and factual scenarios. This assumption, combined with the assumption above, ensures that the 'memory cost allowance' is the same in the factual and counterfactual scenarios. In other words, it is considered plausible to assume that the device manufacturers have fixed target gross

[66] The data received from Nokia has been used to set reasonable parameters for this model. The data has been altered somewhat such that the example is stylised and does not represent Nokia's actual decision framework, nor that of any other specific device manufacturer.

[67] This assumption is plausible because the price of the handset is set with reference to market conditions. In other words, given the competitiveness of the market, for the purposes of this illustration it is assumed that device manufacturers may have a limited ability to set prices (to a large extent they are price-takers).

margins for different categories of device dictated by demand conditions. Having a target gross margin ensures that the manufacturer obtains a minimum required return on the investment.

– The proportions of total costs accounted for by memory costs are the same in the counterfactual and factual scenarios—this assumption also has the effect of fixing the 'memory cost allowance' when combined with the previous two assumptions.[68] Illustrative calculations are carried out for two types of copyright levy:

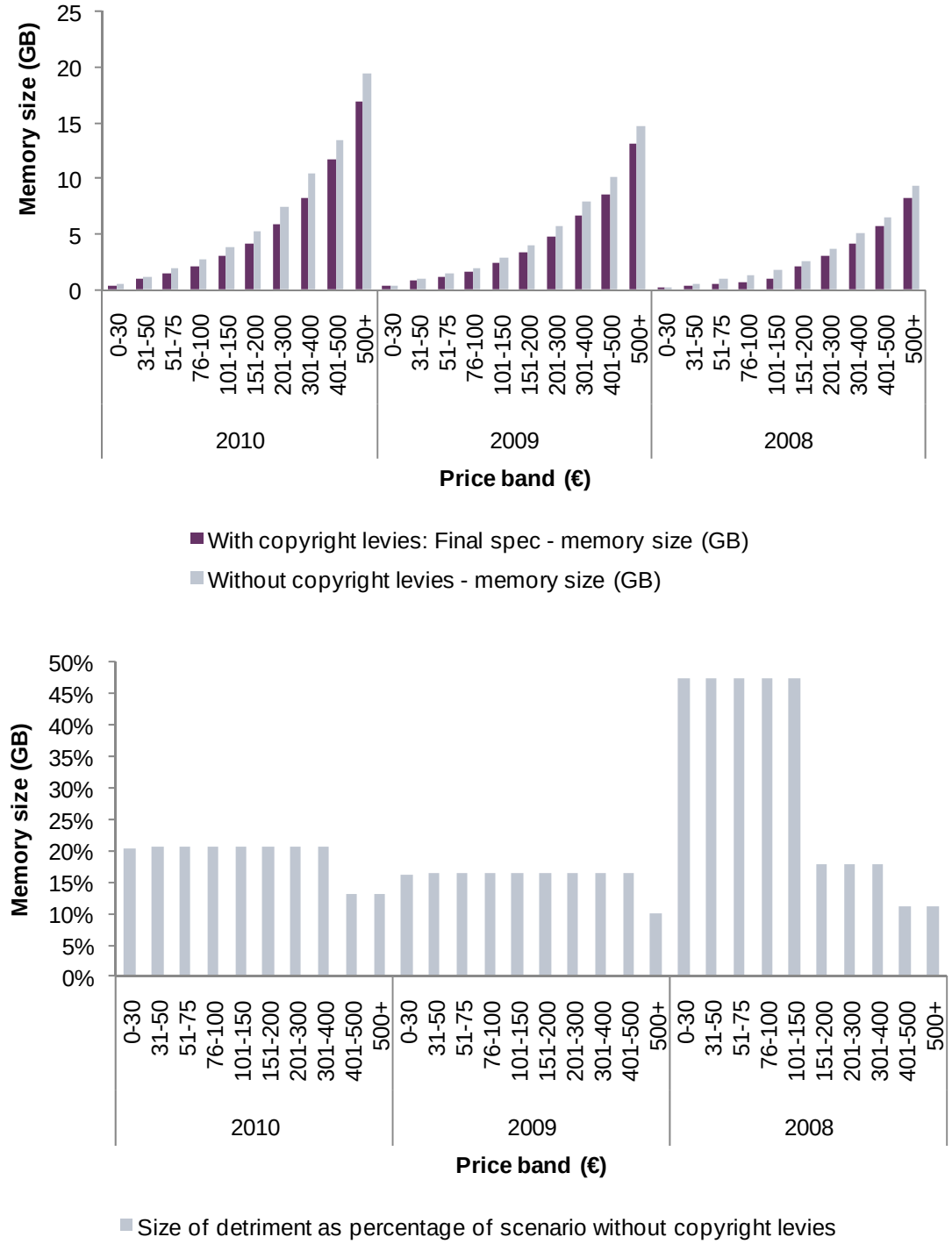
  – a constant rate per handset (as used, for example, in Germany and Italy);
  – a rate proportionate to the size of the memory used in the phone (as used, for example, in France and Hungary).[69]

Figures 3.1 and 3.2 below depict the outcomes of the modelling, and show memory capacity per handset as a comparison between the counterfactual and factual scenarios. Separately, the difference between the two is shown as a percentage of factual memory capacity.

Figure 3.1 shows the results of a model in which the copyright levy is proportionate to the memory size of the handset, the gross margin target for the device manufacturer is assumed to be 20% and the total cost of memory compared with the total cost of the handset is 10%.[70] The results show that, with a copyright levy, all categories of handset will be affected relatively uniformly. The memory reduction expected to take place in this scenario is around 20% for the years 2009 and 2010.

[68] Given that the total costs per handset are fixed (since they are calculated as the difference between actual revenue and gross margin), the costs other than memory costs are likely to be the same in the counterfactual and factual scenarios. Thus, the remainder of costs (ie, the 'memory cost allowance') will also have to be the same in the factual and counterfactual scenarios.
[69] These countries are selected for illustrative purposes to reflect different levy structures that are applied.
[70] The model allows scenario testing with different assumptions on various parameters. The direction of the results does not depend materially on these assumptions.

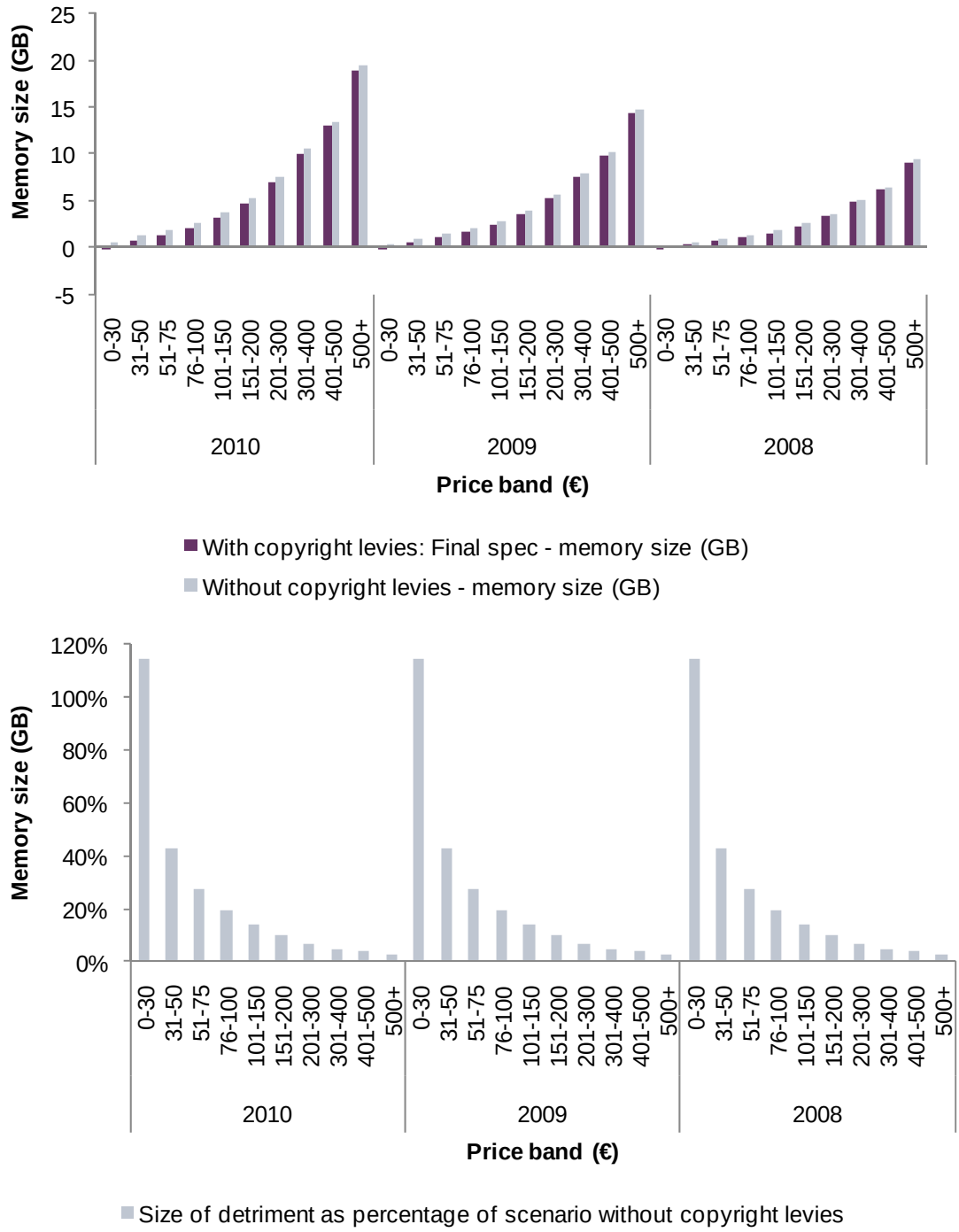
Figure 3.1 Detriment from copyright levy: copyright levy relates to memory size



Note: Modelled on the copyright levy in France, gross margin = 20%, cost of memory as a proportion of total cost = 10%.
Source: Oxera analysis.

Figure 3.2 below shows the results of a model in which the copyright levy is applied as a fixed amount per handset, the gross margin target for the device manufacturer is 20% and the total cost of memory compared with the total cost of the handset is 10%. The results show that if the copyright levy is implemented, the lower-price handsets are affected the most in relation to the memory size reduction. The impact on handsets priced between €31 and €100 would be a reduction in memory size of around 30%. More expensive handset models would be affected by the copyright levy to a lesser extent.

Figure 3.2 Detriment from copyright levy: copyright levy is constant per handset



Note: Modelled on the copyright levy in Croatia, gross margin = 20%, cost of memory as a proportion of total cost = 10%.
Source: Oxera analysis.

The actual impact of these levy structures on the mobile handset market as a whole will depend on the actual volume of sales at each of these price bands.

If the largest sales volumes are expected at the higher price bands, it could be argued that the greatest impact will be on high-end consumers who drive the innovation in the market (ie, consumers purchasing advanced multi-function devices, including mobile phones with music-playing and purchasing functionality). If, on the other hand, higher sales are expected at the lower price ranges, it could be argued that the copyright levy distorts the minimum volumes that are required to viably achieve low price points. It either case, it follows that copyright levies distort the incentives for investment and innovation in the devices market.

3.2 Distortions to emerging platforms of music distribution

The implications of copyright levies are felt in the business models and pricing structures put forward by distributors of licensed content, whether these are online service providers or hardware manufacturers launching music platforms. A variety of market participants contribute to the distribution of music not only through their innovation in 'enabling' technologies and sales activities, but also by developing online service platforms for content and applications. These innovative models include music sales and distribution, and typically involve (market-based) licence payment to rights holders. Box 3.1 provides an overview of emerging business models based on the streaming of music.

Box 3.1 Streaming-based models

Streaming is a method of delivering digital content to consumers via a streaming provider over an online network. Business models based on streaming do not necessarily require consumers to purchase individual content directly; instead, streaming providers generate revenues via advertising or subscription fees which they use to purchase licences, allowing them to distribute copyrighted content on a commercial basis.

Advertising- and subscription-based streaming models have become popular with consumers. For example, one-third of all broadband users in Sweden now use Spotify.[71] Streaming is a more popular online model than legal downloading—in 2009, the number of music streamers exceeded the number of downloaders in western Europe, with around 25m users of pay-per-download sites such as iTunes, compared with around 60m users of personalised advertising-funded sites.[72] To some extent, streaming also assists in addressing piracy: if these business models encourage consumers to move from accessing illegal content to accessing legal content via such a format, this will have an overall positive effect on rights holders' remuneration.[73]

The copyright levy regime can distort the adoption of streaming- and cloud-based distribution models in two main ways:

– as discussed in section 1, even if it were accepted that private copying causes 'harm' that needs to be compensated for, the particular problem with copyright levies is that they are not targeted at those who are doing the copying. This is exacerbated with new business models where the consumer subscribes to an online service and hence compensates the rights holders directly through licensing. This leads to double payments, and may dissuade more consumers from taking up the new services;

– streaming of music (or audiovisual content) does not require consumer storage capacity—ie, the music files are not downloaded onto the device memory. Applying levies on the basis of memory size is therefore not aligned with how music is consumed.

The economics literature on this topic has found that higher copyright levies mean that these new subscription-based business models are less likely to be adopted. The copyright levy system weakens the incentives to adopt new business structures because of the following mechanism: a levy on the hardware used for copying and consuming music lowers the demand for such hardware, leading to a reduction in the hardware manufacturers' revenues. This in turn affects the incentives to invest both in new technologies that enable new licensing models and in the development of new licensing models themselves, as follows:

– **reduced incentives to develop compatible hardware to enable advanced licensing models**—the development of new licensing models that enable online distribution of music requires compatible hardware on which consumers can use such models. Making compatible hardware requires investment by the hardware manufacturers. Therefore, by

[71] Futuresource (2009), '"Living with digital" survey', May.
[72] Ibid.
[73] See, also, CISAC (2009), 'Financing creative industries: In search of a new approach', June.

lowering the revenue of hardware manufacturers, copyright levies reduce their incentives to invest;

– **reduced incentives to invest in new business models**—an example of a licensing-based model is a subscription service, of which there are several examples currently in the market.[74] Subscription models can be viewed as a two-part tariff, with a fixed and variable component. The subscription fee can be considered the fixed component, and the variable component per song or item consumed is often zero, or very close to zero.

  Economic theory suggests that there are circumstances under which two-part payment structures have welfare-enhancing properties, since they enable the producer to price-discriminate in an efficient manner. That is, by charging consumers a 'lump sum' (eg, a subscription fee), the producers can reflect consumers' willingness to pay more effectively in their pricing, and hence raise total output, which increases total welfare. [75]

  Copyright levies also have characteristics of two-part tariffs, whereby the levy is the fixed component and the price of individual songs is the variable element. However, the copyright levy is an inefficient two-part tariff model since the fixed fee is applied across all consumers of devices, not just to those consumers who would prefer to adopt such a two-part tariff structure. This can be contrasted with a well-designed two-part tariff pricing model in which all parties (rights holders, hardware manufacturers and consumers) can be made better off.

To summarise, the copyright levy system has a material impact on hardware manufacturers' business planning, and the adverse effects are felt across the supply chain. Indeed, by distorting investments in advanced devices with music-purchasing and -playing functions (or other multi-purpose devices), the levy system results in fewer potential customers using online services. Furthermore, the levy system undermines hardware manufacturers' incentives to enter the digital music market. As a result, advanced licensing models involving economically efficient pricing structures are not developed and implemented as much as they could be.

[74] For example, as part of its Ovi Music offering, Nokia has provided a service called 'Ovi Unlimited Music'.
[75] For a discussion, see Legros and Ginsburgh (2011), op. cit.

4 The implications of copyright levies—empirical analysis

This section analyses the effects of copyright levies on the music industry by comparing industry performance and the importance of levies in generating revenues across 23 countries. The analysis aims to address three main questions.

– What is the relationship between the performance of the recording industry and the revenue derived from copyright levies?
– Is there empirical evidence that levies are effective in supporting national music content?
– What is the impact of levies on the digital music industry?

4.1 Data for the empirical analysis

In light of the questions set out above, the performance of the recording industry is assessed through the following metrics:

– **overall performance of the recording industry**—measured by the growth in sales revenues and volumes of recorded music;

– **performance of national music content**—measured by the share of physical sales of repertoire of domestic origin;[76]

– **performance of the digital music industry**—measured by the share of digital sales revenue and volumes as a proportion of total sales of recorded music.

In addition to copyright levies, the performance of the recording industry is likely to be driven by a number of factors such as general demand, and price changes occurring during the period under consideration. Furthermore, the performance of the national digital music industry might be affected by the following factors:

– disposable income, measured in terms of gross disposable product (GDP) per capita;
– number of consumers, measured in terms of total population;
– the availability of sufficiently fast Internet connections that allow the downloading or streaming of music content to digital devices;
– the disposition of people to buy goods and services online;
– the size of the potential market for national productions in national languages, since this might affect the incentives of local artists to produce content.

The presence of such additional drivers might mask the relationship between the performance of the recording industry and the importance of levies as a source of revenues. To control for the impact of such factors on industry performance, additional variables are included in the analysis as their proxies. Table 4.1 summarises the data collected by Oxera for this analysis.

[76] The performance of local artists and the production of national content could also be measured, for example, by the number of new releases of domestic production or the signing of local artists. However, the absence of data across a sufficient number of countries does not allow for a robust comparative analysis.

Table 4.1 Data sources

Variables	Years covered	Source
Revenue collections for private copy remuneration	2004–08	Compact Media Group (2010)
Total sales data	2000–09 (units: 2005–09; to be extended back to 2000)	IFPI Recording Industry Numbers (RIN)
Digital sales data	2005–09	RIN
Domestic production share of physical sales	2007–08	RIN
GDP per capita	2000–09	World Development Indicators (WDI)
Population	2000–09	WDI
Broadband penetration	2000–09	WDI
Share of Internet sales	2002–07	Eurostat
English proficiency	2006	Fidrmuc, Ginsburgh and Weber (2007)

Source: Compact Media Group (2010), 'Missing Opportunities in Digital Britain', January. IFPI (2010), 'Recording Industry in Numbers 2010', April. Fidrmuc, J., Ginsburgh, V. and Weber, S. (2007), 'Ever Closer Union or Babylonian Discord? The Official-language Problem in the European Union', Appendix 3, Table 3a, http://www.fidrmuc.net/research/FGW2.pdf. World Bank (2010), 'World Development Indicators', September, http://data.worldbank.org/data-catalog/world-development-indicators. Eurostat (2009), 'Individuals using the Internet for Internet banking', December, http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=TIN00099.

Table 4.2 shows the countries included in the analysis. The selection of countries has been contingent on data availability, and hence the sample includes countries that are included in the Stichting de Thuiskopie study.[77]

Table 4.2 Countries

Australia	Germany	Greece
Austria	Hungary	Slovakia
Belgium	Ireland	Spain
Canada	Italy	Sweden
Czech Republic	Japan	Switzerland
Denmark	Netherlands	UK
Finland	Poland	USA
France	Portugal	

Source: Oxera.

4.2 Specification of the approach

The overall objective of this analysis is to assess the implications of copyright levies for the performance of the recording industry. A two-stage methodology has been adopted.

– **Stage 1: describing the relationship between industry performance and levies**—this is a graphical examination of whether the performance of the recording industry is associated with a certain pattern of the importance of copyright levies as a source of revenue for rights holders. The analysis seeks to establish whether there is a

[77] Stichting de Thuiskopie (2009), op. cit.

relationship between the two variables and, if so, whether this is positive or negative. The results from this stage are presented in sections 4.3–4.5.

– **Stage 2: exploring additional drivers of industry performance**—this is an examination of whether cross-country differences in industry performance are associated with certain drivers of recorded music sales, other than copyright levies. The impact of levies on industry performance is examined, together with these other drivers of any observed patterns in performance.

Econometric analysis has been conducted to establish whether copyright levies exert a supply-side effect on music production and, if so, to what extent. The results from this analysis do not indicate any evidence of a positive relationship between copyright levies and music industry performance. Box 4.1 describes the approach towards this analysis.

Box 4.1 Cross-country econometrics

The hypothesis being tested is that the existence of copyright levies inhibits the performance of the music market. The theory behind this hypothesis is that the existence of levies discourages content providers from innovating and creating new business models for distributing music—in particular, licensed, digital content. To test this relationship, Oxera sought to model how the existence, and level, of levies affects the output of the music industry (using data on music industry sales) in order to estimate a market-level supply curve.

In the market for both digital and physical music sales volumes, prices and levy revenue are jointly determined in a market equilibrium. In other words, while prices and levy collections may have an impact on music sales, it is also the case that sales are a function of prices and levy revenues. In economics, this two-way causality is referred to as endogeneity.

Initial results using ordinary least squares (OLS) confirmed the hypothesis that levies did restrict growth of the digital music market, and this is confirmed by the descriptive statistics (see above). However, when such endogeneity exists, the results of standard OLS models are biased. It is standard practice to model such relationships using instrumental variables (IV), which have been employed to solve endogeneity by first seeking to explain prices and the level of copyright levies, and then the impact of these prices and levies on music industry sales.

To model these factors, the method of two-stage least squares has been used, as follows. **Stage 1**: the demand side of the equation is modelled by instrumenting copyright levy revenues and music prices with GDP per capita and total population. **Stage 2**: the supply side of the equation is modelled by testing the hypothesis that levies inhibit the growth of the music market, while also controlling for broadband penetration.

Despite the extensive data-gathering exercise undertaken for this analysis, some of the relevant data to describe the supply curve of the music industry (stage 2) is not publicly available. For example, information on music production or distribution costs is not available on a consistent basis across countries. To this extent, the models estimated suffered from the exclusion of an important determinant of music industry supply. A number of model specifications were tested with the data available.

Models were estimated with these important supply-side factors missing, which gave tentative support to the hypothesis. However, they failed the critical statistical tests for robustness and, as such, no weight has been put on the results. This does not indicate that there is no evidence of a relationship, but rather that it has not been robustly identified due to data constraints.

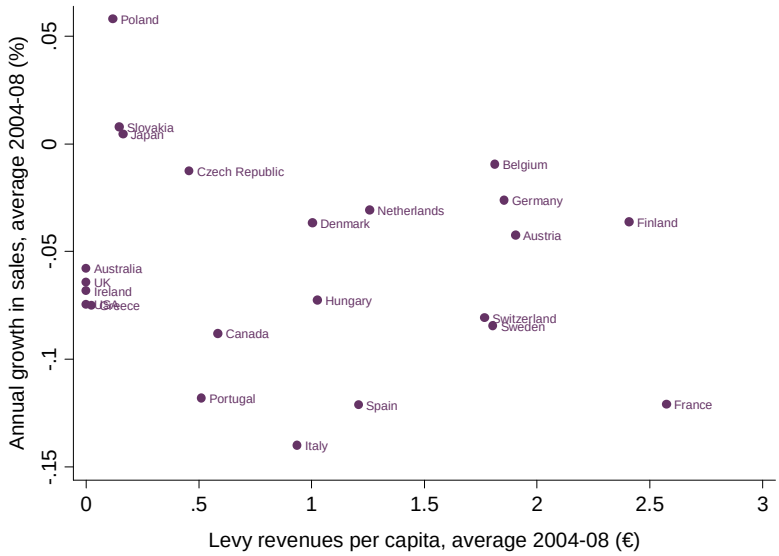
Since it has not been possible to establish a relationship between copyright levies and the supply of music in stage 2, the remaining sections below focus on the results from stage 1.

4.4 Recorded music sales

Overall, sales of music recordings have been declining over recent years. The performance of the recording industry is heterogeneous across countries, and the importance of copyright levies in generating additional revenue for rights holders differs across countries.

Figure 4.1 indicates that, on average, a better industry performance (measured by growth in sales) coincides with a low level of levy revenue per capita.

Figure 4.1 Industry performance and the importance of copyright levies



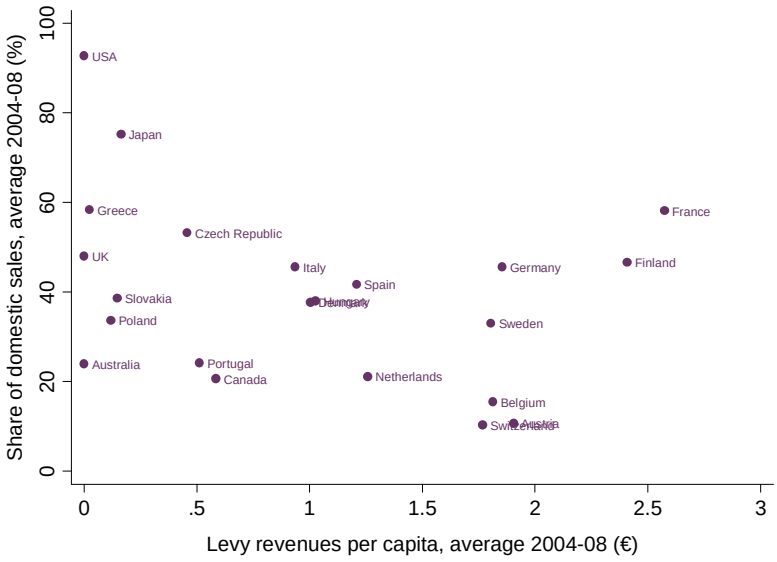
Note: Sales figures taken directly from IFPI data.
Source: Oxera.

The analysis suggests that there is also no evidence that increased revenue collections from copyright levies lead to better performance of the music recording industry. Assessing the performance of the music industry across different Member States over recent years provides no indication that countries with a higher collection of levies from private copying in relation to music sales perform better than countries with a lower collection of levies, or even no collection from copyright levies at all, such as the UK.

4.5 National music content

It has been argued that music creation is more than a purely commercial activity—ie, it is an activity that creates important national cultural values that benefit society as a whole beyond what is traded in the market. Against this background, it might be argued that copyright levies provide additional funding for national artists, and that the absence of such funding would have a negative impact on national music production. However, the graphical analysis below does not provide support for this hypothesis. Figure 4.2 below does not suggest that there is a relationship between the relative importance of levies in generating revenue for rights holders and the share of domestic production of music-recording sales.

Figure 4.2 Domestic content and the importance of copyright levies

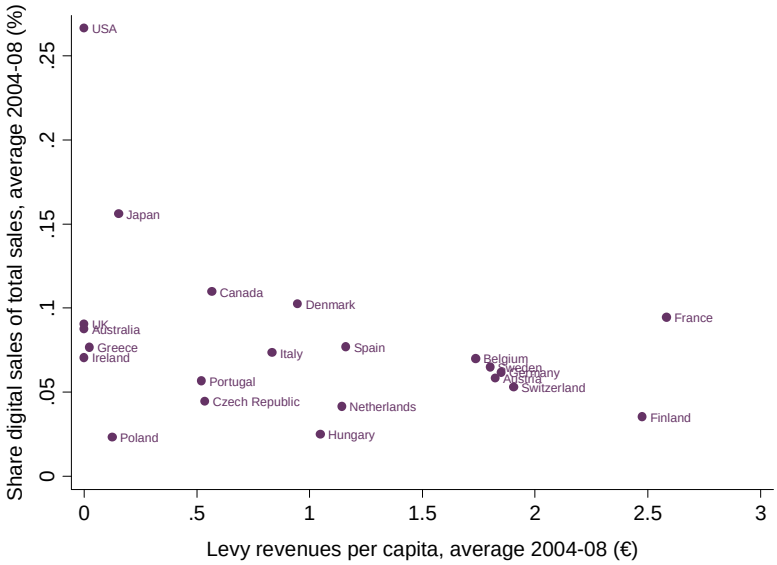


Note: Sales figures taken directly from IFPI data.
Source: Oxera.

4.6 Digital sales

The digital market is gaining in importance as a way in which recorded music is distributed to consumers. Its share of revenues compared with other channels has increased over recent years. As discussed in section 2, there are conceptual arguments suggesting that copyright levies could undermine the distribution of digitally licensed content. To assess the empirical robustness of such arguments, indicative empirical evidence has been examined on the relationship between the performance of the digital music industry across countries and the importance of levies as a source of industry revenues. The evidence presented in Figure 4.3 suggests that the digital music market has gained greater importance in many of the countries where revenues from copyright levies per capita are relatively low.

Figure 4.3 Digital music and the importance of copyright levies



Note: Sales figures taken directly from IFPI data.
Source: Oxera.

5 The implications of copyright levies for cross-border trade

The above analysis has assessed the economic detriment caused by the copyright levy system at the EU level. It has not explicitly assessed the extent of distortions resulting from asymmetric implementation of the private copying exception within Europe, nor the effect that the fragmented application of the Copyright Directive may have on the competitiveness of the EU relative to other economic areas. As such, the quantitative results presented above are conservative, and likely to understate the quantum of harm caused by the levies.

The purpose of this section is to highlight distortions resulting from the fragmented application of the copyright levy regime, and to provide an indicative assessment of the potential for economic detriment to cross-border sales. Indeed, it has been estimated that a total of over 6% of all intra-EU imports and exports amounting to over €100 billion in total are goods which actually or potentially attract a levy.[78] Any distortions to cross-border trade can therefore result in significant inefficiencies and financial detriment.

In light of the qualitative analysis conducted, it appears that the copyright levy regime, and its fragmented application across countries, may give rise to significant (microeconomic) distortions to hardware manufacturers, song writers, and, ultimately, consumers. Such distortions are likely to have an impact on the wider economy—in particular, on the development of the single European digital market. Macroeconomic implications resulting from discrepancies in the copyright system across Europe have been studied elsewhere.[79]

5.1 Fragmented levy structures across Europe

Further to distortions relating to the private copying exception, there are two primary levels of fragmentation of the rights in music content. First, the distinction between sound recording (the actual recording of the performance) and the composition rights (the musical composition and lyrics) may not be under the same management, which introduces a degree of complexity for the service providers seeking to engage in comprehensive licensing agreements. Second, service providers have highlighted additional complexities under current EU practice, as the composition rights are further divided into reproduction rights and performance rights. While recognising these aspects, the discussion below focuses on the implications that can be attributed to copyright levies.

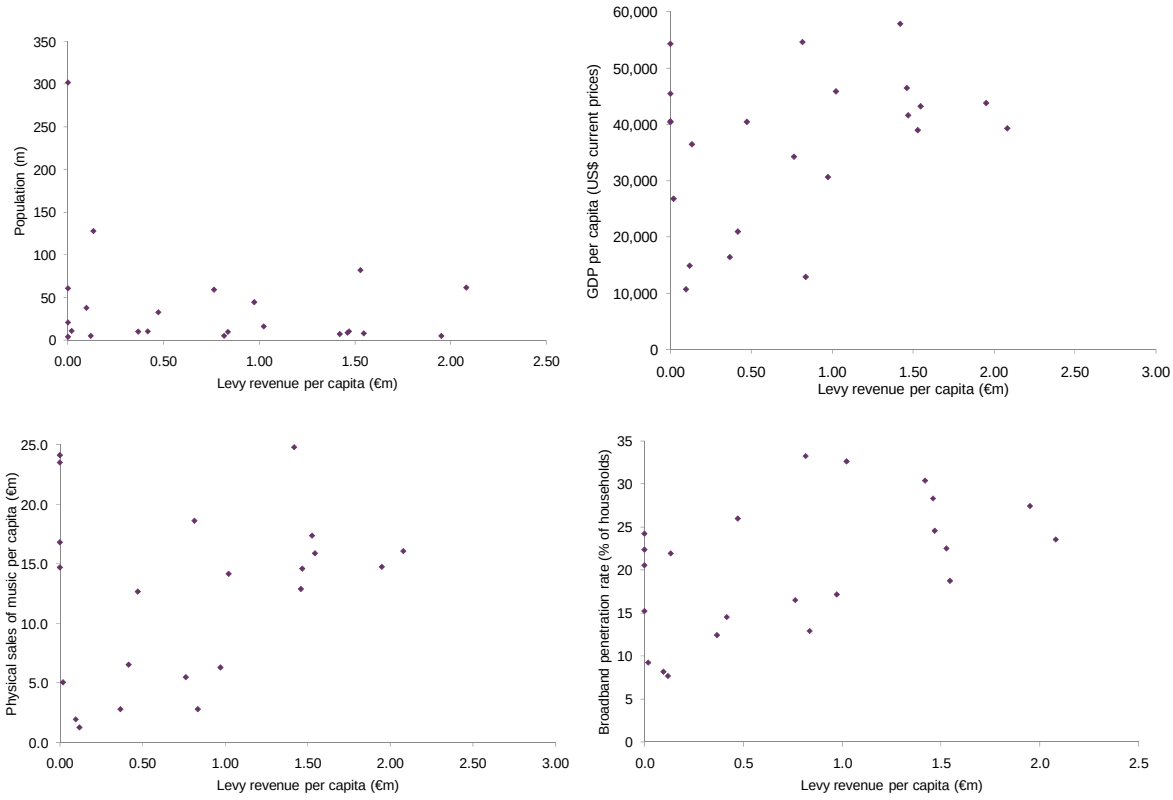
While many of the stakeholders agree that discrepancies in the private copyright levy system are likely to have a distortive impact on trade, collecting societies and their economic advisers, they have put forward counterarguments:

> divergences in PCR [private copying remuneration] regulations in different Member States are justified by differences in several objective country characteristics, such as income level, consumers' willingness to pay, and the intensity of private copying. Such differences require that PCR levels be set individually by each Member State and that those levels be maintained when ICT [information and communications technology] and CE [consumer electronics] products are traded within the EU (i.e. PCR needs to be charged at destination), as the contrary would generate significant negative economic distortions.[80]

These arguments do not appear to be based on sound evidence. Figure 5.1 shows levy rates compared against a number of metrics that reflect selected country-specific factors.

[78] European Commission (2008), 'Background Document: Fair Compensation for Acts of Private Copying', February 14th, p. 11.
[79] Copenhagen Economics (2009), 'The economic impact of a European digital single market', March.
[80] ECONLAW (2009), op. cit.

Figure 5.1 Indication of the relationship between copyright levy revenue per capita and selected country-specific factors



Source: IFPI data; Oxera analysis.

The copyright levy revenues (per capita) do not seem to follow any clear pattern with respect to country-specific factors—a finding that is consistent with the more rigorous econometric analysis discussed in section 4. This suggests that the levies are not determined systematically across Europe. There are two principal concerns resulting from the prevailing, fragmented copyright levy regime: impediment to businesses of services and hardware production; and uncertainty resulting from the lack of transparency.

5.2 Distortions to cross-border business models in hardware production and digital music distribution

Copyright levies, together with other discrepancies in licensing practices across Member States, are likely to hinder digital licensing and the distribution of content through online platforms, following the mechanisms explained above. Similarly, where levies are high, manufacturers may not have sufficient incentives to introduce high-end devices. The levies, as currently applied, may distort the exploitation of potential economies of scale in these two markets, and hence impede investments.

5.2.1 Distortions to pan-European music licensing

Economies of scale are inherent in the business models of music distribution platforms.

– Bilateral contracting with rights holders (including collecting societies) is a significant cost to licensees of music content (ie, service providers and others). The greater the discretion given to individual collecting societies, with each one acting as a de facto monopoly with respect to all licences in its respective territory, the greater the potential for discrepancy in their approaches. Further to the above-mentioned multi-layer licensing, the various different ways in which the private copying exception is interpreted across Europe add complexity to licensing arrangements.

– The incentives to enter the market depend on the size of the potential customer base. Further to the presumption of higher sales of digital music, service providers' business models rely increasingly on advertising revenue. Advertisers, in turn, require a critical mass of 'viewers'.

Given that certain collecting societies may view copyright levies as a more attractive revenue source than licensing (which would not be subject to 'fair compensation'), their willingness to engage in digital licensing may be diluted. Thus, service providers may find other territories with more uniform regimes more attractive, and the potential of digital services may not materialise in full in Europe. This results in consumer detriment, since many EU consumers live in markets where certain digital services are not available because services cannot be set up on an EU-wide basis. Furthermore, given the economies of scale, where services are provided in some European countries but not others, the underlying unit costs, and consequent prices paid by end-users, may be higher.

These findings are consistent with the indicative empirical analysis presented in section 4, where it was noted that European countries are generally lagging behind countries without a similar private copying exception. Box 5.1 provides further evidence of the impact of the fragmented licensing market in Europe.

Box 5.1 Digital music sales platforms in the USA and Europe

As established in the empirical analysis above, differences in characteristics such as market size and the propensity of Internet usage do not explain the limited success of digital music sales in Europe relative to the USA. On the contrary, on the basis of these attributes, Europe would be expected to have higher usage of digital music. The table below provides a high-level illustration of how the EU, which is a broadly comparable economic area to the USA in terms of market size, exhibits significantly lower sales of digital music.

Comparison between the European and US digital music markets

	EU	USA	EU as % of USA
Population	501 million	310 million	162
GDP	€12.8 trillion	€11.1 trillion	115
Digital music market	€900 million	€ 2.7 billion	33
Digital percentage of the recorded music market	13%	43%	30

Source: Intellect (2011), 'Intellect response to: Independent Review of Intellectual Property and Growth: Call for Evidence', March, p. 12.

A number of established manufacturers and small start-up businesses have not entered European markets, or have refrained from entering all European countries, as detailed in the table below.

Comparison between the European and US digital music markets

	EU	USA
Amazon	Available in four Member States	Available
Apple iTunes	Available in 15 Member States	Available
Microsoft Zune	Available in five Member States	Available
MSN	Closed	Closed
Napster	Available in two Member States	Available
Slacker	Not launched	Available
Vevo	Not launched	Available
Yahoo Music	Closed	Available
Nokia Ovi Music	Available in 12 Member States	Not available
Spotify	Available in six Member States	Not available

Source: Company websites.

A notable example of a new successful service is VEVO, which, within one year, has become the largest digital music video service in the USA, with over 49m unique visitors per month. The service is not available in the EU. Furthermore, some large companies (notably Yahoo) have exited the EU market.

The examples presented in Box 5.1 should be interpreted as indicative evidence, since the digital music sales are driven by a number of other demand- and supply-side factors that are not related to copyright levies.

5.2.2 Distortions to hardware manufacturing

Where copyright levies are applied, they represent an additional cost to the hardware manufacturing industry relative to those countries where the levies are not applied. This creates an apparent disparity between countries, placing companies operating in high-levy countries at a disadvantage to their levy-free counterparts (or countries with low levies). Indeed, European stakeholders have raised their concern about the competitiveness of EU Member States relative to, for example, the USA, Australia and Japan.

From an economic perspective, a problematic feature of levies is that they are outside the control of device manufacturers, and hence not a cost that could be reduced by improving efficiency. In that sense, the more the companies are exposed to levies (depending on their primary geographic market), the more significant the competitive disadvantage in international competition.

Similarly to music service providers, hardware manufacturers' decisions to launch particular device models rely on a sufficient scale of expected sales. Typically, the fixed costs of introducing a particular device model are centralised (eg, R&D) and, to recover these costs, manufacturers need a sufficient base of buyers in order to exploit economies of scale. Thus, a high copyright levy rate even in a sub-set of countries may undermine the manufacturer's investment incentives.

The fragmented levy system results in further concerns to manufacturers, which might impede them from achieving a sufficient scale of sales. Notably, these include the following.

– When products are exported from one country to another, there is a concern that the copyright levy is paid twice, at both tiers of distribution (ie, wholesale and retail). Indeed, it has been highlighted that the export refund processes do not work fully in practice, and domestic laws acknowledge reimbursement rights only for importers and manufacturers, not second-tier distributors.[81] Furthermore, the copyright levy system has been found to exhibit significant administration costs. More specifically, companies engaging in cross-border trade may, according to the European Commission, end up paying and reporting sales for copyright levies in many countries for the same products.[82] This puts companies willing to expand their sales to other countries at a disadvantage, and has been considered an impediment to pan-European e-commerce.

– Insofar as the level of levies varies across countries, the levy results in price differences and hence arbitrage opportunities that are not driven by differences in costs or materials, or demand conditions between countries.

– Illegal imports may, to some extent, be driven by discrepancies in copyright levy systems. This concern has been raised by various stakeholders; however, there is no accurate evidence on the sizes of such grey market imports.

[81] ENTER – IE (2010), op. cit.
[82] European Commission (2009), 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Cross-Border Business to Consumer e-Commerce in the EU', October 22nd, p. 10.

– A source of inefficiency arises from the costs associated with hardware manufacturers engaging in music sales having to negotiate and transact with a number of collecting societies. In some countries (only in relation to audio content) song writers, performers and producers each have a separate collecting society.

These attributes are not consistent with the policy objectives to promote a European single market, and can give rise to discrepancies in firms' incentives and consumer behaviour in cross-border sales and purchases.

5.3 Legal uncertainty

5.3.1 Legal uncertainty from the manufacturers' perspective

Hardware manufacturers have highlighted that the prevailing copyright levy regime lacks transparency, and hence distorts business planning, which may cause a hold-up problem similar to that discussed in section 3. More specifically, there appear to be at least two sources of uncertainty.

– **Products subject to levies, and the basis for the levy rate**. The uncertainty regarding the criteria for selecting the products to which levies should apply, the level of the levy, and the lack of efficient complaint procedures at the national level exacerbate the hold-up problem as described in section 3. Furthermore, it is often unclear whether the levy for exported products is refundable.

– **Treatment of online sales**. There is a degree of confusion about whether, and if so how, copyright levies apply to online cross-border sales of hardware, which has an impact on the digital single market.[83] As noted by one hardware manufacturer, legal and financial uncertainty arises as to whether a levy already paid by the online retailer as part of the purchase price is subject to reimbursement by the local collecting society in the case of reselling the goods to consumers located in another country.[84] Such an outcome exhibits significant, unnecessary, costs (eg, transportation), and therefore highlights the inefficiency inherent in the fragmented levy regime.

These (and potentially other) uncertainties can therefore add another source of uncertainty to manufacturers' and hardware retailers' business planning. The distortions are analogous to those described in section 3, exacerbated by the distortions to firms' abilities to exploit EU-wide economies of scale that would otherwise be available.

5.3.2 Lack of transparency for rights holders

International exposure increases the size of the market for rights holders. Arrangements between national collecting societies ensure that there is some appropriation of revenue for domestic song writers when their content is used abroad. However, the European collecting societies do not normally publish information on the levy payment flows across countries.[85]

From a song writer's perspective, it appears that there is insufficient transparency regarding the prospects of receiving copyright levy revenues made overseas. Indeed, a song can be recorded by a song writer or a publisher and co-written by a number of song writers who are signed to separate publishers based in different countries, using different collecting societies. Drawing on the economic reasoning underlying the modelling of composers' supply decisions

[83] See, for example, http://www.twobirds.com/German/News/Articles/Seiten/Phones_consoles_GPS_under_new_copyright_levy_attack.aspx. http://curia.europa.eu/jurisp/cgi-bin/form.pl?lang=en&jurcdj=jurcdj&newform=newform&docj=docj&docop=docop&docnoj=docnoj&typeord=ALLTYP&numaff=&ddatefs=3&mdatefs=3&ydatefs=2011&ddatefe=10&mdatefe=3&ydatefe=2011&nomusuel=&domaine=&mots=&resmax=100&Submit=Rechercher

[84] See Hewlett Packard's response to a consultation from the European Commission: http://ec.europa.eu/competition/consultations/2008_online_commerce/hp.pdf.

[85] For example, in 2005 the College of Copyrights Supervision in the Netherlands recommended to the Ministry of Justice that it should request from Stichting de Thuiskopie (a collecting society) a number of financial details, including details on collecting societies' payments to foreign claimants. See ENTER – IE (2010), op. cit., p. 85.

(see section 2), the implication is that, given the lack of transparency, the song writers (or any rights holders) are unlikely to factor potential levy revenues from overseas into their decision to compose a song. To illustrate, the USA and the UK are the two largest music-exporting countries, and it could be expected that their song writers would be subject to a significant amount of private copying—hence, a high proportion of copyright levy revenue might be transferred to the USA and UK collecting societies. However, as the USA and UK do not have their own copyright levy system, such cross-country flows of revenue could be a source of friction for the collecting societies of other countries with a copyright levy, because they would not receive reciprocal revenues for the private copying of their song writers.

In contrast, under a functioning licensing system, composers would have clearer transparency on their expected revenues, which would be proportionate to sales and other exposure.

5.4 Degree of detriment resulting from harmonising the levies across Europe relative to removing the levies—an illustration

The above analysis does not suggest that the level of copyright levies should be harmonised; rather, it suggests that the lack of harmonisation in the imposition of copyright levies exacerbates the distortions quantified in the above sections. For the purpose of illustration, Table 5.1 summarises the results under a counterfactual scenario where the levies are first harmonised to a level and scope similar to that applied in France, and are then removed. It can be seen that the total welfare benefit from removing the levy would be significant—harmonisation of copyright levies in itself would therefore not be the recommended policy option. Harmonisation or any similar policy would not correct the fundamental sources of economic inefficiency created by copyright levies.

Table 5.1 Welfare effects of removing copyright levies from a base case with harmonised levies

	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
Total welfare results			
Effect on consumer surplus (€m)	1,440	1,755	2,764
Effect on rights holders (€m)	–418	–180	18
Total welfare impact (€m)	**1,019**	**1,572**	**2,779**

Source: Oxera.

6 Discussion on policy implications

6.1 Removal of copyright levies generates welfare benefits

The message of the analysis presented in this report is that removal of the levy regime altogether would be likely to result in benefits in all parts of the value chain, including for rights holders. These benefits would be likely to exceed any detriment to those currently receiving copyright levies. Indeed, the current copyright levy results in considerable welfare detriment, and this effect would be reinforced if the levies were extended to a wider variety of additional devices.

The main findings of the analysis are as follows:

– copyright levies have a considerable distortive impact on consumers and hardware manufacturers, as shown by the modelling, which uses several scenarios and plausible assumptions;

– removal of the levy system is unlikely to undermine to any significant extent song writers' incentives to produce music, and is therefore unlikely to affect the variety of music that consumers can enjoy; and

– there are mechanisms through which music composers are impaired by the levy regime, given that the copyright levies can act as an impediment to growth in digital licensing and new business models.

The implications of the copyright levy regime have been assessed by comparing the prevailing levy system with a scenario in which the levies are removed altogether. This section builds on the analysis presented above and discusses policy options that could be implemented to remove the distortions resulting from the copyright levy system, and to ensure that the welfare gains of potential changes materialise in full.

In contrast to some previous economic impact studies, where alternative scenarios were considered largely in isolation from each other, the modifications presented below should be interpreted as policy changes with incremental benefits over the prevailing regime.

6.2 Removal of copyright levies from multi-purpose music players

There may be political and/or legal obstacles to a swift, full-scale removal of the copyright levy system. While the economic rationale for copyright levies is questionable as a whole, when imposed only on equipment or media that is used primarily for private copying, the resulting distortions are less significant. This option could therefore be considered to serve as the first practical step towards removing copyright levies in full. The advantages of such an option include the following.

– Following the reasoning presented in section 1, the economic case for copyright levies is stronger when the levy is imposed on blank media that are predominantly used for copying. This is because the additional willingness to pay for copying would be reflected in the price of blank media or hardware used specifically for private copying, and the outcome would mimic, to some extent, a licensing-based system in terms of economic efficiency.

– Furthermore, the impediments to digital licensing relate mainly to equipment, rather than blank media that are used for copying. Hence, the welfare benefits associated with an

enhanced licensing market could still materialise under the option of placing levies on blank media only.

Should such an interim measure be considered, there are important caveats and potential shortcomings that can be noted.

– When the incremental value of authorised copying is determined on the basis of market-based digital licensing, it is more likely to reflect the true market value, contrary to copyright levies, which are not determined systematically.

– It is increasingly difficult, if not impossible, to identify products, including blank media, that are solely or predominantly used for the private copying of music (or audiovisual) content. Further to multi-purpose devices (such as mobile phones and tablet computers), blank media are increasingly used, for example, for self-produced content (photos, music, home/travel videos) and as complementary inputs for multi-purpose devices (eg, memory cards).

– Implementing a partial elimination of levies affects the relative prices of media and components used in multi-purpose equipment, and this, in turn, causes changes in the market equilibria that are difficult to assess ex ante.

The quantum of welfare effects of removing copyright levies from a sub-set of products would depend on the extent and scope of the products from which the levies would be removed.

6.3 Improvements to licensing arrangements

Copyright levies hinder the development of advanced licensing models. The discussion above has identified further impediments to growth of digital licensing in the legal systems in the Member States. Some of these factors are related to the fragmented application of the private copying exception; others pertain to other complexities in the multiple layers of licensing.

In light of the above analysis, it is not clear whether the collecting societies are maximising the welfare of their members by imposing levies on a variety of hardware equipment. There is no evidence of levies in a country contributing to a better performance of the music industry in that country. Furthermore, there are mechanisms through which levies can have a counterproductive impact on the creative community, given the negative effect on digital licensing.

To achieve the benefits of digital licensing, further clarity on the implementation of the private copying exception may be recommended. It is outside the scope of this report to identify specific modifications to copyright legislation, but the economic analysis presented above suggests that considerable welfare gains could be achieved by the removal of the current private copy levy regime, and by providing legal certainty around digital licensing and digital rights management. In particular, it would appear advisable to confirm that the private copying exception does not have imperative status; licences that purport to include alleged acts of private copying do, in fact, cover those acts, thereby exhausting any claim to levies in addition to a licence fee.

In this report, the links between the private copying exception and rights holders' incentives have been set out, and the merits of removing levies have been quantified. It is, however, noted that a holistic policy reform might be required in order to ensure that rights holders have the incentives to engage in licensing agreements without facing inefficiently high transaction costs. In this respect, in light of the reasoning set out in section 5, the licensing-related benefits would require a degree of harmonisation across the EU, given that the service providers as well as rights holders gain from a large scale and wide exposure.

6.4 Public funding of the most vulnerable composer groups

While levies are sometimes used to fund cultural initiatives, the primary purpose of copyright levies is to compensate rights holders for private copying of their works (see section 1). The rationale for such initiatives stems from the notion of public goods: policy-makers consider that diversity of music has a great public value, but the socially desirable outcome cannot be reached by relying on commercial drivers alone.

While this study has not assessed explicitly the appropriate degree of remuneration for the rights holders, an important part of the analysis undertaken in section 2 was to identify those song writers who could be considered to be at the margin—ie, those who would cease song writing as a result of the removal of the levy regime. The identification of the magnitude and characteristics of this 'risk group' informs the policy debate about:

– **the extent of direct harm**—ie, the amount of music content that is not produced, given the forgone revenues from non-received levy payment—to the extent that this is not offset by additional income gained from removing the levies (ie, through additional distribution of music);

– **the extent to which the music created by those song writers who stop writing has a significant public value**, which would need to be compensated for, given the public interest.

The analysis presented in section 2 suggests that there would be very few artists at the margin and, given the complexities surrounding the economic modelling of composers' decision-making, Oxera's estimate is likely to over- rather than understate the extent to which writers would stop composing. Furthermore, the dynamic benefits from digital licensing offset (in many of the scenarios) the revenue losses associated with the removal of levies.

The type of cultural content that needs to be 'protected' is a subjective policy decision. However, the above analysis does not suggest that the small group of composers who would stop writing consists of local, non-commercial song writers who may be considered culturally relevant even if not commercially successful (in economic terms, their music could have a high 'public value'). Critically, the economic analysis presented in this report has identified no reason to suggest that manufacturers of devices with music-playing functionality (and blank media) should remunerate cultural initiatives.

Nevertheless, should there be policy concerns that the group of writers at risk has a great value to society, an alternative remuneration mechanism could be considered. Public funding from a general state budget would be an economically more efficient means of funding a public good such as music creation and diversity.

A1 Market mechanisms in the music industry

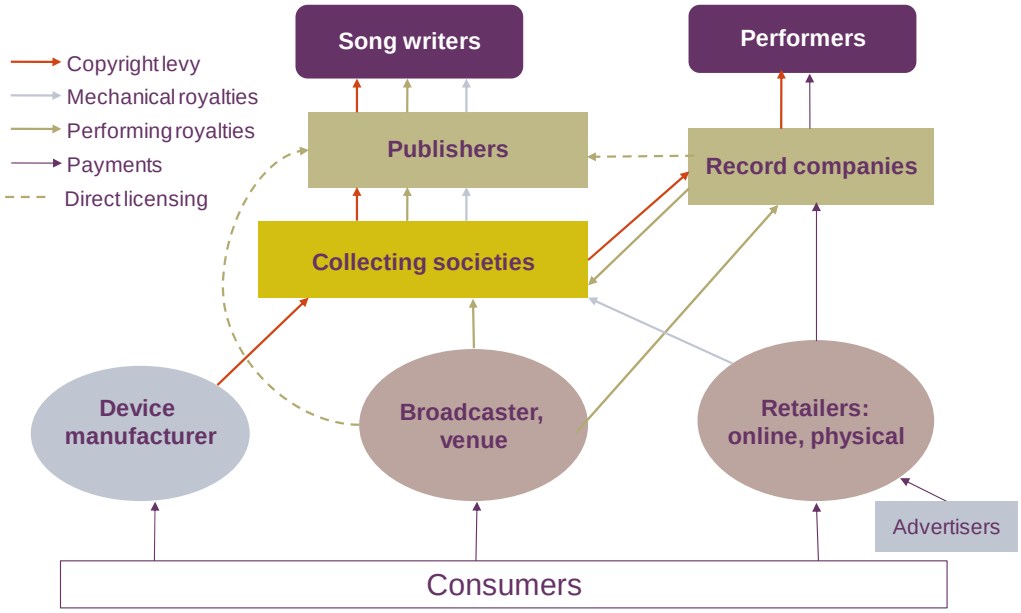
Any assessment of the implications of the copyright levy regime should recognise the complexities inherent in the value chain of the music industry, alongside the relationship between the creators of music content and hardware manufacturers.

A1.1 Description of the music industry value chain

A1.1.1 Illustration of the chain

Figure A1.1 provides a stylised illustration of the value chain of the music industry in relation to copyrights. It shows the intermediary levels through which consumers ultimately remunerate the creators of music (both performers and song writers) for consumption of their content. Furthermore, the diagram captures the various methods through which song writers are remunerated and how the stakeholders in the industry are interlinked.

Figure A1.1 Value chain of the copyright content industry—an illustration



Source: Oxera.

– Consumers purchase music in digital and physical formats from music distributors or retailers. The price paid for a song or album consists of the retailers' costs and their (potential) profit margin, while a certain proportion is paid to publishers and song writers in the form of royalties to compensate for the copyrighted content. The record company obtains a large proportion of the revenue and distributes part of it to the performer based on their contract.

– When music is broadcast live—for example, on the radio or television—the broadcaster must pay both the publisher (writer) and record company (performer) performance royalties. Consumers will contribute to rights holders' revenues indirectly through entry fees, licence fees, tickets or advertising.

– When consumers purchase a storable media device, the collecting society may seek to require the device manufacturer to pay a copyright levy to the relevant rights holders. The levy operates at the manufacturing level but, depending on market characteristics,

the device manufacturer may pass on a percentage of the levy to the device retailer and ultimately to the consumer.[86]

– Collecting societies provide certain advantages for song writers due to the strong bargaining power that they offer in negotiating collective royalty agreements with music users both domestically and abroad. They also reduce the effort (transaction costs) involved for song writers by collecting their royalty payments for them. The collecting societies have a role in collecting both mechanical and performance royalties, and may collect copyright levies on behalf of the publishers, song writers, record labels (producers) and performers. Different rights holders (song writers/publishers, performers and producers) receive different shares of copyright levy revenue (on average, 40%, 30% and 30% respectively, as reflected in Oxera's modelling).[87] Some types of collecting society have a role in collecting royalties for performers (although the focus in this report is predominantly on the remuneration of song writers). Song writers and publishers can also collect their performance royalties from broadcasters and record labels through direct licensing (explained below).

– Performers who use a song writer's content are obliged to pay them performance royalties for this use. Again, these are paid through either a collecting society or direct licensing.

– Performers (and potentially record labels) also earn revenues from touring, which has been a growing industry in recent years. Collecting societies also collect public performance revenues for song writers and publishers from these live performances.

– In summary, the above demonstrates the multiple channels through which the creators of music are remunerated, and how copyright-related payments make up only a part of their overall remuneration.[88]

Many of the contracts of the parties in the value chain between creation and consumption are affected by copyright law. The nature of copyright law inevitably has an impact on the drafting and interpretation of these contracts.

A1.1.2 Song writers' revenue sources

The assessment of the impact of copyright levies presented in this report recognises the variety of song writers' overall income sources. Writers' income can be separated into five main categories:

– royalty payments, mechanical rights and performing rights;
– copyright levy (in applicable countries);
– income from live performance for singer-song writers;
– advertising and sponsorship; and
– non-artistic income sources.

Royalty payments

Royalty payments are the method through which writers are remunerated for the use of their copyright. For writers this comes from two sources: recorded-music royalties and performing royalties.

– **Recorded-music royalties** are received from copies of recordings such as CDs or digital downloads. They represent a proportion of the price of a CD sale or a download. For example, in the UK, mechanical royalties for writers are 8.5% of the published

[86] The extent to which hardware manufacturers have incentives and/or the ability to pass copyright levies through to consumers was discussed in section 2 in the main report.
[87] See Stichting de Thuiskopie (2009), op. cit.
[88] Other sources of income include merchandise, advertising and sponsorship revenue (not shown in the diagram for the sake of simplicity).

dealer price of a CD.[89] This is the most direct mechanism of copyright remuneration for writers, since the revenue they receive is linked directly to purchases related to their songs.

– **Performance royalties** are received when a writer's song is performed. This includes any performance, including live performances at a venue, performances broadcast on television or radio, and a broadcast of a recorded work from a CD. Performance royalties are paid for by commercial music users, such as the live performance venue, pub or club. Royalties are usually paid in the form of a licence and are collected by collecting societies or through direct licensing.

Live performance income and sponsorship revenues

Song writers who also perform—categorised broadly as singer-song writers—may also receive income as a performer directly from live performances. This revenue stream is generated directly through ticket sales and merchandise. However, song writers who do not perform are not remunerated via this mechanism—rather they receive some remuneration from live performances of their songs through performance royalties.

Other sources of revenue for song writers include advertising, sponsorship and merchandising.

These revenue streams are dependent on the degree of exposure or use of the music. The implication for the economic impact assessment is that, insofar as the distribution of music content is diminished due to copyright levies, the singer-song writers generate fewer revenues through live performances and merchandise.

Non-artistic income sources

Many song writers generate income through non-artistic sources to supplement their artistic income. This could include having a second job, financial support from their families, or unemployment benefit for musicians, such as the New Deal for Musicians in the UK. A study of American artists and musicians in 2004 found that 78% of respondents had a second job and 41% earned less than 20% of their income from music-related activities.[90]

A1.1.3 Licensing of song writers' content and digital rights management

Song writers can license their copyright content collectively or individually. They can join a collecting society that pools all its members' content together and negotiates licensing agreements with music users.

Digitisation of music (and audiovisual content) has empowered rights holders to control the licensing of their works. A salient feature of this development is DRM, which provides the ability to constrain the number of private copies that can be made for each piece of downloaded content.

As acknowledged by the European Commission, DRM systems are considered the basis for developing new business models aimed at making digital content available to users while ensuring sufficient remuneration for rights holders.[91]

A further alternative to the collective licensing of performing rights is direct licensing, a remuneration mechanism presented in Box A1.1 below.

[89] See: http://www.prsformusic.com/creators/membership/MCPSroyalties/mcpsroyaltysources/musicaudioproducts/AP1/Pages/AP1.aspx.
[90] Strategic Advisory Board for Intellectual Property Policy (2010), 'The relationship between copyright and contract law', p. 69.
[91] European Commission (2006), 'Stakeholder consultation on copyright levies in a converging world', June.

Box A1.1 Direct licensing

Direct licensing involves a direct royalty payment from a music user to the song writer (or to their publisher) to pay for certain rights. The song writer (or publisher) will negotiate directly with the music user in such a situation, bypassing collecting societies. Other variations of this model include production companies, syndicators or music distributors securing the rights from copyright owners and selling them on to music users. Some commercial music companies license music directly from publishers and writers, and provide it to various music users such as venues, restaurants and bars. Direct licensing is typical in the negotiation for synchronisation rights—such as background music in a film.

Direct licensing seems to offer both advantages and disadvantages over the collective licensing of rights. The advantages have been argued to include up-front payment and greater accountability and transparency. Disadvantages may include the greater effort (transaction costs) involved in negotiating directly with each music user.

A1.2 Some relevant developments in the music industry

The music industry is undergoing significant change, manifested through changes in distribution mechanisms and the technological convergence of devices with music-purchasing/-playing functionality. These developments have implications for the economic analysis of copyright levies. First, the remuneration channels of music composers are changing—which feeds into the discussion of whether levies are warranted from the perspective of appropriate remuneration. Second, the technological changes imply that 'side-loading' and 'format-shifting' of content is becoming easier, and the modern online distribution mechanisms recognise that the consumer may access the content from various devices.

Two principal technological developments drive the take-up of digital music: increased broadband speeds and penetration, and the increased availability of portable digital devices with music-purchasing/-playing functionality. The digitalisation of music and the resulting shift to digital formats affects the segments of the music market in several ways.

– The sales of physical recorded music have been declining, albeit with increasing distribution of digital music content online.

– The growing number of online distribution services means a corresponding increase in licensing opportunities.

– The relative importance of live performances has increased in the music economy.

As a result, on a global scale, the digitalisation of music appears not to have had a detrimental impact on the music industry as a whole, as also explained in section 1. Moreover, digitalisation has coincided with (or might have driven) a change in consumer preferences, most notably to the benefit of the live music market and at the expense of record labels, as the growth in the online, publishing and live music industries indicates.

Furthermore, there has been a shift in consumers' leisure preferences towards interactive digital devices and online content. Consumers face an increased number of leisure options, constrained within their limited leisure time and budget. This has contributed to higher demand for flexible access to content across a number of formats to ensure that leisure time is maximised—digital content provides significant advantages over physical recorded music in this respect.

A2 Distribution of copyright levy payments to rights holders

A2.1 Retention rate

The copyright levy has two offsetting effects in terms of song writers' revenue. The first is a positive effect from the 'tax' revenue generated from the levy and distributed to song writers. The second effect is the negative indirect revenue effect of reduced sales—the levy reduces the demand for hardware; less hardware on which to consume songs means less demand for songs.

In economic terms, the negative indirect effect of the levy on music sales can be considered a loss in marginal revenue from sales. The tax revenue generated from the levy can be considered an increase in marginal tax revenue. The levy will generate additional revenue for song writers only if the loss in marginal revenue from sales is outweighed by the increase in marginal tax revenue. The effect that dominates depends in part on the proportion of the marginal tax revenue that is retained by the collecting societies—ie, the retention rate.

Some proportion of the levies collected is not distributed to rights holders, for example due to:

– the administrative expenses of the collecting societies;
– the inability to locate some song writers and bureaucratic complexities, such as cross-country flows of revenue;
– depending on the country, part of the revenue generated through copyright levies is used to fund cultural initiatives (see section 1).

The greater the proportion of the levy that is allocated to each of these factors, the higher the retention rate.

As Table A2.1 shows, the average retention rate across Europe is approximately 24%, although it ranges significantly between different countries. Oxera has used this figure of 24% as a base-case assumption in the welfare model presented in section 2, while sensitivities have also been tested. Disparities in the retention rate across countries may result in rights holders from different countries being affected differently by levies. The higher the retention rate, the more likely it is that the levy will have a positive effect on a rights holder's revenue; the lower the retention rate, the more likely it is that the levy will have a negative effect on revenues.

Table A2.1 Distribution of copyright levies in Europe (%)

	Average	Minimum	Maximum
Proportion distributed to rights holders	**76**	**39**	**100**
Management and other fees	9	0	19
Cultural and/or collective purposes	12	0	51

Note: 2004 data based on Austria, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Slovakia, Spain and Sweden.
Source: European Commission Directorate General for the Internal Market and Services (2006), 'Stakeholder consultation on Copyright Levies in a converging world', p. 5.

A further consideration is the distribution of the levy to individual song writers. As mentioned above, the indirect effect of the levy is to reduce a song writer's revenue through lower sales.

Therefore, if the marginal tax revenue of the levy is to offset this marginal loss in revenue, the distribution to song writers must be strongly related to song writers' sales.

The share-out formulae for levies tend to be based roughly on statistics from the mainstream music lists and the sampling of particular sectors—this inevitably overpays some and underpays others. The smaller a song writer's share of the levy revenue relative to the size of their sales, the more likely it is that their marginal tax revenue will not exceed their marginal loss in revenue.

A2.2 Distribution of levies between forms of media

The levies collected from the sales of different types of hardware are allocated to the rights holders of audio content and audiovisual content. Oxera has employed two primary approaches in assessing how much of the levy revenue is attributable to music composers, performers and publishers, as opposed to rights holders of audiovisual content:

– the focus of Oxera's analysis is on products relevant to the music market; and

– an adjustment has been made to the estimate of the total levies collected, to obtain the amount going to audio rights holders. This adjustment is applied in aggregate and reflects the fact that revenues from devices and memory is often split between audio and video rights holders.

Part of the data used in Oxera's model comes from a survey for the Dutch private copying society (Stichting de Thuiskopie).[92] This survey indicates that revenues from certain products (eg, blank audio CD-Rs) are distributed via the audio scheme to audio rights holders exclusively, while certain other product revenues (eg, from TV set-top boxes) go exclusively to video content rights holders. The distribution is less clear for revenues from devices and memory cards, where only a few countries explicitly state the proportions allocated to audio and video distribution schemes. A conservative assumption of 50% has been applied in the model as a base-case estimate of the share of levy revenues allocated to audio rights holders. Table A2.2 below shows the basis of this assumption.

[92] Stichting de Thuiskopie (2009), op. cit.

Table A2.2 Distribution of copyright levies

	% of retained levy			
	Audio	Audiovisual	Device	Audio and device
Austria	50			50
Belgium	27			27
Croatia	8	10	79	87
Czech Republic	56			56
Denmark	29	54	17	46
Estonia	30	32	35	65
Finland	14	23	63	77
France	21	30	49	70
Germany	20	80		20
Greece				0
Hungary	19	29	51	70
Italy	36	50	14	50
Latvia	24	50	26	50
Lithuania	24	50	26	50
Netherlands	35	65		35
Poland	64	36		64
Portugal				0
Slovakia	18	23	59	77
Slovenia				0
Spain	43	57	0	43
Sweden	18	50	32	50
Music industry average proportion of levy revenue		**47**		

Source: Stichting de Thuiskopie (2009), 'International Survey on Private Copying Law & Practice'.

Data from a large sample of European collecting societies suggests that, on average, 47% of retained levy revenues are distributed to the music industry. This is based on the revenues generated by audio products and devices. Oxera uses an estimate of 50% in its welfare modelling, since its sample focused more directly on audio devices than did the data above—as such, 47% is likely to be an underestimate. The non-audio products excluded from Oxera's sample represent a relatively small volume of overall revenues.

A3 Further description of the welfare model

A3.1 Mechanics of the welfare model

Oxera's welfare model aims to provide an estimate of the economic welfare impact of copyright levies across both the hardware and music markets. A brief introduction to the model was provided in section 2.2.1. This appendix presents some further detail on the process, and specific calculations.

The input data and key parameter assumptions used in the model were described in section 2.2.2. For the sake of transparency, Table A3.1 sets out the modelling assumptions underlying the scenario 2 results. The parameter assumptions are constant across all three scenarios unless specified otherwise.

Table A3.1 Welfare model assumptions

	Default assumption in scenario 2
Assumptions	
Modelled change in levy	–100%
Apply change to all products, just devices, or just blank media	All products
Dynamic growth in digital music	50%
Rights holder compensation	8%
Hardware pass-on	75%
Distributed to audio market (as opposed to audiovisual)	50%
Distributed to rights holders	100%
Elasticities	Medium
Download rate per user per year	16
Download price (€)	0.72
Proportion of additional income spent on music	0.03%
Elasticity of supply of hardware	+2
Application revenue per handset (€)	14.24
Include growth in physical sales as a result of levy removal	No
Include dynamic growth in non-levy countries	Yes
Countries included	Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, UK
Products included	Blank CD-R, Blank CD-RW, Blank DVD-R, Blank DVD-RW, Blank Blu-Ray/HD DVD, USB sticks, memory cards, MP3 players, mobile phone handsets, DVD writers, Blu-Ray recorders, PC hard disks, hard disk recorders

Source: Oxera.

The model focuses on three markets: the hardware market, the music market, and the applications market. Since the hardware market influences the others, it is logical to look at this one first.

– The first task is to determine the change in price following levy removal. The levy rates, taken from the Stichting de Thuiskopie (2009) survey, are applied on a per unit basis, converted from a percentage of the retail price where necessary. Prices without the levy have been taken from a non-levy country—here, the UK.

– The associated change in the number of units sold is then calculated under the assumption of a linear demand curve and the assumed current point elasticity of demand. In countries with no levy, there is no change in hardware sales.

– The change in total units sold (and in the price if pass-on is not 100%) is used to calculate the change in the manufacturers' revenues.

– The welfare effects for manufacturers and consumers are calculated by determining the area of the relevant welfare triangles and rectangles. The assumption of linearity on the demand and supply curves simplifies the computation by removing the need to calculate areas by integration.

In the music market, the modelling proceeds as follows.

– The static revenue loss for rights holders is modelled. Without any copyright levies, the lost levy revenues are equivalent to the total currently collected levies. Because this amount is determined endogenously from the sales volumes and levy rates, it does not necessarily correspond to exogenous data.

– The impact of the lost revenues on the heterogeneous population of song writers is quantified through a simulation exercise (explained in further detail below), resulting in an impact on the supply of music.

– The impact on demand is determined from the changes in hardware sold and income level of consumers. First, there is a direct knock-on effect of forgone device take-up on downloads of legal digital content (ie, there are fewer devices onto which music can be downloaded). Second, higher prices paid for hardware imply that consumers have less disposable income for other purposes, such as music purchases (an income effect).

– The dynamic effects resulting from the removal of levies are assessed. This scenario-based modelling element draws on the conceptually established relationship between copyright levies and digital licensing, and is supported by the indicative results of the empirical analysis presented in section 4 of the main report. These scenarios are reported in the top rows of each table, indicating the additional growth and effective compensation changes associated with the removal of copyright levies.

– Lastly, the changes in supply and demand are interacted to calculate the new equilibrium in the music market, and, as with the modelling for the hardware market, the welfare impact of this new equilibrium is determined in terms of consumer and producer surplus.

A3.2 Implications for heterogeneous rights holders

Heterogeneity means having differing qualities and characteristics. It is the opposite of homogeneity, in which all factors under consideration are identical. Music rights holders are heterogeneous because they produce different types of music. For example, heavy metal music is quite different from classical music and will tend to attract different consumers. Rights holders themselves also differ in terms of factors such as the size of their back

catalogue, their level of fame, the quality of their music (however judged), and whether they only write or also perform music.

Given that rights holders are heterogeneous, the way they are affected by the copyright levy is unlikely to be uniform. As a result of the differences in incentives and revenue composition between the different types of rights holders, the existence, size or removal of copyright levies is likely to affect groups of rights holders differently.

The purpose of the heterogeneity analysis carried out by Oxera is twofold:

– an important aspect of the analysis is to draw a distinction between established commercial rights holders, and composers who create music for more niche audiences, which may nevertheless be important for national or regional cultural objectives—ie, a public good;

– the heterogeneity analysis forms a module within the overall welfare model presented in section 2, and identifies those groups of rights holders (if any) whose marginal incentives to create content could, under plausible assumptions, be driven by copyright levies.

The following sub-sections discuss the modelling approach, together with a general discussion of the incentives for music creation.

A3.2.1 Approach

The modelling approach uses a simulation technique to create an artificial population of 10,000 rights holders. This technique works by repeatedly selecting random numbers for variables that represent a number of rights holder characteristics. Modelling different rights holders by genre or quality is inherently subjective and therefore difficult. Instead, the simulation involves a classification using more objective statistics, such as current revenues. The outcome of the simulation is to have generated a hypothetical set of rights holders with preferences and incentives to produce new music.

Crystal Ball simulation

The modelling approach to evaluating heterogeneity uses a simulation technique to create an artificial population of 10,000 artists. The analysis has been conducted using Crystal Ball, which is a specialist software package for conducting statistical simulations.

A simulation is an approach to modelling used when the value of the inputs is uncertain, but it is possible to estimate each value's statistical distribution. To conduct the simulation each input and its distribution and characteristics must be specified. For example, one input may be song writer current revenues, which may be calibrated as a log-normal distribution with specified 10th, 50th and 90th percentiles.

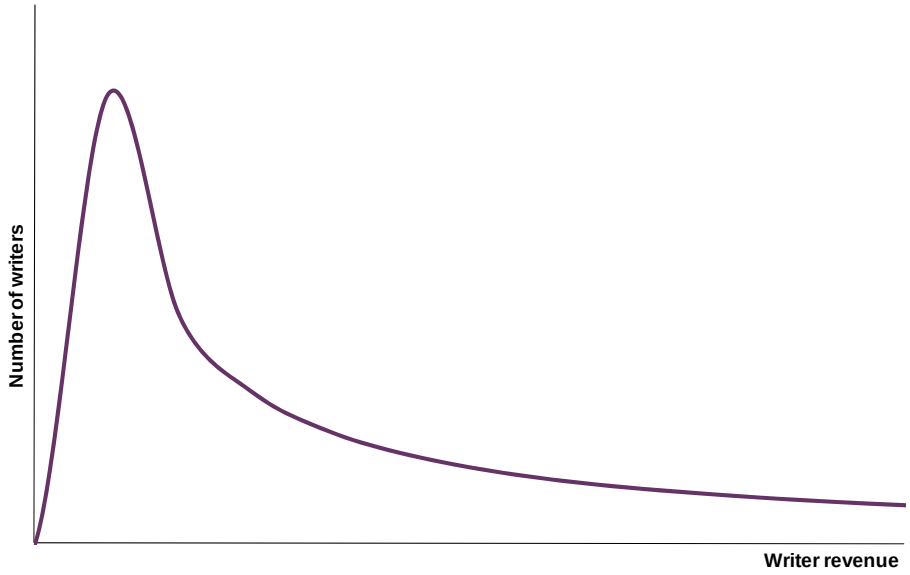
Once all relevant inputs are specified, which may be correlated, the simulation technique works by repeatedly drawing random numbers from the input distributions and saving the results for a number of trials, in this case 10,000.

A3.2.2 Assumptions

To undertake the simulation, the distributions for each input must first be defined and calibrated to match reality as closely as possible. The assumptions are discussed below, along with a more detailed description of each simulated variable.

– **Current revenues**—the current revenues of rights holders are assumed to be constrained at zero and to have a long 'tail' (Figure A3.1 illustrates this).

Figure A3.1 Stylised distribution of rights holder revenues



Source: Oxera.

As evidenced by a number of studies in this area,[93] a large number of rights holders would earn a small percentage of revenue, while a small number of rights holders (the successful and famous ones) would earn a large percentage. To calibrate this distribution, Oxera has examined the literature for evidence on the distribution of writers' revenues. For example, it was indicated by the UK Strategic Advisory Board for Intellectual Property (SABIP) that:

> the top 10% of composers/song writers earn about 80% of total income. This can be compared with earnings data for the total population of employees. Here the top 10% of earners earn about 20% of total income.[94]

The same paper also has detailed survey results for the distribution of music writer revenues.

– **Share of copyright levy**—this variable is created such that the full pool of collected levy revenue is distributed to the rights holders (ie, the shares add up to 1).[95] The values are correlated with current revenues under the assumption that successful rights holders will be allocated a larger share of the copyright levy. There is the potential for bias, in that more successful rights holders gain more than a proportional share of the levy, perhaps by having stronger bargaining positions.

  Calibrating this variable is important because it will have a direct impact on the amount of direct revenue deemed to be lost under the removal of the copyright levy scenario.

– **Responsiveness of other revenues to direct music sales**—rights holders may receive revenues from alternative sources, in addition to revenues generated through copyright payments. For example, rights holders who perform as well as write their own songs receive performance revenues, as well as revenues from merchandising. Evidence is available on the split of individual rights holders' revenues.[96] However, in order to estimate the value of alternative income streams per additional sale, aggregate

[93] For example, SABIP (2010), op. cit.
[94] Ibid.
[95] This is done by generating a random number for each rights holder and dividing by the total of the random numbers for the whole population.
[96] See, for example, SABIP (2010), op. cit.

figures from Recording Industry in Numbers 2010 have been used.[97] The total live music income per physical and digital sale was calculated and used as the mean in a distribution to allow this 'responsiveness' parameter to be estimated. Essentially, the parameter represents the rights holders' expected earnings (€x) from other revenue sources relative to record and digital sales made.

– **Reputational value**—as established in the economics literature,[98] rights holders' preferences—and hence their incentives to create new content—depend on non-monetary factors such as recognition among the creative community audiences. It may be difficult to derive any robust estimates of this. The approach proposed in this report is first to consider all the direct revenues and the opportunity cost. The reputational value would then be calibrated as a residual value—ie, the amount required to ensure that the rights holder continues to create, given the difference between direct revenues and opportunity cost.

– **Opportunity cost**—by spending time writing music, rights holders are forgoing opportunities to earn income elsewhere. The maximum income that they can earn from the next-best source is known as the 'opportunity cost'. This cost will differ between rights holders, although the mean could be expected to be the same as the mean in the economy in general. It does, however, seem appropriate to correlate this variable with a rights holder's revenues. Globally, successful rights holders who are both writers and performers may have opportunities for large incomes such as additional tours (some of them may also be able to earn high revenues from other professions, such as acting or TV performances). The current assumptions rely on the distribution of income in the general population. For example, the UK Office of National Statistics provides statistics on average earnings in the UK population (see Table A3.2).

Table A3.2 UK income distribution for the general population—an illustration

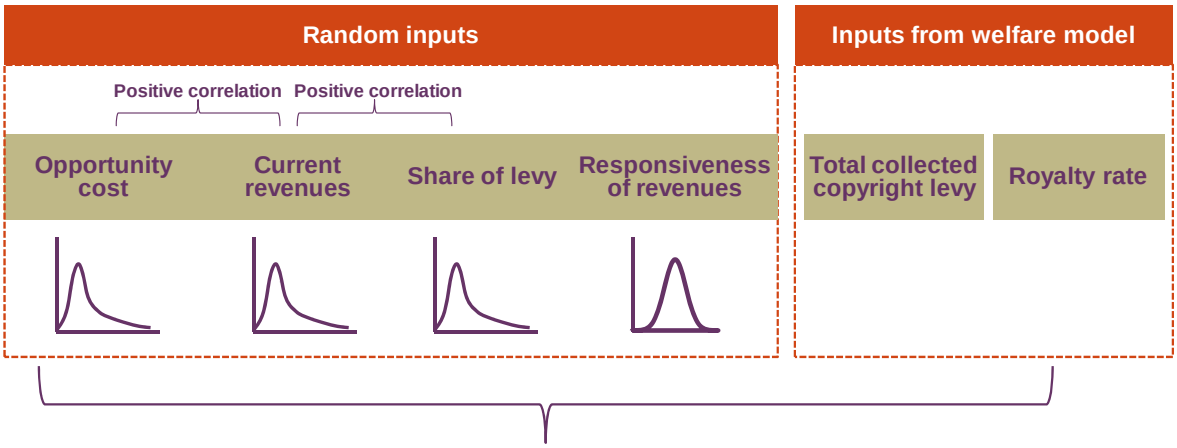
Percentile	10	20	25	30	40	60	70	75	80	90	100
% of cumulative income	2.52	6.77	11.71	17.31	24.11	33.63	44.90	57.19	70.69	88.18	100.00

Source: Office of National Statistics (2010), 'Annual Survey of Hours and Earnings 2009'.

A stylised diagram representing the modelling process is given in Figure A3.2 below.

[97] IFPI (2010), 'Recording industry in numbers 2010'.
[98] Bryant, W.D.A. and Throsby, D. (2006), 'Creativity and the behavior of artists', chapter 16, pp. 507–29, in V.A. Ginsburgh and D. Throsby (eds.), *Handbook of the Economics of Art and Culture*, Elsevier.

Figure A3.2 Modelling approach for rights holders' incentives



Simulated population

	Current revenue (€)	Share of levy (%)	Responsiveness of other revenues (€ per song sold)	Opportunity cost (€)	…
Artist 1	24,000	0.01%	0.05	23,000	
Artist 2	350,000	0.62%	0.20	200,000	
…					
Artist 10,000	30,000	0.01%	0.05	20,000	

Effect of levy

Band of rights holders' current revenues	Number of rights holders who stop producing without copyright levy	% of rights holders who stop producing without copyright levy	Value of lost songs (€m)
0-25,000	750	5%	1.7
25,000-50,000	152	6%	2.2
50,000-100,000	30	6%	2.1
100,000+	2	10%	5.2

Note: The values shown are constructed as opposed to real, and are intended only to show the nature of the process and the outputs; they have no significance in the actual modelling (see the results and interpretation of the modelling in section 2).
Source: Oxera.

The assumptions discussed above are the inputs to the simulation, in conjunction with the non-simulated values such as the total levy pool and writers' decisions on whether or not to create music.

A3.2.3 Analysis of rights holders' decisions to create

Having quantified the revenues and the opportunity cost, it is possible to examine each individual's decision on whether or not to continue to create music professionally. This is done in scenarios with and without the levy. It is found that removing the levy causes:

– a direct reduction in a writer's income from lost copyright levy revenues (in the static sense—see section 2);

– some increase in revenues from increased music sales associated with additional sales of hardware;
– no impact on the opportunity cost.

Ultimately, it is possible to indentify the number and percentage of different types of rights holder for whom the removal of the levy would affect the marginal decision about whether to produce. The total value of the music produced by the rights holders who would stop producing can also be determined.

While the approach described represents one module of the overall model, the implications of copyright levies to rights holders are also driven by other elements of the model that are not discussed in this appendix. Insofar as copyright levies distort the usage and supply of digital content (and underlying licensing models), the incentives of certain groups of writers to produce music could be reinforced, rather than reduced, by the absence of levies.

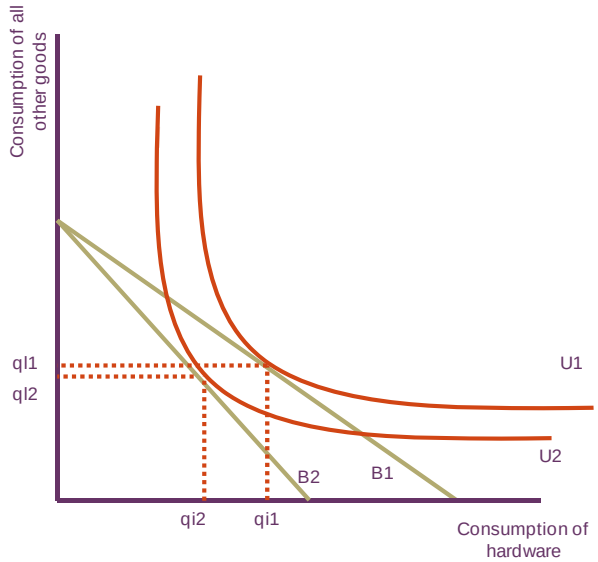
A4 Implications of copyright levies for illegal copying

As formalised in the academic paper produced by Legros and Ginsburgh, the copyright levy could be considered welfare-enhancing insofar as it is targeted at illegal copying. Indeed, with respect to CDs and cassettes, which are predominantly used for copying, the copyright levy could function as a Pigouvian tax: to the extent that the levy implies less hardware being available for illegal copying, such copying could indeed decrease, and, in economic terms, the externality imposed by the consumer would be internalised. However, for the copyright levy on hardware to have any impact on illegal copying, there would need to be a substitution effect—consumers would purchase legal content instead of copying. This appears unlikely. From an economics perspective, a tax on hardware is a tax on the fixed cost of accessing content, while copying is a marginal decision. Thus, once a consumer has decided to purchase the hardware, it is effectively a sunk cost. After this, the imposed tax is irrelevant in the consumer's decision between legal and illegal copying. The hardware is required for the consumption of both legal and illegal copying, yet a tax on hardware draws no distinction between the two.

A tax on hardware would make both legal and illegal copying more expensive. Through its income effect, such a tax could result in fewer consumers purchasing hardware and subsequently lower demand for content. This might reduce the amount of illegal copying in absolute terms, but could also reduce the amount of legal purchasing and copying. However, such a tax will not have the desired substitution effect (between illegal and legal copying), since it has no effect on the relative prices of legal and illegal copying.

The imposition of a copyright levy has the impact of changing the price of hardware, such as MP3 players and mobile phone handsets. Given that consumers are faced with a budget constraint, these devices are, to some extent, substituted by other goods. This effect can be seen in a standard utility maximisation diagram (Figure A4.1), as shown below.

Figure A4.1 The effect of a levy on hardware consumption



Source: Oxera.

In the figure, the linear line (denoted by B) illustrates how consumers have less income to spend on hardware (manifested by the shift from B1 to B2). U1 and U2 represent consumers' indifference curves, and hence their relative preferences between different goods (hardware

and other goods in this example). The above illustration shows how the change in hardware prices influences the consumption of other goods as well, albeit to a limited extent.

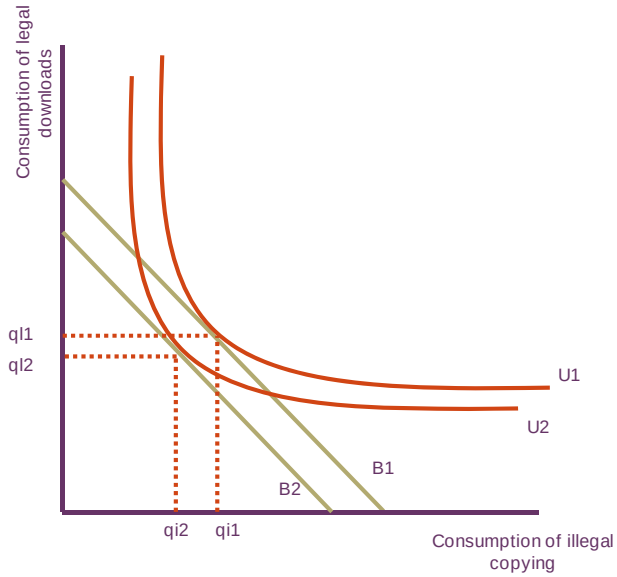
One way to understand the impact of the levy on illegal copying is to consider that after purchasing hardware that has a copyright levy, a consumer's remaining budget is reduced (relative to an absence of the levy). Subsequently, with less remaining budget to spend on obtaining legal music, they might switch to the less expensive option of copying or downloading music illegally, or simply consume less music in total. How this decision is made in the context of consumer theory is reviewed below.

According to economic theory, having purchased download-capable hardware, a consumer would then choose how much music they wished to obtain using legal methods—such as downloads or streaming—and, potentially, through illegal copying. These amounts depend on the consumer's overall budget and the relative prices. It is worth noting that there is no explicit 'price' for illegal downloads. However, in economic terms, illegal copies are not a 'free' good. Aside from the time and costs associated with locating and downloading the item, there is the risk of being caught and prosecuted, with an associated penalty. Consumers may also have some moral concerns about illegal downloads which can also be considered as an economic cost.

The effect of a copyright levy on the decision between obtaining legal music and illegal copying is represented in the figure below. In this illustrative framework, a consumer's reduced budget is manifested through a shift inwards of the budget constraint (ie, at the prevailing prices, a consumer can consume less than before).

Standard consumer theory suggests that a consumer chooses between two goods at the point where their 'marginal rate of substitution' (the rate at which a consumer is willing to give up one good for another, calculated by the marginal utility of good X divided by the marginal utility of good Y) is equal to the price ratio. This price ratio between legal and illegal activity is unchanged by the imposition of the copyright levy. Consequently, there may be some reduction in both legal and illegal downloads, but this is associated with less hardware being sold, rather than substitution from one activity to another.

Figure A4.2 Consumption decision between legal and illegal copying



Source: Oxera.

If new business subscription-based models encourage consumers to move from accessing illegal content to accessing legal content via such formats, this will have a positive effect on song writers' remuneration.

A further factor leading to unintended consequences relates to consumers' perception of the levies as a justification to copy music, both legally and illegally. In other words, to the extent that consumers are conscious of the levy being a component in the price, they may consider that this additional payment compensates for all copying, without distinguishing between legal and illegal copying.

A5 Welfare model scenarios

Given the uncertainty surrounding some of the parameter assumptions, this appendix presents a selected set of scenarios to show the sensitivities of the main results to various assumptions. First, the summary of the three base-case scenarios is reproduced in Table A5.1, for ease of reference when examining the other tables.

Table A5.1 Welfare effects of removing copyright levies—summary overview

	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
Assumptions			
Dynamic growth in digital music	50%	75%	100%
Change in the effective compensation from music	0%	2%	4%
Hardware pass-on	75%	75%	75%
Hardware elasticities (demand and supply)	Medium	Medium	Medium
eg, Mobile phone price elasticity of demand	–2.00	–2.00	–2.00
eg, Hardware price elasticity of supply	2.00	2.00	2.00
Hardware market			
Change in average price (% of previous)	99%	99%	99%
Change in units sold (% of previous)	106%	106%	106%
Total change in manufacturers' revenues (€m)	426	426	426
Welfare			
Effect on manufacturer surplus (€m)	166	166	166
Effect on consumer surplus (€m)	375	375	375
Music market			
Loss of active song writers (%)	0.02%	0.02%	0.02%
Effect on writers' revenues from levies (€m)	–70	–70	–70
Effect on writers' revenues from music sales (€m)	54	77	100
Effect on performers' revenues from levies (€m)	–52	–52	–52
Effect on performers' revenues from music sales (€m)	54	77	100
Effect on producers' (record labels') revenues from levies (€m)	–52	–52	–52
Effect on producers' (record labels') revenues from music sales (€m)	275	436	601
Effect on consumer surplus (€m)	226	434	713
Applications market			
Advertising revenues gained (€m)	1.19	1.19	1.19
Total results			
Effect on consumer surplus (€m)	601	809	1,088
Effect on manufacturers' surplus (€m)	166	166	166
Effect on writers' revenues (€m)	–16	7	30
Effect on performers' revenues (€m)	1	24	48
Effect on producers' (record labels') revenues (€m)	223	384	548
Total impact (€m)	**975**	**1,389**	**1,880**

Source: Oxera.

In terms of evaluating the welfare impact of levies, one option is to assess the impact of removing levies from devices only, not from blank media. Table A5.2 presents this scenario. It shows that, by retaining levies on blank media, rights holders lose less levy revenue, but still receive much of the benefit from enhanced digital sales resulting from increased hardware sales.

Table A5.2 Welfare effects of removing copyright levies from devices only—summary overview

	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
Assumptions			
Dynamic growth in digital music	50%	75%	100%
Change in the effective compensation from music	0%	2%	4%
Hardware pass-on	75%	75%	75%
Hardware elasticities (demand and supply)	Medium	Medium	Medium
eg, Mobile phone price elasticity of demand	–2.00	–2.00	–2.00
eg, Hardware price elasticity of supply	2.00	2.00	2.00
Hardware market			
Change in average price (% of previous)	99%	99%	99%
Change in units sold (% of previous)	101%	101%	101%
Total change in manufacturers' revenues (€m)	323	323	323
Welfare			
Effect on manufacturer surplus (€m)	134	134	134
Effect on consumer surplus (€m)	189	189	189
Music market			
Loss of active song writers (%)	0.02%	0.02%	0.02%
Effect on writers' revenues from levies (€m)	–36	–36	–36
Effect on writers' revenues from music sales (€m)	54	77	100
Effect on performers' revenues from levies (€m)	–26	–26	–26
Effect on performers' revenues from music sales (€m)	54	77	100
Effect on producers' (record labels') revenues from levies (€m)	–26	–26	–26
Effect on producers' (record labels') revenues from music sales (€m)	275	436	601
Effect on consumer surplus (€m)	226	434	713
Applications market			
Advertising revenues gained (€m)	1.19	1.19	1.19
Total results			
Effect on consumer surplus (€m)	415	623	902
Effect on manufacturers' surplus (€m)	134	134	134
Effect on writers' revenues (€m)	18	41	64
Effect on performers' revenues (€m)	28	51	74
Effect on producers' (record labels') revenues (€m)	249	410	575
Total impact (€m)	**843**	**1,257**	**1,748**

Source: Oxera.

There is considerable uncertainty around the price elasticity of demand for devices and hardware. Table A5.3 describes three scenarios using different sets of elasticities.

Table A5.3 Welfare effects of removing copyright levies—different elasticities

	Low elasticities	Medium elasticities	High elasticities
Assumptions			
Dynamic growth in digital music	75%	75%	75%
Change in the effective compensation from music	2%	2%	2%
Hardware pass-on	75%	75%	75%
Hardware elasticities (demand and supply)	Low	Medium	High
eg, Mobile phone price elasticity of demand	–1.00	–2.00	–3.00
eg, Hardware price elasticity of supply	2.00	2.00	2.00
Hardware market			
Change in average price (% of previous)	99%	99%	99%
Change in units sold (% of previous)	103%	106%	109%
Total change in manufacturers' revenues (€m)	288	426	582
Welfare			
Effect on manufacturer surplus (€m)	97	166	235
Effect on consumer surplus (€m)	361	375	391
Music market			
Loss of active song writers (%)	0.02%	0.02%	0.02%
Effect on writers' revenues from levies (€m)	–70	–70	–70
Effect on writers' revenues from music sales (€m)	66	77	96
Effect on performers' revenues from levies (€m)	–52	–52	–52
Effect on performers' revenues from music sales (€m)	66	77	96
Effect on producers' (record labels') revenues from levies (€m)	–52	–52	–52
Effect on producers' (record labels') revenues from music sales (€m)	399	436	501
Effect on consumer surplus (€m)	377	434	560
Applications market			
Advertising revenues gained (€m)	0.59	1.19	1.78
Total results			
Effect on consumer surplus (€m)	738	809	951
Effect on manufacturers' surplus (€m)	97	166	235
Effect on writers' revenues (€m)	–4	7	26
Effect on performers' revenues (€m)	14	24	44
Effect on producers' (record labels') revenues (€m)	347	384	449
Total impact (€m)	**1,191**	**1,389**	**1,703**

Note: Dynamic growth and effective royalty rate assumptions are based on scenario 2.
Source: Oxera.

The extent of pass-on of the levy to consumers by hardware manufacturers is unclear. Table A5.4 below presents scenarios using different pass-on rates ranging from 50% to 100%.

Table A5.4 Welfare effects of removing copyright levies—pass-on scenarios

	50% pass-on	75% pass-on	100% pass-on
Assumptions			
Dynamic growth in digital music	75%	75%	75%
Change in the effective compensation from music	2%	2%	2%
Hardware pass-on	50%	75%	100%
Hardware elasticities (demand and supply)	Medium	Medium	Medium
eg, Mobile phone price elasticity of demand	–2.00	–2.00	–2.00
eg, Hardware price elasticity of supply	2.00	2.00	2.00
Hardware market			
Change in average price (% of previous)	99%	99%	99%
Change in units sold (% of previous)	105%	106%	107%
Total change in manufacturers' revenues (€m)	447	426	397
Welfare			
Effect on manufacturer surplus (€m)	115	166	216
Effect on consumer surplus (€m)	245	375	509
Music market			
Loss of active song writers (%)	0.02%	0.02%	0.02%
Effect on writers' revenues from levies (€m)	–70	–70	–70
Effect on writers' revenues from music sales (€m)	64	77	89
Effect on performers' revenues from levies (€m)	–52	–52	–52
Effect on performers' revenues from music sales (€m)	64	77	89
Effect on producers' (record labels') revenues from levies (€m)	–52	–52	–52
Effect on producers' (record labels') revenues from music sales (€m)	395	436	474
Effect on consumer surplus (€m)	372	434	506
Applications market			
Advertising revenues gained (€m)	0.79	1.19	1.58
Total results			
Effect on consumer surplus (€m)	617	809	1,015
Effect on manufacturers' surplus (€m)	115	166	216
Effect on writers' revenues (€m)	–6	7	19
Effect on performers' revenues (€m)	12	24	36
Effect on producers' (record labels') revenues (€m)	343	384	422
Total impact (€m)	**1,079**	**1,389**	**1,706**

Note: Dynamic growth and effective royalty rate assumptions are based on scenario 2.
Source: Oxera.

The extent of competition in the hardware market, and the nature of the cost structure, will determine the shape of the hardware supply curve. In the base case, the hardware market has been assumed to be competitive with a perfectly elastic supply curve. Table A5.5 below presents scenarios where the hardware supply is not perfectly elastic.

Table A5.5 Welfare effects of removing copyright levies—non-flat hardware supply curve (corresponding to scenario 2 assumptions)

	Hardware supply elasticity of +1	Hardware supply elasticity of +2	Perfectly elastic hardware supply
Assumptions			
Dynamic growth in digital music	75%	75%	75%
Change in the effective compensation from music	2%	2%	2%
Hardware pass-on	75%	75%	75%
Hardware elasticities (demand and supply)	Medium	Medium	Medium
eg, Mobile phone price elasticity of demand	–2.00	–2.00	–2.00
eg, Hardware price elasticity of supply	1.00	2.00	Infinity
Hardware market			
Change in average price (% of previous)	99%	99%	99%
Change in units sold (% of previous)	106%	106%	106%
Total change in manufacturers' revenues (€m)	426	426	426
Welfare			
Effect on manufacturer surplus (€m)	333	166	0
Effect on consumer surplus (€m)	375	375	375
Music market			
Loss of active song writers (%)	0.02%	0.02%	0.02%
Effect on writers' revenues from levies (€m)	–70	–70	–70
Effect on writers' revenues from music sales (€m)	77	77	77
Effect on performers' revenues from levies (€m)	–52	–52	–52
Effect on performers' revenues from music sales (€m)	77	77	77
Effect on producers' (record labels') revenues from levies (€m)	–52	–52	–52
Effect on producers' (record labels') revenues from music sales (€m)	436	436	436
Effect on consumer surplus (€m)	434	434	434
Applications market			
Advertising revenues gained (€m)	1.19	1.19	1.19
Total results			
Effect on consumer surplus (€m)	809	809	809
Effect on manufacturers' surplus (€m)	333	166	0
Effect on writers' revenues (€m)	7	7	7
Effect on performers' revenues (€m)	24	24	24
Effect on producers' (record labels') revenues (€m)	384	384	384
Total impact (€m)	**1,555**	**1,389**	**1,223**

Note: Dynamic growth and effective compensation assumptions are based on scenario 2.
Source: Oxera.

Table A5.6 quantifies the impact of moving from a scenario where levies are harmonised across the EU to a scenario of no levies at all.

Table A5.6 Welfare effects of removing copyright levies from a base case with harmonised levies

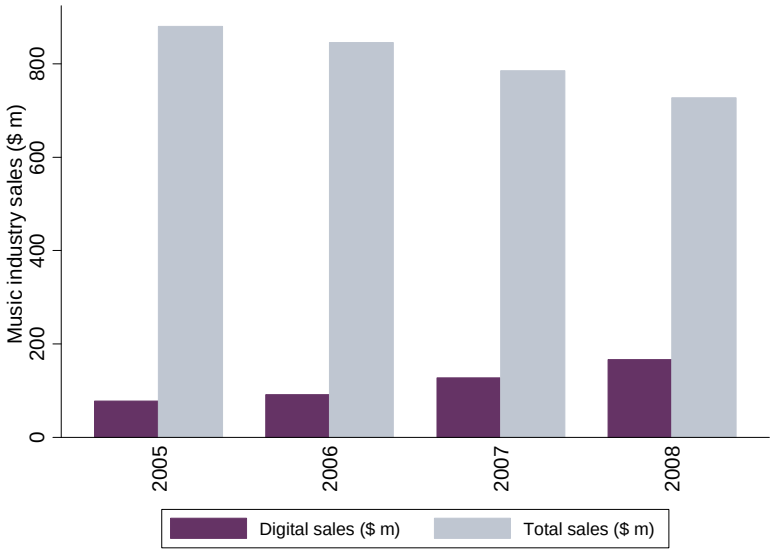
	Scenario 1: Limited dynamic growth	Scenario 2: Moderate dynamic growth and some new business models	Scenario 3: High dynamic growth and many new business models
Total results			
Effect on consumer surplus (€m)	1,641	2,003	2,467
Effect on manufacturers' surplus (€m)	463	463	463
Effect on writers' revenues (€m)	–124	–94	–64
Effect on performers' revenues (€m)	–70	–41	–10
Effect on producers' (record labels') revenues (€m)	291	485	683
Total impact (€m)	**2,195**	**2,810**	**1,880**

Source: Oxera.

A6 Further descriptive observations on the cross-country data

Further to the analysis presented in section 4 of this report, additional description of the cross-country analysis is available in this appendix.

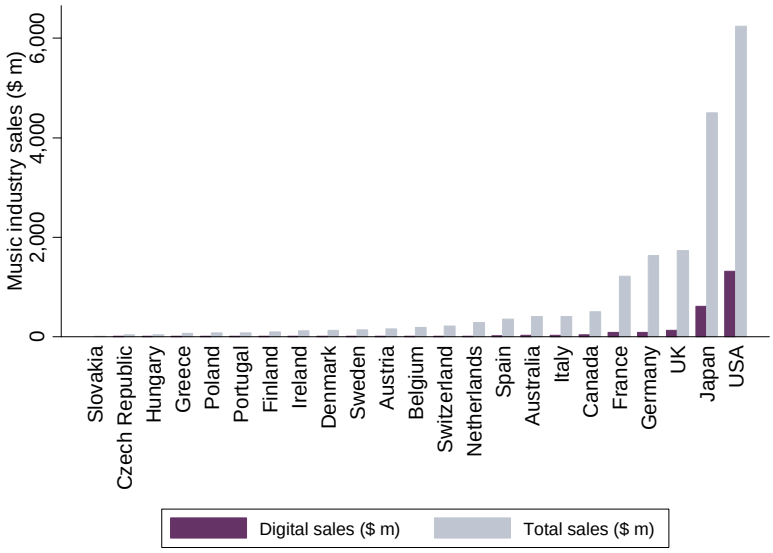
Figure A6.1 Music industry performance over time



Source: IFPI data.

Figure A6.1 shows that, while overall global music industry sales have declined over time, digital sales grew steadily between 2005 and 2008.

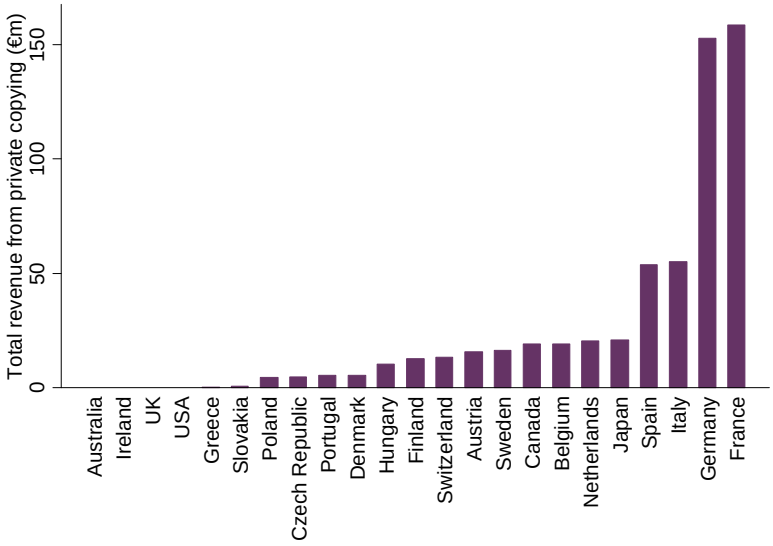
Figure A6.2 Music industry performance by country



Source: IFPI data.

Figure A6.2 shows that music industry sales have generated the highest revenues in the USA, Japan, UK, Germany and France. The USA, Japan and the UK do not have private copy levies.

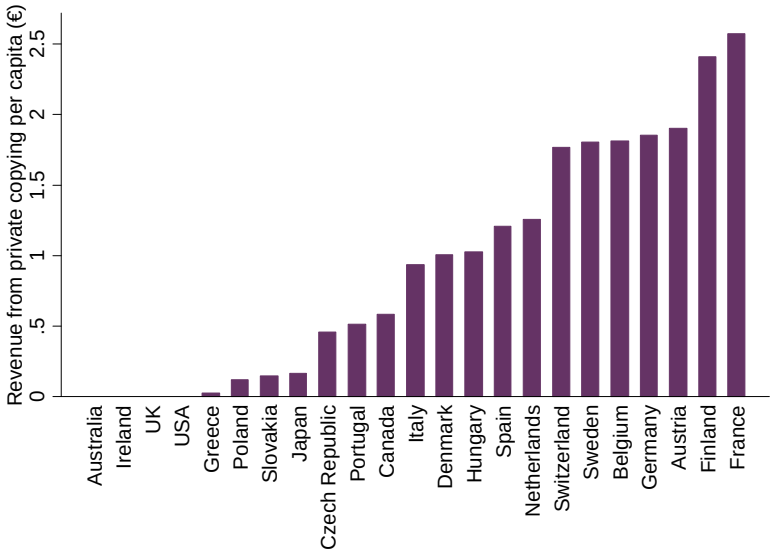
Figure A6.3 Revenue collections from private copying, by country



Source: Compact Media Group (2010).

Figure A6.3 shows that France and Germany have the highest revenue collections from private copying. On the other hand, there are no copyright levies in Australia, Ireland, the UK or the USA.

Figure A6.4 Revenue collections from private copying per capita, by country



Source: Compact Media Group (2010).

Figure A6.4 shows that France and Finland have the highest per capita revenue collections from private copying.

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