Estimating displacement rates of copyrighted content in the EU

Final Report

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EXECUTIVE SUMMARY

Introduction

The extent to which digital consumption of pirated materials displaces legitimate purchases is of fundamental importance for EU copyright policy design. The European Commission has commissioned Ecorys to carry out a study on the relation between online copyright infringement (digital piracy) and sales of copyrighted content.

This study adds to the existing literature in at least three ways. Firstly, it compares piracy rates in multiple EU Member States calculated according to the same methodology. This makes it possible to compare results between countries. Secondly, displacement rates are estimated in the presence of an important recent phenomenon, i.e. the widespread availability of a wide variety of services for downloading or streaming content. Thirdly, the study includes minors to assess the extent of piracy among this group.

Research questions and scope

This study aims to answer the following two main research questions:

1. How do online copyright infringements affect sales of copyrighted content?
2. How much are online copyright infringers willing to pay for copyrighted content?

The study uses 2014 data and covers four types of creative content: music, audio-visual material, books and games. Contrary to many other studies live attendances of music and cinema visits are included in the analysis. The countries included in the analysis are:

- Germany;
- The United Kingdom;
- Spain;
- France;
- Poland;
- Sweden.

These countries were selected because based on national socio-cultural characteristics (using the Esping-Andersen typology) they are as a group representative for the EU as a whole. In this report the words "legal" and "illegal" consumption or channels refer to copyrighted and pirated content, i.e. creative content offered with and without permission of the author.

Main conclusions

In 2014, on average 51 per cent of the adults and 72 per cent of the minors in the EU have illegally downloaded or streamed any form of creative content, with higher piracy rates in Poland and Spain than in the other four countries of this study. In general, the results do not show robust statistical evidence of displacement of sales by online copyright infringements. That does not

necessarily mean that piracy has no effect but only that the statistical analysis does not prove with sufficient reliability that there is an effect. An exception is the displacement of recent top films. The results show a displacement rate of 40 per cent which means that for every ten recent top films watched illegally, four fewer films are consumed legally. People do not watch many recent top films a second time but if it happens, displacement is lower: two legal consumptions are displaced by every ten illegal second views. This suggests that the displacement rate for older films is lower than the 40 per cent for recent top films. All in all, the estimated loss for recent top films is 5 per cent of current sales volumes.

The study also analysed consumers' "willingness to pay" for illegally accessed creative content in order to assess whether piracy might be related to price levels. To optimize the recollection of the respondent, it was asked for the *last* illegal online transaction. Consumers may be willing to pay more or less for other transactions so the results should be interpreted with caution. Overall, the analysis indicates that for films and TV-series current prices are higher than 80 per cent of the illegal downloaders and streamers are willing to pay. For books, music and games prices are at a level broadly corresponding to the willingness to pay of illegal downloaders and streamers. This suggests that a decrease in the price level would not change piracy rates for books, music and games but that prices can have an effect on displacement rates for films and TV-series.

In sum, the main contribution to the existing literature is the finding on displacement rates for recent top films and the lack of a robust (positive) displacement rate for films / TV-series in general, music, books and games despite the carefully developed questionnaire and the application of econometric analysis. The quasi panel data approach for recent top films was the only methodology that resulted in robust estimates of displacement rates. Hence this approach seems recommendable for other types of creative content, although top titles would be less dominant in total sales than is the case for films.

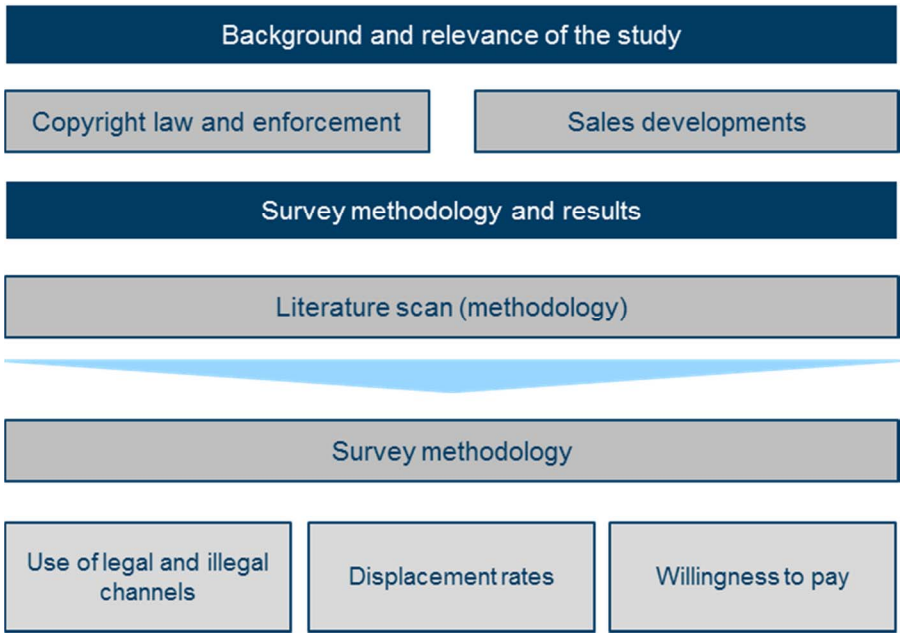
The remainder of this summary explains the basis for these conclusions.

Outline of this summary

This summary starts with the conclusions regarding copyright regulations and enforcement in the countries included in the study and recent observations of sales volumes of creative content. Thereafter the survey methodology is explained. The survey methodology is based on a literature scan. The summary ends with a discussion of the survey results. The survey covers three topics:

1. Consumption of copyrighted and pirated content;
2. Displacement rates;
3. Willingness to pay.

Figure S.1. – Research approach and structure of executive summary



Background and relevance of the study

Copyright regulation and enforcement

The first objective of the study includes a comparison of online copyright infringements across various countries and types of copyrighted materials and a cross-comparison of differences with differences in online copyright enforcement provisions, about which national authorities of the six countries of this study were interviewed.

The interviews revealed that France has the most pervasive copyright legislation and that Polish legislation is less explicit about online infringements. In Spain enforcement of copyright law is most costly due to the combination of a focus on illegal content providers (rather than users) and not allowing representative associations to start procedures.

Development of sales of creative content

In order to assess the relative importance of digital channels the study starts with an analysis of the evolution of sales statistics. These statistics are also used to cross-check the findings of the survey. The overall conclusion from the sales trends is that consumers increasingly go "online" with regard to creative content, although the online market is still marginal for books.

In the *music* industry, live concerts generate more revenues than recorded music – physical carriers, digital streams and downloads combined. Sales of recorded music have shifted from physical carriers (CDs, vinyl records) to paid streams and subscription services since 2009. This is particularly the case in Sweden, home country of Spotify, a popular music stream service.

For *audio-visual material*, the box office (cinema) and physical carriers (DVD / Blu-Ray) are still the most important sales channels. Total sales have declined in three out of the six countries in this study (France, Spain and the United Kingdom). Higher online sales did not compensate for the decline of sales via physical carriers and the industry does not expect this to change in the near future.

For *books*, the availability of e-books is rapidly expanding but e-book sales are still marginal and total sales exhibit a negative trend in most countries. In the *games* industry the greatest proportion of revenues is generated by physical console games but online games will overtake this segment in a matter of a few years if current trends continue.

Survey methodology

Methodological challenges

Because displacement rates cannot be directly observed they need to be estimated on the basis of observed behaviour, or people need to be asked "what if" questions about the hypothetical situation that creative content is no longer available on illegal sites. Such "what if" question are usually not asked because it is difficult for respondents to imagine such situation and they may provide socially acceptable answers even if asked about regular behaviour. Directly asking about illegal behaviour is expected to generate even more untruthful answers. Another challenge is that innovations in the online delivery of creative content mean that displacement rates are increasingly difficult to estimate on the basis of observed behaviour. Indeed, in recent years the number of legal and illegal channels has increased significantly and consumers use a mix of legal and illegal channels to access creative content, depending on the occasion. This means that there are no natural "treatment" and "control" groups.

Methods for estimating displacement rates - lessons from previous literature

An estimate of the displacement rate with a simple correlation between legal and illegal consumption is likely to be positively biased. That is because respondents who like e.g. music are likely to listen to more music, whether copyrighted or pirated.

To address this so-called *endogeneity* issue, three approaches have been tried in previous survey-based literature (we scanned 50 studies), each of which was applied in this study:

1. *Include control variables for the degree of interest in the relevant creative content*:
   To adopt the first of these approaches, the questionnaire was designed to include questions about the interest in creative content compared to other people, and about the use of internet to search for information about creative content. The latter question, as well as a question about intensity

of internet usage, also helps to address the negative bias due to consumers "going digital".

2. *Use an "instrumental variable" for the number of illegal downloads or streams*:
   The second approach consists of estimating the number of illegal downloads or streams with a so-called instrumental variable that is assumed to affect legal transactions *only* through these illegal transactions. Instrumental variables that have been used in previous literature and were tested in this study include:
   - Available internet speed (only in older studies because internet is nowadays almost universally fast);
   - Use of internet for reading news;
   - Use of illegal channels for other types of creative content.

   In addition, new potential instrumental variables were developed in this study including:
   - Familiarity with internet terms;
   - Moral attitudes to questionable behaviour that is not related to internet or creative content.

3. *Use a "panel data approach", assuming that unobserved characteristics influencing both legal and online illegal transactions ("taste for creative content") remain the same over time for everyone.* For the third approach, Rob and Waldfogel (2007a and 2007b) developed a quasi-panel data approach by asking respondents which of 150 films of the past three years they had watched and how they had watched those films the first, second and third time. This approach exploits the fact that most films are seen for the first time in the year of release. Hence, numbers of film views by release year of the films are a reasonable approximation of the numbers of films that respondents saw in that year. To put it simply: if in one year a respondent watched five films illegally and five films legally, and in another year watched ten films illegally and zero films legally, it is reasonable to conclude that the other five illegal views of the other year displace the five legal views of the first year.

Methodology – willingness to pay

The willingness to pay questions elicit what respondents would be willing to pay for their last pirated content if that is no longer available for free. They started with the willingness to pay a price in a range slightly below the average market price for the last illegal download on a similar legal site. Depending on whether the respondent was likely or unlikely to pay that price, the respondent was then presented a higher or lower price, for a legal download from a faster site. Again depending on the answer, the respondent was presented once more a higher or lower price, but then for a legal download from a site with an easier search function. The price ranges were specific for each country and type of creative content.

Method – number of respondents

The research questions are answered on the basis of an econometric analysis of the results of an online questionnaire in September and October 2014 among the internet using population with close to 30,000 respondents (5,000 for each of the six countries). Minors in the age of 14-17 years were slightly oversampled to allow a representative analysis of that specific group. Note that the internet using population is not entirely representative for the population as a whole.

Survey results

Use of creative content

Table S.1 shows that at the EU level the majority consumes any of the forms of creative content. In Poland and Spain the share of respondents that consumes creative content is slightly higher than the EU average. Minors consume more creative content than the average internet user in each of the countries included in the study.

Table S.1. Consumption of creative content (percentage of respondents)

Category	Group	*DE*	*UK*	*ES*	*FR*	*PL*	*SE*	*EU**
In the past year, have you purchased, rented, downloaded or streamed music or visited a live concert?	Total	*63*	*62*	*65*	*48*	*67*	*58*	***61***
	Minors	*81*	*77*	*69*	*68*	*80*	*77*	***75***
In the past year, have you purchased, rented, downloaded or streamed films or TV-series or visited a cinema?	Total	*64*	*72*	*75*	*59*	*74*	*69*	***69***
	Minors	*83*	*86*	*74*	*75*	*76*	*88*	***79***
In the past year, have you purchased, downloaded, or streamed books or audio-books or borrowed or e-borrowed any of these from a library?	Total	*62*	*54*	*54*	*30*	*50*	*41*	***50***
	Minors	*62*	*52*	*50*	*38*	*58*	*51*	***52***
In the past year, have you purchased, downloaded or streamed computer/video games, or played online games?	Total	*46*	*49*	*51*	*39*	*50*	*39*	***46***
	Minors	*65*	*75*	*65*	*61*	*65*	*69*	***66***

* Although the survey covers only six countries, results are aggregated to the level of EU28 by making certain assumptions (see Section 1.5 of the report). Percentages are also weighted by age and gender for each country. N = 28,649.

Use of illegal channels

The proportion of respondents admitting to illegal online transactions in this study (table S.2) is high compared to previous studies.[1] Exceptions are music and audio-visual material for which piracy rates are similar to those found in recent economics' literature, and for music even somewhat older economics' literature. This suggests that the use of illegal channels has matured for music and perhaps recently also for audio-visual material.

Table S.2. Use of legal and illegal channels (% of respondents using the channel)*

	Music	Films/TV -series	Books	Games
Purchase on physical carriers	39	40	42	30
Rental (including library)		28	29	
Legal downloading	38	30	26	21
Legal streaming	44	46	17	27
Illegal downloading	32	31	18	
Illegal streaming	24	35	14	
Live concerts	41			
Cinema		59		
Cloud gaming (legal)				15
Free games (legal)				31
Illegal downloading or streaming				18
Playing on a chipped game console				16

* Weighted by age and gender per country, and to the EU28 level as discussed in Section 1.5, N = 28,649.

Number of transactions - are responses reliable?

Self-reported numbers of legal transactions are generally higher than official sales statistics indicate, except for live music and the top-100 films. A plausible explanation is that the sample of internet users in this study, while being representative of the population of internet users, is not representative for the whole population in general. It also indicates that it is probable that responses to the questions regarding live music and top-100 films are accurate and reliable. The over-reporting of legal consumption raises the question whether the self-reported numbers of legal purchases are contaminated by untruthful over-reports of legal activity by pirates. To test this, the response to the knowledge of piracy terms was analysed. Among self-confessed pirates the proportion that is familiar with piracy terms is 20 percent point higher than among self-reporting legal buyers. This significant difference is so large that it suggests that, in general, respondents have replied truthfully.

1 On the basis of the review of previous literature the questionnaire did not include terms like "illegal" and "piracy". To clarify the distinction between legal and illegal sites, the questionnaire referred to illegal sites as "file sharing and hosting sites" and named country-specific examples of sites providing illegal access to creative content.

Theoretically, it is also possible that pirates who self-report as being legal buyers also lie about their knowledge of piracy terms. However, a further test reveals that the difference in knowledge of non-piracy internet terms compared to piracy terms is the same among both self-confessed pirates and self-reporting legal buyers. Hence the difference in knowledge of piracy terms indicates that pirates have responded truthfully (unless they in addition lied about their knowledge of non-piracy internet terms as well).

The reliability of self-reported consumption was also tested. Consumers' responses are clustered around convenient numbers (such as 50 and 100). This suggests that large-scale consumers do not recall exactly how much content they have consumed. This negatively affects the robustness of the statistical analysis of the first two approaches.

Displacement rates – creative content in general

Methodology 1 (control variables) and methodology 2 (instrumental variables) were used to estimate displacement rates for music, films, books and games. Methodology 1, with interest in the relevant creative content and use of internet to search news on creative content as control variables, results in robust, significant and positive estimated effects of internet piracy on sales. However, test results show that from a statistical perspective this methodology is not sufficient to address the bias caused by endogeneity.

Table S.3 reports the results of methodology 2. For *music*, the estimated overall displacement rate is zero. The displacement of physical sales (though with a large error margin) is compensated by a significant positive effect of illegal downloads and streams on live concert visits.

Table S.3. Estimate of displacement rates (methodology 2, instrumental variables)

	Music	Films/TV-series	Books	Games
Displacement rate (coefficient)	+ 0%	- 27 %	-38%	+24%
Nr. respondents	13,896	15,851	11,383	11,226

** Standard errors and test statistics are included in table of Chapter 7 in this report.*

For *films or TV-series*, every 100 illegal streams or downloads are estimated to displace 27 legal transactions (online or offline). The magnitude of the (not robust) estimated displacement effect is in line with robust estimates for the displacement rate of 27 per cent and 32 per cent in two previous survey-based studies.

For *books*, the reported number of illegal streams is negligible. The estimated displacement rate of illegal book downloads is insignificant.

For *games*, the estimated effect of illegal online transactions on sales is positive – implying that illegal consumption leads to increased legal consumption. This positive effect of illegal downloads and streams on the sales of games may be explained by the industry being successful in converting illegal users to paying users. Tactics used by the industry include, for example, offering gameplay with extra bonuses or extra levels if consumers pay.

Displacement rates – the 100 top films

To estimate displacement rates for 100 top films methodology 3 was used (*quasi panel data approach*). Displacement rates were estimated for both the first and second time a film is watched.

Internet using consumers have seen on average 2.4 films of 100 top films of the last three years the first time via an illegal site, which is equivalent with 0.8 top films per year. The (statistically significant) estimated displacement rate is 40 per cent.

Respondents watch on average 0.5 films the second time via an illegal site. These illegal second views displace 0.1 legal views which implies a displacement rate of 20 per cent. The reason for the lower displacement rate for second illegal views (20 per cent compared to 40 per cent for first illegal views) may be that people are less willing to pay for a second view.

Displacement rates – comparison with previous literature

Three previous studies with robust findings for music reported small but significant displacement rates of around 10 per cent. However, these previous studies do not include effects on live music concerts, and this is exactly where this study and one previous study (Dang Nguyen et al., 2012) find a significantly positive effect of illegal streams.

Interestingly, the only available previous study analysing effects of illegal downloads on games also reported significant positive effects (Bastard et al., 2012).

The estimate of displacement rates for the 100 top films is based on the methodology suggested by Rob and Waldfogel (2007). Compared to Rob and Waldfogel this study finds a lower displacement rate (34 per cent compared to 76 per cent) and a higher loss of sales (5.2 compared to 3.5 per cent). This difference can be attributed to increased volumes of illegal downloads with lower average displacement rates as Rob and Waldfogel predicted. Another possible explanation is a real difference in behaviour between the 2005 sample of American students used in Rob and Waldfogel's study and the 2014 EU sample of internet using people used in this study.
Reflecting on previous literature, Rob and Waldfogel (2007b) predicted that average displacement rates would decrease when the volume of file sharing increases. They argued that around the year 2000, when file sharing was still

slow and difficult, only people who expected to (illegally) download much invested time to master (illegal) file sharing. Nowadays, also people with lower (illegal) online consumption use piracy sites because access has become much easier. This may partly explain the lack of robust estimates of displacement rates in this study.

Willingness to pay

The willingness to pay for pirated content was analysed to assess whether piracy might be related to price levels. If illegal online users are not willing to pay the market price in the situation that the content is only available for pay, it seems fair to assume that the illegal consumption does not result in displacement of legal sales, as these consumers would just forego consumption of these goods. If this is the case the industry could increase the volume of legal sales by lowering prices, or by making more legal content available online.

However the converse – displacement takes place if pirates would be willing to pay the market price – is wrong for two reasons. Firstly, some illegal online users in fact may have purchased the content legally as well. More importantly, the willingness to pay was only asked for the last illegal online transaction. The consumer may have been willing to pay more or less for the other illegally downloaded or streamed content than for the last one. For example, an illegal downloader of 500 books may have been willing to pay 100 euros for the last book, but not necessarily 50,000 euros for the whole package.

Table S.4 shows that the proportion of the internet using population that is willing to pay at least the market price for the last illegal online transaction is the lowest for films and TV-series. Pirates are most willing to pay the market price for books.

Table S.4 Proportion of people willing to pay the market price or higher for the last illegal online transaction, per category, EU28*

	Music	Films / TV-series	Books	Games
Proportion	51	21	66	55
Nr. respondents	2,186	3,841	2,638	1,976

* Weighted by age and gender per country, and to the EU28 level as discussed in Section 1.5.

Table S.5 states the average willingness to pay for digital content. It makes clear that there are substantial differences between countries.

Table S.5. Average WTP price per country and for EU28 (in euros)

Country	Music	Films / TV-series	Books	Games
Germany	1.0	6.1	17.8	9.7
UK	1.1	6.9	26.2	8.3
Spain	0.7	7.4	11.0	9.0
France	0.7	5.4	14.5	7.6
Poland	0.8	6.8	10.5	6.2
Sweden	1.1	10.1	18.4	10.1
EU28*	0.9	6.9	15.8	8.4
Nr. respondents	2,186	3,841	2,638	1,976

* Weighted by age and gender per country, and to the EU28 level as discussed in Section 1.5.

The numbers in table S.5 should be compared with the market prices, which are also lowest in Poland. Lastly, Table S.6 shows the share of respondents that is not willing to pay the lowest price range of the three (country specific) price ranges they were shown[2]. The willingness to pay analysis indicates that for films/TV-series more than half of the pirates are not willing to pay more than extremely low prices. For books, music and games the price setting alone cannot explain piracy levels because most pirates of those content are willing to pay more than extremely low prices.

Table S.6. Share (%) of respondents not willing to pay the lowest price range

Country	Music	Film/ TV-series	E-book	Games
Germany	27	59	15	22
UK	10	47	9	16
Spain	28	68	16	28
France	44	77	13	32
Poland	44	73	19	41
Sweden	27	68	15	26
EU28*	30	65	15	28

* Weighted by age and gender per country, and to the EU28 level as discussed in Section 1.5, N = 2,186.

[2] While also depending on the variety of price levels per type of content and per country, the lowest price ranges were roughly 4 times as low as the current market price, e.g. for Germany € 0.10-0.39 compared to 0.80-1.00 for music, € 2-4 compared to 8-10 for films/episodes, € 1-2 compared to 8-10 for books and € 1-2 compared to 5-7 for games.

1 RESEARCH QUESTIONS

1.1 Background

The conventional wisdom says that illicit use of copyrighted material reduces revenues of rights-holders and thus their incentives to produce content. Creative industries suggest piracy represents a significant threat to sales of copyrighted materials, aggravated by the rapid development of digital technologies, which substantially reduce the cost of making, distributing and accessing copies of copyrighted content. Related theoretical and empirical economic research is more ambiguous about the piracy effects, however. This impact can be anywhere from total substitution of legal offer, through no effect on sales, to even positive effects on creators' revenues (thanks to stimulation of legal demand for some types of uses). Thus, to a large extent, the jury is still out when it comes to the size or even the sign of piracy effects on legitimate sales.

At the same time the extent to which digital consumption of pirated materials displaces legitimate purchases is of fundamental importance for EU copyright policy design. More specifically, a rough idea about what a consumer would have done without access to illicit content, either offline or online, and across all types of copyrighted materials (music, audio-visual, books, video games) is implicitly underlying many policy decisions in these product markets.

Measuring the impact of unauthorised access to content on legitimate sales presents serious statistical and methodological challenges. Looking at the online and offline purchasing and online piracy behaviour in an attempt to gauge the impact of the latter on the former, one may well find a positive correlation simply because of the unobserved characteristics of consumers (like their interest in music) that might influence both variables: consumer's propensity to pirate online and their propensity to purchase online and offline. In addition, causation may run both ways, i.e. from illegal to legal consumption and vice versa. This endogeneity, if not controlled for in the analysis, may result in biased estimates of the displacement rates. While those consuming pirated content might purchase as much as those not consuming pirated content, because both value music/ movies a lot, the real question is about the counterfactual: how much those consuming pirated content would have purchased if piracy had not been not possible.

This project means to complement the existing literature on this elusive topic in at least three important ways. First, it compares substitution rates in multiple EU Member States calculated according to the very same methodology. This allows for comparing results between countries, primarily with regard to basic data on consumer behaviour and hopefully also with regard to estimated effects of online copyright infringements. Secondly, the study tackles substitution rates in the presence of a very important recent phenomenon, i.e. the presence of a wide variety of services for downloading

or streaming content. Thirdly, the study includes minors, i.e. persons in the age category 14-17 and thus the ability to assess the effects of piracy at a younger age than usual.

1.2 Research questions

The two main research questions are:

1. How do online copyright infringements affect legal consumption of copyrighted content (music, audio-visual, video games and books)?
2. How much are online copyright infringers willing to pay for legal content?

Effects of streaming (free or paid for) need to be controlled for in the estimates of the displacement rate of copyrighted content. To this end, a comparison of the current situation is made with a so-called full counterfactual: the full absence of possibilities to download content without the permission of the copyright holders.

The study covers four types of creative content: music, audio-visual, books and games, and thus does not include computer software which is generally business-to-business instead of business-to-consumer. The survey is implemented in six countries:

- Germany;
- The United Kingdom;
- Spain;
- France;
- Poland;
- Sweden.

The research questions are mainly answered on the basis of an econometric analysis of the response to an online questionnaire among the internet using population. The scope of content and the internet using population are defined in more detail in the next two sections.

1.3 Content

From desk research and also the summary of Clickstream data provided by JRC – ICPT (Aguiar and Martens, 2013) it is evident that all types of media content can be downloaded and streamed both from legal (or "lawful") and from illegal (or "unlawful") sources. What is legal or illegal depends on national law, and in particular online copyright infringements are explicitly illegal in some countries and more implicitly in other countries. For example Dutch law does not explicitly provide that downloading from counterfeited source is illegal (contrary to uploading). The European Court of Justice has ruled that national law cannot be interpreted as implicitly allowing online copyright infringement: "*national legislation which makes no distinction between private copies made from lawful sources and those made from counterfeited or pirated sources cannot be tolerated.*"[3]

3 ECJ, ECJ 435-12 (10 April 2014), in the case ACI Adam BV and others versus Stichting de Thuiskopie.

To avoid differences in the interpretations of "legal" and "illegal" online transactions in different countries due to the degree of explicitness of national law on this issue, the study and the questionnaire which forms the basis of this study refer to "online services" for sites offering content with permission of the copyright holder and to "filesharing and hosting sites" for sites offering content without this permission. In the questionnaire, examples of both types of sites are given to further clarify the distinction between "legal" and "illegal" sites. These examples do not include sources from which it is known that they are used to offer both legal and pirated content, such as YouTube for music and Scribd for books.

This study is limited to online copyright infringements, including both downloading and streaming from illegal online sources. Home copies (putting copyrighted content on a USB stick to share with friends or family) are beyond the scope of the study.

The study includes various types of creative content, namely music, audio-visual, books and games. These types of creative content are further classified as indicated in Table 1.1.

Table 1.1 Classification of media by forms of availability

	Online		Offline
	"Legal" (download & stream)	"Illegal" (download & stream)	Buying or renting (including via web shops)
Music	Excluding online concert registrations	Excluding online concert registrations	Live concerts Buying/renting CDs, LPs Excluding listening to radio
Audio-visual – films	All included	All included	Cinema visits Buying/renting DVDs, Blu-ray disks
Audio-visual – TV	Limited to TV-series Excluding documentaries, porn, sport	Limited to TV-series Excluding documentaries, porn, sport	Buying/renting TV-series Excluding watching TV
Books	Audiobooks and e-books	Audiobooks and e-books	Buying books Borrowing books and audiobooks from a library
Computer games	PC / console / online Excluding apps and tablets	Excluding clone games	Buying video games

1.4 Internet using population

The target population of this study is the internet using population and the results of this study need to be representative for this population. To determine the internet using population, Eurostat data on internet use in the last 12 months is used (Table 1.2). These data are available for all Member States by age category (and gender in older publications). The Eurostat data

reveal that gender differences in internet use are negligible and that age is the determining factor. The data also reveal that nearly the whole population aged between 16 and 24 years old in the countries covered use internet at least once in a year. For persons below the age of 15 generally no recent data on internet use are available, but older data from 2005 and 2006 indicate that their internet use is similar to that of persons between 16 and 24 years old; somewhat lower in Poland and somewhat higher in Spain. Therefore, when weighting the results, it is assumed that the same proportion of persons aged between 14-15 use the internet (at least once a year) as those aged 16-24, i.e. 99 per cent in the United Kingdom and 98 per cent in the other countries.

Table 1.2 Internet use by country, age and gender in 2013 (in %) (Last time the individual used internet was in the last 12 months)

	Germany	UK	Spain	France	Poland	Sweden
15 or less	97 c)	xx	95 b); xx	89 b); xx	79 a); xx	xx
16-24	98	99	86 b); 98	84 b); 98	86 a); 98	98
Males	98	98	98	98	97	98
Females	99	100	98	98	98	99
25-34	98	99	94	96	92	100
35-44	97	97	86	93	82	100
45-54	91	93	74	86	62	99
55-64	75	84	48	72	38	94
65-74	66	77	47	51	22	15
25-54	95	96	84	96	79	100
Males	94	95	85	92	78	100
Females	94	97	83	91	80	99
Total	86	91	74	84	65	95

Source: Eurostat web page, table isoc_ci_ifp_iu

xx Means: no data available

a) Data for 2005; b) Data for 2006; c) Data for 2012

Applying the percentages of the population aged 14-74 using internet to the total population gives the following breakdown of the internet using population (Table 1.3).

Table 1.3 Internet using population by country, gender, age (x 1,000), 1 January 2013

Gender	Age	DE	UK	ES	FR	PL	SE
Male	14	401	373	217	402	195	50
	15	414	382	217	397	203	50
	16	409	389	215	406	211	53
	17	397	390	215	404	216	57
	18-24	3,282	2,958	1,663	2,739	1,803	464
	25-34	5,047	4,254	3,129	3,802	2,958	614
	35-44	5,318	4,098	3,493	4,028	2,244	638
	45-54	6,358	4,124	2,580	3,764	1,566	637
	55-64	3,969	3,016	1,244	2,881	986	545
	65-74	2,126	1,882	418	1,236	183	385
Female	14	384	363	203	383	187	46
	15	397	371	205	377	195	47
	16	390	375	203	385	203	50
	17	379	375	202	385	210	53
	18-24	3,154	2,921	1,597	2,673	1,751	437
	25-34	4,856	4,284	3,060	3,913	2,873	586

Gender	Age	DE	UK	ES	FR	PL	SE
	35-44	5,132	4,172	3,328	4,090	2,195	619
	45-54	6,143	4,221	2,566	3,899	1,589	617
	55-64	4,063	3,115	1,299	3,085	1,102	545
	65-74	2,374	2,035	473	1,403	247	398
Total	14-74	54,993	44,098	26,527	40,652	21,117	6,891

Source: based on Eurostat data.

For Table 1.2 and Table 1.3, the internet use "u" in the age category 65-74 is not published by Eurostat but derived by using the formula:

$$u[65-74] = \frac{u[55-74] \times pop[55-74] - u[55-64] \times pop[55-64]}{pop[65-74]}$$

1.5 Representation of results for the EU28

Although the survey covers only six countries, key results are aggregated to the level of EU28 by making certain assumptions. In order to present estimates for the EU28, the Member States are grouped according to the Esping-Andersen typology, based on national socio-cultural characteristics. The grouping by Esping-Andersen does not mean that all countries in one group are similar in all aspects, but countries generally have more similar characteristics within these groups than between groups. The table below presents the Esping-Andersen typology of Member States.

Esping-Andersen typology of EU Member States

Country group	Countries in the group	Countries in the sample
Continental	AT, BE, DE, FR, LU	DE, FR
Anglo-Saxon	IE, UK	UK
Mediterranean	EL, IT, ES, PT, CY, MT	ES
Nordic	DK, FI, NL, SE	SE
New Member States	PL, EE, LV, LT, CZ, SK, HU, SI, HR, BG, RO	PL

The table on the next page shows that countries within groups to some extent have more similar proportions of internet users than between groups:

- The Nordic countries (in the Esping-Andersen terminology) are the countries with the highest proportions of internet users, ranging from 92% (Finland) to 95% (Denmark and Sweden);
- The Continental countries have proportions of internet users between 82% (Austria) and 86% (Germany), with Luxembourg the odd one out (95%);
- The Anglo-Saxon countries are somewhat dissimilar with 80% internet users in Ireland and 91% in the United Kingdom;
- The proportions of internet users in the Mediterranean countries are in the range between 61% (Greece and Italy) and 74% (Spain);
- The New Member States are the largest group, where the proportions of internet users are clearly lowest in Bulgaria (56%) and Romania (55%), and range from 65% (Poland) to 82% (Estonia) in the other countries.

From the above figures, it is clear that countries do not always have similar proportions of internet users within country groups. But at the same time, with a few exceptions such as Luxembourg, Ireland and some new Member States, the proportions of internet users are more dissimilar between groups of countries.

Based on the above considerations, we provide what we consider as reasonable estimates for the EU28 based on an existing typology of countries. In this approach, respondents are weighted to the internet using population of the Esping-Andersen group of the country they live in. Since these groups of countries cover the whole EU28, the aggregate results after this weighting can be interpreted as estimates for the EU28.

The total population as of January 2013 is available from Eurostat. The internet using population (fourth column of the next table) is determined by multiplying the total population (third column) with the proportion of internet users (second column).

Table 1.4 Calculation of internet using population in the EU28, 2013

Country	% has used internet in the past year, 2013	Total population January 2013 x mln	Internet users 2013 x mln
Germany	86	80.5	69.3
Austria	82	8.5	6.9
Belgium	83	11.2	9.3
France	84	65.6	55.1
Luxembourg	95	0.5	0.5
Ireland	80	4.6	3.7
United Kingdom	91	63.9	58.2
Greece	61	11.1	6.7
Spain	74	46.7	34.6
Italy	61	59.7	36.4
Cyprus	66	0.9	0.6
Malta	70	0.4	0.3
Portugal	65	10.5	6.8
Bulgaria	56	7.3	4.1
Czech Republic	76	10.5	8.0
Estonia	82	1.3	1.1
Croatia	68	4.3	2.9
Latvia	76	2.0	1.5
Lithuania	69	3.0	2.1
Hungary	74	9.9	7.3
Poland	65	38.5	25.0
Romania	55	20.0	11.0
Slovenia	74	2.1	1.5
Slovakia	81	5.4	4.4
Denmark	95	5.6	5.3
Netherlands	94	16.8	15.8
Finland	92	5.4	5.0
Sweden	95	9.6	9.1
EU28	78	505.7	392.4

Calculations based on Eurostat data, numbers in millions.

The sample has the same number of respondents for each of the six countries. Weighting the sample to the internet using population of the EU28,

it turns out that most weight factors are close to one, except for Spain and Sweden. Spain has a weight factor of 1.30 because it represents another big Mediterranean country (Italy), while Sweden has a weight factor of 0.55 because there is no big "Nordic" country. Since countries within the Mediterranean group have very similar proportions of internet users, and also countries within the Nordic group have very similar proportions of internet users, weighting the respondents to the EU28 only produces different results from un-weighted totals for those countries that are clear representatives of different groups from the other countries.

Table 1.5 Sample breakdown, and share of country in EU28 *internet using* population, 2013

Country	Sample %	% country in EU28	Country represents	% country group in EU28	Weight factor
DE	17.0%	17.6%	DE, AT	19.4%	1.14
UK	16.5%	14.8%	UK, IE	15.8%	0.95
ES	16.7%	8.8%	ES, EL, IT, PT, CY, MT	21.8%	1.30
FR	16.9%	14.0%	FR, BE, LU	16.5%	0.98
PL	16.6%	6.4%	PL, EE, LV, LT, CZ, SK, HU, SI, HR, BG, RO	17.6%	1.06
SE	16.3%	2.3%	SE, DK, FI, NL	9.0%	0.55
Total	100%	64.0%		100%	

Source: Sample breakdown of Ecorys survey, population figures based on Eurostat.

Table 1.6 Sample breakdown, and share of country in EU28 *total* population, 2013

Country	Sample %	% country in EU28	Country represents	% country group in EU28	Weight factor
DE	17.0%	15.9%	DE, AT	17.6%	1.04
UK	16.5%	12.6%	UK, IE	13.5%	0.82
ES	16.7%	9.2%	ES, EL, IT, PT, CY, MT	25.6%	1.53
FR	16.9%	13.0%	FR, BE, LU	15.3%	0.90
PL	16.6%	7.6%	PL, EE, LV, LT, CZ, SK, HU, SI, HR, BG, RO	20.6%	1.24
SE	16.3%	1.9%	SE, DK, FI, NL	7.4%	0.45
Total	100%	60.3%		100%	

Source: Sample breakdown of Ecorys survey, population figures based on Eurostat.

2 STUDY OUTLINE

2.1 General overview of the study

This chapter describes our approach to answer the two research questions. The methodology started with a literature scan. The literature scan aimed to find the best approach to answer the above questions. To embed the questionnaires among internet users in the national context, 6 interviews were held with national authorities about copyright regulations, enforcement and policy alternatives and with 12 content providers about price ranges, distribution channels and private anti-piracy policies.

The questionnaire was designed with a view on enabling econometric estimates of displacement rates. The survey was held among 30,000 respondents (5,000 for each of the six countries). After carrying out the econometric analysis, a synthetic literature review compared estimates with studies that were closest to the present study (coverage of EU countries, study of 2000 or later, survey approach). The aim of this last step is to find out what is behind differences in results: for example data issues, differences in methodology or definitions or a different national context.

Step	Purpose to learn about:
1. Literature scan (50 studies)	The optimal survey-based approach
2. 6 interviews with national authorities	Copyright regulations, enforcement and policy alternatives
3. 12 interviews with content providers	Price ranges, distribution channels, private anti-piracy policies
4. Survey (30,000 respondents) and econometric estimates	Displacement effect, willingness to pay, impact of copyright and enforcement, impact of new legitimate streaming services
5. Synthetic review (10 studies)	Confront evidence with previous research

Before describing the approach, the methodological challenges and proposed solutions, the type of information that is needed to analyse the counterfactual by means of a survey-based approach is explored.

The online survey and the econometric study of the survey data lie at the heart of the study. The main methodological challenges for the survey were:

- Precisely how to define the counterfactual (online copyright infringement is not possible);
- How to get truthful answers on a topic that is illegal;
- How to deal with problems of recall about older transactions.

The main methodological challenges for the econometric analysis were:

- How to deal with unobserved factors that influence both legal transactions and illegal online transactions;

- How to deal with the causal relation between legal transactions and illegal online transactions.

2.2 How to define the counterfactual

For people who downloaded or streamed creative content illegally, the core questions is what they would have done if the online copyright infringement is no longer possible. If people would have bought the creative content from a legal source, then online copyright infringements displace sales and if they would not have accessed the content at all, then the illegal consumption is purely additional and no sales are displaced.

The immediate questions that arises when defining the counterfactual is how the world would look like in the counterfactual situation. To achieve the counterfactual situation, new policies may be needed, which raises the choice between a full counterfactual or a policy counterfactual. A related question is how to prevent respondents from making own assumptions and responding for an imagined counterfactual world that is unknown to the researcher – but also how to avoid framing the respondent by suggesting how the counterfactual world looks like. The general approach to this dilemma is careful embedding. These aspects of defining the counterfactual are further discussed below in this section.

Full or policy counterfactual?

The topic of the study, displacement rates of the sales of copyrighted content by online copyright infringement, is a counterfactual. The implicit counterfactual is total absence of technical possibilities of online copyright infringement. Recent empirical papers including Poort (2013) conclude that this complete counterfactual is practically non-existent: there are always some possibilities to illegally download copyrighted material. Alternatively, policy counterfactuals in the form of stricter regulation or enforcement of online copyright would be more realistic than the full counterfactual, but suffers from the drawback that these counterfactuals depend on the national context. A serious drawback of the full counterfactual is that it is not clear how the respondent should imagine this. They certainly cannot be expected to take changes in the market into account in their answer. The full counterfactual could be elaborated, but this comes with the risk of framing the respondent.

Framing respondents?

The purpose of the study is to design a robust survey-based methodology. Theoretically it is possible to ask the respondents straightaway to imagine the full counterfactual or a policy counterfactual, and ask how this would change their consumer behaviour. However, such a direct approach would be seriously flawed. The reason is that the counterfactual would be introduced as a vague notion and we have no idea how the respondent imagines that. Would absence of illegal supply result in lower prices because sales would increase and lower profit margins are required to break even? Or would absence of competing illegal supply lead to higher prices? Would the quality of

online content increase because higher sales incentivize higher investments, or not because higher investments are simply not profitable? Would the diversity of online content increase because sufficient volumes can be sold of niche content, or would diverse supply disappear together with illegal supply? In short, the dilemma is to leave the counterfactual as a vague notion and not know exactly to which situation the answers apply, or to frame the respondents about the counterfactual.

Embedding the counterfactual

Danaher, Smith and Telang (2013) consider natural experiments as the golden standard and Handke (2011) goes even further concluding that without information on the counterfactual the effect of copyright on sales is exceedingly hard to isolate. To address this issue, Handke argues that the next-best alternative is to embed questions about imaginary situations (the counterfactual) as much as possible in the actual experience of respondents, because one simply does not know what implicit questions are being answered if too much is left to the imagination.

To embed the counterfactual, it also needs to be taken into account that displacement of three types of legal content needs to be analysed:

- offline sales;
- live attendance;
- legal online sales.

Around the millennium, legal online supply of music, audio-visual content and books was limited and various authors of those early days considered free online downloads (of music MP3 files) as synonymous with illegal acquirement. Hence the classical question of displacement is whether internet piracy displaces offline sales on physical carriers such as CDs, vinyl records, DVDs, Blu-Ray disks and printed books.

The impact of internet piracy on live attendance has been analysed in previous literature for cinema visits but hardly for music live concerts. Nevertheless, live attendance is a major source of revenues for both music and films (see Chapter 4), and the question of displacement is also relevant for the live attendance market.

Nowadays there is a large variety of legal online sales for all content, including e.g. iTunes and Grooveshark for music downloads and streams, Blinkbox (in the United Kingdom, varies per country) and Netflix for downloads and streams of audio-visual content, Nook and Oyster for book downloads and streams and a larger variety of online legal games services including downloads (e.g. Amazon), streams (e.g. Google Play), cloud games (e.g. Gaikai), consoles (e.g. Xbox Live) and free games (e.g. Miniclip in the United Kingdom, varies per country). Hence people who want to access creative content online, can use either legal or illegal channels, and it is a possibility that illegal channels displace legal channels.

Neither in the online nor in the offline world, displacement can be assumed to occur on a one-on-one basis. Online, bundles such as discographies, playlists, or selection of audio-visual material are more likely to be offered illegally than legally. Offline, often several articles are bought at the same time. Live attendance also has specific characteristics. It is relatively time consuming and live concerts are often attended together with friends or family and not just to hear one song live.

This means that a direct question what the respondent would have done if illegal online transactions were not possible, still leaves the question open what comparison the respondent implicitly makes, e.g. "I would have bought half of the twenty books I was looking for" or "I would have gone to the shop to buy half of the twenty books I was looking for and also ten other books I was not looking for".

To resolve this dilemma, mainly factual information about actual behaviour (self-reported numbers of transactions) has been collected. Questions about the counterfactual were limited to the last illegal transaction: what would the respondent have been willing to pay if that particular song, album, film, TV-series, book or game was no longer available on any file-sharing or hosting site but only on a pay site? This approach gives credibility to the assumption that responses were given in the context of everything else remaining the same, thus isolating the willingness to pay for the full counterfactual.

2.3 Truth and recall

Getting truthful and complete answers is important in any questionnaire, but potentially more problematic in this questionnaire which in essence is about illegal behaviour over a sufficiently long period to estimate representative displacement rates.

Truth

As discussed in the preliminary literature review in Chapter 5 further below, most previous surveys ensured the anonymity of the respondents and avoided terms that may have a negative association, e.g. terms like "illegal" and "piracy". The reason for avoiding such terms is to reduce a cognitive dissonance: people realize their behaviour is not always in line with their own moral values and may untruthfully respond that they do not download or stream creative content from illegal sources to avoid being (further) confronted with this cognitive dissonance.

The drawback of avoiding terms that directly describe illegal behaviour is that respondent may not recognize that the relevant distinction between two similar questions is that the one refers to legal channels and the other to illegal channels. Various previous surveys addressed this issue by referring to "free downloads" or to "MP3 downloads". This implies that some bias is implicitly accepted because legal sources can also offer MP3 downloads. However nowadays the offer of legal online services is so diverse that it can no longer be assumed that all (free) downloads or streams are illegal, due to

the existence of free trials, trailers, promo offers, monthly subscriptions (that allow free downloads in the period for which the subscription is paid) and simply free content where advertisements are the real source of revenues.

As a solution to this dilemma between direct confrontation and vagueness, the questionnaire refers to illegal sites with half precision as "file sharing and hosting services", and gives explicit examples of these services, depending on the most popular illegal sites in the specific country (see Annex D). For example for respondents in the United Kingdom the introductory question 6 including legal and illegal downloading of music was:

"*Please tell us when was the last time you did the following things:*
…
(b) Downloaded music from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician, etc.?
…
(d) Downloaded music from file sharing and hosting sites such as isoHunt, Btjunkie, Torrentz, etc."

For German respondents, the examples of sources for legal music downloads were T-Online Musicload, musicstar, beatport and iTunes; and the examples of sources for illegal music downloads were Canna Power, Rapidshare, torrents and Megaupload. These examples are based on the most popular sites according to the Clickstream data used by Aguiar and Martens (2013), desk research and a questionnaire among music content providers. Of course it would have been more precise to refer to cyberlockers instead of hosting sites, but cyberlockers was considered to be too direct to avoid cognitive dissonance problems.

Earlier, it was mentioned that it is virtually impossible to ask directly what the respondent would have done if illegal online transactions were no longer possible without framing the respondent or leaving things to the imagination of the respondent. Another reason is that it is easier to downplay undesired behaviour in a hypothetical situation than to deviate from neutral facts. For this reason the respondent was asked first whether (and when) he has made a transaction via various channels including illegal sites, and only then about the number of transactions: the respondent can answer the first question without thinking and when the respondent is asked about the number of transactions, he is not allowed to go back to the preceding question and change his response.

Lastly, the respondents were not asked whether they would have purchased creative content if it were no longer available via illegal online sources. The displacement is assessed by an analysis of numbers of transactions. This approach involves a number of econometric challenges discussed in the next section, but avoids the risk of an assessment of perhaps socially desirable instead of truthful responses.

Instead the respondents were asked the more neutral question about their willingness to pay for the specific creative content of the last (illegal online) transaction via a "*file sharing or hosting site*". The question about the willingness to pay is limited to a specific transaction to embed the question in a situation that the respondent is likely to recall well, and limits the risk that the respondent answers from an imaginary situation that the researcher has no knowledge about. For practical reasons this question cannot be asked for each individual illegal online transaction. Hence, depending on whether the willingness to pay is higher or lower than the market price, displacement or no displacement can be concluded for the last illegal online transaction. However this is not representative for the average willingness to pay and hence the average displacement rate, because a person who e.g. has downloaded 500 books illegally and was willing to pay 20 euro for the last book, cannot be assumed to be willing to pay 10.000 euro for all 500 combined. Nor can one assume that people start with buying the content they are most willing to pay for so that the willingness to pay for the last illegal online transaction must be less than average, because there are continuously new songs, films, books and games. Hence, the willingness to pay question can only be used to assess whether price setting could be one of the factors influencing piracy, namely if the willingness to pay for the last illegal online content was below the market price.

Recall

To estimate displacement rates of sales by online copyright infringements, information needs to be collected about numbers of legal transactions and illegal online transactions. Here a balance must by found between a representative period and recall problems. To avoid seasonal influences, some previous surveys ask about numbers in the last year. To avoid recall problems about numbers of transactions in a more distant past, other surveys limit the reference period to the last six months, three months or one month.

As a solution to this dilemma, this survey makes the reference period conditional on the period of the last transaction, for each type of creative content and each channel. A reference period of one month or one week was considered too short to be representative for the rest of the last year, hence if the last transaction took place in the last week, the respondent is still asked about the number of transactions in the last three months.

For example respondent may have visited one or more live music concerts in the last month but may have purchased the last music CD nine months previously. In this example, the respondent is asked about the number of live concerts visited in the last three months, and about the number of CDs purchased in the last twelve months. The advantage of this approach is that this maximizes the accuracy of numbers for each channel. The disadvantage is that the reference period can be different for each channel which makes it hard to compare numbers between channels.

To make numbers comparable between channels and thus to enable estimates of displacement rates, the following assumption is made:

- a respondent who has "x" times as many transactions in a shorter reference period than another respondent in the same reference period, also has "x" times as many transactions in more distant reference periods.

This assumption implies that the seasonal consumption pattern is the same for everyone. For example, according to revenue statistics 40 per cent of live concert revenues are generated in the summer. Since the survey was held in September/October 2014, this means that for each respondent who visited a live music concert for the last time in the last three months, it is assumed that the number of visits in the last three months represent 40 per cent of his annual live music concert visits, and hence the number of live music concert visits in the last three months is multiplied by 2.5 (= 1 / 40%).[4]

2.4 Econometric challenges

The questionnaire asked about (self-reported) actual numbers of transactions in a structured way to increase the likelihood of truthful answers and to reduce the risk of recall problems. The idea behind the estimate of displacement rates is that if some respondents report many illegal online transactions and few legal transactions, and other respondents with similar characteristics report few illegal online transactions and many legal transactions, then displacement can be assumed. Whereas if all respondents report few legal transactions regardless of how many illegal transactions they have made, then displacement is unlikely.

However, this approach is only appropriate if unobserved characteristics that influence both legal and illegal consumption are controlled for (endogeneity), and if it is made plausible that online illegal transactions displace legal transactions, rather than for example that a limited supply from legal sources causes people to get creative content from illegal sources (reverse causality).

The endogeneity problem

A common problem in the interpretation of (self-reported) actual data is endogeneity, which means that a relation does not necessarily imply causality and that causality may run in more than one direction. For example, if legal consumption increases and illegal consumption decreases, does the latter occur because perhaps prices of legal consumption have dropped, or does the former occur because perhaps channels for illegal downloading are closed? A more specific problem that is related to the endogeneity problem is that of the common factor or omitted variable, in particular interest in media content. For example according to empirical literature persons who like to listen to a lot of music generally acquire a lot of music, both legally and illegally. A naïve regression relating actually observed legal and illegal consumption might have the form

4 Implicitly it assumed that 40% of free concerts are also in summer, but there are not data on this.

$$Legal\ consumption = a_0 + a_1 \times Illegal\ consumption + \varepsilon_a$$

Where a_0 and a_1 are values to be estimated and ε_a represents the measurement error of the estimated relation. One may naively expect the value a_1 to have a negative value representing the displacement rate. However, if interest in music is a strong common factor the value a_1 would be positive and the naïve conclusion would be that piracy *improves* sales.

Instrumental variables

The implication of the endogeneity problem is that actually observed behaviour by itself alone tells nothing about the displacement rate. One solution could be to exploit differences in regulations and enforcement against internet piracy between countries as suggested in the tender specifications. If regulations would affect illegal consumption but not the common factor (interest in music in this example, affecting the measurement error ε), these differences could theoretically even be exploited as "instrumental variables". In this approach, we first estimate the relation

$$Illegal\ consumption = b_0 + b_1 \times Regulations\ against\ piracy + \varepsilon_b$$

Where the hypothesis is that b_1 is negative and then estimate the relation

$$Legal\ consumption = a_0 + a_1 \times (\hat{b}_0 + \hat{b}_1 \times Regulations\ against\ piracy) + \varepsilon_a$$

If regulation does not correlate with the interest of consumers in music, then a_1 would correctly represent the displacement rate. The weak spot in this argument is that regulations against piracy are perhaps more likely if a disinterest in music results in lower sales and the media industry clamours for regulations. In this case a_1 would again be estimated to have a positive value and a naïve conclusion would be that stricter regulations reduce sales because they reduce illegal consumption. Another challenge is to ensure there is sufficient variation in the indicators of regulations. If the regulations assume just one value for each country, it will be unidentifiable from a "country-effect". If there are differences in regulation between minor and adult persons, or between incidental and heavy infringements, or between different types of content, this approach offers more opportunities.

More in general, one must be very careful to exploit differences in regulations between countries to draw conclusions about the causal impact of regulations on sales – one can never rule out that sales developments bring about changes in regulation. In addition, the impact of regulations may depend on the strength of enforcement, hence differences in enforcement would need to be controlled for as well but data on enforcement is scarce.

While it is difficult to find indicators that influence illegal consumption but not the common factor (interest in media), the literature suggests a number of possibilities, in particular access to broadband internet. Persons living in rural areas and in cities may be equally likely to have an interest in media, but lack of broadband internet in some rural areas may simply limit possibilities of illegal downloading beyond the influence of the individual. However,

broadband internet is increasingly available anywhere, and this instrumental variable is generally judged to be less relevant today.

To control specifically for the interest of respondents in creative content, they were asked two questions about this. Regardless of whether instrumental variables are used or not, it is important to control for this factor, that influences both legal and illegal consumption.

2.5 Further steps within the approach

This section lists the further steps within the approach, which are elaborated in the next sections.

Step 1: literature review (50 studies):
- Search the literature;
- Code the literature;
- Assess the best approach to this study;
- Report: present the literature.

Step 2: interviews with national authorities (6, one from each country):
- Develop an interview format;
- Identify the relevant national authorities;
- Face-to-face interviews with national authorities;
- Input for survey questionnaire: realistic policy counterfactual;
- Report: describe the national regulations.

Step 3: interviews with content providers (8, 2 for each type of content):
- Develop an interview format;
- Identify the relevant content providers;
- Questionnaire in writing and telephone interviews follow-up with content providers;
- Input for survey questionnaire: price ranges, distribution channels, realistic counterfactuals;
- Report: describe the national supply of content.

Step 4: integrated approach for survey (30,000 respondents) and econometric estimates:
- Develop two questionnaires, for persons below and above the age of 18;
- At the same time, develop the econometric models that will make use of the survey results;
- Determine the characteristics of the internet using population;
- Design an approach to ensure coverage of all four types of content;
- Estimate the econometric models;
- Report: describe the outcomes of the survey (sample statistics);
- Report: describe methodology and findings.

Step 5: Synthetic analysis (second literature review of10 studies):
- Select the 10 studies that are closest to the current study;
- Compare the outcomes of this study with previous literature;
- Report: discuss what are differences and what is behind those;
- Report: conclude on the four central questions of the study.

2.6 First literature review

Searching the literature

There is an extensive literature on internet piracy, as evidenced by the references in a number of overview studies, including Handke (2011) and Danaher et al. (2013). These studies have been reviewed to identify promising (survey-based) methodologies for estimating displacement rates, and to compare the pros and cons between survey based approaches and other approaches such as time series analysis or discrete event analysis.

Coding the literature

Previous studies have been summarized using fiches. These fiches summarize the studies in a certain format. Elements of this format include:

- Type of study (product analysis, survey, cross-country or time-series analysis);
- Use of control variables and, ideally, instrumental variables;
- Sample size, sample strategy;
- Hypotheses, questions in the questionnaires;
- Main findings and their context.

2.7 Interviews

Interviews with national authorities

A cross-country study offers the opportunity to assess the impact of regulations on consumer behaviour and internet piracy, despite difficulties in formulating a counterfactual (see Section 2.2). In particular, if there is only one set of regulations per country that is the same for all consumers and all types of media content, the impact of national regulations are unidentifiable from a "country-effect". Also, because the survey is carried out in a relatively brief period, the survey-based approach offers no realistic opportunity to analyse the impact of changes in regulation. The descriptions of the regulations and enforcement of each of the six countries of the study are based on interviews with national authorities (ministries or enforcement bodies) supplemented with desk research.

The following topics were covered in the interview with national authorities:

- Which actions to combat internet piracy are available under civil law?
- Which actions to combat internet piracy are available under criminal law?
- Is unauthorized consumption prohibited or only unauthorized supply?
- Do available actions differ depending on the type of copyrighted product (music, films/TV-series, video games, e-books)?
- Are there (in general law or copyright law) differences between children (aged below 15) and adults? For example are children accountable or their parents? And are penalties different for illegal downloads of children (e.g. due to juvenile justice)?
- Are incidental and frequent illegal downloads treated differently and if yes how?
- Who besides copyright owners are entitled to start a civil procedure against copyright infringements? Content providers? Private enforcement bodies? Other persons or bodies?

- How is copyright enforced by public enforcement bodies?
  - And what role do private enforcement organisations play?
- What are the competences of public enforcement officers to monitor internet activities and what are the conditions for monitoring these?
  - And what are the competences and conditions for private enforcers?
- Have any non-legal actions, like information campaigns, taken place? Who initiated these actions? Who financed these actions?
- Have any legal action, like law-suits, taken place? Who initiated these actions? Who were defendants in these lawsuits?
  - And could you provide a reference / describe the outcome if the lawsuit was decided?
- What are new developments in online availability of copyrighted content that require new legislation?
- What are the positions of various stakeholders with regard to the current legislation?
- Are there perhaps flaws in the current legislation?
- If the current legislation would be revised, what do you think could be major changes?

Interviews with content providers

Interviews with content providers were held to collect information on prices and sales through various channels, and to identify sources for statistics on prices and sales.

Interview topics for content providers:

- What are legal and illegal distribution channels?
  - Covering both the major international channels and country-specific channels;
- What are relevant sub categories of creative content for which different prices and channels apply?
- What private measures do content providers take to protect their copyrighted content?
- What do you think would be the impact of reduced internet piracy on the prices, quality and diversity of copyrighted content, for all types and for bestsellers and other content?

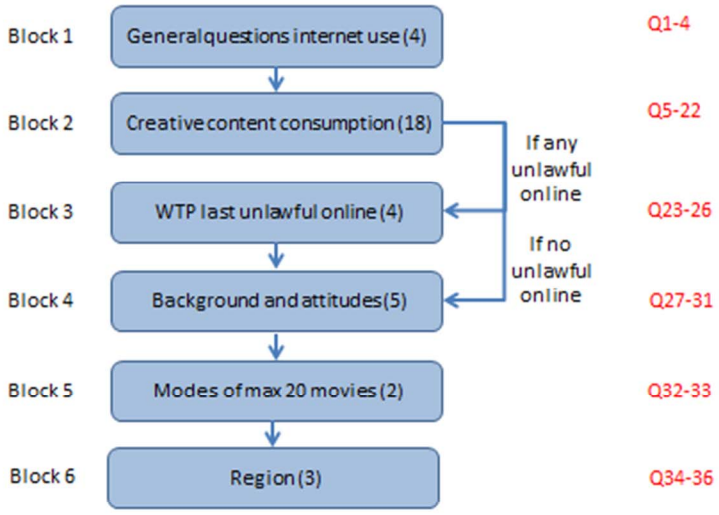
2.8 Questionnaires

Two questionnaires were developed, one for minors (persons aged 14-17) and one for adults. Both questionnaires were largely similar and contained roughly 40 questions. The questionnaire for minors takes account of their shorter attention span and asks certain questions in less detail, and some topics are slightly different for adults and minors, e.g. school attendance, comparison with people of the same age rather than with other people in general.

The questionnaires have been tested twice, first in the United Kingdom only and then in all six countries of the study, and resulted in fixes of minor routing problems and the simplification of two questions that respondents had difficulty with: respondents were asked only about the period of their last transaction rather than about all periods in which transactions had taken place, and the questions about how 100 films were seen was limited to a random selection of maximum 20 films.

The questionnaire is built up in six blocks, of which the second block is the centrepiece of the questionnaire and asks about the numbers of transactions via various channels for all four types of creative content (music, films/TV-series, books and games). For the last illegal transaction, the questionnaire asks for the willingness to pay if the content is no longer available on any illegal site. These questions are preceded and followed by questions covering potential control and instrumental variables. After these four blocks, the respondent is asked which of 100 top box office films of 2011, 2012 and 2013 he has seen, and how these films were seen for up to 20 films.

Figure 2.1 Overview of the questionnaire

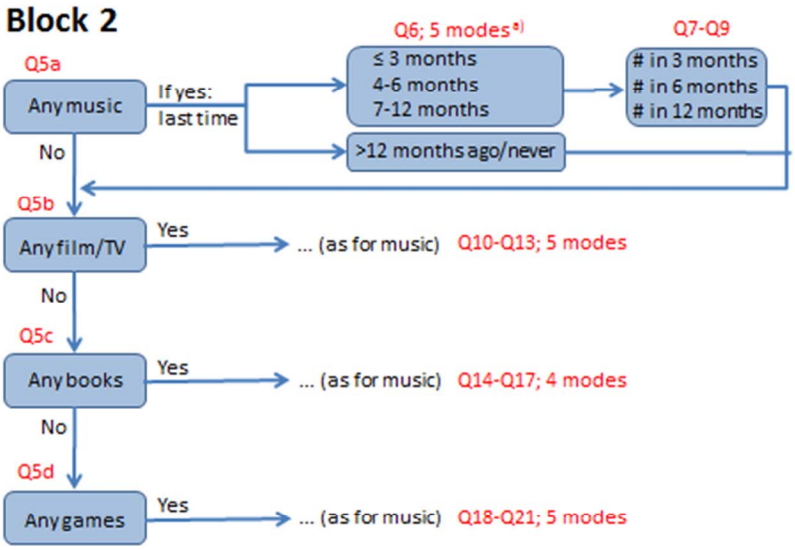


Block 1 consists of four general questions about:

- The frequency with which internet is used (a control variable in various studies);
- The interest in creative content compared to other people (as in Poort and Rutten, 2011);
- The use of internet to search information on creative content (as in Aguiar and Martens, 2013);
- Familiarity with internet terms (novel in this questionnaire).

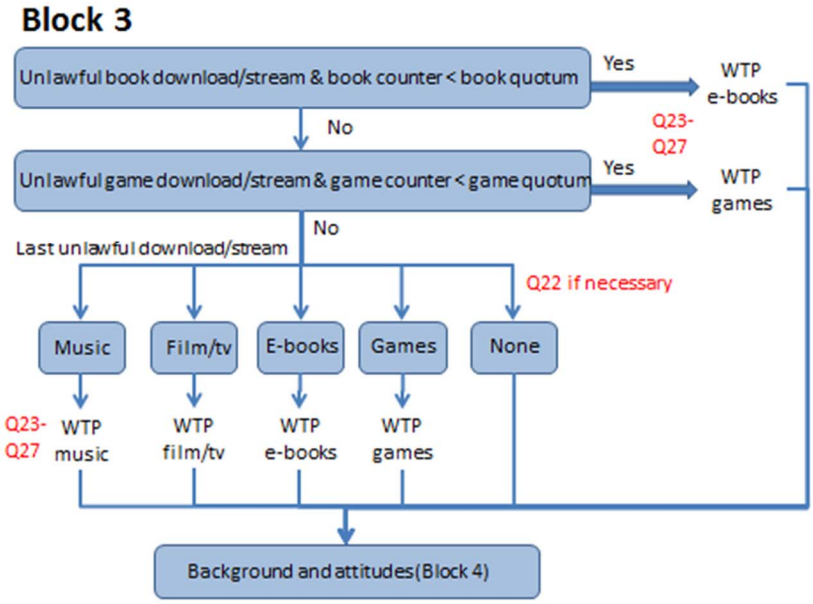
Block 2 asks first for each of music, films/TV-series, books and games if the respondent in the last year has purchased, rented, downloaded, streamed, or visited live that content. If yes, then for all relevant channels (or modes) the respondent is asked when was the last time that channel was used. To avoid recall problems, the respondent was asked about the number of transactions in the last 3, 6 or 12 months depending on when was the last time.

Figure 2.2 Overview of block 2 on numbers of transactions



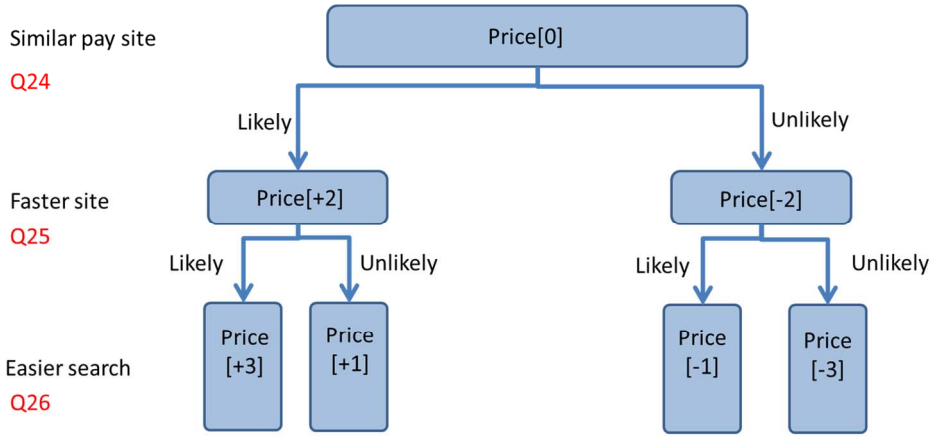
Block 3 addresses the willingness to pay for the last illegal transaction across all types of creative content (music, films/TV-series, books or games). The willingness to pay question was limited to one transaction to avoid overloading the respondent with repetitive questions. A priori it was assumed that illegal (and legal) downloads and streams of books and games were rare. So to ensure a minimum response on books and games, respondents received questions on the last illegal online book or game transaction even if they had more recently illegally downloaded or streamed music or films/TV-series, until a quota was reached. After these quotas were reached, later respondents were simply asked about the willingness to pay for the last illegal download regardless of the type of creative content.

Figure 2.3 Overview of the routing to the willingness to pay questions



The willingness to pay questions started with the willingness to pay a price in a range slightly below the average market price for the last illegal download on a similar legal site. Depending on whether the respondent was likely or unlikely to pay that price, the respondent was then presented a higher or lower price, for a legal download from a faster site. Again depending on the answer, the respondent was presented once more a higher or lower price, but then for a legal download from a site with an easier search function. The price ranges were specific for each country. Figure 2.4 shows the price ranges for the United Kingdom. Annex D, country specific questions provides the price ranges for the other countries as well.

Figure 2.4 Overview of Willingness to pay questions



Content\Price (UK)	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
Music £	.05-.10	.10-.25	.25-.50	.50-.75	.75-1.00	1.0-1.5	1.5-2.5
Film/episode £	1-2	2-4	4-7	7-10	10-15	15-20	20-30
Books £	1-2	2-4	4-6	6-10	10-15	15-25	25-50
Game 1 month £	.5-1	1-2	2-3	3-5	5-7	7-10	10-15

The willingness to pay questions were concluded with a question about how hard these questions were to answer, and then by a series of questions that were considered to be more sensitive:

- Educational level and employment status;
- The frequency of using internet for news as in DangNguyen, Dejean and Moreau (2012);
- Opinions about questionable behaviour that is not directly hurting (moral attitudes for short).

Block 5 asks which of 100 films respondents have seen. These were films that hit the top box office of 2011, 2012 or 2013. Following this question, they were asked for up to 20 films how they saw the film the first and the second time.

2.9 Econometric analysis

Each of the three core blocks of the questionnaire allows for a different econometric analysis:

- Displacement rates based on numbers of transactions (block 2);

- Displacement rates based on which of 100 films were seen and how (block 5);
- Willingness to pay if the last accessed illegal content is only available for pay (block 3).

The hypothesis is that illegal online transactions displace sales, but some studies report a sampling effect: people explore creative content via illegal sites before deciding whether to purchase the content legally. The alternative hypothesis is that this exploration makes people more aware of creative content and illegal online transactions therefore increase sales. Bounie et al. (2005) argue that the population consists of approximately 25 per cent explorers and 75 per cent pirates, based on the numbers of MP3 downloads people delete afterwards and on estimates of the effect of the use of illegal channels (yes/no) and numbers of MP3 files on sales. Hence, although the hypothesis is displacement, the possibility of sampling effects cannot be excluded in advance.

Displacement rates based on numbers of transactions

The self-reported numbers of transactions have the advantage that they include all transactions of the last year and allow representative statements. On the other hand, self-reported numbers may be less accurate due to recall problems, despite the precautions described earlier in Section 2.3. This results in an even bigger disadvantage, namely that the recall problems make it practically infeasible to ask about detailed consumption behaviour in different periods in a more distant time, so that changes in consumption patterns are not observed over time.

Most survey-based estimates of displacement rates use one of two approaches to address the problem of endogeneity in data where self-reported consumption behaviour is limited to only one reference period (see Section 2.4):

- Ordinary least squares or tobit models with control variables for the interest in creative content;
- Instrumental variables regressions, mostly based on available internet speed (in older studies).

Both approaches are followed in this study using the responses on the first core block of the questionnaire. Some previous studies estimated displacement rates as the proportion of illegal downloaders who make no legal transactions at all. However, most people access creative content both through legal and illegal channels: 99 per cent of the illegal users also use legal channels and 39 per cent of the legal users also use illegal channels. Hence the only meaningful estimates of displacement rates are those based on numbers of transactions. The results are discussed in Chapter 7 below.

Displacement rates based on which of 100 films were seen and how

Further questions about 100 films were added to the questionnaire to allow estimates of displacement rates that were expected to be more robust though they are less representative. This approach follows that of Rob and Waldfogel (2007b). The questions about which of 100 individual films were seen are

limited to recent blockbusters to increase the likelihood that respondents have seen the films. Hence these questions only allow statements about recent blockbusters. The big advantage of this approach is that the inclusion of films of different recent vintage years allows to create a pattern of films seen over (vintage) time for each respondent, and hence to analyse a shift in the use of channels over time. A second advantage is that questions about specific films are likely to result in more accurate answers. The big disadvantage of repeated questions about individual films is that they are burdensome. It is hardly feasible to ask respondents in addition how they have heard individual music tracks / albums, read individual books and played individual games and this means that the questionnaire should be designed carefully to allow statements that are representative for blockbuster consumption for all types of creative content. A second and more practical problem is how to identify blockbuster music, books and games because in those three categories there are more distinctive genres that consumers may have specific preferences for. Therefore this approach is limited to 100 recent blockbuster films and does not cover music, books and games. The results are discussed in Chapter 8.

Willingness to pay

The willingness to pay questions relate to a different topic, namely to assess whether people would have been willing to pay a market price for the last illegal download. Depending on the price range that the respondent is willing to pay, the following can be concluded:

- Willing to pay market price or higher: displacement is likely;
- Willing to pay a price slightly below the market price: displacement is unlikely and legal consumption might be increased by slightly lowering the price;
- Not willing to pay any price: the illegal consumption is purely additional.

The willingness to pay questions have been asked in such a way that ordered logit models are a natural way to analyse the responses. The willingness to pay question was only asked for the last illegal transaction, and this analysis needs to be seen as an analysis of the willingness to pay of respondents, where incidental and frequent illegal downloaders are weighted equally.

2.10 Methodological challenges and solutions

A number of methodological challenges and solutions have been presented in the previous sections. In this section, we present a short overview of the challenges that are identified in an unpublished note of Christian Handke, and briefly indicate the solution we propose. When developing the questionnaire we took into account all the potential pitfalls described below. These pitfalls apply to the formulation of a counterfactual in a questionnaire, and since the only counterfactual presented in the questionnaire is about the willingness to pay, the methodological challenges below apply to the willingness to pay questions.

The counterfactual is hypothetical

- The counterfactual is also vague and may demotivate respondents:
  - Solution: embedding (described in previous sections): downloading from a pay site with similar characteristics as the file sharing or hosting site.
- The counterfactual is not only hypothetical but even unrealistic:
  - Solution: start from an actual purchase (the last illegal download or stream) and offer realistic alternatives (only the content of the last illegal transaction is no longer available).
- Homogeneity of treatment: respondents are guided in the same way through a certain situation in the questionnaire while in reality internet users respond to many different situations:
  - Solution: the last download is different for everyone. Some instruction is needed to avoid vagueness but the questionnaire provides little additional information.

Embedding results in framing

- The answer depends on how the question is formulated or embedded:
  - Solution: keep as close to real-life situation as possible, e.g. start from the last download and offer slightly varying alternatives concerning the counterfactual (a legal site with same characteristics with a slightly lower than average price).

Embedding motivates strategic responses

- Respondents understate their willingness to pay to keep prices down:
  - Solution: offers to accept or decline are a way to resolve this issue, see e.g. Hoyos (2010).5 A yes/no offer to a given price is however less informative than an exact price. A solution is to offer different choices with slightly varying prices and other attributes (higher download speed or easier search function).

Embedding may result in payment vehicle bias

- Willingness to pay also depends on financing and the way the good is delivered:
  - Solution: it was considered to include the way of payment (e.g. creditcard or paypal) in the embedding but this was not implemented in the end to avoid framing. Minors got the question: 'What is the maximum price range you are likely to pay or ask an adult to pay for the track?'

Embedding may result in protest responses

- This is the case if the respondent would vote against the counterfactual:
  - Solution: offer not only the counterfactual to an illegal download where the respondent needs to pay, but also a counterfactual where the quality is higher.

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5 Hoyos, David. "The state of the art of environmental valuation with discrete choice experiments." Ecological Economics 69.8 (2010): 1595-1603.

Embedding may result in 'weariness'

- This is caused by the need to process lots of information:
  - Solution: extensive care was applied to the routing of the questionnaire to avoid irrelevant questions, e.g. by means of overarching questions about having made any transaction at all before asking about numbers of transactions, or to ask first which of 100 films the respondent has seen before asking how they were seen the first and second time. Also, most questions except about numbers of transactions were asked in closed form.

Starting point bias / anchoring

- If the price given in the questionnaire is unrealistically low and the price increases, the response to the question cannot be assumed to be similar at realistic price level:
  - Solution: the first price presented is slightly below going market prices. The first price is ensured to be realistic by (a) interviewing content providers (b) a preliminary test run, which resulted in higher price ranges for e-books.

'Warm glow'

- The answer is based on a good feeling about paying without really considering the price levels:
  - Solution: do no ask to type price levels but ask to tick off a price bracket (i.e. the likelihood to pay a price in that bracket) because this increases the likelihood that price levels are considered.

Sensitivity to sequencing

- Respondents interpret questions in the light of preceding questions which may bias the answers:
  - Solution: build up the questionnaire as real-life like as possible. Respondents were asked which type of music, film, TV-series, book or game they downloaded to ensure focus on the last transaction, and were then asked the willingness to pay questions.

Yea saying and nay saying

- Some respondents have a tendency to respond confirmatively or negatively:
  - Solution: Persons who did not fulfil a number of minimum criteria for reliable answers in previous surveys are excluded from the panel (see Section 6.1), including persons that checked the same option for all questions.

Protest responses

- Respondents take offense at one question and refuse to answer all further questions, or protest with ludicrously high responses or 'protest zeros':

- Solution: Great care has been taken in the formulation of questions and the drop-out during the survey was less than one per cent.

Preference imprecision

- Respondents cannot specify their exact willingness to pay:
  - Solution: offer respondents price brackets to tick off.

Reference dependency

- Each respondent imagines a different reference point when answering a question on willingness to pay or behaviour in a counterfactual situation:
  - Solution: start from a real life situation – the last illegal download (if any).

Information effects

- Willingness to pay varies with the information provided:
  - Solution: This is as it should be, the problem is more that in real life there will be more situations than can be covered in a survey. At least the type of music etcetera can be controlled for because the respondent is asked about this.

3 COPYRIGHT REGULATIONS

One objective of the study is to compare the finding on displacements rates of online copyright infringements across various countries and types of copyrighted materials, taking into account possible differences in existing online copyright enforcement provisions for the materials covered. To this aim, a two-step approach is followed.

Firstly, the current legislation and enforcement is described for the six countries of the study, based on interviews complemented with desk research for France, Spain, Germany and Poland, and based on desk research alone for the United Kingdom and Sweden.

Secondly, the obtained results were validated by means of literature review and submitting the summary of the interview for fact checking. The purpose of the literature and interviews is to obtain supporting (or contradictory) evidence on copyright provisions and enforcement. The result of this step is a final conclusion on the impact of enforcement provision on copyright displacement rates.

In this chapter, first, the regulatory framework is described in each of the six countries. The topics presented are:

- Legislation: which activities are legal/illegal, which actions are possible under civil law and under penal law to act against illegal behaviour, who is entitled to take action?
- Enforcement: how is online copyright enforced, what are barriers to enforcement?
- Activities: what enforcement actions have taken place, have there been lawsuits, what non-legal actions have been taken to combat online copyright infringement?

Based on the available information on legislation and enforcement, general observations on their potential effects on online copyright infringements are made in the conclusions of this chapter.

International frameworks for copyright law are provided by the Berne convention of 1886, the WIPO copyright treaty of 1996[6] and within the EU the Copyright Directive (2001/29/EC).[7] These international agreements provide aspects of copyrights and limitations. In the EU, the Copyright Enforcement Directive (2004/48/EC) further aims "t*o ensure a high, equivalent and homogeneous level of copyright protection in the internal market*" [8] by providing conditions for procedures and measures.

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6 wipo.int/treaties/en/ip/wct/summary_wct.html.
7 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32001L0029.
8 http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32004L0048R(01).

3.1 Legal Framework in France

France - Legislation

In France, the main rules on copyright ownership are incorporated in the Intellectual Property Code, and defines copyright in line with the international agreements indicated above.

Under French law, the author of a work of the mind has an exclusive incorporeal property right. The right is perpetual, inalienable and imprescriptible. As for patrimonial rights, the right of exploitation belonging to the author shall comprise the right of performance and the right of reproduction.

Copyright expires at the end of the period of 70 years from the end of the calendar year in which the author dies. Exceptions to the copyright exist. For example, once a work has been disclosed, the author may not prohibit certain acts of exploitations, including among others private and gratuitous performances carried out exclusively within the family circle and reproductions reserved strictly for the private use of the copier and not intended for collective use.

Illegal content

Legal online sources are those that have acquired all the necessary licenses for the content they offer. Illegal online sources do not have these licenses.

Both uploading and downloading protected material without consent of the author constitute copyright infringement. The difference is that uploading is an act of communication to the public, while downloading is an act of reproduction. There used to be a debate on whether someone who downloaded an infringing work for his own use could claim the benefit of the private copying exception. This issue was ultimately addressed by legislation that added the requirement of using a legal source to the definition of the private copying exception. As a result, the download of an infringing content is unambiguously illegal.

Available actions

Civil law provides the copyright owner with the possibility to sue the infringer for damages based on tort law.

Furthermore, special procedures have been provided for in order to strengthen the fight against online infringement:

- In case of copyright infringement from an online service, the Court of first instance may impose (if necessary upon summary proceedings), at the request of the owner of the infringed right, his beneficiaries, collective management societies, or professional bodies, any measure likely to prevent or stop such infringement, on any person likely to contribute to its remedy;

- When a software is mainly used for making available copyrighted contents, the president of the Court of first instance may order (upon summary proceedings) any measure necessary to protect such right, as well as a penalty in case of non-compliance. The ordered measures shall not have the effect of altering the essential characteristics or the primary destination of the software;
- The judicial authority may order, upon petition or summary proceedings, any host provider or by default any internet provider, any measure likely to prevent or stop a damage caused by the content of an online service;
- The right-holder may initiate a notice-and-action procedure to induce the host provider to take down illegal content.

A criminal action can be initiated against anyone who violates the author's rights. The penalty is a maximum 3-year imprisonment term and 300 000 € fine. When a copyright infringement has been committed by an organized gang, maximum penalties are raised to a 5-year imprisonment and a 500 000 € fine. The infringer may also be ordered to pay damages to the authors or their beneficiaries.

To strengthen the fight against online piracy, recent legislation targets those who aren't infringers, but provide the means to infringe. Thus, is liable to a maximum 3-year imprisonment term and a 300 000 € fine anyone who:

- Edits, makes available or communicates to the public, intentionally and under any form whatsoever, a software designed to make protected contents available to the public without the consent of their authors; or
- Intentionally induces the use of such software, including through an advertisement.

Under the Copyright law[9], a criminal action can be initiated against those who intentionally violate or provide the means to violate technical protection measures of works.

Differentiating factors

There are no copyright law specific provisions for children. Under general civil law, the father and mother are jointly responsible for their under-age children. In criminal law, sentences for minors are usually educational measures or reduced penalties.

All illegal downloads are subject to criminal proceedings by right-holders, thus there is no different treatment between incidental and frequent illegal downloads. In the same strain, there is no formal difference between downloads for commercial purposes and other downloads. However, a graduated response (discussed below) policy was developed to deal with downloads taking place infrequently and without any commercial purpose.

9 Loi relative aux droits d'auteur et aux droits voisins dans la société de l'information.

France - Enforcement

The "HADOPI" laws set up an independent public authority called "HADOPI" whose main missions are:

- to encourage the development of legal distribution of contents on the internet;
- to protect works from online infringement;
- to regulate the use of technical protection measures.

The public authority

To protect works from copyright infringement, HADOPI has been entrusted with the graduated response, which aims at making the public aware of copyright and preventing the unauthorized use of protected works by bringing an educational and proportionate response to acts of infringement by internet users.

The central component of the graduated response system is a series of warning messages, referred to as "recommendations", sent out by the Rights Protection Committee to internet subscription holders under whose internet access online copyright infringements took place. The warning informs the user of the facts against him, his duty to monitor his internet access, the existence of securitisation tools and the existence of legal sources of supply on the market.

If this act is repeated within 6 months following the first warning, the Rights Protection Committee can proceed with the second stage, which consists in e-mailing a second warning, sent in duplicate in the form of a registered letter with acknowledgment of receipt.

If this act is repeated within a year following the second warning, the Rights Protection Committee informs the subscriber by registered letter with acknowledgement of receipt that these actions are liable to result in criminal proceedings. After deliberation by the Rights Protection Committee, the subscriber's case may be transferred to court.

The maximum sanction is a 1 500 € fine. Available actions apply to all types of copyrighted products.

Private enforcement

Private enforcement organisations also have a fundamental role in enforcing copyright. On the one hand, private organisations (like SACEM) contribute to the graduated response by referring matters to HADOPI when it establishes that a subscriber's internet access has been used to reproduce or make a work available without authorization from the right-holders. On the other hand, these organisations initiate civil and/or criminal proceedings against acts of infringement.

Private parties acting on behalf of copyright owners are authorized to process personal data within the context of the graduated response procedure by the French data protection authority ("CNIL"). These private parties can, for example, entrust a third party with the task of monitoring file exchange protocols and identifying IP addresses used to download or make protected contents available to the public.

The main difficulty encountered by private entities concerning enforcement are related to the international dimension of the internet, the ease with which an illegal activity can be hidden and located abroad in countries with a low protection of copyright, the implication of multiple actors, the difficulty of gathering evidence and the ease with which contents can be replicated make it particularly difficult to enforce copyright.[10]

France - Activities

Public enforcement

Between October 2010 to February 2014, HADOPI has sent 2,756,788 first warnings, 283,673 second warnings, and has issued 983 deliberations.

The enforcement of HADOPI has drawn much attention from the media. The internet suspension penalty was particularly controversial. It seems that HADOPI is better accepted since the removal of such penalty.

By 30 June 2013, 11 rulings had been given by courts (consisting of a suspended penalty, or fines from 50 to 600 €, accompanied once with a suspension of internet subscription).

Private enforcement

The right-holders take legal action when copyright is infringed. No structured figures on the number of actions are available.

Some examples illustrate private enforcement. In one case, a court found an internet user who provided hyperlinks leading to audio-visual and musical files liable of infringement and ordered a suspended sentence of 2 month imprisonment and damages awarded to the damaged parties. In another case, a software editor was found liable for providing software that allowed internet users to download musical works distributed by means of streaming on a website, thereby circumventing technical protection measures. The software editor was found liable and sentences to a suspended fine with damages awarded to the damaged parties.

Non-legal actions

Besides legal actions, additional actions are taken to fight online piracy.

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10 Source: questionnaire SACEM.

First of all, legal content is made available online and promoted. These legal websites are supported by labels issued by HADOPI.

Also, consumer awareness campaigns have taken place, including campaigns dedicated to the youth and the educating community. Private stakeholders have also implemented various measures to raise awareness on the issue of online copyright infringement. In this respect, the stakeholders of the music industry (authors, composers, performers, publishers, producers, etc.) have joined the non-profit association "Tous pour la musique", whose goal is to enhance music and explain copyright, especially to the youth.

3.2 Legal Framework in Spain

Spain - Legislation

In Spain, the main copyright law is the Act on Intellectual Property[11] with other relevant legislation consisting of the Resale Right Act[12] and the Law on information society services.[13]

In line with the international agreements given at the start of this chapter, in Spain an author obtains the copyright of a literary, artistic or scientific work by the mere fact of its creation. Intellectual property rights consists of personal rights and property rights, providing the author full control and exclusive right to exploit the work without other limitations than those established by law.

The rights of exploitation of the work will last until seventy years after the death of the author.

Illegal content

The law defines exploitation of a work or other protected subject-matter as illicit in the case of reproduction or distribution of works, or making these works available to the public without the necessary authorization of the owners of the right or their representatives.

As a general rule, the person who "disseminates" the work is liable as regards copyright, and not the end-user. For example, a cinema theatre showing a film to the public without authorization is infringing the law, but the public present at the cinema is not.

Nevertheless, there are certain acts carried out by the end-user in the "consumption" of copyrighted content that require authorization. For instance, using P2P networks or downloading content previously uploaded by someone

11 Ley de Propiedad Intelectual, aprobado por Real Decreto Legislativo 1/1996, de 12 de abril.
12 Ley 3/2008, de 23 de diciembre, relativa al derecho de participación en beneficio del autor de una obra de arte original.
13 Ley 34/2002, de 11 de julio, de servicios de la sociedad de la información y de comercio electrónico.

else involves an act of reproduction carried out by the end-user, and consequently may constitute an infringement or an offence of copyright.

Available actions

For private action against infringement of copyright, Spanish copyright law offers the possibility of certain actions to copyright holders (in addition to the ordinary civil actions in line with the Civil Code and Civil Procedure Act). The Copyright Act grants the holder of an intellectual property right a broad action of cessation, a specific procedure to claim compensation for the damages suffered by the illicit exploitation and a variety of precautionary measures.

The Copyright Act in addition provides possibilities of injunctions and urgent precautionary measures, which may be applied against the intermediaries whose services are used by a third party to infringe copyright, even though the acts by such intermediaries are not an infringement themselves, in order for those measures to be more efficient, especially as regards the unlawful exploitation in the internet.

Available actions for public authorities are governed by the Criminal Code and Criminal Procedure Act with special articles dedicated to criminal acts related to infringement of intellectual property. Moreover, all precautionary measures available for copyright holders under civil law can also be requested during a criminal procedure.

Differentiating factors

There is no difference in available actions between different types of copyrighted products.

There are no specific copyright law provisions for children. Civil liability can be attributed to parents following a criminal offence by their children. In criminal law, persons under 14 years old cannot be liable for any criminal offence.

Presence of commercial purposes is a differencing factor under the Spanish Criminal Code, which states that reproduction of a work or other protected subject-matter, without the needed authorization, is a criminal offence if made for profit and to the detriment of a third party.

Spain - Enforcement

The public authority

The Intellectual Property Commission (CPI) is the public authority for enforcement of administrative and judicial procedures in the field of copyright infringements. The CPI is a body attached to the Deputy Directorate General for Intellectual Property (Ministry of Education, Culture and Sport).

The administrative and judicial procedure aims to terminate the infringing behaviour.[14] In order to achieve this aim, priority is given to the voluntary removal of the illegally offered content. In the absence of such cooperation, provision has been made for the adoption of measures involving the suspension of intermediary services in order to stop the infringement. Only the owners of rights or their representatives may apply for this procedure to be initiated.

The procedure starts with a request to the infringing party to remove the illegal content within 48 hours or to provide the arguments why there is no breach of copyright law. In case the content has not been removed, the CPI issues a final ruling on the infringement character of the content. If it is deemed an infringement, the CPI seeks judicial authorization for the cooperation measures for which the CPI made provision for in its ruling, including, as the case may be, disconnection of the storage service provided to the infringing web site; blocking of the infringing web site by the Internet access operators established in Spain; the de-activation of the links to the infringing content or the removal from the index, by search engine services, of the URLs hosting the infringing content.

The main obstacles for public enforcement are:[15]

- the lack of policies concerning the accuracy of registration data for generic Internet domain names (such as ".com"), making it difficult to identify the owners of such domain names, in particular when storage, advertising and payment services located abroad are used, in contrast with domain names ending with ".es" of which the owners can be accurately identified and the domain name can be cancelled through a rapid and adversarial procedure;
- the massive use of privacy protection or identification data masking services concerning generic Internet domains;
- the limitation of collaborative measures aimed at technical Internet intermediary services, with no provision being made for the possibility to suspend online payment or advertising services;
- the procedure focuses overly on individual works, which does not allow to establish sampling systems relating to works or subject matter infringed in circumstances similar to those prevailing in the cases investigated;
- the lack of prior requirements concerning requests for the initiation of the procedure that would require at least a minimum of effort in terms of self-protection on the part of the owners affected; or a minimum level of relevance of the infringement detected in terms of the number of works, subject matter, or visitors to the infringing web site.

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[14] Information on the procedure based on "The Administrative and Judicial Procedure Concerning Internet Infringements: Much More Than a Simple Notice and Takedown Procedure", prepared by Jorge Cancio Meliá, Senior Legal Advisor and Legal Coordinator of the Second Section of the Intellectual Property Commission (Deputy Directorate General for Intellectual Property), www.wipo.int/edocs/mdocs/mdocs/en/wipo_ace_9/wipo_ace_9_21.pdf.

[15] Ibid.

Private enforcement

In addition to copyright holders or their representatives, Collective Management Organizations are entitled to start a civil procedure against copyright infringements.

Spain - Activities

Public enforcement

Since the beginning of its work in March, 2012 the CPI has received 403 complaints. The CPI reports to the Ministry of Education, Culture and Sports which provided the table below summarizing the total number of complaints received by the CPI as of January 2014 and the results as of that date.

Table 3.1. Summary of online copyright cases submitted to the Spanish authority CPI (data as of January, 2014)

Summary by Intellectual Property Commission (CPI)					
Complaints	**Stage of procedure**			**Results in terms of closure of web pages, cease of activity, or withdrawal of illicit content**	
				Nr. complaints	**Nr. web pages**
403 complaints to the IPC by holders of rights	252 incomplete complaints errors were not corrected (340 notices requiring amendment have been sent so far)				
	63 under investigation prior to request of take down	10 impossible identifications without further international cooperation			
		21 pending identification			
		32 completed identifications but waiting for other verifications.			
	27 withdrawal prior to formal opening of the procedure			27	37
	61 Procedure formally opened	43 voluntary withdrawal after initial request		43	115
		12 withdrawal after final request		12	
		6 Ongoing	3 expired deadline for voluntary withdrawal, procedures prepared.		
			3 Ongoing procedures. Result pending		
			Total	82 complaints	152 web pages

The table shows the stage of the procedure and positive results already achieved in terms of closure of web pages, cease of activity or withdrawal of illicit contents. Cases shown in the first columns reflect the different

complaints received by the IPC classified according to the stage of the formal procedure.

The two columns on the right-hand side show positive results in terms of closure of web pages, cease of activity or withdrawal of illicit contents. Since most complaints refer to more than one web page the last column reflects the number of web pages involved.

So far, 152 web pages have withdrawn their illicit content, ceased their illegal activities or were fully closed as a result of the work of the CPI. As for the 61 complaints in which the administrative process was initiated:

- In 43 cases illicit contents were withdrawn before formal requirement by the CPI. This shows a strong deterrent effect of the work of CPI;
- In 12 cases there has been a resolution by the CPI ordering the withdrawal of illicit contents. In all these cases illegal contents were withdrawn or infringers simply ceased their activity;
- In the remaining 6 cases the procedure is still underway.

As a whole, out of 403 complaints received by the CPI, the procedure has been terminated in 344 cases, of 3 cases results are pending and the rest are open, under investigation. The average time needed for processing these 337 now closed cases has been less than 150 days. This time is needed mainly for identification purposes, and may in some cases take much longer principally because the absence of identification requirements under the .com and .net domains.

The above mentioned figures include the cancellation of 5 websites under an .es domain and 15 other websites have completely shut down as a result of CPI actions.

Private enforcement

There has been a significant number of lawsuits on online copyright infringement. Exact numbers are not available.

A few examples of civil cases concerning copyright infringement include:

- TomTom: the defendant illegally disseminated TomTom's operating systems for satellite navigation, maps and radar. The higher court fined the copyright violator with a fine of more than € 5 million;16
- Indice-web: The website provides links to downloads on P2P networks, without storing audio-visual content without intervening in transmissions made on P2P networks. As the website did not store the content itself, the court dismissed the claim. Although the dissemination of content through P2P networks may be illegal, the facilitation of such actions is not prohibited by law;17
- DIRECCION000: the website provided the ability to directly download files (music, movies, documentaries, etc.) through links to the P2P network eDonkey (based on the eMule system). The court qualified the

16 Sentencia 132/12 de la Audiencia Provincial de Alicante, Sección 8ª, de 20 de marzo de 2012.

17 Sentencia 301/2011 de la Audiencia Provincial de Barcelona, Sección 15ª, de 7 de julio de 2011.

action as copyright violation. The damages amounted to a bit over € 2,000 due to the low number of downloads that took place (approximately 25,000 in the relevant period) plus costs incurred to investigate the breach.

According to one interviewee from the industry, there have been court cases throughout the last decade whereby individuals have been sued and this has had an influence on attitudes towards copyright law.

Non-legal actions

The most important non-legal action in Spain to discourage online copyright infringement is the online offer of legal content. As regards the legal online offer in Spain, in 2011 the Ministry of Education, Culture and Sports launched and financed a campaign to raise awareness on this issue among the public. The campaign aims to encourage the legal offer of digital content on the internet; among other initiatives, a seal of quality called "Cultura en positivo" was created to identify companies and organizations which offer digital content in the fields of music, film, books, fine arts and video games. It is therefore a hallmark which shows that behind a brand or a product there is a commitment to respect copyright and the investment and employments of the organizations that support them. In addition, the seal ensures access to quality content and secure pages.

The portal "Me Siento de cine" (www.mesientodecine.com) has been launched with the support of the film industry and the Spanish Government. The portal offers information on the various legal services available to Spanish consumers and how to access them;

3.3 Legal Framework in Germany

Germany - Legislation

Illegal content

In Germany the main copyright law consists of the Urheberrechtsgesetz, the Telemediengesetz and the Urheberwahrnehmungsgesetz on copyright, telemedia and copyright enforcement. Again in line with international agreements, according to the regulations of German Copyright Law an individual who offers a musical work for download/streaming is required to hold the necessary usage rights. If he does not, this is regarded as copyright infringement. In contrast, pure consumption of infringing content is not considered as a copyright infringement.

Legal online sources have acquired all the necessary licences for the content they offer. Legal sources include download stores; ad-funded streaming services; and subscription services. Illegal online sources have not acquired all the necessary licences for the content they offer. This mainly concerns cyberlockers (often also referred to as, sharehoster, or file hoster etc.). Most of the services are based abroad, but some important services are based in Switzerland and thus accessible for the German legislative system. Furthermore P2P/file-sharing is still a relevant phenomenon.

Available actions

Under the German Copyright Law, copyright owners can claim damages, get prohibition orders from the courts and can hold the infringer responsible to disclose the source and distribution channel of the infringing product. Thus, a rights holder may require an internet service provider (ISP) to disclose the name and address of the person who is the subscriber of an internet connection via which illegal file-sharing has been committed.[18]

Under criminal law, offences are only prosecuted following a complaint unless the prosecuting authorities deem that prosecution is justified in view of the particular public interest.

Differentiating factors

Available actions do not differ between various types of copyrighted product.

Unlicensed uploading is unambiguously illegal, as it infringes both the mechanical reproduction right (§ 16 UrhG) as well as the right of making available (§ 19a UrhG). On the other hand, downloading is only related to mechanical reproduction rights and is legal for private purposes if the source where the content has been downloaded from is authorized and no payment is received (§ 53(1) UrhG).

The German Law does not differentiate between downloads and streams. The German Department of Justice (Bundesjustizministerium) does regard these two activities different. As far as streaming is concerned a possible reproduction during the transmission might be considered a temporary act of reproduction or a reproductions for private use and for ends that are neither directly nor indirectly commercial. It should be noted that there are no rulings of higher courts on this legal question yet.

There are no special criminal provisions concerning copyright infringements of children, but the general provisions covering the field of juvenile justice are applicable, meaning that penalties for minors are different compared to those for adults and dependent on the individual case.

As far as civil liability is concerned, a minor between the age of 10 and 18 is, barring exceptions, not responsible for damage he inflicts on another person if, when committing the damaging act, he does not have the insight required to recognise his responsibility. Parents who are obliged to supervise their minor children, in general, are liable to make compensation for the damages that their children unlawfully cause to a third party. Liability in damages does however not apply if the parents fulfil the requirements of their duty to supervise or if the damage would likewise have been caused in the case of proper conduct of supervision.

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18 Section 101 of the German Copyright Act (UrhG).

On 15 November 2012 the Federal Court of Justice of Germany (Bundesgerichtshof) ruled that, in general, parents are not liable for the illegal file sharing of their 13-year-old child if they have given instructions concerning the non-participation in illegal file sharing networks and have not had any indication that their child is contravening the prohibition.

The difference between incidental and frequent illegal downloads is reflected in both criminal enforcement and civil enforcement. In criminal enforcement, incidental copyright infringements means a lower level of sentence or termination of a criminal investigation/proceeding. In civil enforcement, the quantity of copyright infringements is relevant for the civil damages claim amount. Illegal activities with commercial purposes increases the likelihood of criminal punishment or award of civil damage claims.

Germany - Enforcement

Generally, only right holders, private associations representing right holders or public authorities may initiate proceedings. Private associations representing right holders with a right to initiate private enforcement are:

- German Musical Copyright Association (GEMA). GEMA represents 60.000 German musical authors, lyricists and music publishers;
- Gesellschaft zur Verfolgung von Urheberrechtsverletzungen e.V. (GVU; Society for the Prosecution of Copyright Infringement). The GVU is a registered association under German law. It works for the game and film industry and helps to protect intellectual property and to counter the illegal distribution of copied materials. For this purpose, the association cooperates with the Motion Picture Association of America (MPAA);
- Association of German Music Labels (Bundesverband Musikindustrie e.V.). BVMI acts on behalf of major music labels in Germany and co-ordinates civil actions and criminal complaints against pirates (online & physical sound carriers).

The public authority

The German public authority for criminal enforcement of copyright is the department of public prosecution (Staatsanwaltschaft) of the various States within federal Germany. The department investigates only following criminal complaints filed by any individuals.

In Germany no special public enforcement bodies for copyright infringements exist.

Private enforcement

Private enforcement organisations mostly do research for evidence on their own, before approaching the departments of public prosecution to apply for initiation of criminal proceedings. Civil actions (e.g. default, damages, information) are initiated directly through the private organisations, with exemption of BVMI, as they act formally on behalf of record companies). Through private organisations about 2,000 civil and criminal actions are filed each year.

Private organisations use different technical methods/software to discover illegal content in the internet. There are no legal provisions prescribing that it is prohibited to search the internet. What is controversially discussed are monitoring activities (regarding monitoring of internet traffic).

The main bottlenecks in the enforcement are:

- Especially with regard to internet piracy enforcement of measures against service providers outside Germany is very difficult;
- The enforcement of German court decisions is sometimes very time-consuming as well as costly, even within EU countries.

Germany - Activities

Public enforcement

Public enforcement only refers to criminal enforcement, as there is no public enforcement authority for copyright. No figures on the number of court cases are available.

One example of public criminal enforcement is the Kino.to-case. In June 2011 German law enforcement blocked the domain of the illegal video platform kino.to. Subsequently, several members of the website's team including the founder, the admin and the programmer were charged with unlawful exploitation on a commercial basis and sentenced to several years in prison. Due to the popular status of kino.to as one of the most heavily frequented illegal video platforms, there was extensive media coverage during the criminal trials.

Private enforcement

Private organisations have initiated and succeeded in several court cases against commercial companies, providing illegal service in the internet, especially share-hosting services, file sharing services and Usenet access providers. No figures on the number of cases are available.

Examples of civil cases include:

- GEMA / Rapidshare: Rapidshare is a share-hoster, which is based in Switzerland and used to be number 1 of share-hosting services worldwide (Alexa rank 17 worldwide in 2009). GEMA has succeeded in several legal cases. In one of these cases brought against Rapidshare, the Federal Court of Justice (BGH) ordered the service to prevent further infringements of over 4,800 titles of GEMA's repertoire. Meanwhile Rapidshare has completely redesigned its service, dismissed over 2/3 of its employees and hardly figures in the Top 10 of relevant share-hosting sites for illegal content;
- GEMA / Aviteo: Aviteo is an access provider for the Usenet (offering the service UseNeXT). Whereas aviteo aggressively promoted its service as a cheap and anonymous source of any type of content, Aviteo completely remodelled the service and its promotion – due to several legal actions of GEMA.

According to industry, tracing and suing the individuals is not seen as a productive or effective solution to piracy as it is costly, time consuming and potentially damaging to the reputation of the label in the eyes of fans /

followers. In addition, targeting individuals is not comprehensive enough to have a meaningful effect against the large number of people illegally uploading or downloading copyright music.

Hiring of private firms to fight illegal uploads of music is sometime successful and sometimes unsuccessful. It depends on how hot the demand is for the music. The more in demand it is, the more constant the links and uploading of content. Furthermore, the service is quite expensive and offers only a temporary solution.

Non-legal actions

Non-legal actions to combat copyright infringement includes the advertising of information on illegal activities, examples and illustration of efforts taken against pirates at music trade fair events or on websites. Both TV advertisements and poster campaigns have taken place in Germany. GEMA has initiated and funded the TV adverts while the poster campaigns have been initiated by interest groups. The impact of these initiatives is questionable according to one of the interviewees from industry.

„*Raubkopierer sind Verbrecher*" also known as „HART ABER GERECHT" is well-known PR-campaign against illegal copying initiated by the film industry (Zukunft Kino Marketing GmbH).

The provision of online legal content is covered intern alia by "Play Fair", an initiative by BVMI (Association of German Music Labels), granting a seal of legality for licensed online music services offering downloads, streaming or physical products against payment.

Germany's film industry has launched the website "Was ist VoD" (www.was-ist-vod.de), an online portal that provides information on how to access legal online services as well as offering technical advice. The portal also offers a search facility that enables consumers to find VoD services according to a variety of criteria, including: country of availability (Germany, Austria and/or Switzerland), the use of subtitles, picture quality, and the payment model.

3.4 Legal Framework in Poland

Poland - Legislation

Illegal content

In line with international agreements, in Poland copyright is deemed as an absolute right that protects the spiritual and material interests of the creator connected with his/her work. The author of a computer program has both the personal rights and economic rights, including the right to reproduce the program in its entirety or in part, the right to translate, adapt, arrange or in any other way transform a computer program, and the right to distribute the original or copies of a computer program to the public, including rental or lending.

The Polish Copyright Act contains a private use exception, allowing the use free of charge of works that have been already disseminated for purposes of personal use. The scope of personal use includes use of single copies of works by a circle of people having personal relationships, and in particular any consanguinity, affinity or social relationship. The question whether downloading copyright infringing content is permitted within the private use exception (regardless of whether they have been disseminated legally or not) falls under this exemption is not yet settled.

For unauthorized physical copies the law provides for criminal liability with the possibility of imprisonment for 3 months to 5 years. Different rules apply to digital copies. For digital copies, the same provisions of the Polish Copyright Act for making copies may be considered relevant. A necessary condition for sanctions against illegal copying is the dissemination without the authorization or against the conditions specified therein.

Computer programs receive similar protection as literary works. Protection afforded to a computer program shall cover all the forms of its expression. However, the underlying ideas and principles are not subject to protection. Also, no consent is required for back-up and copies, provided that these are required for use of the program (provided the copy and master are not used simultaneously). Exemptions to the need for prior consent are also present for study and test purposes, as well as, under conditions, interoperability with programs.

Available actions

In the Polish Copyright Act there are no specific rules concerning internet piracy. Therefore general rules concerning infringement of economic rights apply. These allow for legal actions to:

- cease the infringement;
- eliminate the consequences of the infringement;
- compensation of the inflicted damage:
  - on the general terms; or
  - by payment of double or, where the infringement is culpable, triple the amount of respective remuneration that would have been due as of the time of claiming it in exchange for the rightholder's consent for the use of the work;
- render the acquired benefits.

Under criminal law, actions include a fine, restriction of liberty or imprisonment

Differentiating factors

The available actions do not differ between various types of copyrighted product. However, separate rules for computer programs are in force.

The copyright law does not use explicit terms "uploading" and "downloading". Uploading is considered to be dissemination, meaning the rules on illegal dissemination apply.

There are no specific provisions regarding children in the copyright law. General rules on liability apply.

For internet piracy, the structured and commercial natures play a role in the penalties. For a regular offence, the maximum imprisonment is 2 years. If the offender commits the infringement in order to gain material benefits, the maximum sentence in increased to imprisonment for up to 3 years. If the infringement forms a regular source of income or is organized or managed as a criminal activity the maximum sentence is 5 years. On the contrary, if the offender acts unintentionally, the maximum sentence is imprisonment for up to one year.

Poland - Enforcement

Polish law enforces dual liability for breach of copyright: civil liability against the copyright owner as well as criminal liability.

The public authority

There is no public authority aimed at copyright protection.

Private enforcement

In addition to copyright holders, exclusive licensees (unless otherwise stated in the licence agreement) and collective management organisations are entitled to start a civil procedure. Some of the collective management organisations are:

- ZAiKS Copyright Agency: for authors;
- SAWP Polish Musical Performing Artists' Society: for performers;
- ZPAV Polish Society of Phonographic Industry: for producers.

Poland - Activities

Public enforcement

The database with administrative decisions gives almost 250 cases related to copyright in the period 2004-2014.[19] However, it must be noted that most of these cases also include cases referring to decisions on protection of trademarks and tax related cases with little relevance to this study.

According to the Poland country report of the International Intellectual Property Alliance (IIPA) [20], there are ongoing, systemic problems with prosecutions and the judiciary with rights holders continue to encounter

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[19] Source: http://orzeczenia.nsa.gov.pl/cbo/query; search word: "prawo autorskie"; consultation date: 15 October.

[20] IIPA, 2011 Special 301 Report on copyright protection and enforcement, Poland.

unnecessary delays in the courts, particularly in Poland's larger cities. Although many cases (over 1,000) have been submitted by copyright owners, only a small fraction the cases appear to have any progress or results. Cases that were resolved in 2010 resulted mainly in small fines of about US$50 to US$100, and in exceptional cases fines reached US$900.

Private enforcement

No quantitative information on private enforcement is available.

One of the successes achieved by the industry is the shutdown of various illegal internet platforms, including a well-known platform kinomaniak.tv. The industry notes that the interest of media in these take-downs was rather low, with only little information published online, As a result, the educational character of these actions aimed to informing the public on legal and illegal content, was limited.

Non-legal actions

Little information on non-legal actions by the government of Poland have been identified. In 2011, the International Intellectual Property Alliance (IIPA) identified that the Government of Poland had not made progress on the previously announced IPR strategic plan, and the Ministry of Culture failed to announce a new three-year plan. As a result, there was no national strategy to address piracy.[21]

Since then, actions initiated include information campaigns organised and financed by the Ministry of Culture, Polish Film Institute, KIPA and cinema chains. Also, more attention is paid to provision of legal content. Over the previous few years, there have been several actions promoting legal access to audio-visual content, including: "Cinema Day" (reduced prices in main cinema chains in Poland) and "Legalna Kultura". Legalna Kultura (www.legalnakultura.pl) serves as a portal for legal offer in film, music, press, etc. and aims to promote access to culture through legal channels.

3.5 Legal Framework in the United Kingdom

United Kingdom - Legislation

Illegal content

The main copyright and digital copyright enforcement acts in the United Kingdom are the Copyright Act of April 2000 and the Digital Economy Act of 2010. In line with international agreements, in the United Kingdom it is an infringement of copyright to do any of the following acts in relation to a substantial part of a work protected by copyright without the consent or authorization of the copyright owner until 70 years after the death of the owner:

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[21] IIPA, 2011 Special 301 Report on copyright protection and enforcement, Poland.

- Copy it;
- Issue copies of it to the public;
- Rent or lend it to the public;
- Perform or show it in public;
- Communicate it to the public.

For infringement to take place it must involve a substantial part of the work. Whether or not the part to be reproduced is substantial is subjective and the quality, importance or significance of the extract are equally as important (some may say more so) as the quantity of words or lines.
Secondary infringement may occur if someone, without the permission of the copyright owner, imports an infringing copy, possesses or deals with it or provides the means for making it.

Copyright in a work is not infringed by its incidental inclusion in an artistic work, sound recording, film or broadcast, unless if it is deliberately included.

Legal sources are all the online sources that do not infringe the copyright (probably providing access in cooperation with the copyright holders) can be considered as legal. Contrary, sources that infringe the copyright (so providing access without consent of the copyright holders) can be considered illegal.

An important difference with international law is that copying is prohibited without a private use exception.

Available actions

Under criminal law, there are certain acts conducted without a copyright owner's consent which may be classed as criminal offences and may result in fines and/or imprisonment. A person commits an offence if he knew/had reason to believe they were conducting any of these acts or that their act would cause an infringement.

Under civil law, there are a number of remedies a copyright owner can obtain in a civil action for infringement. These include seeking an injunction to prohibit further infringement, damages for loss, an account of the infringer's profit, an order requiring the infringer to deliver all infringing articles to the owner or the right to seize such copies.

Differentiating factors

An act of uploading involves an act of reproduction and an act of making available to the public, whereas the act of downloading only involves the former. Nevertheless, copyright laws do not differ in regulation between these.

United Kingdom - Enforcement

The public authority

The Digital Economy Act 2010 provides for a two-stage attack on internet piracy: a system of warning letters to begin with and, if that does not work, "technical measures" to limit, or even suspend, internet access.

Private enforcement

Only the owner of a work (or his exclusive licensee) can bring legal action against the infringer.

United Kingdom - Activities

Public enforcement

A database with cases of the English and Wales Court of Appeal (Civil Division) on copyright issues showed over 14,000 cases related to copyright.[22] Nearly all of the cases relate to physical copyright infringement.

In January 2014, an operation by the Police Intellectual Property Crime Unit (PIPCU), which targets websites providing unauthorised access to copyrighted content, resulted in 40 national and international websites suspended by domain name registrars.[23] At the same time an innovative three month pilot, in collaboration with the creative and advertising industries, designed to disrupt advertising revenues on infringing websites has seen a clear and positive trend, with a reduction in advertising from major household brands.

Private enforcement

A BAILII database provided over 14,000 cases related to copyright for the Civil Division of the English and Wales Court of Appeal. However, hardly any of these cases refer to online copyright infringement.

There have been a few cases leading to obligations by UK internet service providers to block file-sharing sites. Examples of blocked sites include: Newzbin4[24], The Pirate Bay[25] and Movie2K[26]. More general, the High Court in London has decided that trademark owners can secure court orders blocking websites that are structured to infringe their trademark rights by selling counterfeit goods online.[27]

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22 BAILII data base; search word "Copyright".

23 http://www.cityoflondon.police.uk/advice-and-support/fraud-and-economic-crime/pipcu/pipcu-news/Pages/PIPCU-goes-global-in-its-pursuit-of-illegal-websites.aspx.

24 The Guardian, "BT ordered to block Newzbin2 file-sharing site within 14 days", 26 October 2011.

25 BBC News Online, "The Pirate Bay must be blocked by UK ISPs, court rules",30 April 2012.

26 http://torrentfreak.com/uk-isps-block-huge-movie-site-movie2k-proxy-immediately-unblocks-130520/.

27 [2014] EWHC 3354 (Ch) Case No: HC14C01382, Cartier et al v British SKY Broadcasting Limited et al., 17 October 2014.

According to industry, anti-piracy activities have been largely unsuccessful due to the legislation giving protection to ISPs who rely on the rule that they only need to take content off their site if they receive a notice from the copyright holder to remove it. The content can then be put up again latter by a different user and a new notice is required. Also, the low general concern of politicians and the general public is mentioned as reason for poor effectiveness of anti-piracy activities.

Non-legal actions

In May 2014, a deal between entertainment industry bodies and UK internet service providers to help combat piracy was about to finalise.[28] The ISP will send "educational" letters, known as "alerts", to customers believed to be downloading illegally. In the alerts, no individual person will be directly accused - as a single IP address could be used by several people at a time, or even, to use one example, by someone using a neighbour's Wi-Fi without their knowledge. A record of which accounts had received alerts, and how many, will be kept on file by the ISPs for up to a year.

The Content Map (www.thecontentmap.com) is a website that has been launched by The Alliance for Intellectual Property to aid the discoverability of legal content and services, including Films & TV, Music, Games, eBooks and Sports. The website provides a comprehensive catalogue of services and enables users to search for legal services according to content type or payment model. This initiative is complemented by the FindAnyFilm website, which allows users to search for legal offers according to specific film titles. The website, which was initially created with the support of a lottery grant, now operates on a cost-neutral basis. It makes use of APIs to update its catalogue automatically wherever possible, and provides search tools which can be integrated into other websites.

3.6 Legal Framework in Sweden

Sweden - Legislation

Illegal content

In line with international agreements, the Swedish Copyright Act[29] covers various types of creative work, including music, movies and computer programs. The Copyright Act grants two types of rights to an author in respect of his or her work. These are called economic rights and moral rights. Basic economic rights comprise of the right to authorise or prohibit any form of reproduction (copying) of the work and the right to make the work available to the public. Basic moral rights comprise of the right of the author to be named as such and the right to object to any change in the work.

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28 http://www.bbc.com/news/technology-27330150.

29 Act on copyright in literary and artistic works (Swedish Statute Book, SFS, 1960:729, as amended up to November 1, 2013).

The protection under copyright law lasts for the lifetime of the author and for 70 years after the year of his or her death.

Both uploading and downloading of content without the copyright owner's permission is illegal. Uploading is considered as an act of making the work public, which is only allowed with the consent of the author. For downloading, an exception for private use exists which allows, for private purposes, to make one or a few copies of works *that have been made public*. Being made public means that either the author has given his/her consent for the distribution of if the person making the copies owns the legal master copy of the file that is that is used must be legal, i.e. it must not be a pirated copy or a copy of a work that has been posted on the Internet without permission, in order for the download to be legal.

Available actions

On infringement of copyright both penal and civil actions are available.

Under penal law, copyright infringement can be punished by fines or imprisonment for up to two years. The copyright act also protects copyright owners abroad by declaring the sanctions applicable to import of copies if the distribution of these copies would have been illegal in case the content had been produced in Sweden and the copies made abroad would have been declared illegal.

Preliminary actions are available in the form of an injunction. This injunction is issued by the court upon a petition by the author or any other owner of the right. The injunction prohibits, on penalty of a fine, a party to commit an act constituting an infringement or a violation. No injunction may be issued before the defendant has been given an opportunity to respond, unless a delay would entail a risk for damage.

The court may also order one or several parties to provide information to the applicant concerning the origin and distribution networks for the goods or services in respect of which the infringement or the violation has been committed. In order to obtain an information order, the rights holder must prove that a probable cause of a copyright infringement has arisen, but not that the infringement was carried out intentionally or through negligence. The court must also perform a proportionality assessment, whereby the right-holder's interests in discovering the identity of the unknown party is balanced against the inconvenience or harm that could be caused to the unknown party.

The infringer of a copyright is obliged to pay the copyright owner a reasonable compensation for the exploitation.

Differentiating factors

The Copyright Act does not differentiate with respect to the age of the infringer. However, under the general penal law persons under the age of 15 are exempted from penal sanction.

Where the infringement has been carried out wilfully or with negligence, compensation shall be paid also for the further damage that the infringement or the violation has caused. When the amount of the compensation is decided, particular consideration shall be given to:

- lost profit;
- profit that has been made by the party that committed the infringement or the violation;
- damage caused to the reputation of the work;
- moral damage; and
- the interest of the author or the right holder in that infringements are not committed.

Also, lack of commercial motive means that no prison sentences are given to violators.

Sweden - Enforcement

The public authority

There is no public authority aimed at copyright protection. The offence is subject to public prosecution, but for a public prosecutor to be able to initiate a criminal action the author or his or her successor in title must have filed a complaint or, alternatively, the prosecutor has to consider that action was called for in the public interest. According to an interview with a music record label, "*there are state prosecutors specialised in and dedicated to online copyright infringements, with cases occurring weekly or monthly and targeting networks, companies and individuals. Illegal pre-release (leaking) of copyrighted content is one focus of these cases, as is illegal uploading by end users, and less the downloaders. The application of the copyright legislation to banning of domains is untested in Sweden, thus it remains unclear whether the court has the right and willingness to block a domain.*"

Private enforcement

In Sweden, the copyright industry can legally order police raids. They are called intrångsundersökning ('intrusion investigation') and are technically executed by the Enforcement Authority (*Kronofogdemyndigheten*) who enlist Police in turn. The Enforcement Authority is a government agency handling debt collection, distraint and evictions in Sweden and is the only organization in Sweden empowered to withdraw money from bank accounts of debtors and, if necessary, visit the homes and companies of debtors to claim property.

Sweden - Activities

Public enforcement

The Swedish government applies a strategy of levying small, reasonable fines against repeat offenders. For example, a man caught sharing dozens of music tracks on the Internet was fined 2,000 kronor (approximately € 250).[30] On the other hand in a high-profile case of December 2013 one man was fined 4.3 million kronor (approximately € 500,000) for file sharing one film.[31] In 2009 the Pirate Bay founders were fined $7m and received prison terms of four to ten months for promoting copyright infringement activities through their website.

Many of the court cases in recent years are attributable to sharing via the Direct Connect (DC) protocol, and (in a small amount of cases) FTP servers; both of these technologies are manifestly easier to track than sharing taking place through BitTorrent technology.

Customs can temporarily stop import of goods feared to be infringing in some one's IP-rights and thus giving the right holder a possibility to take legal actions against the importer.

Recently, most enforcement activities have been criminal cases brought by public prosecutors following police investigations based on complaints and evidence from private sector. Such cases include a case against '*Bittorent service Biosalongen*', which was closed in May 2014 following a court ruling with the persons involved sentenced to community service and a suspended two-year prison sentence.

In 2009, the trial (and subsequent appeal hearings) against the founders of The Pirate Bay received massive media attention, but the media attention has decreased since then. In the last few years, the criminal cases dealing with online copyright infringement have received very little media attention.

According to the industry, criminal cases against copyright infringers and illegal service providers have been very successful, with convictions in almost every case. Criminal cases against downloaders have also proven successful in most court rulings, but the impact on piracy turns out to be very small.

Private enforcement

No figures are available on the number of actions taken by private parties against copyright infringements.

According to the industry, cease & desist-notices to platform providers have proven to be 100% successful, but the number of notices dispersed is quite

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30 www.dagensjuridik.se/2011/07/hoga-dagsboter-i-hovr-musikdelning-pa-internet.

31 www.rattighetsalliansen.se/feed/111.

small. Other civil actions have turned out to be somewhat successful, but the impact is unclear.

The music and film industry are working together to sue individuals and organisations who infringe on copyright laws. Illegal pre-release (leaking) of copyrighted content is one focus of these cases, as is illegal uploading by end users, and less the downloaders. According to one interviewee from the industry, the cases against individuals and organisations for copyright infringement have been successful in convicting the perpetrators, however their success in decreasing copyright infringement overall is unknown. The biggest factor decreasing illegal copyright activities for music is the emergence of paid streaming services which offer a vast selection of music, are low cost and offer mobility (through telephone devices) and additional functionality.

Non-legal actions

There have been various information campaigns directed toward general public and school pupils, in collaboration with other creative sector organisations. When the Swedish government started its new copyright enforcement campaign in 2009, sales of recorded music immediately shot up by 80% in Sweden's digital market and by 10% in its physical market. Advocacy campaigns (events, social media, report and book publication, opinion editorials, earned media etc.) in collaboration with other creative sector organisations still take place.

Another type of non-legal action is negative publicity against Pirate Bay, e.g. about refusal to remove morally disputable content such as autopsy photos of murdered children or child pornography. Attempts to establish collaboration with intermediaries (in this case ISPs) hosted by Swedish government have proven unsuccessful.

3.7 Conclusions

This chapter explores to which extent national regulations define online copyright infringement as illegal. The first aspect of this issue is whether online infringements are explicitly included in copyright regulations. This is the case in most of the six countries of this study, but Polish law does not make reference to online copyright infringements. The second aspect of this issue is whether online infringements are limited to certain transactions or are generally applicable. Copyright law in most countries refer to online copyright infringements in any form, by referring to the right of the author to any form of exploitation (France, Spain), the requirement to obtain the rights to use copyrighted content (Germany), the right to make content available (Sweden) or the right to show or communicate copyrighted content to the public (UK). Polish law does not explicitly clarify whether downloading (or streaming) from illegal online sources falls under the private use exception. In April 2014, the EU Court has ruled that downloading (or streaming) from illegal online sources "*cannot be tolerated*" and must be distinguished from the private use exception (ECJ 435-12). Hence since that date the rule applies in all EU

Member States that copies from illegal online sources cannot fall under the private use exception.

In most countries, legal actions can be taken both against content providers and consumers. This is unconditionally the case in French and UK law. In German and Swedish law a private use exception applies if the content is accessed from a legal source. However in Polish and Spanish law, legal actions are only available against those who provide copyrighted content without permission of the author and not against those who access it.

Enforcement practices vary more between countries than copyright legislation. Of the six countries in this study, a system of warnings is in place in France and the United Kingdom. This indicates a system of enforcement of copyright law that is aimed at the broad public. Another aspect of enforcement is whether representing associations may start copyright procedures, on behalf of copyright holders or public interest. In Spain and the United Kingdom, representing associations are not allowed to do so, while Swedish law is not explicit about this issue. This implies that unless copyright holders bundle their complaints, each copyright holder can only start an action against online infringements of his own work. This grants protection to copyright infringers against assumed damaged, but renders collecting proof against large-scale offenders more costly.

Since copyright law generally allows sanctions to be related to the damage of the copyright infringement, it is not directly possible to compare sanctions between countries. What can be noted, is that in Germany and Poland, the level of the fine increases for frequent offenders. This could be interpreted as extra sanctions against repeat offenders, or protection of occasional offenders. The generally low levels of the fines administered in practice suggest the latter.

An interesting feature of Swedish copyright law is that it protects non-national copyright holders, by offering them the same protection for imported goods as it offers to national copyright holders.

In general, it can be concluded that France has the most pervasive copyright legislation, that Polish legislation is less explicit about online infringements and that especially in Spain enforcement of copyright law is costly due to the combination of a focus on illegal content providers and not allowing representative associations to start procedures. Ignoring other differences between countries such as availability and prices of legal and illegal supply, consumer behaviour, internet usage etc., the analysis of this chapter suggests that if stricter regulation or enforcement would reduce piracy, the piracy rates would be highest in Poland and Spain and lowest in France. This will be analysed in Chapter 6. However because it is impossible to isolate effects of legislation and enforcement from other differences between countries, it will only be possible to conclude on the plausibility of a relation between piracy rates and legislation and enforcement.

4 SALES DEVELOPMENTS

4.1 Approach

Between March and July 2014 interviews were held with sector organisations at the EU level, in countries and with individual companies in the creative sector. They were asked to indicate recent sales developments qualitatively. In addition, they were asked to provide sources on sales developments. This resulted in useful references for music and audio-visual, but less so for books and games. All currencies (dollars, SEK, pounds and zlotys) have been converted into euro at the average annual exchange rates of the relevant year according to ECB data. Sales data, if available, are available for various legal channels. For downloading and streaming, revenues of legal creative content providers can include both revenues from purchases and from advertisements. No data is available on revenues of illegal providers.

For music the main data source is IFPI. The figures for music have been cross-checked with data from national sources. For audio-visual in Europe the main data sources are the European Audio-visual Observatory and the Annual Video Yearbooks of the International Video Federation. For books there is much information about sales per title but less about sales in individual countries. For games ISFE keeps track of the number of gamers in various countries which can also be considered as an indication of market developments.

4.2 Music

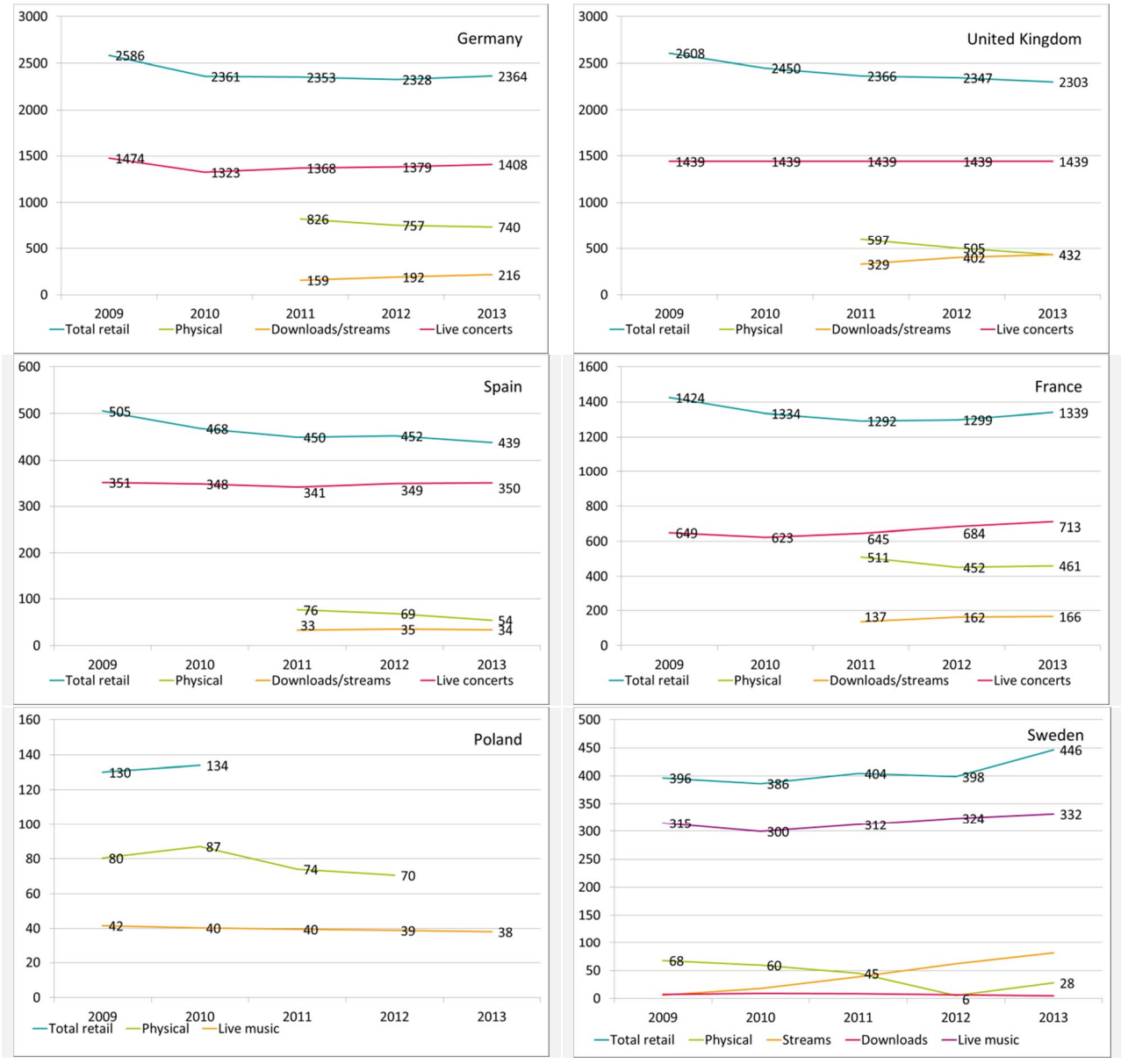
For music, yearbooks per country are available from IFPI and for the largest countries the data have been compiled already on the internet (Wikipedia). Between 2010 and 2011 there was a change in definition of retail value, and a different breakdown is presented including the value of performance rights and synchronization. However, the percentage year-on-year change according to the new definition is given for the 2011 figures.

According to an interview with a music label company (see Annex B for an overview of interviewees), income from streaming has the potential to become the largest source of income, and the 2014 report of IFPI underlines this, pointing to the potential of YouTube and Vevo.[32] In Sweden this is already the case thanks to the popularity of Spotify. Total revenues from streaming increased from 9 million euros in 2009 to 82 million euros in 2013, while in the same period physical sales (CDs, vinyl records) fell from 68 million to 28 (see Figure 4.1). As a net result, total revenues from music increased in Sweden, with the exception of 2012.

32 IFPI (2014), www.ifpi.org/downloads/Digital-Music-Report-2014.pdf.

Though less pronounced than in Sweden, Figure 4.1 suggests that streaming displaces physical sales in the other EU countries of this study as well, but not sufficiently to stop a decline in overall music retail value. What these figures do not show, is that revenue from live concerts is generally higher than from retail sales. For example according to the latest industry report from PRSformusic dating from 2011[33], recorded music in the UK fell from £ 1,151 million in 2010 to £ 1,112 million in 2011, while income from live music increased from £ 1,418 million to £ 1,624 million.

Figure 4.1 Music retail value in million € per country, channel and year



Source: PwC (live music) and IFPI[34] (other channels).

[33] PRSformusic (2011), Adding up the UK Music Industry 2011 www.prsformusic.com/aboutus/corporateresources/reportsandpublications/Pages/default.aspx.

[34] http://en.wikipedia.org/wiki/Global_music_industry_market_share_data, www.ifpi.se/dokument-och-statistik.

The information from music content providers is given in Table 4.1. This table presents data provided by these music content providers about the distribution between physical and digital sales, which gives a good overview on the differences between the involved countries according to the music content providers.

Table 4.1 Breakdown of recorded music sales according to content providers

	France	Germany	Poland	Spain	Sweden	UK
Physical	>50% Strong physical market	>60% Very strong physical market	Unknown	Lost large part of market due to piracy in both physical and digital market	15%	48%
Digital					85% in streaming	52%

In the interviews, content providers are also asked to provide us with a price overview of all the goods they supply or have within their association (Table 4.2, prices in italics based on desk research). This information helped to define the price ranges in the willingness to pay questions, in combination with online sources (see Annex D, country specific questions).

Table 4.2 Price ranges for music (content providers and desk research)

	France	Germany	Poland	Spain	Sweden	UK**
Vinyl	*€ 9-36 (fnac.com)*	€18-20	*Zł 49-132 (empik.com)*	*€ 10-48 (fnac.es)*	Similar to CDs or slightly more, discounts not common	Vinyl: £12, discounts are less common as this is a premium product. Vinyl demand has increased recently.
CD's	*€ 7-18 (fnac.com)*	€16-19, then €12.99 and €9.99 during lifecycle	*Zł 25-65 (empik.com)*	€5 – 15 with back catalogue at the cheaper end and new releases at the high end	CDs: SEK 150 – 160, discounts common	CD's: £8 but there are always discounts of 15-30%. CD prices have decreased in recent years
Digital single	*€0.69-1.29 per track*	€0.79-1.29	*€0.69-1.29 per track*	€0.60 – 0.80	*7 – 12 kr per track (iTunes Sverige)*	£0.50

ZPAV Patryk Gałuszka, Institute of Economy, University of Łódź, Report on the functioning of the digital music market in Poland.

	France	Germany	Poland	Spain	Sweden	UK**
	(iTunes France)		*(iTunes Polska)*			
Digital album	*$5 (Amazon)*	€5-13, higher end of the scale for deluxe editions	*$5 (Amazon)*	€3 – 10	*$5 (Amazon)*	£5
Streams	*€ 9.99 (Spotify Premium based on wiki)*	*€ 9.99 (Spotify Premium based on wiki)*	*Zł 19.99 (Spotify Premium based on wiki)*	*€ 9.99 (Spotify Premium based on wiki)*	Spotify premium: SEK 99 / month Spotify premium option 2: SEK 45, less functionality Spotify Free: less functionality +advertisement*	Streaming subscription: £5-10 per month ranging from basic desktop services to mobile premium services
Live concert	*€ 17-25 local band - €90 (prices int'l stars, songkick.com*	*€ 17-40 (local bands) - €100 (mid prices int'l stars, songkick.com)*	Un-known	€6 – 25 with local, national and international at the lower, middle and higher end	*120-180 kr (local bands) - 350 kr (mid prices int'l stars, songkick.com)*	*£ 20 (local bands) - £ 100 (mid prices international stars) (songkick.com)*

* Estimate 70% of Spotify subscribers have a premium subscription in Sweden. In Sweden there are around 1.3 million subscribers from a country population of 9.5 million.

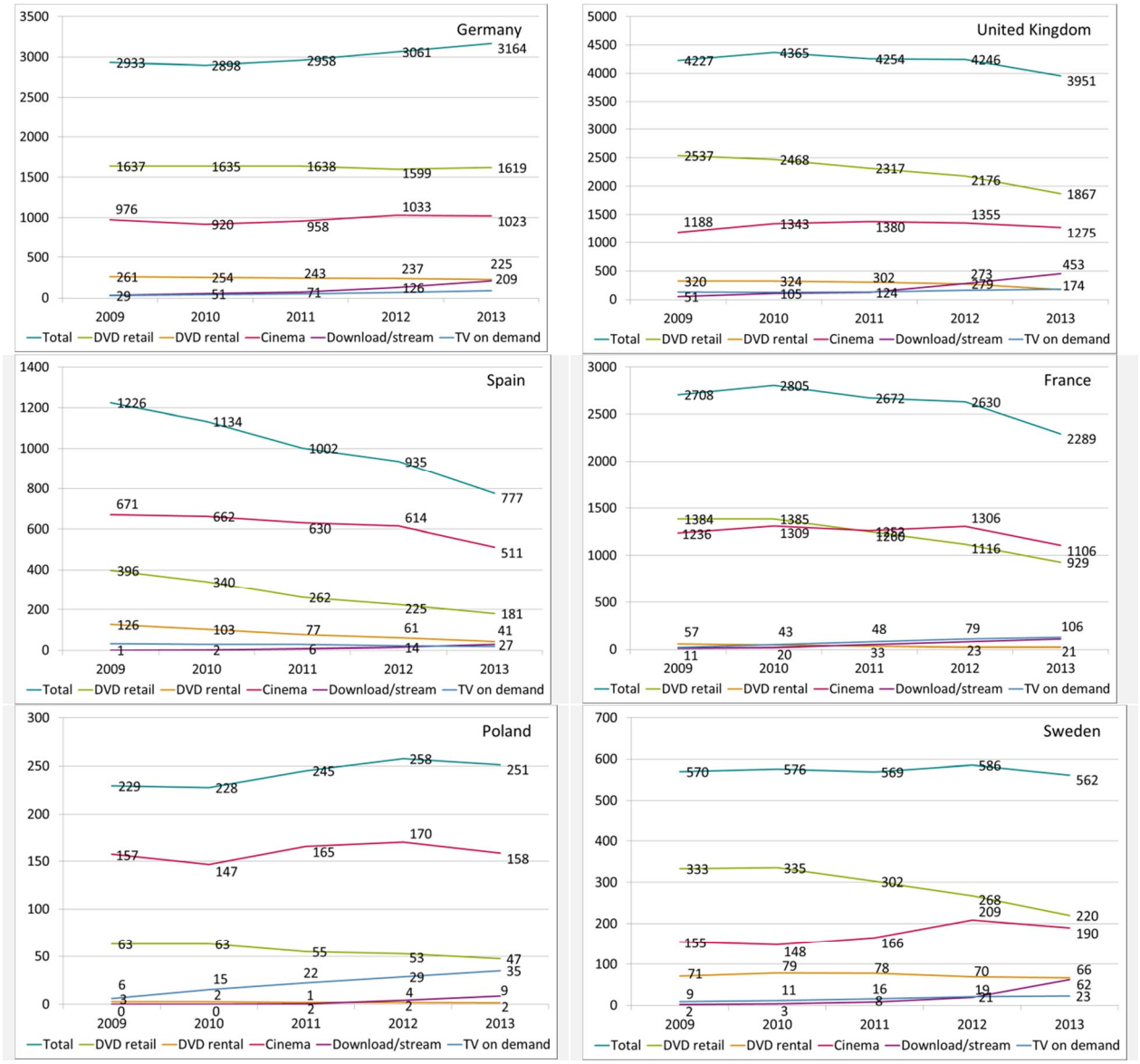
**The UK market is the most aggressive in terms of low prices, discounts and specials.

When looking at market trends, most interesting to see is development that occurred in the record label business due to the increasing internet piracy, namely this market was forced to change from acquiring rights and releases on CD / Vinyl, to management, physical products, digital products, synchronisation and live concerts.

4.3 Audio-visual

The retail value of audio-visual developed differently between 2009 and 2013 in various countries, increasing in Germany and Poland and falling in France and most of all Spain (Figure 4.2). With the exception of Germany where it remained stable, revenues from DVD sales fell between 2009 and 2013. Sales from downloads and streams of audio-visual increased in all countries, but excepting the United Kingdom where it accounted for over 10 per cent of total revenues, digital sales remained a marginal source of income. In all six countries of this study, revenues from cinema tickets are the largest or second largest source of income. Cinema revenues fluctuate a lot from year to year but overall the revenue pattern for cinemas look stable over time.

Figure 4.2 Audio-visual sales in million € per country, channel and year



Sources: IVF, European Audiovisual Observatory, Box Office Mojo (Cinema)[35].

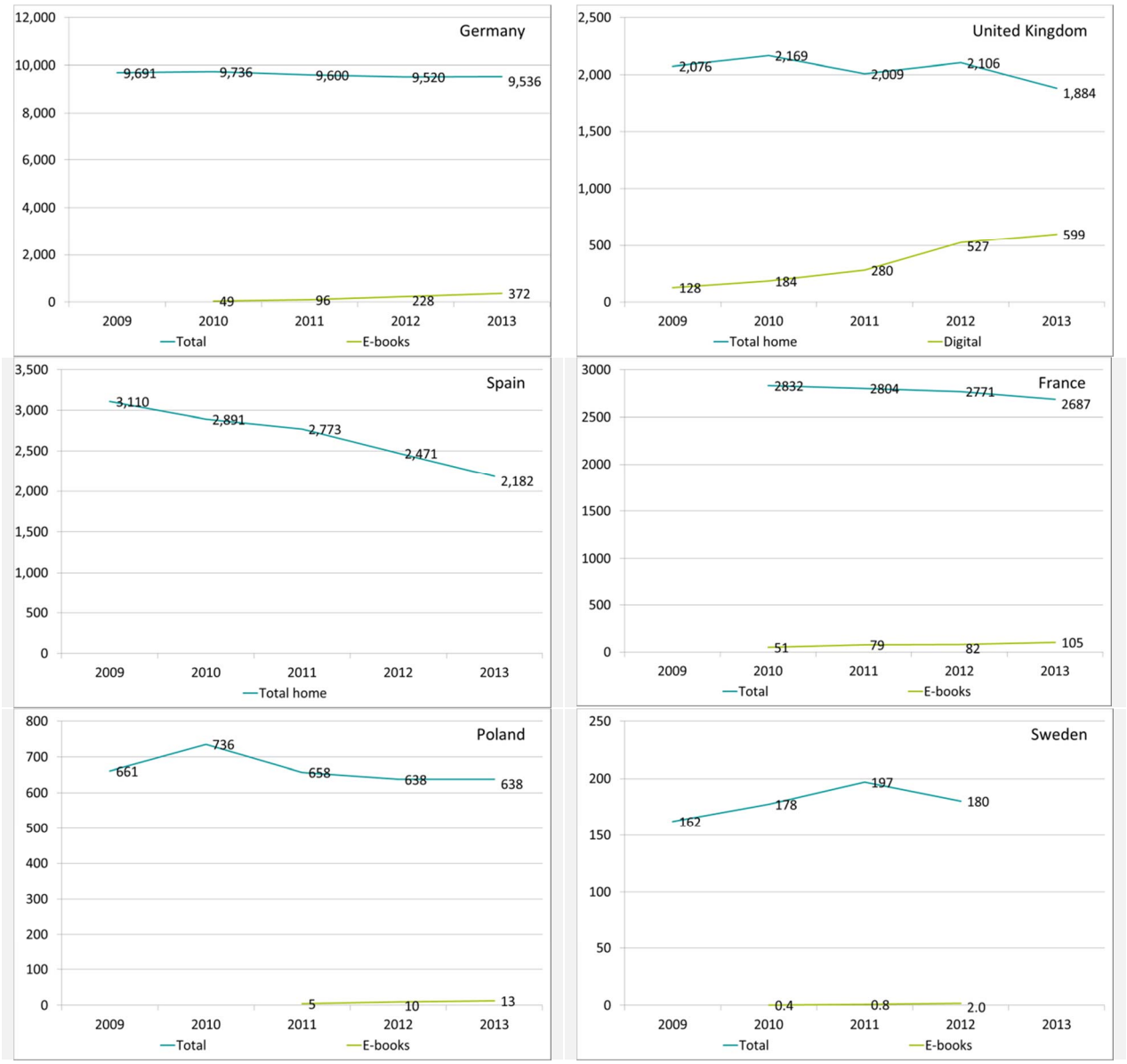
Audio-visual producers are keeping up with the technological developments, which expresses itself in more online promoting and selling of their products. However, the gains in revenue from digital online video are unable to compensate for the continued reduction in revenues from the physical market, according to interviewees (see Annex B for an overview of interviewees).

4.4 Books

For books, no internationally comparable statistics are available and sales figures are reported as according to the national publishers associations.

35 www.ivf-video.org/new/index.php?category/Market-information/Country-Profiles, www.obs.coe.int/industry/film Focus Reports, http://boxofficemojo.com/intl/.

Figure 4.3. Book sales in million € per country, total/e-books and year



Sources: National Publishers Associations[36].

For the United Kingdom and Spain, sales figures on the home market are presented, while for the other countries the sales figures include export. Apparently all countries include textbooks and e.g. technical books in the sales figures. Most countries report on the sales of e-books, however the United Kingdom group e-books with audio books and internet sales, while Spain publish only physical books sold via internet.

All in all, total book sales declined in all countries except Sweden, and the e-book market is marginal except perhaps in the United Kingdom.

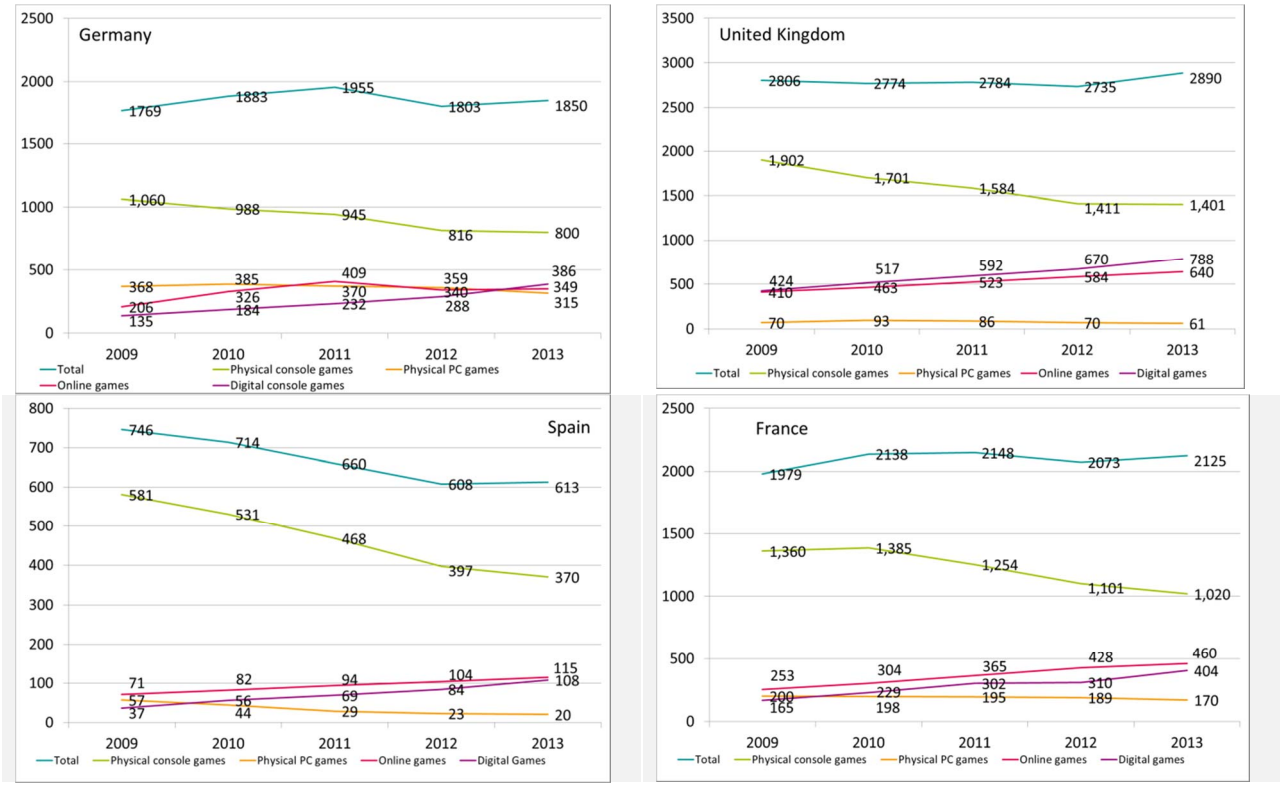
[36] Boersenverein des deutschen Buchhandels, Publishers Association, Federacion Editores, Syndicat National de l'Edition, The Polish Book Insitute, Svenska Förläggareföreningen.

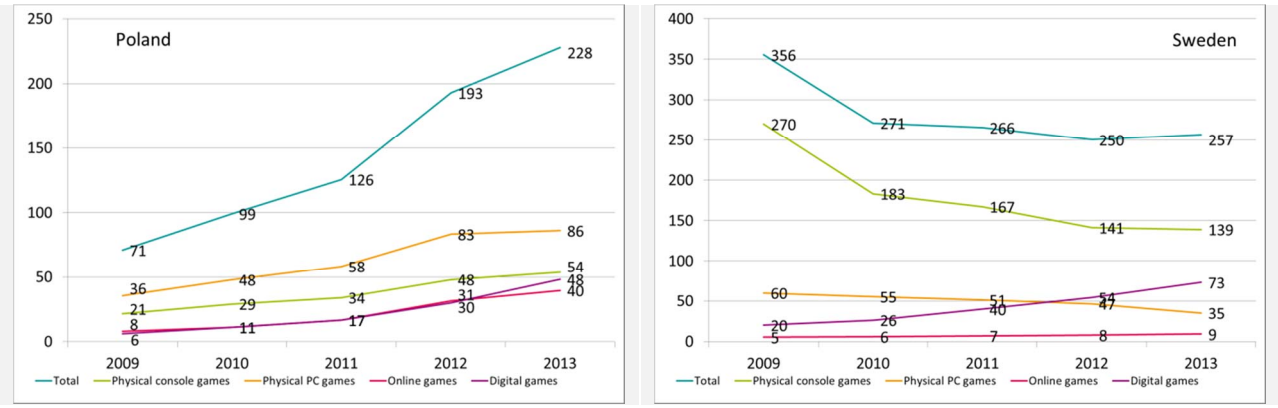
4.5 Games

PWC reports annually on the games. Their figures include the six countries of this study, and include all segments including console hardware, mobile games and income from advertising. These figures are however not publicly available and this report presents figures from other sources, mainly national sector organisations or national sector watchers (MCV in the United Kingdom).

Despite broken figures, comparing 2013 with 2009 shows generally increasing sales from computer games with the exception of Spain (-19% over 4 years) and the United Kingdom where sales have stabilized at slightly below 2009 levels. As with the other types of content, the sales of games on physical carriers (DVDs, Blu-Ray disks) has declined. The few figures on online gaming revenues suggest that they are rapidly increasing. For the United Kingdom the researchers excluded hardware and income from advertisements from the data, for Germany and Sweden those two are excluded in the available data. For Spain console hardware is included in the available data, and for France and Poland this is less certain but console hardware seem included.

Figure 4.4 Computer games sales in million € per country, segment and year





Sources: PwC data.

4.6 Conclusions

Compared to 2009, music is nowadays less often bought on physical carriers and is increasingly streamed from pay / subscription sites, in particular in Sweden. What is also interesting to note is that the largest part of music sales is from live concerts in most countries, with the exception of Poland. Therefore, the decline of music purchases on physical carriers seems at least only partly attributable to people going "online".

Audio-visual is also less often bought on physical carriers with the exception of Germany where these sales are roughly stable. Total audio-visual sales also have clearly declined in France, Spain and the United Kingdom, and the industry comments that online sales are not likely to compensate for the decline of sales on physical carriers.

For books, the availability of e-books is rapidly expanding, but sales are still almost negligible compared to total sales, which shows a negative trend in most countries.

For games the market for physical carriers, whether for PC or consoles, is in decline in most countries, although the games market in Poland is rapidly expanding.

The overall conclusion from the sales trends described in this chapter is that consumers increasingly go "online" with regard to creative content, although the online market is still marginal for books.

5 INITIAL LITERATURE SCAN

5.1 Literature covered

To generate ideas for the questionnaire and the econometric analysis, previous literature was scanned. This literature scan was not restricted to peer-reviewed papers because the aim at that moment was not yet to provide a final answer on displacement, and novel ideas have been developed in other papers as well.

Two types of econometric literature have been scanned:

- Studies estimating displacement rates of copyrighted content by online infringements;
- Willingness to pay studies.

5.2 Methodology scan – displacement rates

A total of 62 papers has been reviewed. Since the approach of this study is survey-based, previous survey-based literature received special attention though most of this body was not peer-reviewed. However 10 of these were not further used after a first reading, for example because the results were based on a very small sample size. Most of the remaining 52 studies aim to quantify the displacement rate of legal purchases due to illegal copying, however some studies with a different focus have been included in the review if they applied a methodology or approach that could be useful to improve our own methodology. The reviewed papers can be roughly divided in those based on a survey (23), evaluating a time series (18) or making a cross country or cross region comparison (5). The main findings of the papers are briefly discussed in this order. It should be noted that some papers apply multiple strategies.

Survey-based studies

The conducted surveys can be roughly divided in surveys performed in writing (offline) and online surveys. A majority of the offline surveys involved students, with a sample size ranging between 160 and 2,000 respondents. A notable exception is the research of Makonnen et al. (2009), based on 14 semi-structured interviews. Some online surveys were sent to personal e-mail addresses of university students, but most of the online surveys were conducted with the use of pre-existing panels. These online panel surveys had on average a much higher number of respondents, approximately ranging between 700 up to 10,000. With the exception of Makonnen et al. (2009), all of these surveys yielded significant estimates of displacement rates.

As introduced in Section 2.3 earlier, due to the illegal nature of file sharing respondents might be reluctant to give honest answers on their downloading behaviour. Therefore, the wording of questions about illegal downloads is of particular interest. Only two surveys used words such as illegal and piracy, the others avoided any terms that might have a negative connotation. Instead

most surveys used the term free downloading. Furthermore practically every survey ensured respondents that their reply would be treated confidentially and anonymous. In one paper (Huygen et al., 2009) the questionnaire was introduced to respondents as dealing with consumer feelings about music, films and games. This particular survey started with a series of general questions about music preferences, listening behaviour and purchasing behaviour and only then touched on file sharing.

Most of the survey based studies took characteristics of the respondents into account, two papers however perform a regression analysis using characteristics of downloaded albums and songs and one paper includes the characteristics of downloaded movies as control variables. These variables include gender of artist, position in the charts, genre, availability in China (Bai & Waldfogel, 2009) and whether it is released by a major or minor label. The characteristics of movies included number of screens on which a movie was released (a proxy for the studio's marketing efforts); attendance in German theatres (a proxy for word of mouth); average user rating on the Internet Movie Database (IMDb; a proxy for the valence of word of mouth) (Henning-Thurau et al., 2007).

Characteristics of respondents used in previous studies often included the following control variables: gender, age, occupation, family income, race, broadband access and in case of students major. One French study included the size of a city someone is living in, as a proxy for access to live music (Dang Nguyen et al., 2012). Poort & Rutten (2011) and Andersen & Frenz (2010) both ask questions about the reason for buying or pirating music. Andersen & Frenz (2010) first asked for the total number of downloads after which the respondents were presented with four motives for downloading ('album too expensive', 'hear before buying', 'not available elsewhere', and 'do not want the whole album'). Respondents had to indicate which portion of their total downloads they associated with each of these four motives. Poort & Rutten (2011) asked their respondents a yes/no question whether they used file-sharing to discover new genres, actors, bands, games or to make social contacts.

Various studies use time spent on the internet or ability to navigate on the internet/download as a proxy for internet skills, though as a control variable rather than an instrumental variable, e.g. Bounie et al. (2005).

Other variables have been used to indicate the attitude towards unlawful downloading, for example Lysonski & Durvarsula (2008) asked respondents whether they believe that downloading reduces chances of success for upcoming artists and in addition used asked respondent what they would do and expected their peers to do in each of the following scenario's:

- Stealing a CD from a music store with 100 percent certainty of not getting caught;
- Stealing a CD from a music store with some risk that an invisible security camera observes you;
- Not paying for downloading music from a new CD from a major successful artist who you believe is very rich because of two previous successful CDs;

- Not paying for downloading music from a new CD from an independent artist who is very artistic but has not made much money on his/ her previous CD.

Chiang & Asana (2009) asked if piracy is unfair and whether P2P sites should be shut down.

The majority of the 23 survey-based papers estimate effects of music copyright infringements, namely 14. Of these 14 publications 1 compares the effects of piracy on video games to music (Bastard et al., 2012), while another (Huygen et al., 2007) makes the comparison with copyright content in films. 4 papers exclusively analysed movies and only one took only video games into account.

The academic debate whether file sharing reduces or increases legal demand for music is not settled. Although an increase appears to be counterintuitive, it might be achieved through so called '*sampling*' or '*exploring*', were consumers use downloading to sample a song from a particular album or artist before purchasing the music legally. Although various surveys found some evidence of sampling (3 out of 14), the net result of file sharing on music sales is considered negative in most papers (6 studies found a negative effect on purchases and only 1 discerned a positive effect). If the studies are restricted to peer-reviewed papers, only those with negative or insignificant estimated displacement rates remain.

Survey based results - Music

The reported displacement rate per downloaded album or song ranges between 0.04% (Maloney, 2012) up to 30% (Zentner, 2006). Rob & Waldfogel (2007a) explained that even for individuals displacement rates can be between 0 and 1 (but not exactly 0 or 1), depending on whether the price of a lawful download is above or below his willingness to pay. One study found a positive effect of file sharing on legal purchases of 0.44 CD per downloaded content. This positive result was attributed to sampling (Andersen & Frenz, 2007). However, Barker & Maloney (2012) criticized this paper, in particular the analysis of levels of transactions without controlling for interest in music, even though the data allowed an analysis of changes in numbers of transactions between 2004 and 2005, and these changes are likely not affected by interest in music. With the same data but different models, Barker and Maloney found that a 10 per cent increase in P2P downloads reduces CD purchases by around 0.4 per cent.

The practice of streaming (where consumers do not acquire the music permanently, but can access it online), was found to have no significant effect on CD purchases, but is a complement to buying music online and live music attendance (Dang Nguyen et al., 2012, French survey data of late 2010). Dang Nguyen et al. (2012) applied the frequency with which people use online news sources as an instrumental variable for their overall internet usage.

Survey based results - Audio-visual

From the 5 survey based papers on the effect of file sharing on the purchases of movies that we analysed, one found a positive effect (Bounie et al., 2006) while the other 4 report a negative effect. Bounie et al. (2006, French survey data of March-April 2005) asked respondents whether illegal downloading increased their demand for legal movie purchases, furthermore the frequency of downloading and purchasing movies legally had to be filled in. The effect on cinema visits is considered by 3 papers. Hennig-Thurau (2007, German data of 2007) and Rob and Waldfogel (2007b, US data of 2005) a negative effect. Bai and Waldfogel (2009, Chinese data of 2008 and 2009) discerned a small negative effect and a negligible effect in two studies based on Chinese surveys. These three papers determine legal and illegal consumption by presenting respondents with a list of movies and ask whether these were consumed paid or unpaid, how often and in which order. One of the papers (Rob & Waldfogel, 2007b) compared the movie industry with the music industry and concluded that while the overall loss due to downloading is larger for music, the displacement rate is much higher (close to one) for movies. This high displacement rate for movies was explained by referring to the longer downloading time and searching effort for movies, which results in downloads by people who really want to see a particular movie, the lower overall losses in movie sales are explained by the lower number of downloads.

Survey based results – Games

Only two surveys included video-games. Interestingly one of these surveys (Bastard et al., 2012) ask for the digital and physical consumption of several types of cultural goods in the last 12 months (CDs, DVD, Games, etc.). If respondents indicate that the acquired digital goods it was asked whether this was done legally or not. Bastard et al. (2012) state that piracy affects the music industry negatively while the effect on video game purchases is positive. They suggest that this difference may be caused by vertical product differentiation in the video game industry, since hacking a video game does not allow access to the same content as a legally bought game. The other survey focused exclusively on video games (Fukugawa 2011). He asked respondents ask how familiar they are with downloading games and whether they actually do this. Fukugawa (2011) did not find a negative effect of downloading on games sales, and noted that although approximately 40% of surveyed users know how to download and play pirated videogames for free, most of them do not actually download pirated versions. Fukugawa (2011) also applies ownership of game playing devices as a control variable for interest in games.

Like most of the surveys applied in the reviewed literature, the survey of this study guarantees full anonymity of respondents. Furthermore the term "*illegal*" or "*unlawful*" is avoided. However because legal downloads may also be free, the use of free downloads might result in an overestimation of illegal transactions, and is therefore avoided as well. An instrumental variable that is adopted from Dang Nguyen et al. (2012) is the frequency of using online news sources as a proxy for online activity. Control variables from previous surveys that are included in the survey of this study are interest in music

compared to peers, genre of music last downloaded or streamed (for the willingness to pay questions).

Studies based on time series analysis

From the 18 papers that apply a time series method, one includes a questionnaire. Although some papers compare sales versus downloads over a given period, most reviewed studies involve a sudden event, such as the shutdown of popular file sharing website Megaupload, the introduction of stricter regulation or the removal of NBC content from iTunes.

Of the reviewed studies 10 aim to quantify the effect of file sharing on sales. Two out of these 10 studies find a positive effect, one mentions that the effect is significant but very small (0.02% more purchases due to one click on a P2P site), streaming has a slightly more pronounced effect of 0.07% (Aguiar & Martens, 2013). A paper of Peukert et al. (2013), reports mixed effects of file sharing on album survival in the charts, positive for popular and female artists while negative for others. From the 8 surveys that report a negative effect, one reports only a very small effect (0.1%), another study (Adermon & Liang, 2010) mentions that although music sales are negatively affected, movie sales is not. One study from Danaher et al. (2010) analyses the effect of closure of legal content (NBC's decision to remove its content from the iTunes music store on December 1, 2007) and finds that this increases piracy but not physical sales. An interesting approach is applied by Goel et al. (2009), this study compares stock prices of media companies before and after the introduction of stricter regulation under the Pirate Act in the US and observe a rise in stock prices of several media stocks.

Control variables that are often applied in the time series studies are among others: birth year; gender; class and major of students; occupation; overall online activity; household income; household size; presence of children in the household and region of residence.

Based on the results of Danaher et al. (2010) it becomes clear that a division in our survey between online and offline legal purchases is relevant, the same holds true for free downloading versus streaming. Hours of internet access per week and familiarity with internet terms are included in the survey of this study as control variables and possibly instrumental variables for internet familiarity and hence ease of downloading. Respondents in this study are asked how often they use internet to search information about creative content to mimic the ´clicks on content information sites´ applied by Aguiar & Martens (2013) as a control variable for content taste.

Studies based on cross country and cross region analysis

A cross country or region method was applied by only 5 of the reviewed studies, although several time series and surveys based papers also took country specific effects into account. From these 5 studies Peitz & Waelbroeck (2004, using 2001 global data) and Huig & Png (2001, 1994-1998 global data) found a negative effect of file sharing on music sales, while Oberholzer-Gee & Strumpf (2007, US data of 2002) and Andersen & Frenz (2010,

Canadian survey data of 2006) conclude that there is no net effect. All 3 studies that discerned a negative effect mention that this explains the drop in legal sales only partially, ranging from a 2% revenue drop for the music industry (Peitz & Waelbroeck, 2004) up to a 6,6% decline (Hui & PnG, 2001). One of the studies that mentioned no net effect, stated that the positive sampling effect and the negative piracy effect cancel each other out (Andersen & Frenz, 2010).

All five studies applied GDP as proxy for economic environment other used variables are: percentage of downloading adults; broadband access; CD players per household; Number of purchased DVDs/video games/ movie tickets/ live concerts; average price of legal content and expected penalties for illegal downloading. Two studies used the annual number of cassettes sold divided by the number of CDs sold as a measure for the technological phase a country is in.

The survey of this study asks in which region respondents live, which is combined with data on available internet speeds in those regions, as a potential instrumental variable although it is expected that internet is universally fast enough for easy downloading of most content, with perhaps an exception for audio-visual content.

5.3 Methodology scan - willingness to pay

Five studies on willingness to pay have been reviewed, and the insights of four have been used to develop the questionnaire. We searched for one overview study comparing different methods to estimate willingness to pay and discussing the pros and cons of each method, two recent studies to make certain what is the current state of the art and as many useful studies that apply willingness to pay estimates to online media content. This search resulted in the following studies:

Table 5.1 Overview of willingness to pay studies

Type of study	Study
Overview study	Breidert et al. (2006), 'A review of methods for measuring willingness-to-pay', Innovative Marketing, vol.2, issue 4, 8-32
State of the art	Schlereth et al. (2012), 'Using discrete choice experiments to estimate willingness to pay intervals', Marketing Letters 23(3), 761-776
	Dost, F. and R. Wilken (2012), 'Measuring willingness to pay as a price range: When should we care?', International Journal of Research in Marketing, 29(2), 148-166
Application to online media content	Sinha et al. (2010), 'Don't think twice, It's alright: Music piracy and pricing in a DRM-free environment', Journal of Marketing, vol. 74, 40-54.

The study which caught our attention but which we did not use in the end was De Pelsmacker et al. (2005), who applied a conjoint analysis. Since the Breidert study overall argues against a (pure) conjoint analysis and the two recent state-of-the-art studies use a discrete choice approach, we decided against the approach of a conjoint analysis. But in the end, the difference

between a conjoint analysis and a discrete choice model practically vanishes if discrete choices are offered sequentially for products with different attributes, as is the case in state-of-the-art studies.

Breidert et.al (2006) have reviewed willingness to pay studies, which they classify into studies of market data, experiments, direct and indirect surveys. In direct surveys respondents are asked directly about their willingness to pay (at which price?) and in indirect surveys they are asked whether they would buy a given product at a given price. Breidert et al. argue that the main drawback of direct questions is that it usually is not exactly clear for which product the willingness to pay is measured because the exact product is not described, limiting the validity of the measurement.

Measurements of willingness to pay based on indirect surveys fall in one of two classes: discrete choice or conjoint. A drawback of a pure conjoint analysis is that actual purchase behaviour is not observed at all. For this reason we centre the willingness to pay questions around the last download or stream.

Sinha et al. (2010) asks respondent about their willingness to pay with a sequence of two bids, with and without DRM (Digital Rights Management). DRM enables online content providers to make it difficult or impossible for end users to copy the content, for example making it impossible to store the content physically on the PC or tablet. Respondents are asked whether they would purchase a music track at one of five random point prices for accessing music with DRM (yes or no), and then for music with DRM removed, at a price based on the first answer.

Two recent papers on willingness to pay, Schlereth et al. (2012) and Dost and Wilken (2012) argue that asking to indicate the likelihood of buying a certain good on a Likert scale, from "unlikely" to "likely" reflects consumer choices best. In addition, both papers argue that such questions with a price range rather than a point price are more likely to capture the price range in which consumers are willing to pay for a good. Schlereth et al. finally argue that an "attractiveness indicator" is needed to capture a higher willingness to pay for a product with more attractive attributes. In this view, the study of Sinha et al. is state-of-the-art in capturing the willingness to pay for a more attractive alternative, but willingness to pay may perhaps be measured even more accurately with a Likert scale of likelihoods instead of yes or no and with price ranges instead of point prices.

Schlereth et al. applied their model to an online survey with 122 completed questionnaires. They first ask respondents about their familiarity with netbooks and their likelihood to buy a netbook in the next twelve months. They then continue with a discrete choice experiment concluding with the question to rate the difficulty to make the choices, and finally ask after age and gender to use as explanatory variables (co-variates), with age turning out a relevant control variable but not gender.

Because most of the above papers are not about piracy and use small sample data just to demonstrate that the proposed methodology works, the discussion about the empirical results are limited to the observation that Sinha et al. (2010) find that the proportion of people who self-report a willingness to pay for music is somewhat higher if DRM is removed (34 compared to 26 per cent) and a much higher 49 per cent if the price is $.75 instead of $.99 per track (with DRM removed as well), they conclude that the industry might benefit from reducing prices.

6 SURVEY STATISTICS

6.1 Sample selection

The sample for persons that have filled in the questionnaire exists of people from six different countries, namely; Germany, United Kingdom, Spain, France, Poland and Sweden. The respondents where chosen trough Survey Sampling International (SSI). In building proprietary panels, (SSI) employs a broad, multi-sourced online approach. Respondents where recruited using diverse sources, such as banner ads, pop ups and messages on web sites encouraging people to give their opinion. Recruitment messages where tailored to the population being recruited, and to the interests of the web site where the message where displayed. SSI offered a national representative online panel for each of the six countries. National panel sizes of SSI are necessarily far larger than the number of respondents (less than 3,000 per country), because not all panellists can be reached at the same time and panellists are not allocated to a survey if a sufficient number of respondents in the same category (gender and age) already has answered the survey.

Table 6.1 SSI panel sizes per country

	DE	UK	ES	FR	PL	SE
Panel size	182,979	484,133	208,563	312,701	138,860	92,506

Although SSI reaches out to offer panel membership as broadly as possible, and anyone can apply to join an SSI panel, SSI does not accept everyone's application. A "moat" is built around the panel to ensure that any panel member whose application to join is accepted, is likely to answer surveys carefully and truthfully. Respondents were not paid to join a panel, and SSI employs various quality checks in an effort to identify potential poor quality respondents and prevent them from joining or remaining on SSI panels. These include identity checks and pattern recognition across surveys to detect fraudulence, and checks on inattention such as speeding (answering questions in a very short time), straight-lining (checking the same option for all answers), unthoughtful answers to open questions and quickly clicking away introductory texts). By default SSI panellists are blacklisted and never invited again after three inattentive surveys, or at once depending on the gravity of the problem. In general, 2-3% of the shortest interviews are removed from the sample, and 7% is removed due to indications of inattentive answers. Since respondents can pause from filling in the questionnaire, the longest interviews are not removed unless they fail the other quality checks.

Furthermore, SSI extends their reach to include those who would never join a panel through SSI Dynamix™—the dynamic sampling platform that links to the own panels of SSI, as well as social media, online communities, affiliate partners and more. SSI's dynamic sampling platform—SSI Dynamix™—goes beyond panels to integrate seamlessly survey participants from all areas of the Internet, including our own global panels, social media, websites, affiliate partnerships and more. This multi-faceted system delivered the widest reach,

transforming the entire Internet into the panel; the most effective respondent experience, taking people to the right surveys at the right time; the highest data integrity, using multiple levels of randomness and built-in quality processes; and the deepest respondent engagement, providing participants with customized, motivating incentives.

Respondents were admitted to the survey until quotas by gender and age were achieved, to ensure a sample that reflects the internet using population given in Section 1.4 (Table 1.3). By design minors (aged 14-17 years old) were oversampled because this is a small age group of specific interest, and due to difficulties to recruit new people aged 14-15 in a short time, particularly minors aged 16-17 were oversampled. Lower response rates were feared for people above the age of 55 years given the topic of the survey, and hence people in these age categories were also oversampled. To correct for this, respondents are given weights by gender and age, where respondents in oversampled categories are given smaller than unit weights and respondents in under-sampled categories are given larger than unit weights, as given in the Table 6.2.

Table 6.2 Weight factors applied to respondents by country, gender and age

Gender	Age	DE	UK	ES	FR	PL	SE
Male	14	0.83	1.26	0.93	1.15	1.04	0.85
	15	0.94	1.08	0.76	1.18	1.15	0.74
	16	0.40	0.47	0.43	0.58	0.58	0.51
	17	0.38	0.47	0.44	0.56	0.52	0.46
	18-24	1.51	1.71	1.05	1.69	1.08	0.79
	25-34	1.07	0.96	1.30	1.04	1.73	1.63
	35-44	0.93	1.06	1.33	1.09	1.28	1.10
	45-54	1.40	1.12	1.21	1.08	0.88	1.12
	55-64	0.98	0.92	0.55	0.92	0.54	1.04
	65-74	0.66	0.80	0.40	0.61	0.27	0.88
Female	14	0.74	1.01	0.95	1.01	1.23	0.78
	15	0.74	0.84	0.91	0.93	0.97	0.74
	16	0.38	0.46	0.45	0.52	0.60	0.36
	17	0.40	0.46	0.42	0.48	0.47	0.39
	18-24	1.53	1.41	1.18	1.51	1.22	0.86
	25-34	0.98	1.04	1.18	0.99	1.51	1.35
	35-44	0.92	1.06	1.29	1.13	1.29	1.09
	45-54	1.33	1.05	1.18	1.02	0.84	1.06
	55-64	0.84	0.97	0.53	0.93	0.53	1.03
	65-74	0.90	0.80	1.16	0.63	0.64	0.90

6.2 Sample description

The sample consists of close to 30,000 respondents: close to 5,000 for each country. Minors, defined as persons aged 14-17 in this study, are slightly overrepresented by design, to allow a separate analysis of this age category. Since newly recruited respondents aged 14 and 15 quickly move to higher age categories, in practice especially persons aged 16-17 were slightly overrepresented in the sample. Another group that is overrepresented in the sample, are men in the age category 65-74 years old, where response rates

were higher than anticipated based on the test sample results. To correct for their overrepresentation, these groups were given less than unit weights, while groups underrepresented in the sample were given more than unit weights.

In the tables below the breakdown of the sample can be found by gender, age and education, both weighted and un-weighted percentages are shown. In the annex there is information on more levels about the sample. In all of the following tables, the single letter "N" denotes the total number of respondents.

After weighting the distribution of minors and adults also changes slightly: the total number remains slightly over 28,000 respondents but correcting for the overrepresentation of minors results in a "representative" number of 1,923 instead of 2,994 minors.

Table 6.3 Respondents by gender (percentage of females)

	Unweighted		Weighted*	
	Minors	Adults	Minors	Adults
% Female	50.6	50.1	50	50
N	2,994	25,647	1,923	26,683

* Weighted as discussed in Section 1.5.

Table 6.4 Respondents by age category in percentages

Age category	Unweighted		Weighted	
	Minors	Adults	Minors	Adults
14	16.0		24.2	
15	16.9		25	
16	33.1		25.3	
17	34.1		25.5	
18-24		12.3		14.3
25-34		19.3		22.7
35-44		20.4		22.4
45-54		19.2		20.4
55-74		28.8		20.3
N	2,994	25,647	1,923	26,683

* Weighted as discussed in Section 1.5.

Table 6.5 Respondents by dducational level (Unweighted)

Educational level	Minors (percentage)			Adults
	In education	Not in education	Total	(percentage)
Primary school or none	0.8	14.1	2.8	1.6
Lower secondary education/ intermediate qualification	29.4	46.2	31.9	11.8
Upper secondary education / full maturity certificate	58.3	32.1	54.4	32.7
Further education (diploma, certificate, etc.)	8.4	3.1	7.6	17.7
Higher education (university bachelor, master, PhD)	3.1	4.5	3.3	36.2
N	2,546	448	2,994	25,634

Table 6.6 Respondents by educational level (Weighted*)

	Minors (percentage)			Adults
	In education	Not in education	Total	(percentage)
Primary school or none	1.1	16.2	3.8	1.6
Lower secondary education/ intermediate qualification	38.7	48.4	40.4	12.1
Upper secondary education / full maturity certificate	50.3	28.9	46.5	31.4
Further education (diploma, certificate, etc.)	7.1	2.4	6.2	17.8
Higher education (university bachelor, master, PhD)	2.8	4.1	3.0	37.1
N	1,583	339	1,922	26,670

* Weighted as discussed in Section 1.5.

6.3 Use of creative content

The survey data on numbers of persons who have consumed creative content in the past years and on amount of creative content accessed, weighted to obtain representative figures by gender and age per country, can be summarized as follows. Between 48 and 75 per cent of the total population has bought, rented, downloaded, streamed or visited live either music or films or TV-series, with the highest figures in Poland and Spain. For minors these percentages were higher between 68 and 88 per cent.

For books and games, the percentage of the total population accessing these types of creative content varied between 49 and 62 per cent in Germany, the United Kingdom, Spain and Poland. However in France and Sweden, books and games were less often consumed, by 30 to 41 per cent of the total population. Roughly similar proportions of minors accessed books, but in France and Sweden the percentage of minors was 10 percentage points higher.

Table 6.7 Percentage of the internet using population consuming creative content

Category	Group	*DE*	*UK*	*ES*	*FR*	*PL*	*SE*	*EU**
In the past year, have you purchased, rented, downloaded or streamed music or visited a live concert?	Total	*63*	*62*	*65*	*48*	*67*	*58*	***61***
	Minors	*81*	*77*	*69*	*68*	*80*	*77*	***75***
In the past year, have you purchased, rented, downloaded or streamed films or TV-series or visited a cinema?	Total	*64*	*72*	*75*	*59*	*74*	*69*	***69***
	Minors	*83*	*86*	*74*	*75*	*76*	*88*	***79***
In the past year, have you purchased, downloaded, or streamed books or audio-books or borrowed or e-	Total	*62*	*54*	*54*	*30*	*50*	*41*	***50***
	Minors	*62*	*52*	*50*	*38*	*58*	*51*	***52***

Category	Group	DE	UK	ES	FR	PL	SE	EU*
borrowed any of these from a library?								
In the past year, have you purchased, downloaded or streamed computer/video games, or played online games?	Total	*46*	*49*	*51*	*39*	*50*	*39*	***46***
	Minors	*65*	*75*	*65*	*61*	*65*	*69*	***66***

*Weighted as discussed in Section 1.5, N = 26,670 (adults) and 1,922 (minors).

6.4 Proportion of illegal downloaders / streamers

The following table compares the outcomes of use of illegal online channels with previous literature. This comparison is hampered by differences in definitions. For example, the sampling procedure in this study ensures that the sample is representative for the internet using population by gender and age. Various other studies weight the respondents for representativeness of the total population. Because above the age of 55 years a lower proportion of the people use internet, a lower proportion of the people above the age of 55 years should unlawfully access content online as well and this results in (slightly) higher estimates of the use of illegal online channels by internet users compared to the whole population.

For music, use of illegal online channels seems comparable to some previous studies: for adults 40% compared to 35% (Poort et al. 2013), 40% (Huygen et al., 2009) and 29% in Andersen and Frentz (2007). For minors, the 52% compares to 48% in Andersen & Frentz (2007, unweighted) and 50% in Bounie et al. (2005) where young people were overrepresented. The proportion of respondents who illegally downloaded or streamed music in the last 6 months (32%) is high compared to 18% (Poort et al. 2013) and 17% (Bastard et al., 2012) which can be explained by high proportions in Poland and Spain (see Table 6.9 further below, which includes the country and year of survey data and the formulation of the questions). In all of these studies, more people use illegal channels than the 9% in the early days of online music in 2001 as reported by Zentner (2006).

Table 6.8 Estimate of the proportion of people who use illegal online channels (in most literature illegal downloads)

Reference	Population	Reference period	Music	Films	Books	Games	Total
This study (N = 28,866, age 14-74, DE, UK, ES, FR, PL, SE)							
When did you stream or download from file sharing and hosting sites such as…	Internet population age 18-74 *	Last in past 6 months	32%	37%	17%	19%	48%
		Last 6-12 months ago	3%	3%	2%	2%	3%
		Last > 1 year ago	6%	5%	3%	5%	6%
		Total	40%	46%	23%	26%	57%
	Age 14-17 (±100% internet use)*	Last in past 6 months	45%	52%	20%	30%	70%
		Last 6-12 months ago	3%	3%	3%	3%	2%
		Last > 1 year ago	4%	4%	2%	7%	3%
		Total	52%	59%	25%	40%	75%
Poort & al (2013), Netherlands 2012, N=2024 (Nov/Dec)							
Did you download or stream … from an illegal source?	Weighted to total population	Last in past 6 months	18.2%	17.8%	8.5%	6.4%	24.5%
		Last 6-12 months ago	3.5%	2.1%	1.7%	1.7%	3.4%
		Last > 1 year ago	13.7%	8.2%	3.2%	8.7%	13.4%
		Total	35.4%	28.1%	13.4%	16.8%	58.7%
Bastard et al. (2012), France 2008, N=2005							
Have you downloaded … via a pirate site?	Total population	Past 6 months	16.5%	12.6%	4.3%	1.9%	21.8%
Fukugawa (2010), Japan 2010, N=9970							
Did you ever try to download a pirated version?	Users of portable game machines	Ever				1.7%	
Huygen et al. (2009), Netherlands 2009, N=1500							
Have you downloaded … without paying?	Internet using population	Past 12 months	40%	14%		18%	44%
Bai & Waldfogel (2009), China 2008, N = 3852							
Which of 150 movies did you see - unpaid download?	N=3852 online population	Past 3 years		10.3%			
	N=384 students	Past 3 years		17.8%			
Andersen & Frentz (2007), Canada 2006, N=21070							
How did you get music - P2P downloads	Young overrepresented	Previous year	47.9%				
	Weighted to total population	Previous year	29.0%				
Hennig-Thurau (2007), Germany 2006							
For which of 25 films did you obtain an illegal copy?	Movie consumer population	Past year		18.5%			

Reference	Population	Reference period	Music	Films	Books	Games	Total
Bounie et al. (2005; 2006), France 2004; 2005, N=589; 620							
How often do you acquire a pirated film - P2P download	Mostly students	At least monthly		12.9%			
		At least yearly		20.3%			
		Ever	50%	23.3%			
Rob and Waldfogel (2007b), USA 2005, N=412							
Which of 150 films did you view after an unpaid download?	Students	Past 3 years		1.2%			
Zentner (2006), DE, FR, ES, IT, NL, SE, UK 2001; N=15133							
Regularly download MP3 files / do filesharing (e.g. Napster)	Overall population	(none)	9%				

* Weighted as discussed in Section 1.5.

For films and books the self-reported use of illegal online channels is higher than in any of the previous literature (see Table 6.8 for references of previous studies including country and year of survey data and formulation of the questions). For books, this might be explained by an expanding availability of e-books and e-book readers. For audio-visual this might be due to the inclusion of TV-series, the rapidly increasing availability of illegal content, e.g. Popcorn Time and the increased bandwidth available. For games the self-reported use of illegal online channels (21%) is in line with the 17% reported Poort et al. (2013) and the 18% reported by Huygen et al. (2009).

Nevertheless, despite difficulties to compare estimates of using illegal online channels, it is apparent that the proportion of users from illegal online sources is nowadays much larger than 10 or 15 years ago: compare the results of Zentner (2006, based on 2001 data of six EU countries) and Rob and Waldfogel (2007b, based on 2005 USA data) with the results from any of the studies using later data.

In this study, the central question was when was the last time when the responded did "*download from file sharing and hosting sites such as…"* where a few examples were given of illegal sources for downloading, and a similar question for streaming from illegal sources. This formulation was chosen to minimize the risk of under-reporting due to flagging sites as "illegal" or "pirate" which indicates undesirable behaviour, while being explicit by means of the examples. Some previous studies make more explicit reference to illegal sites (Poort et al., 2013; Netherlands at a time when downloading from illegal sources for personal use was not illegal in that country), illegal copies (Hennig-Thurau, 2007, Germany) or to pirate sites such as Bastard et al. (2012; France), Fukugawa (2010; Japan), Bounie et al. (2005). Since the proportion of users of illegal online sources is slightly to substantially higher than in previous literature, this implies that the efforts in this study to minimize the risk of under-reporting have not been without effect. Nevertheless, under-reporting in this study cannot be ruled out, and to the extent that respondents under-reporting illegal online consumption, this affects the reliability of estimates of displacement rates as discussed in the next chapter.

Respondents by channel used

The following tables provide a further breakdown of the use of channels in the past year for each type of creative content. Respondents can have used multiple channels to access creative content. For example, for Germany 44 per cent of the respondents have bought music on a CD or vinyl record, and 40 per cent have visited a live concert in the past year, see Table 6.9. These may be the same or different respondents. In addition, in Germany there are people who downloaded and streamed music legally and illegally, with percentages ranging from 14 to 36 per cent. All these percentages add up to 178 for Germany. Loosely speaking, this implies that Germans use on average 1.8 channels to access music. In general, the proportions of respondents admitting illegal transactions is quite high in comparison to other studies.

Table 6.9 Percentage of users (in the past year) of music in total number of respondents, by music channel (survey internet users)

	DE	UK	ES	FR	PL	SE	EU*
Purchase on physical carriers	44	43	42	30	42	25	39
Legal downloading	36	47	45	29	40	27	38
Legal streaming	28	43	55	41	50	49	44
Illegal downloading	16	23	49	28	47	23	32
Illegal streaming	14	19	35	21	34	11	24
Live concerts	40	42	51	30	46	34	41

*Weighted as discussed in Section 1.5, N = 28,649.

Table 6.10 Percentage of users (in the past year) of films and/or TV-series in total number of respondents, by audio-visual channel (survey internet users)

	DE	UK	ES	FR	PL	SE	EU*
Purchase on physical carriers	44	54	39	32	34	34	40
Rental on physical carriers	27	27	36	16	31	25	28
Legal downloading	19	32	39	32	34	15	30
Legal streaming	26	57	47	40	61	50	46
Illegal downloading	14	24	48	27	43	27	31
Illegal streaming	18	25	54	31	44	34	35
Cinema	53	63	68	51	61	54	59

*Weighted as discussed in Section 1.5, N = 28,649.

Table 6.11 Percentage of users of books in total number of respondents, by channel (survey internet users)

	DE	UK	ES	FR	PL	SE	EU*
Purchase of physical books	56	48	44	26	42	32	42
Physical borrows from library	23	30	36	18	38	27	29
Legal downloading	26	36	33	15	27	16	26
Legal streaming	12	17	23	11	24	11	17
Illegal downloading	9	14	32	11	27	10	18
Illegal streaming	8	13	24	9	20	7	14

*Weighted as discussed in Section 1.5, N = 28,649.

Table 6.12 Percentage of gamers in total number of respondents, by channel (survey internet users)

	DE	UK	ES	FR	PL	SE	EU*
Purchase on physical carriers	31	35	36	23	31	21	30
Legal downloading	18	26	27	15	24	13	21
Legal streaming	21	27	36	23	33	20	27
Cloud gaming (legal)	10	14	22	11	18	9	15
Free games (legal)	27	29	38	26	39	18	31
Illegal downloading or streaming	10	15	29	14	24	11	18
Playing on a chipped game console	9	15	25	13	18	10	16

*Weighted as discussed in Section 1.5, N = 28,649.

6.5 Numbers of transactions

Data cleaning and weighting

Numbers of transactions have been calculated by combining numbers of transactions from different reference periods (transactions in three, six or twelve months) and different measurement units (tracks versus albums, episodes versus seasons). After transforming these numbers into annual figures taking account of seasonality as described below, numbers above three times the standard deviation were removed from the sample. For example, 90 albums in the last three months would transformed into 3,600 music tracks per year: 10 tracks per album, times four seasons, times the reported number of 90. People download on average around 10 music tracks per year (see Table 6.13) with a standard deviation of roughly 80. So this number of 3,600 would be quite above three times the standard deviation and would be removed from the sample.

Because extremely high numbers in individual reference periods and measurement units can distort any estimate based on annualized numbers, a preliminary cleaning was done by setting numbers exceeding 100 for a specific reference period or measurement unit were also set to missing. The cut-off at 100 was chosen because a spike was observed at 100, i.e. people do not report numbers of transactions such as 88 or 114 but exactly 100, which indicates imperfect recall. This preliminary cleaning affects a few dozens of responses for any type of transaction. Without this preliminary cleaning, the standard deviation would be so huge that almost no reported numbers would be above three times the standard deviation even if they are obvious outliers. This type of cleaning reduced the average numbers by roughly 10 to 15 per cent.

Secondly, roughly one per cent of the respondents report exactly 10 times as many tracks as albums (music) or exactly 10 times as many episodes as full seasons (audio-visual). In these cases it was assumed that the respondent reports the same number twice. Thirdly, numbers of transactions that are exactly the same for all channels within a category (music, audio-visual, books or games), are removed (set to missing). For music this affects 21

respondents and for games 71 respondents (0.2 per cent of the sample or less). For audio-visual content roughly 600 respondents report identical numbers for at least 8 out of 12 possible answers (audio-visual) and for books roughly 500 respondents report identical numbers for at least 4 out of 5 possible answers; or roughly 2 per cent of the sample each. These types of cleaning affects average numbers by less than one per cent, mainly because numbers that are repeated across all possible answers are typically small. Also weighting the respondents by gender and age had a negligible impact on sample means (less than one per cent).

Music - Seasonality

To reduce recall bias, respondents were asked about the numbers of transactions in the last 3, 6 or 12 months depending on when their last transaction took place. Since the survey was held in October, this raises the question how representative the transactions in the summer are for the rest of the year. According to USA data total/physical[37] and online sales[38] of music are only roughly 10 per cent less in the summer than in other quarters. The exception is live concerts where 40 per cent of annual sales are in the summer months.[39] Hence for most music channels, numbers of transactions of the last 6 and 3 months are multiplied with 2 and 4 respectively. For live concerts, the numbers of the last 6 and 3 months are multiplied with 1.5 and 2.5 respectively.

Music - Average numbers of transactions

The table below presents the annual average number of music transactions by country and channel per head of the population aged 14-74.

Table 6.13 Average number of music transactions by channel per respondent (survey internet users)

	DE	UK	ES	FR	PL	SE	EU*
CDs, vinyl records	5	5	4	3	5	2	4
Legal downloads, Ntracks	10	13	13	8	12	7	11
Legal downloads, Nalbums	2	3	3	2	2	2	3
Legal streaming, Nhours	5	10	14	10	9	15	10
Illegal downloading, Ntracks	4	6	16	7	13	5	10
Illegal downloading, Nalbums	1	2	4	2	3	2	3
Illegal streaming, Nhours	2	3	6	4	5	2	4
Live concerts	0.5	0.6	0.7	0.4	0.8	0.5	0.6

*Weighted as discussed in Section 1.5, N = 28,641.

[37] www.statista.com/statistics/238734/quarterly-revenue-of-the-warner-music-group.

[38] www.geek.com/apple/itunes-in-numbers-no-one-can-beat-the-superstore-1108472.

[39] www.prnewswire.com/news-releases/live-nation-entertainment-reports-third-quarter-2013-financial-results-230707351.html.

Music - Cross-check with sales statistics and previous literature

Physical purchases. The above table shows that respondents bought on average 2-5 CDs/singles/vinyl records per head of the population per year, either in a physical shop or via a web shop. Based on sales statistics and an assumed price of € 10 per CD (see also Table 4.2), the estimate would be 1 per head of the population per year or less. Bounie et al. (2005) report 3 CDs per year in France with reference to IFPI statistics. At the same time Bounie et al. (2005) report that respondents in their survey purchased on average 5 CDs per year in France (2003). Likewise, Bastard et al. (2012) report that respondents in their French survey purchased on average 6 CDs per year (2008 data). Hence in all surveys self-reported numbers of CD purchases are consistently higher than average purchases calculated from sales statistics. One explanation is that the sample of internet users is not representative for the whole population. Another possibility is a difference in definitions; e.g. the inclusion of web shops (yes in the survey) and non-copyrighted content (yes in the survey). The fact that an assumed price of € 10 per CD results in an estimate of 1 CD purchase per person per year while previous evidence suggests a higher CD consumption, indicates that respondents buy CDs on at lower average prices than reported by the music industry, perhaps due to CDs with older or even not copyrighted music.

Legal online. Respondents report on average more legal online transactions than expected from sales statistics. Counting an album as 10 tracks, respondents report to have legally downloaded 24 to 48 tracks per head of the population per year (i.e. exclusive streaming). For comparison, Aguiar and Martens (2013) report that people in Spain made 6 "buy clicks" for music per year and people in France, Germany and UK around 20 per year. Of course not every click results in a purchase, and either a music track or an album may have been downloaded with one click. Yet based on sales statistics, fewer online transactions would be expected assuming a price of € 0.80 per music track, namely 4 tracks per year in France, Germany, Poland and Spain and 11-15 tracks per year in Sweden and the United Kingdom. More than for physical sales, this indicates that the sample of internet users is not representative for the whole population.

Live concerts. Respondents report on average 0.4 to 0.8 live concerts per head of the population per year. Assuming these live concerts do not include free summer concerts and assuming a price of € 60 per concert agrees with sales statistics. This agreement means that concerts may actually under-reported, although hopefully only the free summer concerts are under-reported. Overall, with regard to live concerts, there is no reason to conclude a systematic difference between the sample of internet users and the whole population.

Audio-visual - Seasonality

Based on figures of the Digital Entertainment Group (USA, 2012 and 2013), it is apparent that in both the second and third quarter of a calendar year physical retail sales (both in physical shops and via electronic sell-through)

are 20 per cent of annual sales. However in rents of films, video on demand and streaming, no seasonality in sales figures is apparent. According to Mojo Box Office figures, the box office peaks in the last quarter of the calendar year and hits the bottom in the first quarter, but is average in the second and third quarter. Hence figures of the last 3 months are multiplied by 4 for most channels except physical retail which are multiplied by 5, and figures of the last 6 months are multiplied by 2 and by 2.5 for physical retail. The seasonality corrections were done after preliminary estimates and did not substantially affect estimates of displacement rates (unlike the choice of instrumental variables or selecting only small numbers of transactions, e.g. less than 20 per year as discussed in the next chapter).

Audio-visual - Average numbers transactions

The table below presents the annual average number of audio-visual transactions by country and channel per head of the population aged 14-74.

Table 6.14 Average number of audio-visual transactions by channel per respondent (survey internet users)

Channel	Unit	DE	UK	ES	FR	PL	SE	EU*
Physical retail	Films/seasons	5.0	5.7	4.0	2.9	3.5	3.8	4.1
	Episodes	2.8	4.2	4.3	2.2	4.0	2.6	3.5
Physical rent	Films/seasons	2.6	2.2	3.3	1.1	2.9	2.0	2.5
	Episodes	1.4	2.0	3.3	1.1	2.6	1.5	2.2
Legal download	Films/seasons	1.5	2.2	3.5	3.0	2.7	1.0	2.5
	Episodes	1.6	2.8	4.5	3.9	3.6	1.5	3.2
Legal stream	Films/seasons	3.2	8.6	5.4	4.1	8.0	8.4	6.0
	Episodes	2.9	11.7	6.6	5.7	10.5	9.0	7.5
Illegal download	Films/seasons	1.2	2.6	5.9	2.9	4.8	4.3	3.8
	Episodes	1.2	3.3	6.3	3.3	5.0	3.9	4.1
Illegal stream	Films/seasons	2.1	2.0	8.2	3.7	4.7	5.8	4.7
	Episodes	1.3	3.4	6.3	3.3	5.0	4.0	4.1
Cinema	Films	6.1	6.0	14.3	7.0	14.2	4.8	9.9

*Weighted as discussed in Section 1.5, N = 28,641.

Audio-visual - Cross-check with sales statistics

Physical purchases. Table 6.14 shows that respondents bought on average 4 films / seasons per year, in a physical shop. Based on sales statistics reported in Section 4.3 and prices ranging from € 7 in Poland to € 12 in France and Spain,[40] people in the EU buy on average 1.5 DVDs in a year, ranging from 0.2 DVDs in Poland to 3.9 in the United Kingdom. In the survey people clearly report higher numbers, and a reason may be that the survey includes non-copyrighted content and TV-series. Another possibility that cannot be ruled out is that the internet using sample is not representative for the total population with regard to the purchase of films and TV-series on physical.

40 www.ivf-video.org/new/public/media.

Physical rent. Respondents report on average more DVD rentals than expected from sales statistics. Respondents have rented 2 DVDs per head of the population per year on average. Based on sales statistics, fewer DVD rentals would be expected based on a price of €1 per DVD in Poland to € 4 in Sweden and the United Kingdom (based on the same source as for physical purchases). Based on sales statistics and prices, people in the EU rent on average 0.8 DVDs per year, ranging from 0.1 DVD per year in France and Poland to 2.3 in Sweden. The same caveats apply here as for physical purchases.

Cinema. Respondents report on average 5 – 14 cinema visits per head of the population per year (10 on average for Europe), which again is higher than expected from sales statistics. When assuming a price of € 9 per person for a ticket to the cinema ranging from € 5 in Poland to € 12 in Sweden[41], the estimate would be 2 cinema visits per head of the population per year. An explanation for the lower estimate from sales statistics could be that the visits to an art-house (film) and summer festival screenings are not taken into account by the sales statistics, even though this is unlikely to fully explain the discrepancy between the data from the survey and sales data.

Books – Seasonality

Quarterly statistics on book sales have not been identified, however available quarterly data on e-book sales indicate little to no seasonality.[42] Hence for books all reported numbers of transactions of the last 6 and 3 months are multiplied by 2 and 4 respectively.

Books - Average numbers of transactions

On average, people in the EU report that they purchase 4.4 physical books per year and borrow a similar number of physical books. People in the EU download half that number legally and again half that number illegally. Streaming of books is less frequent and illegal streaming of books is negligible.

41 E.g., http://studyfun.pl/living-in-poland/life-cost/

42 http://idpf.org/about-us/industry-statistics.

Table 6.15 Average number of book transactions by channel per respondent (survey among internet users)

	DE	UK	ES	FR	PL	SE	EU*
Physical purchases	6.3	5.1	4.1	2.7	4.6	3.4	4.4
Borrowed from a physical library	3.5	4.4	3.7	2.5	5.8	4.4	4.0
Legal downloads	2.8	4.6	2.8	1.2	2.1	1.3	2.5
Legal streams	0.8	1.2	1.5	0.6	1.6	0.8	1.2
Illegal downloads	0.7	1.2	3.7	0.7	2.3	0.7	1.9
Illegal streams	0.02	0.04	0.07	0.02	0.06	0.02	0.04

*Weighted as discussed in Section 1.5, N = 28,641.

Books - Cross-check with sales statistics and previous literature

Table 6.15 shows that respondents have bought on average between 1.2 and 4.4 books per head of the population per year, either in a physical or a web shop. Based on sales statistics and an assumed price of €20 per printed book from online webshops, the estimate would be 3.6 per head of the population per year (ranging between an average of 1 book in Poland and 7.5 books in Germany). The self-reported numbers of book purchases are therefore in line with sales statistics.

Games – Seasonality

According to quarterly sales figures of Activision, sales are evenly distributed over the four seasons for all channels and platforms. However for other companies half of PC and console games sales are realized in the last quarter of the year.[43] This seasonal peak appears to depend on marketing strategies, i.e. the timing of the introduction of blockbusters. For this reason physical sales and streaming (legal and illegal) in the last 6 and 3 months are multiplied by 2.5 and 5 respectively, while sales of games through other channels are multiplied by 2 and 4 respectively.

Games – Numbers of transactions

Most games played in the EU are free games and legal streams (including online consoles), on average close to 4 each in a year, followed closely by 3.4 games bought on a CD or other physical carrier. Slightly fewer games are played after a legal downloads, illegal downloads or streams or on a chipped console. On average people play only one cloud games such as one from Gaikai, Onlive or games directly from the server of the games developer in a year.

43 vgsales.wikia.com/wiki.

Table 6.16 Average number of games transactions by channel per respondent (survey among internet users)

	DE	UK	ES	FR	PL	SE	EU*
Physical purchases	3.2	3.7	4.2	2.1	4.0	1.9	3.4
Legal downloads	1.6	2.3	2.3	1.2	2.0	1.2	1.9
Legal streams	3.2	3.5	4.9	2.8	4.4	2.9	3.8
Legal cloud games	0.8	1.2	1.7	0.7	1.7	0.7	1.2
Free games	3.0	2.9	5.0	3.0	5.6	2.2	3.9
Illegal downloads or streams	1.1	1.6	3.7	1.3	3.1	1.1	2.3
Games played on a chipped console	0.9	1.6	4.2	1.4	2.2	1.0	2.2

*Weighted as discussed in Section 1.5, N = 28,641.

Games - Cross-check with sales statistics and previous literature

Physical games Table 6.16 shows that respondents bought on average between 1.9 and 4.2 physical games per head of the population per year, either in a physical shop or via a web shop. Based on sales statistics and an assumed price of € 15 per physical game from online webshops, the estimate would be 0.1-0.9 per head of the population per year. It seems that for games, the internet using sample is not representative for the whole population with regard to the purchase of games on physical carriers. Another possibility is that people were asked about the number of games they purchased, and one CD may contain more than one game, however the majority of respondents report low numbers of games purchased on physical carriers.

Legal cloud games. Respondents report on average 1.2 legal cloud games (online games) per head of the population per year. Based on sales statistics and an assumed price of €6 per online game, the estimate would be 0.9 per head of the population per year, this is in line with the reported average of the respondents.

6.6 100 films

Respondents were asked to check which of 100 films most popular films of 2011-2013 they have seen. Weighting the sample to the internet using population, it turns out that people have seen on average 16.8 films (Table 6.17). Spaniards have seen on average the most out of the 100 films (20.2) and Germans the least (13.5). By age category, the number of film views peaks at age 18-24 years old at 22.4 films and then declines to 6.5 films for people of 65-74 years old.

Table 6.17 Average number of films seen out of 100 top box office films of 2011, 2012, 2013, by country and age category

	DE	UK	ES	FR	PL	SE	EU28*
14-17 years old	17.2	27.0	21.0	17.6	20.4	23.9	20.8
18-24 years old	18.7	25.7	22.5	22.1	21.8	25.3	22.4
25-34 years old	18.6	22.9	22.8	19.4	20.5	20.3	20.9
35-44 years old	15.2	20.2	21.8	14.5	17.0	19.7	18.2
45-54 years old	11.6	15.8	17.8	11.4	15.3	12.7	14.2
55-64 years old	7.7	10.8	14.0	6.3	10.7	8.1	9.4
65-74 years old	4.6	8.2	12.7	4.2	9.7	4.0	6.5
Total	13.5	18.7	20.2	14.2	18.0	15.9	16.8

*Weighted as discussed in Section 1.5, N = 28,641.

For up to random 20 films out of those the respondent has seen, they were asked how they saw the film the first and the second time. If the respondent saw more than 20 films, these 20 films were assumed to be representative for the other films. In addition to the 16.8 first views, people have seen on average 4.4 films twice (Table 6.18).

On average, people have seen 5.7 films out of the 100 top box office films the first time in the cinema, roughly twice as much as via each single one of the other channels (legal streaming or downloading, DVD or Blu-Ray disk, TV or airplane or illegal streaming or downloading). Interestingly, people see one in four films a second time. However, a second view in a cinema is very rare, and films are most likely to be seen a second time on a DVD or Blu-Ray disk (1.5) or on TV or in an airplane (1.1). Online second views of films are roughly as likely legal or illegal, 0.8 compared to 0.6 out of the 100 top box office films.

Table 6.18 Average number of films seen out of 100 top box office films of 2011, 2012, 2013, by country and channel, first and second views

	DE	UK	ES	FR	PL	SE	EU28*
First views							
Cinema	4.5	6.7	7.9	6.2	4.5	3.3	5.7
Legal online	1.5	2.4	2.9	1.6	3.1	3.7	2.4
DVD or Blu-Ray	3.5	5.0	2.4	2.1	2.6	3.5	3.1
TV or airplane	3.3	3.5	2.9	2.0	4.6	2.1	3.1
Illegal	0.6	1.2	4.0	2.2	3.1	3.1	2.4
Total 1st views	13.5	18.7	20.1	14.1	17.8	15.7	16.8
Second views							
Cinema	0.2	0.4	0.4	0.3	0.5	0.2	0.3
Legal online	0.4	0.8	1.0	0.7	0.9	0.9	0.8
DVD or Blu-Ray	1.6	2.3	1.3	1.4	1.1	1.2	1.5
TV or airplane	1.0	1.2	1.4	0.8	1.6	0.5	1.1
Illegal	0.2	0.4	1.0	0.7	0.7	0.7	0.6
Total 2nd views	3.3	5.2	5.2	3.8	4.8	3.6	4.4
Total (1st + 2nd view)	16.8	23.8	25.3	17.9	22.6	19.4	21.1

*Weighted as discussed in Section 1.5, N = 28,641.

When the numbers of views are further broken down by the year in which the film hit the top lists (generally the vintage year), the numbers are fairly consistent over these years (Table 6.19). Only in the UK there is a pattern where films of 2013 are more often seen in the cinema and less often seen on

DVD or TV. In addition, the numbers seen in the cinema are unexpectedly low in France in 2012 and the numbers seen on TV are unexpectedly high in Poland in 2012. The numbers by vintage year imply that the total number of views can be divided by three to estimate the number of views per year (which would not have been the case if the numbers for vintage year 2013 would have been consistently higher, for example).

Table 6.19 Average number of films seen out of 100 top box office films of 2011, 2012, 2013,by country, channel and vintage year, first and second views

	Year	DE	UK	ES	FR	PL	SE	EU28*
First views								
Cinema	2011	1.4	2.0	2.5	2.2	1.4	1.3	1.8
	2012	1.4	2.4	2.8	1.6	1.7	1.0	1.8
	2013	1.7	2.3	2.8	2.4	1.3	1.2	2.0
Legal online	2011	0.5	0.7	0.9	0.6	0.9	1.2	0.8
	2012	0.5	0.8	1.0	0.5	1.1	1.3	0.9
	2013	0.5	0.9	1.0	0.6	1.0	1.3	0.9
DVD or Blu-ray	2011	1.2	1.7	0.7	0.8	0.8	1.1	1.0
	2012	1.2	1.8	0.8	0.6	1.0	1.2	1.1
	2013	1.3	1.5	0.8	0.8	0.9	1.2	1.1
TV or airplane	2011	1.1	1.3	0.9	0.8	1.5	0.7	1.1
	2012	1.0	1.2	1.1	0.6	2.0	0.7	1.1
	2013	1.1	1.0	1.1	0.7	1.5	0.8	1.0
Illegal online	2011	0.2	0.3	1.2	0.7	0.9	0.9	0.7
	2012	0.2	0.4	1.3	0.6	1.1	1.0	0.8
	2013	0.2	0.4	1.3	0.8	1.0	1.1	0.8
Second views								
Cinema	2011	0.1	0.1	0.1	0.1	0.2	0.1	0.1
	2012	0.0	0.1	0.2	0.1	0.2	0.1	0.1
	2013	0.1	0.1	0.2	0.1	0.2	0.1	0.1
Legal online	2011	0.1	0.2	0.3	0.2	0.3	0.4	0.3
	2012	0.1	0.2	0.4	0.2	0.4	0.3	0.3
	2013	0.1	0.3	0.4	0.2	0.3	0.4	0.3
DVD or Blu-ray	2011	0.5	0.8	0.4	0.5	0.3	0.4	0.5
	2012	0.5	0.8	0.4	0.3	0.4	0.4	0.5
	2013	0.6	0.7	0.4	0.5	0.3	0.4	0.5
TV or airplane	2011	0.3	0.5	0.5	0.3	0.5	0.2	0.4
	2012	0.3	0.4	0.5	0.2	0.7	0.2	0.4
	2013	0.4	0.4	0.5	0.3	0.5	0.2	0.4
Illegal online	2011	0.0	0.1	0.3	0.2	0.2	0.2	0.2
	2012	0.1	0.1	0.3	0.2	0.3	0.2	0.2
	2013	0.1	0.2	0.3	0.3	0.2	0.3	0.2
Total first views		13.5	18.7	20.1	14.1	17.8	15.7	16.8
Total second views		3.3	5.2	5.2	3.8	4.8	3.6	4.4

*Weighted as discussed in Section 1.5, N = 28,641.

Lastly, it is interesting to see for which channels a first view is most likely to be followed by a second view (Table 6.20). Perhaps surprisingly, a view in a cinema is rarely followed by second view, and if it is seen a second time then often this second view is once again in the cinema (for 0.2 out of 5.7 first views). In contrast, Rob and Waldfogel (2007b) reported that American

students saw one out of three films a second time after a first view in the cinema. This contrast is likely to reflect differences in the populations. Of all the channels, a view on DVD or Blu-Ray disk is most likely to be followed by a second view, either via the same medium or in the cinema (for respectively 0.6 and 0.7 out of 3.1 first views). The fact that half of the first views on DVD or Blu-Ray disk is followed by a second view, again contrasts with Rob and Waldfogel who report that roughly 15 per cent of the first viewings through rental is followed by a second view. Of course there can be substantial (cultural) differences between American students and the EU population as a whole. In the EU, most films can be seen in the cinema during a relatively short period which makes it plausible that a first cinema visit is seldom followed by a second cinema visit for the same film. Also, one can argue that people buy DVDs in particular for films that they would like to see more than once, so a frequent second view on DVD of the same film after the first view on DVD makes sense.

Table 6.20 Average number of films seen out of 100 top box office films of 2011, 2012, 2013, by country and channel, first and second views*

	Cinema	Legal online	DVD/ Blu-Ray	TV/ airplane	Illegal online	Total
Number of first views	5.7	2.4	3.1	3.1	2.4	16.8
Followed by…						
… None	5.4	1.7	1.6	2.0	1.7	12.4
… View in cinema	0.2	0.3	0.7	0.4	0.2	1.7
… View legal online	0.0	0.3	0.1	0.1	0.0	0.6
… View on DVD/Blu-Ray	0.0	0.1	0.6	0.1	0.1	0.9
… view on TV/in airplane	0.0	0.0	0.1	0.5	0.0	0.6
… View illegal online	0.0	0.1	0.1	0.1	0.3	0.5
… Total second view	0.3	0.8	1.5	1.1	0.6	4.4

*All weighted as discussed in Section 1.5, N = 28,641.

Finally, it can be seen from Table 6.20 that out of 21.1 views of the most popular films of the last three years (16.8 first views + 4.4 second views), 18.2 views were legal and 2.9 views were illegal. This implies that roughly one in seven views were illegal. The number of 2.9 illegal online views may seem small compared to the number of 18.2 legal views, but is almost the same as the number of 3.2 legal online views, so there is no reason to doubt the truthfulness or accuracy of the responses, also because the self-reported number of 6 cinema views agrees with the average number of 2 films per year from top box office film statistics.

6.7 Willingness to pay

The tables in Annex E present the distributions of the maximum prices respondents are willing to pay, where the price ranges depend on the type of creative content and are different for each country (given at the end of Annex D). The highest price range is above typical prices for the content. The tables therefore indicate that a substantial proportion of the internet using population (after weighting WTP questions to both the number of users and the internet population) is willing to pay more than the going prices for books

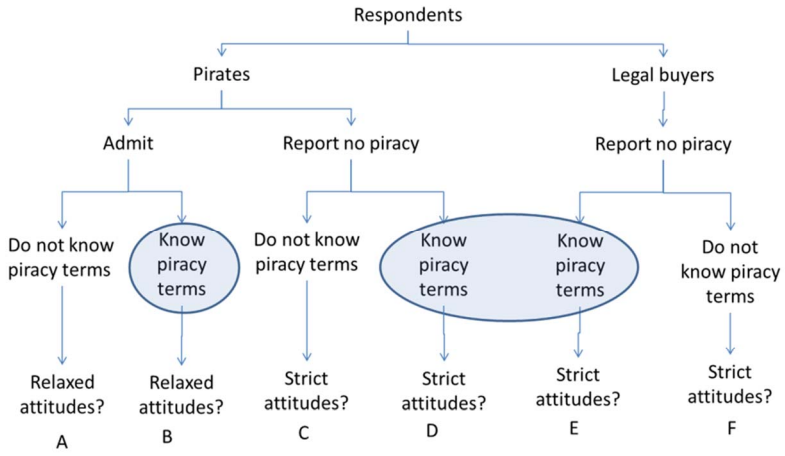
and games, while for audio-visual the majority of respondents is not willing to pay more than a minimal amount. This is further explored in Chapter 9.

6.8 Truthfulness of self-reported legal and illegal consumption

The questionnaire was designed with a view to elicit as many truthful responses as possible on illegal behaviour, mainly by referring to illegal sites in neutral terms with explicit examples. The higher self-reported piracy rates compared to previous surveys is a first indication that untruthfulness might not be more an issue in this survey than in previous surveys.

Nevertheless, the truthfulness of remains a potential issue in a survey about illegal behaviour that needs further investigation. To assess the truthfulness of responses, a hypothesis is needed about which respondents would be untruthful. According to psychology, people tend to minimize cognitive dissonance. This leads to the hypothesis that pirates with strict moral attitudes are most likely to deny this. Figure 6.1 illustrates that according to this hypothesis, self-reporting legal buyers may include both true legal buyers (likely with strict attitudes that cause them to purchase content legally) and denying pirates (also likely with strict attitudes that cause them to deny piracy). Self-confessed pirates are likely to have relaxed moral attitudes and report the truth because they face no cognitive dissonance. Thus, the hypothesis allows to test whether self-confessed pirates indeed have relaxed attitudes and people who report no piracy have strict attitudes. If the positive correlation between self-reported piracy and relaxed attitudes is rejected, it can be concluded that respondents do not deny piracy due to cognitive dissonance with moral attitudes (although they might for other reasons). In this case it is unlikely that the sample of self-reporting legal buyers is contaminated with denying pirates. However conversely, a positive correlation does not allow to conclude that some pirates deny their behaviour, because there simply might be no pirates with strict attitudes.

Figure 6.1 Scheme of self-reported piracy, knowledge of piracy terms and moral attitudes



Moral attitudes have been asked for seven examples of questionable behaviour. Four of these were identical for both adults and minors. Among these four, between 20 and 27 per cent of both adults and minors considered the following acceptable or were undecided (see Annex G):

- Using a flashlight in a museum where that is not allowed;
- Forgetting a promise to do community work;
- Travelling in public transport without a fare.

For jaywalking the percentages are higher, varying from 31 per cent in Spain and Poland where jaywalking is an offense, between 48 and 51 per cent in France, Germany and the United Kingdom where jaywalking is discouraged in law, to 65 per cent in Sweden where jaywalking is allowed.

A factor analysis that is further discussed in the next chapter reveals that there are no significant differences in moral attitudes regarding the different examples, both for minors and adults. Therefore a factor analysis was done of the moral analysis for the four examples of questionable behaviour that were identical for adults and minors. Again there are no significant differences in moral attitudes regarding the different examples of questionable behaviour according to the factor analysis.

Table 6.21 presents the difference in the moral attitudes factor between respondents who self-reported piracy and people who did not. Higher values of the factor indicate more relaxed attitudes regarding the combined examples of questionable behaviour. Regardless of the type of creative content, people who self-report piracy have significantly more relaxed attitudes than people who do not at the 5 per cent level, and for music, audio-visual and games not even at the 1 per cent level. This means the existence of denying pirates are not ruled out by the hypothesis of cognitive dissonance, although neither does this confirm the existence of denying pirates for the reasons discussed above.

Table 6.21 Average moral attitude factor by illegal online usage per type of creative content

	Music	Audio-visual	Books	Games
Report piracy	.225	.193	.216	.291
(standard error)	(.007)	(.010)	(.016)	(.015)
Do not report piracy	-.104	-.121	-.046	-.067
(standard error)	(.011)	(.007)	(.006)	(.006)
Standardized difference	8.1***	10.1***	2.8**	4.4***
N reporting piracy	9,018	11,006	4,981	5,330

Significance at: * = 10%, ** = 5% and *** = 1% level; N = 28,641.

A question that allows a further hypothesis on untruthful answers is a question about people's familiarity with internet terms, among which were four piracy related terms: VPN, torrents, P2P site and Warez. The hypothesis is that pirates are more likely to know piracy terms than legal buyers, and also more likely to respond the truth about knowing these terms than about their illegal behaviour, especially because the piracy terms were randomly in between other internet terms. Hence if people know piracy terms but do not report piracy, this might indicate untruthful responses. This hypothesis has its limitations, because nowadays people can use illegal sites without being internet savvy (e.g. using Popcorn Time) and in addition legal buyers may be familiar with piracy terms because they are internet savvy in general.

One indication that familiarity with internet terms is honestly indicated is the high proportion of people who are familiar with paypal (87%), RAM (64%) or torrents (46%). Unfortunately, a factor analysis only significantly reveals that some people who are familiar with paypal do not know what other internet terms mean. Apart from this are no significant differences are found between the knowledge of piracy terms and general internet terms. Nevertheless, if despite its limitation it is assumed that a greater proportion of pirates is familiar with piracy terms than among legal buyers, then if it turns out that there is no difference in familiarity with piracy terms, the only reason can be that at least some pirates denied their illegal behaviour (again Figure 6.1).

To test differences in familiarity with piracy terms between respondents who self-report piracy and those who do not so, familiarity with piracy terms is defined as familiarity with any of the three terms VPN, P2P site and Warez (since half of the internet population is familiar with the term torrents). Table 6.22 leaves in no doubt that self-reporting pirates are more familiar with internet terms than self-reporting legal buyers, since differences would be significant at the 1 per cent level if the Pearson chi-square is around 10 or higher; and all statistics are far above the level where there could be doubt that among pirates a greater proportion is familiar with piracy terms. This means that there is no indication that the sample of self-reporting legal buyers is contaminated by pirates who deny their illegal consumption.

Table 6.22 Proportion of persons that are familiar with piracy terms by illegal online usage per type of creative content

	Music	Audio-visual	Books	Games
Report piracy	60%	56%	64%	65%
Do not report piracy	40%	38%	39%	50%
N reporting piracy	9,018	11,006	4,981	4,015
N not reporting piracy	7,915	7,915	7,915	7,915
Pearson chi-square	706***	654***	774***	245***

Significance at: * = 10%, ** = 5% and *** = 1% level; N = 28,641.

One might argue that pirates who deny their illegal behaviour will also lie about knowing piracy terms. Indeed, the proportion of self-reporting pirates that is familiar with non-piracy internet savvy terms (defined as knowledge of any of the terms SSD, FTP, port forwarding or P2P game) is roughly 10 percent point higher than the proportion that is familiar with piracy terms. For example 70 per cent of the illegal downloaders or streamers of music is familiar with non-piracy terms (Table 6.23) compared to 60 per cent that is familiar with piracy terms (Table 6.22). However, the same is true for the people who do not self-report piracy, e.g. 50 per cent of the self-reporting legal buyers of music is familiar with non-piracy terms compared to 40 per cent that is familiar with piracy terms.

Table 6.23 Proportion of persons that are familiar with non-piracy internet terms by illegal online usage per type of creative content

	Music	Audio-visual	Books	Games
Report piracy	70%	66%	73%	76%
Do not report piracy	50%	47%	50%	60%
N reporting piracy	9,018	11,006	4,981	4,015
N not reporting piracy	7,915	7,915	7,915	7,915
Pearson chi-square	767***	698***	736***	294***

Significance at: * = 10%, ** = 5% and *** = 1% level; N = 28,641.

Table 6.24 formalizes the test of the hypothesis that no greater proportion of self-reporting pirates knows non-piracy terms compared to piracy terms than is the case for self-reporting legal buyers. In both populations roughly 10 percent point more people are familiar with non-piracy terms than with piracy terms, where differences are only noticeable after the decimal points and not significant, not even at the 10 per cent level.

Table 6.24 Difference in proportion of knowers of non-piracy and piracy terms by illegal online usage per type of creative content

	Music	Audio-visual	Books	Games
Report piracy	10.3%	9.8%	9.6%	11.0%
Do not report piracy	9.9%	9.4%	10.6%	10.3%
N reporting piracy	9,018	11,006	4,981	4,015
N not reporting piracy	7,915	7,915	7,915	7,915
Pearson chi-square	0.6	0.8	3.1	1.3

Significance at: * = 10%, ** = 5% and *** = 1% level; N = 28,641.

This analysis means that self-reporting pirates speak the truth about their knowledge of piracy terms, which in turn does not indicate that the people of self-reporting legal buyers is contaminated with lying pirates. This does not prove that there are no denying pirates, just that there is there is no evidence for denying pirates.

Assuming that Table 6.23 indeed reflects the truth, and accepting that the proportion of people knowing piracy terms is 10 percent point lower than the proportion knowing other internet savvy terms among both pirates and legal buyers (Table 6.24), the results can be summarized in the following system of equations (for music, but the results are similar for the other types of creative content):

$$50\% = x \cdot 70\% + (1 - x) \cdot y \qquad (Table\ 6.21)$$
$$40\% = x \cdot 60\% + (1 - x) \cdot (y - 10\%) \qquad (Table\ 6.22)$$

Where x is the proportion of denying pirates among self-reporting legal buyers and y is the proportion of true legal buyers knowing non-piracy related internet savvy terms. Subtracting both equations gives the solution x = 0 and substituting this in the first equation gives the solution y = 50%. In other words there are no pirates who deny their illegal behaviour under neutrally formulated assumptions and hence there is no cause to suspect untruthful responses.

6.9 Conclusions

Consumption of creative content

At the EU level, 61 and 69 per cent of the internet using population aged 14-74 have consumed music and films/TV-series respectively, with slightly higher figures in Poland and Spain and for minors aged 14-17. In the United Kingdom and Sweden, even 86 and 88 per cent of the minors have bought, rented, downloaded, streamed films/TV-series or seen a film in a cinema. At the EU level, 50 and 46 per cent of the internet users have made at least one transaction for books and games respectively, but in France and Sweden these percentages varied between 30 and 41 per cent. Among minors, a similar proportion consumes books as adults, but 66 per cent are gamers compared to 46 per cent for the whole internet using population.

Use of illegal channels

In general, the proportions of respondents admitting illegal transactions is quite high in comparison with other studies. Only for music the proportions are in line with previous studies (32 per cent of the respondents have illegally downloaded at least one music track and 24 per cent have illegally streamed at least one music track). The combination of similar piracy rates for music and higher piracy rates in this study compared to previous studies indicates that the use of illegal channels may have matured for music but is still increasing for audio-visual, books and games. For films/TV-series these percentage of illegal online users are 31 and 35 per cent for illegal downloads and streams respectively, for books and games these percentages are between 14 and 18 per cent for illegal downloads, streams and gamers playing on a chipped console.

Part of the reason for differences between this and previous studies may be that this study includes Poland and Spain, where self-reported piracy rates are higher than in the other EU countries, and that none of the previous studies includes Poland and almost none includes Spain. It is perhaps tempting to link such country differences to differences in legislation and enforcement, because in Chapter 3 it was concluded that Polish law does not explicitly state that illegal downloading and streaming does not fall under the private use exception of copyright, and it was concluded that obstacles to enforcement on illegal downloaders were high in Spain. However many other differences between countries might explain differences piracy rates, such as for example differences in purchasing power or in unemployment rates, since estimates in this study indicate that piracy is negatively correlated with employment status.

Numbers of transactions

Self-reported numbers of legal transactions are generally higher than official sales statistics indicate, with the notable exception of music concerts (people visit on average 0.6 music concerts per year). For music, respondent report to buy 4 new CDs/vinyl records per year, report similar numbers of legal and illegal downloads (3-4 albums, 10 tracks), and report 10 hours of legal music streaming per year (varying from 5 hours in Germany to 15 hours in Sweden, which is the "home market" of Spotify) and 4 hours of illegal music streaming. An explanation for the higher self-reported numbers could be that these include non-copyrighted music.

For films/TV-series, respondents report to access between 2 and 6 films/full seasons via most channels (legal purchases on physical carriers, rentals, legal downloads, legal streams, illegal downloads and illegal streams) with the exception of cinema views which are 14 per year in Poland and Spain and 5-7 in the other four countries in this study. For cinema, an explanation could be that the self-reported numbers of views include art-house films and free summer festival screenings.

For books, respondents report on average to buy 4 per year, to borrow 4 from a library, the legally download 2.5 books per year, to legally stream 1 book per year and to illegally download 2 books per year. When asked how many books people have streamed illegally, almost nobody reports a positive number.

For games, the self-reported numbers of transactions is between 1 and 4 for each channel.

Number of views of top 100 films

Respondents were asked which of 100 top films of the last three years they have seen. Per year, respondents saw on average 5.6 out of these films. On average, they saw 1.9 of these films per year for the first time in the cinema, one film per year for the first time on DVD or Blu-Ray, one film per year on TV or in an airplane, 0.8 films per year were legally downloaded or streamed, and 0.8 films per year were illegally downloaded or streamed. In addition, respondents reported on average to have seen 1.5 of these top films a second time in a year. Most second views were on DVD or TV.

Truthfulness about piracy

The high self-reported piracy rates in this study compared to previous literature indicate that untruthful replies to illegal behaviour are no more a problem in this study than in previous studies. To test the truthfulness of replies one must make assumptions about who would deny piracy. A hypothesis about cognitive dissonance and moral attitudes does not give conclusive results. However, assuming that people speak the truth about their knowledge of piracy terms, and that true pirates are more familiar with piracy terms than true legal buyers, the discrepancy in knowledge of piracy terms of 20 percent point between self-confessed pirates and self-reporting legal buyers indicates that one must assume strong ignorance of piracy terms among true legal buyers to claim that the sample of self-reporting legal buyers is contaminated with denying pirates. A further comparison of knowledge of non-piracy related internet savvy terms indicates that both legal buyers and pirates respond truthfully about their knowledge of piracy terms, unless denying pirates also lie about their knowledge of non-piracy related internet terms. Under these neutrally formulated assumptions, the proportions of self-confessed pirates and self-reporting legal buyers knowing piracy and non-piracy related internet savvy terms imply that the latter group is not contaminated with denying pirates, and hence that all respondents speak the truth about their behaviour.

7 DISPLACEMENT RATES

7.1 Introduction

This chapter describes the estimated impact of online copyright infringements on legal sales of creative content. Two channels of piracy haven been analysed: illegal streaming and downloading files from illegal websites, for each of the four types of creative content (music, movies and TV series, books and games). The interest of individuals in creative content is controlled for by means of a number of variables specifically designed for this purpose. Other characteristics such as country, educational level, employment status and age of the individual are also controlled for. The challenge is to resolve the problem of controlling for (other) unobserved characteristics that may influence both legal and illegal transactions.

This chapter briefly discusses the econometric theory of instrumental variables. The chapter continues to describe the approach to find appropriate instrumental variables. Next, the chapter describes the results: first for OLS regression controlling for the above characteristics to compare the results with recent previous literature, and then with potential instrumental variables.

This study is based on a one-off survey. A one-off survey-based approach has been criticized for not being sufficiently able to control for unobserved variables that affect both legal and illegal transactions, the so-called endogeneity problem. Assuming that such unobserved variables do not change over time, an analysis of changes in legal and illegal transactions may avoid the endogeneity problem. For example Barker & Maloney (2012) estimated displacement by an analysis of changes in numbers of transactions over time instead of levels with the same Canadian survey data of 2004-2005 that Andersen & Frentz et al. (2006) used, and found (insignificant) negative effects instead of positive effects of illegal downloading on physical purchases. Rob and Waldfogel (2007a and 2007b) created a quasi-panel data, an approach that is applied in the next chapter for films.

Another potential problem of survey data are recall problems and the risk of untruthful responses. While many efforts have been taken to minimize these risks and there is no indication of untruthful responses as discussed in Section 6.8, the spike at "convenient" self-reported numbers of transactions such as 100 indicate recall problems which may affect the accuracy of estimates of displacement rates. This needs to be kept in mind if estimated effects are insignificant.

The preferred econometric approach to resolve the endogeneity issue is the instrumental variables approach, of which the theory is discussed in the next section. In this study much effort was made to collect data on potential instrumental variables. Also, again in theory, information on variables that affect both legal and illegal transactions may resolve the endogeneity problem, and for this reason much effort was made to collect data on the

interest of people in creative content. An advantage of survey based data is the possibility to split the sample in different groups of users for which similar effects of illegal transactions on legal transactions can be identified.

7.2 Econometric specification of the model

The preferred econometric model when an unobserved counterfactual (displaced sales) needs to be estimated while unobserved factors such as the interest in music influence both the legal and illegal transactions, is the instrumental variables approach, after controlling as much for the largely unobserved factors as possible. The instrumental variables approach is described below, (with internet speed as an example for an instrumental variable). In this approach, first an auxiliary equation is estimated:

$$Illegal\ transactions = b_0 + b_1 \times Average\ regional\ internet\ speed + Control\ variables + \varepsilon_b$$

Where in the example of internet speed the hypothesis is that b_1 is positive. The second step is to estimate the relation (with "legal transactions" being any of online and offline purchases, legal streams and downloads and live visits):

$$Legal\ transactions = a_0 + a_1 \times \left(\hat{b}_0 + \hat{b}_1 \times Average\ regional\ internet\ speed\right) + Control\ variables + \varepsilon_a$$

If illegal transactions are well instrumented, the estimated displacement rate will be a_1. The control variables include variables for "taste" for music, audio-visual, books and computer games respectively, in particular the self-reported interest in the relevant type of creative content, and the frequency with which information on the relevant type of creative content is searched on the internet. The "better" this taste is controlled for (and the more uncorrelated the control variable is with the error term), the more the coefficient of the instrument will approach the actual displacement. If the control variables are perfect, the need for instrumenting illegal transactions is strongly reduced, though there may still be a need for instrumental variables to address the possibility of reverse causality, i.e. more legal transactions somehow causing less illegal transactions.

This study uses data on numbers of downloads and streams. In many previous studies on illegal downloading, questions were limited to categories of time since the last purchase or download of media content, e.g. "*last week*", "*last month*", … This provides useful data to estimate ordered choice models (e.g. ordered logit or ordered probit), but testing whether the requirements for instrumental variables are satisfied becomes very circuitous with ordered choice models. For this reason, the questionnaire is extended to cover actual numbers of purchases, downloads and streams. A similar approach was adopted earlier by Bastard et al. (2012).

Numbers of purchases allow truncated regressions (e.g. tobit) or by way of approximation standard regressions (ordinary least squares), for which the

instrumental variables assumptions are relatively straightforward to test, using the Durbin test for endogeneity (testing whether there is an endogeneity problem in the first place with the OLS regressions) and the Sargan test in case several candidate instruments are available to test if any of them is endogenous).

7.3 OLS regressions

Before presenting the results of the IV regressions, it is illuminating to see how OLS regressions compare with previous literature after controlling for the interest in creative content. These regressions were done each time for the relevant subsample, defined as persons who did at least one relevant transaction in the last year. For music, this is the yes/no answer to question 5A in Annex D (the questionnaires):

In the past year, have you purchased, rented, downloaded or streamed **music** or visited a live **concert**? [YES/NO]

For people who did not do any of the above transactions, it would make little sense to explain the relation between zero illegal transactions and zero legal transactions.

As expected, self-reported interest in creative content and the frequency with which information about creative content is searched on the internet have a significant positive effect on legal transactions, with a few interesting exceptions (see full tables in Annex F):

- Negative effect on numbers of printed books borrowed from a library;
- Insignificant effect on numbers of books downloaded from legal sites;
- Insignificant effect on numbers of legal free games played.

Despite controlling for the interest in creative content, whether self-reported or implied by frequent internet search, OLS regressions result in significantly positive coefficients of numbers of illegal transactions on numbers of legal transactions. These results are similar to recent survey-based literature, which lamented the loss of internet speed as an instrumental variable due to fast internet becoming universally available and which others have criticized for lack of instrumental variables and insufficient control for unobserved variables that may affect both legal and illegal transactions.

Naturally, to the extent that interest in music etc. is not perfectly controlled for, this results in an upward bias, since people with greater interest in the creative content will engage in both more legal and more illegal downloading and streaming than people with less interest, although for each person (with given interest in the creative content) the relation could very well be negative.

For music, the number of illegally downloaded tracks would have a small positive (but significant) effect on the numbers of physical purchases, legally streamed tracks and live concerts according to the OLS estimates with control variables (Table 7.1, for a total list of control variables and table with all of the coefficients, see Annex F: Full tables of estimated coefficients). A much higher than average interest in creative content almost always has significant

positive effect on numbers of legal transactions, with the exception of a negative effect for legal streaming and insignificant effects for legal free and cloud/console games (see Table 7.1 - Table 7.4). The same applies for higher (but not much higher) than average interest in content and lower or much lower than average interest content has mixed effects on legal transactions (see Annex F). This means endogeneity is at least partly controlled for.

The effects of illegal streaming seem at first sight ten times as large as the effects of illegal downloading. However this difference is likely to reflect merely that people have been assumed to listen to on average ten tracks in one hour. Assuming that people indeed listen to ten tracks in one hour, the effects of illegal streaming and downloading are of similar magnitude. For music the OLS estimates suggest that illegal downloading and streaming are positively correlated with numbers of legal transactions. For audio-visual, all OLS estimates suggest that every 100 illegal downloads or streams induce between 5 and 20 extra legal transactions. For books, the number of respondents reporting illegal streams was negligible (less than 10 out of 30,000 respondents) and therefore only effects of illegal downloading have been analysed. The OLS estimates suggest that 100 illegal downloads induces between 10 and 30 extra legal transactions. For games, illegal downloads and streams were grouped together and a separate question was asked about the number of games played on chipped consoles. For games, the OLS estimates suggest that every 100 games played illegally induce an extra 28 to 41 legal transactions of games. However, since many people use both legal and illegal channels, these OLS estimates may still be biased due to the endogeneity problem discussed above despite controlling for e.g. interest in creative content and the use of internet to search information on creative content, for which reason an instrumental variables approach was applied as will be discussed in the next section.

Table 7.1 Music: OLS coefficients of numbers of illegal transactions on legal transactions (people who did at least one music transaction in the last year[a)])

	N physical (CDs, vinyl)		N legal downloads (tracks)		N legal streams (hours)		N live visits (concerts)	
N illegal downloads (tracks)	0.015***		0.298***		0.031***		0.001***	
(std. error)	0.001		0.008		0.002		0.000	
Interest in music: much higher	3.466***		8.388***		2.995***		0.226***	
(std. error)	0.227		1.796		0.509		0.033	
N illegal streams (hours)		0.139***		1.885***		0.534***		0.011***
(std. error)		0.007		0.060		0.015		0.001
Interest in music: much higher		3.424***		10.10***		2.777***		0.230***
(std. error)		0.228		1.804		0.477		0.033
Nr. Observations	15,485	15,739	15,308	15,452	15,139	15,500	15,604	15,887

a) Full tables of coefficients in Annex F. Control variables include gender, age, age^2, age 14-17 indicator, educational level, employment status, hours of internet use, self-reported interest in music (much lower, lower, higher and much higher than average), frequency of online search on music, country indicators.

Table 7.2 Audio-visual: OLS coefficients of numbers of illegal transactions on legal transactions [a)]

	N physical (films/TV series)		N rents (films/TV-series)		N legal downloads (films/TV-series)		N legal streams (films/TV-series)		N live visits (films in cinema)	
N illegal downloads	0.113***		0.112***		0.201***		0.202***		0.078***	
(std. error)	0.008		0.005		0.005		0.012		0.007	
Interest in film/TV-series: much higher	3.648***		0.926***		1.188***		1.694***		2.329***	2.509***
(std. error)	0.283		0.196		0.195		0.431		0.272	0.271
N illegal streams		0.052***		0.060***		0.112***		0.192***		0.082***
(std. error)		0.006		0.004		0.004		0.010		0.006
Interest in film/TV-series: much higher		3.736***		1.021***		1.365***		1.780***		
(std. error)		0.285		0.198		0.198		0.430		
Nr. observations	17,461	17,420	17,608	17,571	17,568	17,508	17,039	17,003	17,403	17,375

a) See footnote to Table 7.1; with interest in and online search on films and TV-series instead of music.

Table 7.3 Books: OLS coefficients of numbers of illegal transactions on legal transactions [a)]

	N physical	N borrowed	N legal downloads	N legal streams
N illegal downloads	0.105***	0.151***	0.309***	0.293***
(std. error)	0.016	0.018	0.012	0.006
Interest in books: much higher	6.513***	4.017***	0.855***	-0.445***
(std. error)	0.321	0.367	0.234	0.124
Nr. observations	12,220	12,079	12,387	12,486

a) See footnote to Table 7.1; with interest in and online search on books instead of music.

Table 7.4 Games: OLS coefficients of numbers of illegal transactions on legal transactions [a)]

	N physical (games)		N legal downloads (games)		N legal streams / consoles (games)		N free games		N cloud games	
N games illegal online	0.323***		0.332***		0.405***		0.407***		0.281***	
(std. error)	0.010		0.007		0.013		0.013		0.005	
Interest in games: much higher	1.778***		0.892***		0.919***		0.028		-0.045	
(std. error)	0.282		0.183		0.340		0.340		0.128	
N games on chipped console		0.325***		0.307***		0.394***		0.341***		0.282***
(std. error)		0.011		0.007		0.013		0.013		0.005
Interest in games: much higher		2.086***		1.220***		1.390***		0.600*		0.248*
(std. error)		0.285		0.188		0.343		0.348		0.129
Nr. observations	11,944	11,914	12,018	11,982	11,879	11,850	11,720	11,668	12,033	12,004

a) See footnote to Table 7.1; with interest in and online search on games instead of music.

7.4 Instrumental variables approach

This study is unique in developing questions for multiple potential instrumental variables, which have been compared with each other. A priori, it was anticipated that instrumental variables that pass the minimum statistical requirements would yield similar estimates of displacement rates. However estimates turned out to be extremely sensitive to the choice of instrumental variables, and effects of illegal consumption on legal consumption from -300 per cent to +300 per cent have been estimated, depending on the instrumental variable, the legal and the illegal channel.

This extreme sensitivity means that an instrumental variable is only credible if it is gold-rimmed, meaning that it is a logical and preferably an obvious choice. In theory, a different instrumental variable can be chosen for each legal and illegal channel, because consumer behaviour is different. In reality, this would be close to cherry-picking. Therefore, in addition to the minimum statistical requirements, an additional criterion used was that the instrumental variable should yield plausible results for all legal and illegal channels.

The instrumental variables are described together with their potential for identifying effects, and then tested for relevance. Tests of two other statistical criteria require unbiased estimates of the residual terms of the equation, which cannot be assumed in the presence of endogeneity. Therefore, it can only be argued qualitatively to which extent instrumental variables are likely to meet the other statistical criteria. Estimates of displacement rates are given in the next section for the instrumental variable that is chosen in this section (moral attitudes).

The instrumental variables

The questionnaire was designed to collect data on a number of potential instrumental variables, which potentially meet the statistical requirements for instrumental variables:

- Instruments can vary at an individual level [for identification];
- Instruments correlate with downloading/streaming from illegal sources [instrument relevance];
- Instruments do not directly affect legal consumption (or more precisely, do so only through illegal consumption) [otherwise, the instrument should be in the model as a control variable];
- Instruments are not affected by legal consumption [instrument exogeneity][44].

After a careful consideration, the questionnaire was designed to collect data on the following potential instrumental variables:

- available internet speed;
- moral attitudes;
- familiarity with internet terms;

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[44] To avoid the endogeneity problem, the instruments should ideally be 'randomly distributed' over the population or at least should not be influenced by an individual. Such ideal instruments are, however, hard to find in practice.

- the frequency people use internet to read about news or to do homework (in case of minors).

Internet speed

The internet speed was determined based on the matching of NUTS3 regions with statistics on available internet speed. The NUTS3 regions were determined on the basis of responses on the broader so-called Nielsen regions, city and postal codes. If it was impossible to determine in which NUTS3 region a respondent lives, averages of maximum available speed were calculated instead at a more aggregate regional level (NUTS2, NUTS1 and as a last resort the country). The statistics on available internet speed were used from SamKnows (March 2012)[45] and from the Point-topic broadband scoreboards (2013)[46].

The region in which the respondents live, was based on the postal codes of their home address. The postal codes are linked to regions via national postal code tables linking these codes to the national equivalent of NUTS-3 regions:

- Germany – 429 Kreise;
- United Kingdom - 139 unitary authorities or districts;
- Spain - 56 provincias + islas (excluding Ceuta and Melilla);
- France - 95 départements (excluding DOM);
- Poland - 65 Podregiony;
- Sweden - 21 Län.

This variable varies at the individual level, but is the same for all people living in the same region and also differences in internet speed between regions are often small or negligible, hence it is has potential for identifying effects but to a limited extent.

Use of internet for news

Use of internet for news is arguably unrelated to total consumption (online + offline) but is related positively to online consumption and negatively to offline consumption. It could therefore be an instrument for the effect of illegal downloading or streaming on total consumption, although DangNguyen, Dejean and Moreau (2012) used this to instrument streaming to estimate its impact on numbers of legal transactions. They asked people how often they use the internet to read news from various providers, assuming that interest in general news and interest in creative content are independent of each other. This study used similar approach and similar question was asked in the questionnaire to people (question 30):

How often do you use internet to read news from …

[45] ec.europa.eu/digital-agenda/en/news/quality-broadband-services-eu-march-2012.
[46] ec.europa.eu/digital-agenda/sites/digital-agenda/files/DAE%20SCOREBOARD%202013%20-%202-BROADBAND%20MARKETS%20.pdf, ec.europa.eu/digital-agenda/sites/digital-agenda/files/scoreboard_broadband_markets.pdf.

Where 6 types of news providers (*national newspapers*; *local newspapers*; *Google News or Yahoo News*; *websites of TV channels*; *blogs*; and *other internet news providers*) are shown with each four frequencies: *every day*; *at least each week*; *at least each month*; and *rarely or never*. DangNguyen et al. (page 10) created the variable NEWSONLINE which ranges from 0 if the respondent never reads news from any source, to 24 if the respondent reads news daily from all six sources.

Since the use of internet for news is measured at the individual level, identification is not a problem for this candidate instrument.

Moral attitudes

Moral attitudes about issues that are not related to creative content are arguably unrelated to interest in creative content, and are likely highly correlated with a person's disposition to illegal downloading and streaming, although they are also correlated with generally accepted norms as the attitudes to jaywalking illustrate, which 31 per cent of the people consider as acceptable in countries where this is an offense (Poland and Spain) to 65 per cent where this is allowed (Sweden). The moral attitudes of the respondents were determined by the set of questions regarding the acceptability of e.g. travelling without a fare; taking a flash picture in a museum; taking a pen home from school/club/work; hiring a plumber informally; crossing roads at red lights, on a Likert scale from 1 (completely not) to 7 (completely yes). Factor analysis was applied to determine whether the moral attitude questions predict one another. The factor analysis showed that out of all the questions about moral attitudes that were asked both adults and minors in the questionnaire, there was one factor that determines all of the answers to those questions. In other words, if the moral attitude for one item is known, they are pretty much known for the other items as well.

Besides the factor analysis an alternative has been considered, namely adding up the scores across all items, with the idea of creating a variable with more variation in values. However, since responses are similar for all items about questionable behaviour, there is no additional value in adding up the scores across all items, as turned out in experiments with this "total score".

Because moral attitudes are measured at the individual level identification is not an issue for this candidate instrument.

Internet familiarity

Bounie et al. (2005) use the ability to navigate on the internet/download as a proxy for internet skills, though they use it as a control variable rather than an instrumental variable. In order to determine familiarity with internet terms like PayPal, P2P a number of questions were asked in question 4 of the questionnaire:

Please indicate if you know what each of the following terms means in the context of internet

Eleven terms were then shown, four of which are directly related to illegal downloading such as:

- VPN (virtual private network, a service which encrypts the user's internet traffic and data and hence ensures anonymity and may help access public Wi-Fi hotspots);
- Torrents; P2P site (peer-to-peer);
- Warez (online content stripped of copy-protection).

The above are potential instruments. Familiarity with terms such as:

- port forwarding (to establish faster internet routes);
- SSD (solid state drive, containing data which is time consuming for the computer the retrieve).

indicate sophisticated ease of internet use and may be weaker instruments. Terms such as:

- RAM (Random Access Memory);
- FTP (file transmission protocol).

indicate more generally known internet terms, while:

- Bitcoin;
- Paypal;
- P2P game (pay to play).

indicate knowledge of internet purchase transactions.

Again a factor analysis was applied to determine whether familiarity with one term highly correlates with the familiarity with other terms asked in the questionnaire. According to the factor analysis, familiarity with PayPal paying system is independent of the other terms, but if respondents are familiar with one of the other internet terms they are generally familiar with the rest of the other internet terms as well. Therefore 2 factors for internet familiarity were selected.

Because internet familiarity is measured at the individual level, it passes the preliminary test for its potential to identify effects.

Relevance of potential instruments

A second minimum criterion for instruments is that they are relevant: they correlate significantly with illegal consumption. The proposed instruments were tested to see whether there is a relationship with the illegal usage of creative content. Only if this relationship is significant, the instrument is relevant. Exactly the same control variables in the regression for legal activities are included in this first-stage regression for illegal activities. These variables are country specific characteristics covered by country dummies, individual characteristics such as gender, age, education level, employment, the hours of internet use per week, interest in music, books, games or movies and the use of internet to search information on these categories (see Annex F for full regression data).

The results show that the moral attitude factor, internet familiarity and frequency of using internet to read news significantly affect the illegal activity (Table 7.5). For example people who consider questionable behaviour more acceptable, tend to illegally download a greater number of music tracks as indicated by the positive coefficient 5.553. According to the t-test this coefficient is significant at the 1 per cent level. However if the instrument does not predict the endogenous variable well, the standard test statistics such as the t-value or J-test statistic do not have an asymptotical normal or chi-square distribution. Stock-Yogo developed critical values for linear IV-regression to test the weakness of the instruments indicating the maximum bias of IV estimates. If a corresponding test statistic (the so-called Kleibergen-Paap test statistic) is less than the critical value, the instruments are weak, otherwise they are strong.[47]

Comparison of the Kleibergen-Paap test statistic with the Stock-Yogo critical values confirm the relevance of three instruments, except once for each instrument (illegal music streams for moral attitudes and audio-visual streams for familiarity with internet terms and use of internet for news). Because moral attitudes are close to being strong instruments for illegal music streams and the other two are definitely weak instruments for audio-visual streams, moral attitudes may be considered as the most relevant instrument overall. Only available internet speed does not have a significant effect on illegal downloading or streaming.[48] The same applies for the other types of creative content (Table 7.6 - Table 7.8). Therefore only the other three are further considered as potential instruments.

Note on the number of observations: the tables 7.5 – 7.8 summarize the first-stage regression results for different potential instrumental variables. The tables 7.9-7.12 summarize the second-stage regression results for the first IV: moral attitudes for different legal channels. For each legal channel, the same instrument is used. Hence the numbers of observations in in the first column with results of tables 7.5-7.8 are the same as in tables 7.9-7.12, give or take 1 to 4 observations due to partial nonresponse. The tables 0.5-0.8 in Annex F correspond to tables 7.5-7.8 in this chapter. Likewise, the number of observations in the columns for moral attitudes in table 0.5-0.8 in Annex F correspond to the tables 0.9-0.12 in Annex F.

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47 Strictly speaking the first-stage regression is identical for moral attitudes and the use of internet for news, and also identical for internet speed and familiarity of internet terms, but are slightly different because five respondents dropped out of the survey before answering the questions on moral attitudes and online news. However, since the results are nearly identical only the first stage regression results for moral attitudes and online news are shown.

48 An explanation for this is that nowadays, the maximum internet speed available is practically universally sufficient for file sharing purposes, even for films and games. Note that even if available internet speed is a valid instrument, it can only be used for modelling displacement of physical sales, since online digital sales and legal streaming can be expected to be affected by internet speed in the same way as illegal consumption.

Table 7.5 Music: coefficient of potential instrumental variables in the regression of the instrumented variable (number of illegal music downloads respectively streams) and the total number of music transactions, people with ≥1 music transaction in the past year

	Moral attitudes	Internet speed	Familiarity with internet terms	Use of internet for news
1st stage regressions with number of illegal music downloads as dependent variable				
N illegal downloads	5.553***	-0.010	10.09***	4.491***
Standard error	0.613	0.013	0.665	0.554
Kleibergen-Paap stat	65.2	0.6	216.4	73.5
Stock-Yogo crit. Value	16.4	16.4	16.4	16.4
Nr of observations	15,480	15,485	15,485	15,480
1st stage regressions with number of illegal music streams as dependent variable				
N illegal streams	0.353***	0.0001	1.383***	-0.741***
(standard error)	0.082	0.002	0.089	0.074
Kleibergen-Paap stat	14.8	0.001	231.2	117.2
Stock-Yogo crit. Value	16.4	16.4	16.4	16.4
Nr of observations	15,735	15,739	15,739	15,735
OLS regressions with total number of music transactions as dependent variable				
N total transactions	6.236**	-0.031	43.673***	21.779***
(standard error)	2.502	0.049	2.527	1.990
Nr of observations	16,923	16,928	16,928	16,923

* p<0.10, ** p<0.05, *** p<0.01 reports the significance level. Stock-Yogo crit. Value: weak identification (10% max. IV bias) if the Kleibergen-Paap statistics is less than this critical value.

Full tables of coefficients in Annex F. Control variables include gender, age, age^2, age 14-17 indicator, educational level, employment status, hours of internet use, self-reported interest in music, frequency of online search on music, country indicators.

Table 7.6 Audio-visual: coefficient of potential instrumental variables in the regression of the instrumented variable (number of illegal film/TV-series downloads respectively streams) and the total number of film/TV-series transactions, people with ≥ 1 film/TV-series transaction in the past year

	Moral attitudes	Internet speed	Familiarity with internet terms	Use of internet for news
1st stage regressions with nr. of illegal film/TV-series downloads as dependent variable				
N illegal downloads	0.824***	-0.0001	1.362***	0.397***
Standard error	0.086	0.0017	0.091	0.074
Kleibergen-Paap stat	78.1	0.005	214.2	30.7
Stock-Yogo crit. value	16.4	16.4	16.4	16.4
Nr of observations	17,456	17,461	17,461	17,456
1st stage regressions with nr. of illegal film/TV-series streams as dependent variable				
N illegal streams	0.713***	0.00285	0.603***	-0.261***
(standard error)	-0.107	-0.00211	-0.114	-0.0924
Kleibergen-Paap stat	41.6	28.2	8.6	1.9
Stock-Yogo crit. value	16.4	16.4	16.4	16.4
Nr of observations	17,416	17,420	17,420	17,416
OLS Regressions with total number of film/TV-series transactions as dependent variable				
N total transactions	-0.045	0.006	3.473***	2.774***
(standard error)	0.311	0.005	0.305	0.229
Nr of observations	19,356	19,361	19,361	19,356

See footnote to Table 7.5.

Table 7.7 Books: coefficient of potential instrumental variables in the regression of the instrumented variable (number of illegal book downloads respectively streams) and the total number of book transactions, people with ≥ 1 book transaction in the past year

	Moral attitudes	Internet speed	Familiarity with internet terms	Use of internet for news
1st stage regressions with number of illegal book downloads as dependent variable				
N illegal downloads	0.310***	0.0015	0.882***	0.294***
Standard error	0.061	0.0013	0.065	0.054
Kleibergen-Paap stat	22.3	1.4	169.6	33.3
Stock-Yogo crit. value	16.4	16.4	16.4	16.4
Nr of observations	12,217	12,220	12,220	12,217
OLS regressions with total number of book transactions as dependent variable				
N total transactions	-0.378	0.008*	1.189***	1.233***
(standard error)	0.242	0.005	0.241	0.189
Nr of observations	13,671	13,675	13,675	13,671

See footnote to Table 7.5.

Table 7.8 Games: coefficient of potential instrumental variables in the regression of the instrumented variable (number of illegal online games transactions and games played on chipped consoles respectively) and the total number of games transactions, people with ≥ 1 games transaction in the past year

	Moral attitudes	Internet speed	Familiarity with internet terms	Use of internet for news
1st stage regressions with nr of illegal online games transactions as dependent				
N illegal online	0.482***	0.0013	0.978***	0.718***
Standard error	0.072	0.0015	0.082	0.067
Kleibergen-Paap stat	35.4	0.8	138.6	126.9
Stock-Yogo crit. value	16.4	16.4	16.4	16.4
Nr of observations	11,942	11,944	11,944	11,942
1st stage regressions with nr of games played on chipped consoles as dependent				
N chipped console games	0.494***	0.0030**	0.709***	0.636***
Standard error	0.069	0.0015	0.080	0.065
Kleibergen-Paap stat	39.5	4.1	80.4	103.2
Stock-Yogo crit. value	16.4	16.4	16.4	16.4
Nr of observations	11,912	11,914	11,914	11,912
OLS regressions with total number of games transactions as dependent variable				
N total transactions	0.909***	0.010*	3.303***	3.452***
(standard error)	0.296	0.005	0.299	0.225
Nr of observations	12,590	12,592	12,592	12,590

See footnote to Table 7.5.

Exogenoneity (or exclusivity) of instruments

Instrument exogeneity (or exclusivity) requires that moral attitudes (as an example of one of the instrumental variables) do not affect legal usage of the creative content other than through its effect on illegal consumption of creative content.

The argument for exogeneity is strongest for availability of fast internet in a region because this depends on supply, and hence it depends on demand only at the aggregate level. However, internet availability has proved above not to be relevant and is therefore not further considered.

Internet familiarity could be argued to be exogenous: one happens to learn internet terms from friends or from news and decide whether to use that knowledge for piracy or not. However, one may also argue that people who are highly interested in creative content may invest most in gaining such knowledge in which case these variables directly affect legal consumption and thus should be included as control variables rather than instrumental variables. This means that the potential of internet familiarity to be exogenous remains an open question.

The questions about the use of internet for news and moral attitudes do not directly relate to consumption of creative content, which is an argument in favour of instrument exogeneity. Indirectly, both candidates can be related to the consumption of creative content. People may use internet for news when they are using internet to consume creative content anyway or vice versa, which means that the use of internet for news is more likely to be exogenous for offline consumption than for online consumption. However, online and offline consumption are also negatively) correlated, which means that the exogeneity of the use of internet for news remains an open question.

The questions about moral attitudes are not related to either online behaviour or consumption of creative content. However an argument against moral attitudes is that to the extent that people do not report truthfully about illegal consumption, moral attitudes can be argued to be a proxy for truthful reporting if it is also assumed that people with relaxed moral attitudes are more likely to report truthfully than people with strict moral attitudes. Unfortunately, a significant correlation between moral attitudes and illegal consumption coincides with the requirement for relevance discussed earlier. Nevertheless, there are strong indications that people respond the truth about their piracy, as discussed in the previous chapter.

Although there is no formal test on exogeneity of instruments, two thought experiments help choosing the instrument that is most likely to be exogenous. The first thought experiment assumes a high displacement rate of legal transactions by illegal transactions, of close to 100 per cent. In this hypothetical case, a relevant instrument is strongly correlated with illegal transactions and because they displace legal transactions one-on-one, equally negatively correlated with legal transactions. However the total number of transactions remains the same, 100 displacement means purely a shift from legal to illegal channels. Under this assumption, the correlation between the instrument and the total number of transactions should be zero if the instrument is exogenous.

The second thought experiment assumes there is no displacement at all. In that case, the total number of transactions increases exactly by the number of illegal transactions, and the correlations between the instrument and

respectively the number of illegal transactions and the total number of transactions are the same, if the instrument is exogenous.

Hence whether displacement is around 0 per cent, around 100 per cent or anything in between, a correlation of the instrument with the total number of transactions that is lower than the correlation with the number of illegal transactions indicates a certain degree of exogeneity. This is the case for moral attitudes in the regressions for music (insignificant correlation with total number of transactions at 1 per cent level), audio-visual and books (insignificant correlation at 10 per cent level) and arguably even for games (significant correlation at 1 per cent level but smaller coefficients compared to the coefficient in the regression for illegal transactions than for the other instruments).

Another factor determining the choice for moral attitudes as instrumental variable is how well behaved the estimated displacement rates are. Coefficients that indicate a displacement rate of more than 100 per cent are not credible. With other instruments that were considered, effects of illegal consumption on legal consumption ranging from -300 to +300 per cent have been estimated for certain channels. Therefore, although exogeneity remains an open question, the following section only presents the estimation results for moral attitudes.

7.5 IV regressions

As discussed before, the IV regressions were done for the subsample of people who did at least one relevant transaction. The IV regressions had the same control variables as the OLS regressions discussed in Section 7.3 with similar results: significant positive effects of interest in creative content except for the legal streaming channel for books and free and cloud/console online channels for games. For music, the subsample consists of people who answered yes to the question whether they bought, downloaded or streamed music or visited a live concert. The limitation to this subsample did not affect the OLS estimates much, but the IV estimates are more sensitive to the selection of the subsample.

The IV regressions in this section use moral attitudes as instrument, which is a relevant instrument that varies between individuals, but for which exogeneity remains an open question, as is the case for all other available candidate instruments. In the argumentation of this section, moral attitudes are assumed to be exogenous which would imply that the instrument passes all tests and that estimated effects (positive or negative) are unbiased and indicate causal relations. In the conclusion of this chapter, the validity of this assumption is discussed again in view of the findings in this study and the confrontation with previous literature.

For music, as was the case for the OLS estimates, the coefficients of illegal streams (in hours) are roughly ten times as large as the coefficients of illegal downloads (in numbers of tracks). Assuming that people listen to ten music tracks in one hour, the effects of illegal downloads and streams of music are

arguably similar, though the effects are not statistically significance and hence the estimated magnitude of the effects are not reliable in the first place. Illegal downloads and streams have insignificant effects on physical purchases of CDs or vinyl records at even the ten per cent level. Assuming one CD or vinyl record contains ten tracks, the displacement rate is 23 per cent for illegal downloads and 45 per cent for illegal streams. But since the standard error is more than half of the estimated coefficient, it is fairer to say that there is a displacement effect that could be anything from zero to 50 per cent for illegal downloads and between 0 and 100 per cent for illegal streams.

Considering the different measurement units, illegal downloads and streams are estimated to have positive effects on legal downloads and streams at a rate between 16 per cent to 30 per cent, but these estimates are insignificant at the 5 per cent level and in three combinations even at the ten per cent level. The one robust estimate for music is that illegal downloads or streams significantly induce more visits of live concerts, at a rate of 0.7 extra visits per 100 illegally downloaded tracks and 13 extra visits per 100 hours of illegal streaming.

The Durbin test indicates whether the residual of the first-stage regression (between the instrumented variable and the instrument) is significant in the regression of interest (between the numbers of legal and illegal transactions). If this residual is insignificant, this indicates that the IV and OLS estimates are the same, and that instrumenting was perhaps not necessary in hindsight. This conclusion needs to be drawn with caution because the Durbin test indicates significant residuals if other potential instruments are used. If the instruments are not exogenous, then the Durbin test is also biased, and we are back to the discussion of which instrument is most likely to be exogenous. For example, the Durbin test indicates that the IV estimate of 23 per cent displacement of physical purchases by illegal downloads (Table 7.9) is different from the OLS estimate of 15 extra physical purchases per 100 illegal downloads (Table 7.5), but that the positive estimates of 21 per cent (with IV) and 30 per cent (with OLS) of illegal downloads on legal downloads are similar. In general, it can be concluded for all four types of content that instrumenting is necessary for some channels though perhaps not for all channels.

Note on the number of observations: the tables 7.9-7.12 summarize the second-stage regression results for moral attitudes, the first instrumental variable (IV) in tables 7.5 – 7.8 summarizing the first-stage regression results for various potential IVs. For each legal channel, the same instrument is used. Hence the numbers of observations in tables 7.9-7.12 are the same as in the first column with results of tables 7.5-7.8, give or take 1 to 4 observations due to partial nonresponse. The tables 0.9-0.12 in Annex F correspond to tables 7.9-7.12 in this chapter. Likewise, the number of observations in tables 0.9-0.12 in Annex F correspond to the columns for moral attitudes in table 0.5-0.8 in Annex F.

Table 7.9 Music: IV-estimated effects of illegal downloads (number of music tracks) and illegal streams (in hours) on numbers of legal transactions, people with at least one music transaction in the last year

	Physical purchases (CDs,vinyls)	Legal downloads (tracks)	Legal streams (hours)	Live (concerts)
IV regressions with number of illegal downloads of music tracks				
Number of illegal downloads (tracks)	-0.023	0.213*	0.017	0.007***
(standard error)	0.016	0.111	0.031	0.002
Interest in music: much higher	3.726***	8.950***	3.099***	0.184***
(standard error)	0.301	2.051	0.608	0.040
Durbin test of exogeneity	6.9***	0.6	0.2	8.2***
Nr. Observations	15,480	15,303	15,135	15,599
IV regressions with number of illegal streams of music (in hours)				
Illegal streams (hours)	-0.451	2.968	0.162	0.129***
(standard error)	0.285	1.927	0.474	0.044
Interest in music: much higher	3.708***	9.717***	2.898***	0.172***
(standard error)	0.339	2.060	0.554	0.052
Durbin test of exogeneity	6.5**	0.3	0.6	13.2***
Nr. Observations	15,735	15,448	15,496	15,883

1st stage Kleibergen-Paap statistic (physical purchases): 65.2 (illegal downloading) and 14.8 (illegal streaming); Stock-Yogo critical value: 16.4. Moral attitudes relevant for illegal downloading of music but not illegal streaming.

* p<0.10, ** p<0.05, *** p<0.01 reports the significance level.

Full tables of coefficients in Annex F. Control variables include gender, age, age^2, age 14-17 indicator, educational level, employment status, hours of internet use, self-reported interest in music (much lower, lower, higher, much higher), frequency of online search on music, country indicators.

For audio-visual, all numbers of transactions are measured in numbers of films and/or TV-series. If respondents saw one or more episodes but not the whole series, each episode is counted as 0.1 part of a series. Illegal downloads and streams are estimated to have mixed effects on the number of legal transactions, depending on the channel. Displacement effects are estimated on physical purchases (numbers of films and TV-series on DVD or Blu-Ray), legal streams and cinema visits. For physical purchases and legal streams, the error margin is so large that positive effects cannot be ruled out with 90 per cent certainty. Only for cinema visits displacement can be concluded to be between 0 and 50 per cent (with a 90% confidence interval)with most likely estimates at 21 per cent (for illegal downloads) and 22 per cent (for illegal streams).The similarity of the displacement rates enhances the credibility of these estimates, and to a lesser extent this also applies to the estimated rates at which physical purchases are displaced (at 11 and 9 per cent respectively) and legal streams (at 17 and 21 per cent respectively).

Opposed to these estimated displacement effects are estimated positive effects of illegal downloads and streams on rentals (at +10 and +15 per cent

respectively though insignificant at even10 per cent level) and on legal downloads (at +21 and 22 per cent respectively, significant at 5 per cent level though not at 1 per cent level).

These mixed effects raise the question what is the likely overall effect of illegal transactions on legal transactions, a question that will be discussed after the estimated effects per channel for books and games.

Table 7.10 Audio-visual: IV-estimated effects of numbers of films and TV-series illegally downloaded or streamed on numbers of films and TV-series accessed via legal channels, people with at least one transaction in audio-visual content in the last year

	Physical purchases	Rentals	Legal downloads	Legal streams	Cinema visits
IV regressions with number of illegal downloads of films/TV-series					
Nr. Illegal downloads	-0.105	0.102	0.209**	-0.169	-0.205*
(std. error)	0.121	0.082	0.085	0.166	0.111
Interest in film/TV-series: much higher	4.101***	0.949***	1.176***	2.489***	2.902***
(std. error)	0.432	0.279	0.284	0.611	0.400
Durbin test of exogeneity	3.9**	0.0	5.5**	0.0	7.8***
Nr. Observations	17,456	17,563	17,034	17,603	17,398
IV regressions with number of illegal streams of films/TV-series					
Nr illegal streams	-0.088	0.156*	0.221**	-0.214	-0.218*
(std. error)	0.141	0.093	0.101	0.190	0.128
Interest in film/TV-series: much higher	4.020***	0.837***	1.153***	2.647***	3.122***
(std. error)	0.461	0.296	0.313	0.653	0.431
Durbin test of exogeneity	1.2	1.0	5.3**	1.0	6.8***
Nr. observations	17,416	17,504	16,999	17,567	17,371

1st stage Kleibergen-Paap statistic (physical purchases): 78.1 (illegal downloading) and 41.6 (illegal streaming); Stock-Yogo critical value: 16.4. Moral attitudes relevant for illegal downloading and streaming of audio-visual.
See further footnotes to Table 7.9 but with interest in and online search on films and TV-series instead of music.

As noted in the discussion of OLS estimates, too few respondents report illegal streams of books to estimate their effects. Illegal downloads of e-books and audio books are estimated to have mixed effects on legal transactions, depending on the channel. It can be concluded that illegal book downloads displace the sales of physical books. The error margin indicates the displacement rate can be anything from zero to more than 100 per cent, with a most likely displacement rate of 75 per cent. Illegal downloads of books and audio books are slightly more likely to have negative than positive effects on numbers of books legally downloaded or borrowed from a library, but it would be fairer to conclude that the effect is too uncertain for conclusions. Lastly, the estimates indicate that illegal downloads induce more legal streams of books, even at a rate between 20 and 80 extra legal streams per 100 illegal downloads (with 95 per cent certainty), with a most likely effect of 50 per cent.

Table 7.11 Books: IV-estimated effects of illegal downloads of e-books or audio books on numbers of books and audio books accessed via legal channels, people with at least one book transaction in the last year

	Physical purchases	Borrowed books	Legal downloads	Legal streams
Nr illegal book downloads	-0.730*	-0.180	-0.035	0.502***
(std. error)	0.396	0.367	0.262	0.150
Interest in books: much higher	6.491***	4.026***	0.853***	-0.441***
(std. error)	0.390	0.409	0.258	0.135
Durbin test of exogeneity	6.1**	0.9	2.0	2.0
Nr. Observations	12,217	12,076	12,384	12,483

1st stage Kleibergen-Paap statistic (physical purchases): 22.3; Stock-Yogo critical value: 16.4. Moral attitudes relevant for illegal downloading of books.
See further footnotes to Table 7.9 but with interest in and online search on books instead of music.

For games, positive effects of illegal downloads, streams and games played on chipped consoles on sales can be concluded, in particular for legal downloads and cloud games such as Gaikai and Onlive. These effects are significant at even the 1 per cent level and are similar for illegal downloads/streams and games played on chipped consoles: 34 and 38 extra legal downloads per 100 illegally accessed games, and 60 and 63 extra cloud games played per 100 illegally accessed games. Other effects of illegal downloads and streams are not significant at even the 10 per cent level, except for free games where displacement by illegal downloads and streams can be concluded and the displacement rate can be anything between 0 and 100 per cent, with 42 per cent the most likely displacement rate. However, since it is free games that are displaced, this implies that no sales of games are displaced by illegal downloads or streams, although advertising revenues may be lost.

Table 7.12 Games: IV-estimated effects of illegal online downloads or streams and of games played on chipped consoles on numbers of games accessed via legal channels, people with at least one games transaction in the last year

	Physical purchases	Legal downloads	Legal streams	Free games	Cloud games
IV regressions with number of illegal online downloads or streams of games					
Illegal online	0.078	0.340***	0.085	-0.422*	0.603***
(std. error)	0.188	0.120	0.219	0.251	0.103
Interest in games: much higher	2.069***	0.882***	1.320***	0.918*	-0.395*
(std. error)	0.397	0.263	0.467	0.507	0.207
Durbin test of exogeneity	2.0	2.1e-06	2.5	16.8***	11.0***
Nr. Observations	11,942	12,016	11,877	11,718	12,031
IV regressions with number of games played on chipped consoles					
Chipped console	0.085	0.378***	0.191	-0.302	0.632***
(std. error)	0.183	0.120	0.208	0.232	0.106
Interest in games: much higher	2.129***	1.203***	1.433***	0.684*	0.189
(std. error)	0.337	0.233	0.385	0.416	0.182
Durbin test of exogeneity	2.0	0.3	1.1	10.4***	12.6***
Nr. Observations	11,912	11,980	11,848	11,666	12,002

1st stage Kleibergen-Paap statistic (physical purchases): 35.4 (illegal downloading) and 39.5 (illegal streaming); Stock-Yogo critical value: 16.4. Moral attitudes relevant for illegal downloading and streaming of games.

See further footnotes to Table 7.9 but with interest in and online search on games instead of music.

For games the reason for the positive effects may be that players may get hooked to a game and access a game legally to play the game with all bonuses, at higher levels or whatever makes playing the game legally more interesting.

Impact of total illegal online transactions on total legal transactions

The overall conclusion is that for games, illegal online transactions induce more legal transactions. For the other categories music, audio-visual and books illegal downloads and streams tend to displace physical sales, although the error margins indicate that with 95 per cent certainty only a displacement between 0 and 100 per cent can be concluded. For music, audio-visual and books illegal downloads and streams are found to have positive effects on the number of legal streams, and insignificant and mixed effects on the number of legal downloads. The effects of illegal downloads and streams on live visits are positive for music (live concerts) and negative for audio-visual (cinema visits). What gives credibility to these mixed estimates, are that effects of illegal downloading and illegal streaming are almost always very similar. Still, these mixed effects raise the question what is the overall impact of all illegal online transactions on the total of legal transactions.

To analyse this, the numbers of illegal streams and downloads were added up and likewise the numbers of legal transactions were added up. If a respondent filled in reliable numbers for the one channel and unreliable numbers for the

other channel (which were set to missing in the sample), we regarded the total numbers as missing as well. Therefore, the number of observations for the regressions of totals are smaller than the number of observations for any of the separate channels. For music, one hour of streaming was counted as 10 tracks[49]. For the regressions of total number of illegal downloads plus streams on total numbers of legal transactions all estimated effects were insignificant (Table 7.13). Despite the large uncertainty of the estimates, the most likely effects are:

- Films/TV-series and books: sales are displaced by online copyright infringement at a rate of respectively 27 and 38 per cent;
- Music: no displacement by online copyright infringement;
- Games: out of every 100 online copyright infringements, 24 induce an extra legal transaction.

Table 7.13 IV-estimated effect of illegal online transactions on legal transactions, people who had at least one relevant transaction in the last year

	Music	Films/TV-series	Books	Games
Coefficient	0.031	-0.270	-0.382	0.241
(std. error)	0.217	0.182	0.752	0.224
Durbin statistic	5.459**	14.059***	2.762*	9.958***
Nr. Observations	13,896	15,851	11,383	11,226

* p<0.10, ** p<0.05, *** p<0.01.

It is striking that all coefficients are insignificant. This raises the question to what extent estimates suffer from problems of respondents to recall exact numbers of transactions, an issue that also applies for individual channels discussed earlier. This means that estimates are only most likely effects given the data, but with no certainty that the true displacement rate is close to the estimate. Therefore the conclusion is that not too much significance should be attached to the estimates.

When interpreting the estimates, it needs to be kept in mind that the estimated effects are averages. In particular, there is a difference between people illegally downloading or streaming large and small numbers of creative content. If the sample is restricted to people with large numbers of illegal transactions (above 100 tracks for music and above 20 transactions for films/TV-series, books and games respectively), zero displacement rates can be concluded for any model specification. This makes sense because for legal transactions the budget is a limiting factor, contrary to illegal transactions. If the sample is restricted to people with fewer numbers of illegal transactions the estimated effects are generally further removed from zero.

Because of the apparent diminishing displacement rates for higher numbers of illegal transactions, a log-linear model was considered, relating ln(1+legal

[49] Experiments with the number of tracks that count for one hour showed that the estimated coefficients are not very sensitive to the assumed number of tracks per hour, per cd or per concert.

transactions) to ln(1+illegal transactions). The interpretation of log-linear models is that a one per cent change of illegal transactions displaces one per cent of legal transactions at the estimated rate. However such estimates can be very misleading because self-reported numbers of illegal transactions are on average much smaller than self-reported numbers of legal transactions. Suppose that a person has done 100 legal transactions and 10 illegal transactions, and the estimated displacement rate in the log-linear model is -0.2. Then one extra illegal transaction (+10%) implies 2% fewer legal transactions (0.2 times 10%), and 2% of 100 legal transactions is 2. Hence, a hypothetical "displacement rate" of 20% in the log-linear model can imply 200% displacement if the number of legal transactions is 10 times as large as the number of illegal transactions. Hence the outcomes of log-linear model specifications are harder to interpret and compare with other literature and only estimates with linear models are presented.

Another consideration was that numbers of transactions cannot be smaller than zero. IV-tobit regressions were considered but not used, because it is unlikely that people actually want to consume negative numbers of creative content but cannot do so due to restrictions, as can be the case for people willing to work below a minimum wage. Also, spiked regressions were considered with selection of people who did at least one transaction via the relevant channels. However, this does not do justice to the fact that people have a choice between three alternatives: using a legal channel, using an illegal channel, and no consumption at all. Using IV tobit models or subsamples of people with at least one transaction via the relevant channel resulted in more arbitrary and likely more spurious results.

Quantile regressions were considered as well, but resulted in estimated coefficients of illegal transactions that were similar to OLS estimates and coefficients of zero for the control variables.

Instead of regressions between numbers of transactions, regressions between users of channels (yes/no dummies) were considered, and also regressions between frequencies of channel use (ranging from the last week to never). In general, these models resulted in qualitatively similar estimates as the estimates of regressions between numbers of transactions.

7.6 Comparison with previous literature

A comparison of the results with previous literature is limited to recent survey-based literature. The reason is that time-series regressions often show a negative correlation between illegal downloads and offline purchases which may be attributable in hindsight to the effect of people "going online". An experiment is generally considered as the golden standard. However such country-specific events are rare and therefore the results of this study are compared with previous survey-based literature. The papers by Rob and Waldfogel (2007a and 2007b) are discussed more in depth in the next chapter on the application of their methodology in this study.

Zentner (2006) estimated (after instrumenting with broadband connection) that of the people who regularly download MP3 files in seven EU countries in 2001, 32 to 50 per cent would have purchased at least one music CD in the month prior to they survey.[50] This estimate for the early days of online music (in 2001) showed that piracy displaced sales but not by how much, as later studies and this study attempted to do.

Oberholzer-Gee (2007) estimated insignificant effects in the USA of music file sharing on CD sales instrumenting music file sharing with numbers of German kids on vacation. Some commented on this novel approach that CD sales and German holidays coincide during Xmas, so that the instrument is possibly not independent of CD sales and the estimates may be biased. Their results are similar to ours: if the instrumental variable is exogenous then piracy has no effect on music sales, but instrument exogeneity is in doubt.

Bounie et al. (2005 for music and 2006 for audio-visual, using French survey data from the preceding year) estimated that acquisition of music MP3 files via P2P sites displace music but that P2P usage had no significant effects on legal audio-visual consumption, except for video rentals of the particular subsample who had no subscription for rentals. Interestingly, the estimates of Bounie et al. (2005) for music were only significant at the 10 per cent level, but were significant at the 1 per cent level for the particular sample of people who keep more than half of the MP3 files they have acquired – the group that Bounie et al. labelled as "pirates". For the other sub-sample labelled as "explorers" who delete more than half of their MP3 files the effect of P2P usage on CD purchases was completely insignificant. The results for this study are insignificant for both music and audio-visual, with exceptions for specific segments in audio-visual content, namely legal downloads (positive effect) and cinema visits (displacement). The equivalent of people deleting more than half of the downloads might be the streamers in this study, but this study finds similar results for illegal downloading and streaming. Another split of the data in this study with clearly different estimated displacement rates is that between small-scale and large-scale illegal downloaders and streamers. But since numbers above 100 are clearly inaccurate (reported in units of 100), not much can be concluded from the insignificant displacement rates for large-scale illegal users for even cinema visits.

Hennig-Thurau (2007) estimated a rare-events logit choice model for 25 top films of 2006 in Germany. Each respondent was asked in February 2006 about their intentions to watch 10 to 15 upcoming films. In May 2006 they were asked whether they had seen the film in the cinema and whether they had obtained or had the intention to obtain the film via file sharing. In October 2006 they were asked whether they had rented or purchased the film on DVD and again whether they had obtained the film via file sharing. At the 5 per cent level, their estimated effects of having obtained the film via file sharing were insignificant for cinema visits and DVD purchases, and positive for DVD

[50] The dependent variable indicates with 0 or 1 whether the respondent bought music in the month prior to the survey.

rentals. However at the same time they found significant negative effects of the intention to obtain the film via file sharing, which makes it difficult to assess the displacement rate. Assuming that the intention of file sharing is always effectuated (but perhaps not always reported), the displacement rate would be 9 per cent for cinema visits, 19 per cent for DVD purchases and 12 per cent for DVD rentals (not reported in the table below). Hennig-Thurau estimated an overall displacement rate of 27 per cent for the numbers of legal transactions added up. The results in this chapter are not comparable to those of Hennig-Thurau because this study includes all films and TV-series instead of the top 25 recent films. Nevertheless, it is interesting that the (insignificant) estimate of 27 per cent coincides with the estimate of Hennig-Thurau. The composition of the effects is different, namely 20 instead of 10 per cent displacement for cinema visits and 10 instead of 20 per cent displacement for physical purchases; also this study found a positive instead of negative effect on DVD rentals.

Andersen and Frenz (2007, using Canadian survey data on consumption in 2005) estimate a number of models relating the number of music CD purchases to the number of P2P downloads and estimate from a negative binomial regression that one extra P2P download per month increases the number of CD purchases by 0.44 (applying the coefficient of 1.212 to median consumption levels). Barker and Maloney (2012) used the same data source as Andersen and Frenz but included the persons who did not buy CDs in 2005, and estimate a model in log differences to control for unobserved interest in music. They estimate that a 10 per cent increase in P2P downloads would cause an 0.5 per cent decrease of CD purchases. It is hard to assess the displacement rate from these effects in log differences, but at their sample means of 2.2 P2P downloads per month and 8.4 CD purchases per month[51], a 10 per cent increase of P2P downloads implies an increase of 0.22 downloads and an 0.5 per cent decrease of CD purchases implies a decrease of 0.04 purchases. A decrease of 0.04 purchases caused by an increase of 0.22 P2P downloads is equivalent to a displacement rate of 18 per cent. For people with more or fewer than 8.4 CD purchases per month the implied displacement rate is higher or lower. In this study the piracy rates of illegal tracks (10 per year), illegal digital albums (3 pear year) and illegal streaming (10 hours per year) are each lower than the 2.2 P2P downloads in the Andersen and Frenz study, but after adding these up the implied piracy rates of both studies are roughly similar. However the number of 4 CD / vinyl purchases per year in this study is far lower than the 8.4 per month in Andersen and Frenz. Hence for the current EU population the coefficients of Barker and Maloney would imply far lower displacement rates than 18 per cent. Due to difficulties in interpreting coefficients of logarithmic models, only linear models were presented in this study. But qualitatively, the results of linear and logarithmic models are similar: the coefficients of the logarithmic models are closer to zero than those of the linear models presented in this chapter, but when

[51] It should be noted that this number is extremely high. If the number of CD purchases is in reality lower, the estimated displacement rates at sample means would also be lower.

applied to sample averages numbers of transactions, the implied displacement rates of the logarithmic model are quite similar to those of the linear model.

Bastard et al. (2012, French survey data of 2008) ran OLS regressions and probit models and found insignificant (at the 5 per cent level) or positive effects of piracy on legal transactions for each of the same four types of content as in this study. However they do not relate numbers of legal transactions to numbers of illegal transactions, assuming that the stock of illegal files is accumulated over multiple years. OLS regressions in this study also resulted in positive effects and all these positive effects were significant at even the 1 per cent level. However, even though the exogeneity of moral attitudes is not without question, estimates using a relevant and possibly exogenous instrument are arguably closer to the true values than OLS estimates.

Dang-Nguyen et al. (2012, French survey data of 2010) found no effects of legal music streaming (Youtube, Deezer, Spotify) on the number of CD purchases or the number of most live concerts, except a positive effect of streaming on live concerts of international pop stars. They argue that if legal streaming has these effects, the same might apply to illegal streaming. Interestingly, though this study finds almost no significant effects of piracy on music sales, this study also finds a significant positive effect of piracy on live concerts: significant but small for illegal downloading and significant and around 10 per cent per hour of illegal streaming (i.e. 10 hours of illegal streaming would induce one more live concert visit).

Leenheer and Poort (2014, Dutch survey data of January 2014) estimated quadratic models for the effects of illegal film downloads on numbers of legal transactions and found displacement rates between 15 and 20 per cent for small numbers of illegal downloads and diminishing replacement rates for larger numbers, except for cinema visits for which they did not find significant effects. On average, they calculate a displacement rate of 32 per cent consisting of 11 fewer DVD purchases per 100 illegal downloads, 11 fewer TV views and 10 fewer pay downloads/VOD. The overall effect of 32 per cent is similar to the 27 per cent estimated in this chapter, where TV views were not included, but remarkably in this study cinemas are the only legal channel significantly displaced by illegal downloads. Since larger numbers also tend to be more inaccurate, there is not much ground for firm conclusions, but at least there is no evidence that large-scale illegal users would buy the most content if piracy is no longer possible.

Table 7.14 Estimates of previous survey-based studies

Source	Content	Sample	Dependent	Independent	Model	Coefficients
Zentner (2006)	Music	EU; 30,000 internet users of 2001	Dummy music purchase	Dummy regular MP3 downloads	OLS	+0.014 (0.015)
					IV with broadband connection	-0.498* to -0.320* (0.24) (0.125)
Oberholzer-Gee (2007)	Music	USA; 10,093 internet users of 2002	Album sales	Downloads	OLS	+0.277*** (0.025)
					IV with German kids on vacation	+0.003 (0.194)
		USA; 8,739 internet users of 2002	Δ albums sales	Δ downloads		+0.029 to +0.047 (0.074) (0.078)
Bounie et al. (2005)	Music	France; 456 mostly students of 2004	Category of nr CD purchases	Dummy uses P2P	Ordered probit	-0.221* (0.120)
		France; 344 mostly students of 2004 who keep most downloads	Category of nr CD purchases	Dummy uses P2P	Ordered probit	-0.396*** (0.142)
Bounie et al. (2006)	Audio-visual	France; 620 mostly students of 2005	Likert scale frequency cinema visits	a) Dummy piracy >1 time per week b) Dummy uses P2P	OLS	-0.029 +0.054 (0.096) (0.059)
			Dummy ≥ 1 DVD purchase	a) Dummy piracy >1 time per week b) Dummy uses P2P	Probit	-0.033 +0.129 (0.154) (0.094)
		France; 420 mostly	Likert scale frequency video rentals	a) Dummy piracy >1 time per week	OLS	-0.553* -0.414** (0.311) (0.192)

Source	Content	Sample	Dependent	Independent	Model	Coefficients
		students without rental subscription of 2005		b) Dummy uses P2P		
Hennig-Thurau (2007)	Films	Germany; 1,075 film consumers of 2006	Cinema visits DVD rentals DVD purchase	Actual file sharing & file sharing intention (for all legal channels)	ReLogit (up to 15 films per respondent)	-0.563* & -0.093*** -0.130 & -0.122*** +0.15** & -0.204***
Rob & Waldfogel (2007a)	Music	USA; 364 students of 2005	Nr of CD purchases	Nr of MP3 downloads	Panel model with fixed effects	-0.079** (0.033)
Rob & Waldfogel (2007b)	Films	USA; 541 students of 2005	First paid view Second paid view	Unpaid 1st view Unpaid 1st & 2nd view	Panel model with fixed effects	-0.758*** -0.244*** & -0.194**
Andersen-Frenz (2007)	Music	Canada; 1,459 persons (2005) with >0 CD purchases	Nr of CD purchases	Nr of P2P downloads	Negative binomial regression	+1.212***
Barker, Maloney (2012)	Music	Canada, 1,750 persons (2004-2005)	Δ log (Nr of CD purchases)	Δ log (Nr of P2P downloads)	OLS, Tobit	-0.043** -0.050** (0.020) (0.023)
Dang-Nguyen et al. (2012)	Music	France; 2,007 internet users of 2010	Nr of CD purchases	Dummy for streaming	Negative binomial regression	-0.015 (0.048)
			Nr of live concerts, classical, local and international	Dummy for streaming	Negative binomial regression	-0.215 +0.042 +0.392*** (0.147) (0.103) (0.110)
Bastard et al. (2012)	Music	France; 1,981 internet users of 2008	Nr CD purchases ≥ 1 purchase ≥ 1 legal download	Stock of pirated files ≥ 1 illegal download ≥ 1 illegal download	SUR Probit Probit	+0.019*** -0.139* +0.307**
	Films		Nr DVD purchases ≥ 1 purchase	Stock of pirated files	SUR Probit	+0.008 -0.106

Source	Content	Sample	Dependent	Independent	Model	Coefficients
			≥ 1 legal download	≥ 1 illegal download	Probit	+0.012
				≥ 1 illegal download		
	Games		Nr game purchases	Stock of pirated files	SUR	-0.016
					Probit	+0.372**
				≥ 1 illegal download	Probit	+0.928***
				≥ 1 illegal download		
	Books		Nr book purchases	Stock of pirated files	SUR	+0.472***
					Probit	-0.373
				≥ 1 illegal download	Probit	+0.589***
				≥ 1 illegal download		
Leenheer and Poort (2014)	Films	Netherlands; 2,212 internet users 12-65 years old of January 2014	Nr cinema visits Nr DVD purchases Nr DVD views Nr pay downloads/vod Nr TV views	Nr illegal downloads + Nr illegal downloads^2 (all dependent variables)	OLS	n.s. -0.155***+0.0005*** -0.167***+0.0007*** -0.145** +0.0006** -0.197** +0.0011**

Standard errors are reported below the coefficient, * p<0.10, ** p<0.05, *** p<0.01.

From the above literature review, it is evident that many previous studies have estimated effects of piracy but far fewer studies have estimated displacement rates. Of the above reviewed studies, six have estimated displacement rates:

- Music: Rob and Waldfogel (2007a), Andersen-Frenz (2007) and Barker and Maloney (2012);
- Films: Hennig-Thurau (2007), Rob and Waldfogel (2007b) and Leenheer and Poort (2014).

For music, Barker and Maloney (2012) have a point that disregarding people with no legal CD purchases will result in biased estimates and that exploiting the panel data structure further reduces any bias. Applying their estimates to the average of 2.2 MP3 downloads reported by Andersen and Frenz (2007), music P2P downloads are estimated to displace music CD purchases at a rate of 18 per cent (in 2004-2005) but the model of Barker and Maloney imply rapidly diminishing displacement rates for larger numbers of illegal downloads. Rob and Waldfogel (2007a) find a displacement rate of 8 per cent arguably accounting for endogeneity by estimating a fixed effects model. The displacement rate of CD purchases by illegal downloads estimated in this study looks slightly higher (23 per cent) but is insignificant. The only significant effects for music in this study were 0.7 extra live concerts per 100 tracks illegally downloaded and 12.9 extra live concerts per 100 hours illegal streaming. Applied to the average reported number of 4 hours illegal streaming, this is equivalent to 0.52 extra live concerts. This is comparable to the significant positive effect of 0.39 extra live concerts (of international pop stars) if someone has legally streamed some music estimated by Dang-Nguyen et al. (2012).

For films, assuming that file sharing intentions will always result in file sharing behaviour, the cumulative displacement rate of films by file sharing implied by the estimates of Hennig-Thurau (2007) after disregarding insignificant estimates at the 5 per cent level is 27 per cent, of which 9 fewer cinema visits per 100 file shares, 12 fewer DVD rentals and 6 fewer DVD purchases. These estimates are similar to those of Leenheer and Poort (2014) who estimate a total displacement rate of 32 per cent consisting of 11 fewer DVD purchases per 100 illegal downloads, 11 fewer TV views and 10 fewer pay downloads/VOD. The overall displacement rate of 27 per cent estimated in this study looks similar, but is insignificant. All these estimates contrast with the displacement rate of 74 per cent estimated by Rob and Waldfogel (2007b). One possible explanation for this discrepancy is that the data of Rob and Waldfogel applies to students of 2004 and 2005, where displacement may have been higher than in the rest of the population and in later years. Another possible explanation for this discrepancy is that the displacement is different for blockbusters than for other films. In this study the only significant effect of illegal transactions for films (and TV-series) is that 100 extra illegal downloads or streams cause approximately 20 extra legal downloads or streams, an effect which is not estimated in the reviewed studies.

For books and games, the authors are not aware of previous literature to compare estimated displacement rates with.

7.7 Conclusions

With regard to total effects of online copyright infringements on legal transactions, there are no robustly significant findings. The strongest finding applies to films/TV-series, where a displacement rate of 27 with an error margin of roughly 36 per cent (two times the standard error) only indicates that online copyright infringements are much more likely to have negative than positive effects. The insignificant estimates are mainly caused by people who illegally download or stream in large numbers. If the sample is limited to persons with at most 10 or 20 illegal transactions per year (illegal downloads or illegal streams), then the estimates are generally more negative and less insignificant, however not representative for the total population and therefore not presented.

For audio-visual, the 27 per cent displacement is a net effect of displacement of cinema visits, legal downloads and physical purchases adding up to 50 per cent for illegal downloads and to 51 per cent for illegal streams on the one hand, and positive effects on legal streams and rentals adding up to 31 per cent and 38 per cent respectively. For each of these channels, none of the estimated effects is significant at the 1 per cent level, and hence the large error margin for the total effect is no surprise. Even though the 27 per cent displacement of this study is insignificant, the magnitude is similar to significantly estimated displacement rates of previous studies: 32 per cent reported by Leenheer and Poort (2014) and 27 per cent implied by the study of Hennig-Thurau (2007) if it is assumed that file sharing intentions will always result in file sharing behaviour. Rob and Waldfogel (2007b) even found a displacement rate of 74 per cent for students of 2004 and 2005 but this is perhaps neither representative for the rest of the population, nor for all films and for later years.

Rob and Waldfogel further commented that when file sharing of films becomes easier, it is more likely that the average displacement rates decrease though the total displacement may be larger due to the increased volume of file sharing. The reason for decreasing displacement rates is that when file sharing is difficult, only people who expect many illegal downloads will invest time in file sharing. Whereas if file sharing is easier, many people will do so on occasion if that happens to be more convenient for that particular music track. Rob and Waldfogel also predicted that when file sharing of films becomes faster, more people will use this. As a result, Rob and Waldfogel predicted that increasing volumes of file sharing of films with smaller average displacement rates would become a serious threat for the film industry.

For books, the number of people reporting illegal streams is negligible and hence only effects of illegal book downloads can be reported. Sales of printed books (offline or via a web shop) are displaced at an estimated rate of 73 per cent by illegal book downloads with an error margin of 79 per cent (two times the standard deviation). On the other hand, 100 illegal book downloads are estimate to induce 50 extra legal book streams. The net effect is uncertain, since the estimated displacement rate of 38 per cent has an error margin of 150 per cent (two times the standard error).

For music, the overall displacement rate estimated in this study is zero. In particular, the displacement of physical sales (though with a large error margin) is compensated by a significant positive effect of illegal streams on live concerts. Rob and Waldfogel (2007b) and Barker and Maloney (2012) found significant displacement rates at 8 per cent overall, and 18 per cent with rapidly diminishing displacement rates for large numbers of illegal downloads respectively, both with 2004-2005 data. Since both studies exploited the panel structure of their data, their estimates are arguably less biased and more accurate.

For games, the estimated effect of illegal online transactions on sales is positive because only free games are more likely displaced by online copyright infringements than not. The overall estimate is 24 extra legal transactions (including free games) for every 100 online copyright infringements, with an error margin of 45 per cent (two times the standard error). The positive effect of illegal downloads and streams on the sales of games may be explained by players getting hooked and then paying to play the game with extra bonuses or at extra levels.

For assessing impacts of piracy, both the volumes and the displacement effects of piracy must be taken into account. For music the proportion of people using illegal channels is average compared to recent previous literature (see Chapter 6), and for the other type of creative content the proportions of illegal users is larger than in recent previous literature.

For music, recent literature found generally small positive or negative effects of illegal online transactions, and the estimates of this study are in line with this. For films, recent studies generally found robust negative effects, while the negative effects in the analysis of this chapter have large error margins. Partly this is a shortcoming of having no data from different points of time, an issue that is addressed in the next chapter. But also, displacement rates tend to decrease for larger numbers of illegal transactions. For the subsample of respondents with large volumes of pirated content (over 20 CDs, films, books or games) displacement rates are estimated to be zero, and for the subsample of respondents with smaller numbers the displacement rates are generally larger and less insignificant. Since self-reported piracy volumes according to this study are higher than in previous studies, part of the explanation of the insignificant displacement rates in this study may be that piracy volumes have increased and displacement rates may truly have decreased.

For books, downloading and streaming are still quite rare and illegal online transactions have high displacement rates compared to other content. If books follow the path of music and films, illegal downloads and streams will become more frequent, and the displacement rates will decline.

Displacement rates for games have been little analysed in previous literature, but it is interesting that a study of Bastard et al. (2012) also indicate significant positive effects, suggesting that games have succeeded in turning

illegal online transactions to their advantage by hooking up gamers and offering more levels / bonuses that are available only after paying.

8 DISPLACEMENT RATES 100 FILMS

8.1 The approach

The analysis of displacement rates of the previous chapter was based on aggregate numbers for different types of channels for generic types of creative content (music, films / TV-series, books and games). A major shortcoming of a one-off survey pointed out for example by Barker and Maloney (2012) is that an analysis of numbers of transactions comes with the danger of not sufficiently controlling for unobserved preferences that cause some people to use both legal and illegal channels more than other people (omitted variable bias and endogeneity). An analysis of changes in numbers of transactions over time avoids this issue under the assumption that these preferences remain constant over time. In addition, there may be recall problems for especially large numbers of transactions.

As an alternative to IV-regressions, Rob and Waldfogel (2007b) developed a novel approach by asking respondents to check which films they have seen out of a list of films of various vintage years, and how they have seen the film (e.g. on a DVD, in a cinema, on TV). This approach allows to add a time dimension to the analysis, and offers a way to address endogeneity. Following the approach of Rob and Waldfogel (2007b), respondents were asked to check which of 100 popular films of the last three years they have seen: the 30 films with the highest box office sales of 2011 and the 35 films with the highest box office sales of 2012 and 2013 each. For each of up to 20 films the respondents were asked how they have seen the film the first and the second time. As discussed in Section 6.6, people have on average seen 16.6 films out of the top 100 of the preceding three years, and on average they have seen 4.4 of these films a second time.

An additional advantage of this approach is that the number of films is by definition limited to a maximum of 100 selected films, so that extremely high numbers of views are not an issue here. Exploiting the time dimension implicit in the vintage year "t", the equations of interest are

$$N\ legal\ 1st\ views_{i,t} = \beta_0 + \beta_1 \cdot Control\ vars_i + \beta_2 \cdot N\ illegal\ 1st\ views_{i,t} + \beta_3 \cdot \theta_i + \beta_4 \cdot \vartheta_t + \varepsilon_{i,t}$$

$$N\ legal\ 2nd\ views_{i,t} = \gamma_0 + \gamma_1 \cdot Control\ vars_i + \gamma_2 \cdot N\ illegal\ 1st\ views_{i,t} + \gamma_3 \cdot N\ illegal\ 2nd\ views + \gamma_4 \cdot \theta_i + \gamma_5 \cdot \vartheta_t + \varepsilon_{i,t}$$

The first equation relates to which extent the number of illegal online first views of films displace legal first views, and the second equation does the same for second views of a film. The control variables are similar to those of the previous chapter and include variables such as the interest in films and socio-demographic variables. The variable θ_i captures unobserved individual effects, while ϑ_t captures unobserved effects of the vintage year of the film. The last term ε_i indicates the measurement error of the model fit for that respondent.

The second equation is similar to the first one but then for second views of films. To the extent a first illegal online view may saturate people, first illegal online views can also displace second views via legal channels. However in one aspect the questionnaire of this study is different from that of Rob and Waldfogel (2007b). In their study, a second view can only be checked for a different channel, while in this study, respondents can check that they saw a film the first two times via the same channel. Hence in this study the channels of the second view are more accurately defined which will likely result in more accurate estimates.

Since the panel structure is developed with the aim of addressing the endogeneity issue, ordinary least squares (OLS) regressions may already result in reliable estimates of the displacement rate of legal films transactions by illegal online views. The hypothesis is that this reduces the need for instrumenting the number of illegal views. This hypothesis is tested by comparing estimates with and without exploiting the panel structure implied by the vintage years of films. If the estimates of the displacement rates are similar, this can mean that endogeneity was not an issue in the first place, or that the panel structure does not adequately address the endogeneity. If the estimates are different, this likely means that endogeneity is a problem, and exploiting the panel structure and using instrumental variables should affect the estimated displacement rate in the same direction, assuming that both OLS and panel model estimates are at least partially adequate.

8.2 The displacement of first legal views by first illegal views

The displacement of first legal views by first illegal views is estimated with both OLS.

An OLS regression of the number of illegal first views on the number of legal first views indicates a "naïvely" estimated displacement rate of 30 per cent. This estimate applies to both the subsample of people who saw at least one of the top 100 films in any way including TV or airplane (Table 8.1). The Durbin test are significantly different, and the conclusion whether instrumenting is necessary depends on what instrument is assumed to be most exogenous.

Table 8.1 Displacement of legal first views by illegal first views for 100 top films

Dependent: number of first legal views per respondent N_view1_legal

Model ->	OLS
Population ->	Saw ≥1 top film
N_view1_illegal	-0.327***
	0.012
Male	0.405**
	0.182
Age	0.071*
	0.041
Age^2	-0.003***
	0.000
Age is 14-17	1.943***
	0.433
Educational level	0.306***
	0.087
Employed	0.732***
	0.198
Hours of internet use	0.177***
	0.049
Interest in films –much lower	-3.197***
	0.424
Interest in films – lower	-2.957***
	0.270
Interest in films – higher	4.149***
	0.229
Interest in films – much higher	8.629***
	0.326
Frequent online info about films	1.558***
	0.108
Germany	-3.733***
	0.311
Spain	-2.638***
	0.307
France	-4.447***
	0.314
Poland	-2.843***
	0.316
Sweden	-2.619***
	0.316
Constant	20.902***
	0.967
Number of observations	25,392

Note: standard errors below all estimated coefficients.

* p<0.10, ** p<0.05, *** p<0.01 reports the significance level.

In the OLS regression, the effects of age reflect that age is not a strong factor for the likelihood of seeing top films, expect for minors who are more likely to see those films and for those with very high age who are less likely to see those films. The country coefficients indicate that people from the reference country, the United Kingdom, see more films than people from the other countries in the sample. As expected, educational level, having employment, interest in films and frequent online search of information about films are all positively correlated with the number of legal film views. To the extent that

internet is used to watch films, it is only logical that hours of internet use are positively correlated with the number of film views.

When the panel structure implicit in the vintage year is exploited, there are three observations per respondent: for respectively the numbers of films from 2011, 2012 and 2013 that the person has seen. If the models of the previous table are run again without random effects or fixed effects, the estimated displacement rates remain similar to the estimates of the corresponding model and subsample where the numbers of films from 2011, 2012 and 2013 are added up (these results are not tabulated). If the panel data structure is exploited with fixed effects, then all control variables drop out of the equation because they are the same for each respondent (Table 8.2). Because the control variables drop out of the equation anyway, using the whole sample including the explanation of zero legal views with zero illegal views of people who never watch films anyway does not affect coefficients of control variables. Hence the problem that coefficients of control variables tend to be closer to zero for the whole sample does not apply to panel model estimates with fixed effects, and the estimated displacement rates are very similar for the whole sample and the sample of people who saw at least one film.

Table 8.2 Displacement of legal first views by illegal first views for 100 top films

Dependent: number of first legal views per vintage year per respondent (N_view1_legal)

Model -> Population ->	Panel model, fixed effects Whole sample	Panel model, fixed effects Saw ≥ 1 top film
N_view1_illegal	-.410***	-.422***
(std. error)	.009	.010
Constant	4.495***	6.171***
(std. error)	.009	.102
Number of observations	85,884	69,010

Note: standard errors below all estimated coefficients.

* p<0.10, ** p<0.05, *** p<0.01 reports the significance level.

With random effects and the same control variables as in the regressions per respondent, the estimated displacement rates are -.367 and -.393 for respectively the whole sample and the people who saw at least one of the top 100 films (the estimates are not further tabulated).

In sum, OLS estimates with the usual control variables indicate that first legal views of recent top films are displaced by illegal first views at a rate of 30 per cent. Panel model estimates with fixed effects indicate a displacement rate of 40 per cent. If the people who saw at least one film are selected, the random effects model and the IV regression with the use of internet for news as instrument also indicate a displacement rate of 40 per cent though with a too large error margin for significance.

8.3 The displacement of second legal views by first and second illegal views

People who see films a second time are a specific subgroup. In the open comments, a few respondents remarked that the list of 100 films made them want to see them again. The fact that they comment they want to see films again in general and not certain specific films, suggests that people who saw films a second time are more interested in films than average. Comparing the self-reported interest in films compared to other people, it turns out that people who saw films a second time are indeed more interested in films than others and according to the Pearson chi-square test the difference is significant at the 1 per cent confidence level (Table 8.3).

Table 8.3 Interest in films, people who saw and did not see a top 100 film a second time

Interest in films compared other people	People who did not see a top 100 film a second time	People who saw a top 100 film a second time	Whole sample
Much lower than average	9	4	7
Lower than average	19	14	17
Average	42	38	40
Higher than average	22	31	26
Much higher than average	7	14	10
Total	100	100	100
Number of observations	16,818	11,823	28,641

Value of Pearson chi-2 test statistic: 923***.

Since the people who saw a top film a second time have a demonstrably higher interest in films than average, a limitation of the sample to those who see a film a second time would have the drawback that results are impossible to extrapolate to the whole population. For this reason only the subsample of people who saw at least one film is considered for the OLS estimates.

If the panel structure implicit in the vintage year is not exploited, OLS estimates indicate that illegal first views displace legal second views, and that illegal second views would stimulate persons to view other films for the second time via legal channels. However these effects are small. According to IV-regressions the number of illegal views have no significant effect on the number of legal second views.

Table 8.4 Displacement of legal second views by illegal first and second views for 100 top films Dependent variable = number of first legal views per respondent (N_view2_legal)

Model -> Population ->	OLS All	OLS Saw ≥1 top film
N_view1_illegal	-0.058***	-0.068***
	0.008	0.008
N_view2_illegal	0.139***	0.135***
	0.015	0.016
Male	0.435***	0.508***
	0.099	0.111
Age	-0.075***	-0.061**
	0.022	0.025
Age^2	0.000	-0.000
	0.000	0.000
Age is 14-17	0.298	0.276
	0.243	0.265
Educational level	-0.094**	-0.144***
	0.047	0.053
Employed	0.302***	0.236*
	0.108	0.121
Hours of internet use	0.009	0.001
	0.026	0.030
Interest in films –much lower	-0.451**	-0.260
	0.206	0.259
Interest in films – lower	-0.441***	-0.451***
	0.144	0.165
Interest in films – higher	0.868***	0.804***
	0.128	0.140
Interest in films – much higher	3.164***	3.211***
	0.184	0.199
Frequent online info about films	-0.821***	-0.841***
	0.059	0.066
Germany	-1.296***	-1.340***
	0.171	0.190
Spain	-1.158***	-1.197***
	0.171	0.188
France	-1.379***	-1.322***
	0.170	0.192
Poland	-0.879***	-0.857***
	0.175	0.193
Sweden	-1.362***	-1.367***
	0.172	0.193
Constant	8.962***	9.279***
	0.529	0.591
Number of observations	28,628	25,392

Note: standard errors below all estimated coefficients.

* p<0.10, ** p<0.05, *** p<0.01 reports the significance level.

When the panel structure of the model is exploited with fixed effects as for the first views, the estimated displacement rates are consistent for all subsamples: the sample of all respondents, those who saw at least one top film, and those who saw at least one top film a second time. A first illegal view slightly improves the likelihood of a second legal view, namely by 4 per cent and can be regarded as a sampling effect.

According to the panel data estimates, second illegal view displace second legal views at a rate of 20 per cent. The displacement rate for second views is only half the displacement rate for first views which is 40 per cent. Part of the explanation could be that people are less willing to pay for a second view than for a first view, so that a second illegal view comes less often at the expense of a second legal view.

In the subsample of persons who saw at least one top film a second time, this displacement rate of second illegal views on second legal views increases to 30 per cent. The fact that this is more than the 20 per cent for the whole sample indicates that the 20 per cent is a net effect of displacements of second views by those who have seen a film twice at a rate of 30 per cent, and the effect that there is no displacement of second views for people who did not see any film a second time at all. Likewise, the positive sampling effect of 11 per cent of first illegal views on second legal views for those who have seen at least one film a second time, applies only to a specific subgroup of the sample who is more than average interested in films.

Table 8.5 Displacement of legal second views by illegal first and second views for 100 top films Dependent = number of second legal views per vintage year per respondent (N_view2_legal)

Model Population	Panel model, fixed effects Whole sample	Panel model, fixed effects Saw ≥ 1 top film	Panel model, fixed effects Saw ≥ 1 top film a second time
N_view1_illegal	0.042***	0.037***	0.114***
(std. error)	0.005	0.006	0.014
N_view2_illegal	-0.200***	-0.206***	-0.303***
(std. error)	0.010	0.011	0.017
Constant	1.204	1.504	3.892***
(std. error)	0.006	0.008	0.021
Nr. observations	85,884	69,010	26,882

Note: standard errors below all estimated coefficients.

* p<0.10, ** p<0.05, *** p<0.01 reports the significance level.

With random effects instead of fixed effects, again positive sampling effects of first illegal views on second legal views are estimated and negative displacement effects of second illegal views on second legal views, but the coefficients are closer to zero (not tabulated).

To conclude, for second views the estimates of the displacement rate depends on the model. The validity of the OLS estimate depends on the degree to which the control variables take account of endogeneity and the validity of the IV estimate depends on the exogeneity of the instrument, which cannot be formally tested. The panel model takes account of endogeneity caused by unobserved respondent characteristics to the extent that they do not change over time. In particular, if e.g. a respondent saw 5 films of 2011 illegally and 5 films legally, and saw 10 films of 2012 illegally and 0 legally, this indicates that out of the 15 illegal views of 2011 and 2012, 5 illegal views of 2012 displace sales, implying a displacement rate of 33 per cent across 2011 and 2012 combined. To dispute this estimate, one would need to assume that e.g. taste of films affected the choices of this particular respondent differently for

films of 2012 (or of 2013) compared to 2011. This cannot be ruled out for individual respondents (e.g. he may have become unemployed) but such individual changes tend to cancel each other out in the aggregate population. Arguably, panel model estimates are most likely to be unbiased, and it can be concluded that 100 illegal first views induce 4 extra legal second views, and 100 illegal second views displace 20 legal second views.

8.4 Total displacement effect and conclusions

From Table 6.20 one can see that (internet using) people have seen on average 2.4 films the first time via an illegal site. Based on the panel model estimates, these first illegal views displace 1.0 legal first views (40 per cent of 2.4).

According to the panel model estimates, first illegal views also have a positive sampling effect on second legal views. The extra number of second legal views induced by first illegal views is 0.1 which is 4 per cent of 2.4.

Internet using people have seen on average 0.5 films the second time via an illegal site. According to the panel model estimates, these displace 0.1 films (20 per cent of 0.5). The reason why the displacement rate of second illegal views on second legal views of 20 per cent is lower than the displacement rate of first illegal views on first legal views (40 per cent), is likely because people are less willing to pay for a second view.

In sum, people have seen on average 2.9 films illegally the first or second time: 2.4 first views were illegal and 0.5 second views were illegal. These illegal views displace 1.0 legal views: 1.0 first legal views are displaced, and for the second legal views the positive sampling effect of the first illegal view and the negative displacement effect of the second illegal view cancel each other. Overall 1.0 legal views are displaced by 2.9 illegal views, which implies a displacement rate of 34 per cent for the top 100 films.

The self-reported number of 2.9 illegal views is relatively low compared to the self-reported number of 18.2 legal views (see Table 6.20). As discussed in Section 6.6, the number of 2.9 self-reported illegal online views is similar to the number of 3.2 legal online views and gives no reason to doubt the truthfulness or accuracy of the responses, also because the number of 6 cinema views (across all 3 years) agrees with on average 2 top box office film views per year from sales statistics. If illegal downloads and streams are successfully banned, the number of legal views could be 1.0 views higher, which implies a loss of 5.2 per cent compared to the counterfactual 19.2 legal views.

Compared to the estimates of Rob and Waldfogel (2007b), the number of illegal first views in this study is higher (2.4 out of a list of 100 films compared to 1.8 in the Rob and Waldfogel study out of a list of 150 films). In the Rob and Waldfogel study, 1.8 first illegal first views displace 1.4 legal first views (76 per cent). In their study, the first illegal views also displace 0.4 second legal views (24 per cent), but it should be remarked that respondents

in their study could not check the same channel for the second view. In the Rob and Waldfogel study, 0.9 second illegal views displace 0.2 legal second views (19 per cent). In total, the 2.7 illegal views in their study (1.8 + 0.9) displace 2.0 legal views (1.4 + 0.4 + 0.2), which implies a displacement rate of 76 per cent, which is much higher than the 34 per cent found in this study.

In their conclusion, Rob and Waldfogel (2007b) predicted: "*If the means available for copying movies become easier to use, file sharing may become a very serious threat to the film industry… If file sharing were easier (and therefore more nearly costless), it is possible that even persons placing low valuations on movies – and who would therefore not otherwise consume the movie if paying – would share. Then the displacement would be smaller*." Both predictions of increasing numbers of illegal downloads and decreasing displacement rates have proved accurate, however the estimated loss of sales remains limited to 5.2 per cent compared to 3.5 per cent in the Rob and Waldfogel study.

9 WILLINGNESS TO PAY

9.1 Willingness to pay questions

The willingness to pay questions are asked only about illegal downloads and streams, for the hypothetical situation in which the content of the last illegal download in one of the four content categories (music, films/TV-series, books and games) is no longer available on illegal sites.

Respondents are asked about the last illegal transaction in the following order:

- First, respondents of each country who in the past year have illegally downloaded or streamed a e-book were asked about their last illegal book download or stream, until the quotum of 400 is reached (for each country);
- Second, of those who did not illegally download or stream an e-book, respondents of each country who in the past year have illegally downloaded or streamed a game were asked about their last illegal game download or stream, until the quotum of 400 is reached (for each country);
- Third, respondents who did not illegally downloaded books or games, were asked about the willingness to pay for the last transaction of music or films/TV-series;
- Fourth, after the quotums of both books and games are reached, respondents were asked about the willingness to pay for the last illegal online transaction across all four categories.

This layered approach reduces the response burden and still guarantees sufficient numbers of responses on the willingness to pay for at least books and games. It also means that illegal book and games downloaders and streamers are overrepresented in the willingness to pay questions.

In theory, if a respondent is willing to pay the market price or higher if the content is no longer available from illegal sites, sales displacement can be concluded. The limitation of the willingness to pay to one specific illegal online transaction minimizes risks of untruthful answers and recall problems. However, as discussed in Section 2.3, this comes at the cost that the willingness to pay for one specific illegal online transaction cannot be assumed to be representative for the average willingness to pay for all illegal online transactions combined, as illustrated by the example that a willingness to pay 20 euro for any of 500 illegal download does not imply a willingness to pay 10,000 euro for all illegal downloads combined. This in turn means that the willingness to pay data cannot be used beyond its intended purpose, namely to assess whether the price of creative content is one potential factor that could help explain piracy.

9.2 Analysis

For exploratory statistics, it is convenient to combine the three questions for adults into one variable indicating the maximum price they are willing to pay. Combining the three questions ignores the issue that the first price range shown is for a legal site with similar characteristics as the illegal site of the last download/stream, that the second price range applies to a faster legal site and that the third price range applies to a legal site with an easier search function. In addition, the WTP questions for adults and minors are combined in one variable.

Table 9.1 shows the proportion of respondents that are willing to pay the first price shown (answer is "perhaps", "likely", "very likely" or "certainly yes"), and after being shown a second or third higher price, report with greater certainty that they are willing to pay that higher price (for downloading from a legal site that is faster or has an easier search function). For example, a person from the United Kingdom is "perhaps" willing to pay a price between £ 3 and 5 and is "likely" willing to pay a price between £ 7 and 10. In this case it is clear that the willingness to pay between £ 7 and 10 strongly depends on the download speed and the willingness to pay should be interpreted as conditional: namely provided that download speed is higher. The proportions of people that are willing to pay a higher price with greater certainty if downloading is faster or search is easier are between 2% of the respondents (for films / TV-series) to 14% of the respondents (for games), and therefore relatively low. The characteristics of the second and third alternative are therefore good to keep in the back of the mind but are not likely to greatly distort the willingness to pay estimate for the last illegal download.

Table 9.1 Proportion of respondents that checked that they are more willing to pay a higher than a lower price (for speed/ search function)

	Faster download	Easier search	Either	N
Music	4	4	6	2,186
Films / TV-series	1	1	2	3,841
Books	7	7	12	2,638
Games	8	9	14	1,976

The tables below present the distributions of the maximum prices respondents are willing to pay for different types of creative content in the six countries of the study. The highest price range is above typical prices for the content. The tables therefore indicate that a substantial proportion of the internet using population (after weighting WTP questions to both the number of users and the internet population) is willing to pay more than the going prices around P[0] for books and games, while for audio-visual the majority of respondents is not willing to pay more than a minimal amount.[52]

[52] In most cases, respondents that were willing to pay a higher price than the first price shown, report the willingness to pay with the same or a lower degree of certainty, while Table 9.1 presents the counterintuitive proportion of respondents that were willing to pay the higher price with greater certainty.

Table 9.2 Max WTP price for the last illegal online music transaction per country and for EU28

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Germany	27	14	8	12	9	12	18	100
UK	10	9	10	14	19	15	23	100
Spain	28	12	5	13	11	14	17	100
France	44	9	6	17	5	9	10	100
Poland	44	10	9	11	7	8	11	100
Sweden	27	10	7	10	12	9	24	100
EU28*	30	11	7	13	10	11	17	100

* Weighted as discussed in Section 1.5, N = 2,186.

Table 9.3 Max WTP price for the last illegal online film / TV-series transaction per country and for EU28

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Germany	59	10	5	9	3	4	9	100
UK	47	15	11	12	4	2	9	100
Spain	68	6	4	8	3	3	9	100
France	77	7	3	6	0	3	3	100
Poland	73	4	4	6	3	2	8	100
Sweden	68	9	4	8	4	5	4	100
EU28*	65	8	5	8	3	3	7	100

* Weighted as discussed in Section 1.5, N = 3,841.

Table 9.4 Max WTP price for the last illegal online e-book transaction per country and for EU28

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Germany	15	6	12	12	10	13	32	100
UK	9	8	8	10	7	11	47	100
Spain	16	8	11	13	15	12	25	100
France	13	7	15	11	10	10	35	100
Poland	19	9	13	13	15	10	22	100
Sweden	15	10	13	13	11	14	25	100
EU28*	15	8	12	12	12	11	31	100

* Weighted as discussed in Section 1.5, N = 2,638.

Table 9.5 Max WTP price for the last illegal online games transaction per country and for EU28

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Germany	22	6	10	7	7	12	36	100
UK	16	9	7	9	10	12	37	100
Spain	28	5	9	7	9	9	33	100
France	32	5	12	9	9	7	25	100
Poland	41	7	13	7	7	4	21	100
Sweden	26	5	10	5	13	11	29	100
EU28*	28	6	10	7	9	9	30	100

* Weighted as discussed in Section 1.5, N = 1,976.

As discussed in Section 2.3 and recapitulated in the introduction of this chapter, the willingness to pay for the last illegal consumption is a high upper bound for the average willingness to pay. The first reason is that the decisions

for the last consumption of creative content are not different from earlier consumptions because there are continuously new songs, films, TV-series, books and games. The second reason is that the willingness to pay for any one specific creative content is less than average because according to economic theory, the willingness to pay diminishes for each additional consumption.

When adding up the proportions of persons willing to pay a price P[0], P[+1], P[+2] and P[+3], it turns out that 21 per cent of the people who illegally downloaded or streamed a film or TV-series is willing to pay the market price or higher for the last illegal transaction if it is no longer available on illegal sites, and 51 to 66 per cent for music, games and books (Table 9.6). For films and TV-series this implies that nearly 80 per cent of the people would not pay the market price for the last illegal online transaction, and according to economic theory this proportion is even higher for the average illegal online download. This is an indication that price is a potential factor that could help explain the piracy of audio-visual content. For music, books and games the fact that one half to two thirds of the respondents would have been willing to pay the market price or higher indicates that price is not a factor that could help explain piracy for those categories.

Table 9.6 Proportion of people willing to pay the market price or higher for the last illegal online transaction, per category and number of relevant transactions, EU28*

	Music	Films / TV-series	Books	Games
Proportion	51	21	66	55
Number of respondents	2,186	3,841	2,638	1,976

* Weighted as discussed in Section 1.5.

Table 9.7 presents the average willingness to pay for music, films / TV-series, books and games per country and for EU28, in Euros.

Table 9.7 Average WTP price per country and for EU28 (in Euro)

Country	Music	Films / TV-series	Books	Games
Germany	1.0	6.1	17.8	9.7
UK	1.1	6.9	26.2	8.3
Spain	0.7	7.4	11.0	9.0
France	0.7	5.4	14.5	7.6
Poland	0.8	6.8	10.5	6.2
Sweden	1.1	10.1	18.4	10.1
EU28*	0.9	6.9	15.8	8.4
Number of respondents	2,186	3,841	2,638	1,976

* Weighted as discussed in Section 1.5.

The willingness to pay for the music of the last illegal transaction, if it is only online available on pay sites, varies between roughly € 0.7 in France, Poland and Spain to roughly € 1.1 in Germany, Sweden and the United Kingdom. The average willingness to pay for music in the EU28 is € 0.9. Sinha et al (2010) investigated WTP for music and they concluded that the average willingness to pay for Americans for music (in 2010) was $.89 for a track that can easily

be shared with friends, and was $.69 for music that cannot be forwarded to others[53].

For films and TV-series the Swedes have the highest average willingness to pay (€ 10.1), and the French have the lowest willingness to pay (€ 5.4). People from the UK are willing to pay (on average) the most for books (€ 26.2) and Spaniards the least (€ 11). The lowest average willingness to pay for games comes from the respondents in Poland, they are willing to pay € 6.2 on average for games compared to roughly € 10 for Germans and Swedes.

With the variable WTP that is constructed for minors and adults together, while ignoring the fact that the second price is shown for a faster legal site and the third price is for a legal site with an easier search function (this is only the case for adults, not for minors), an ordered logistic regression can be run. Ordered logistic regression gives us coefficients and cut off points. Table 9.8 presents an example of the regression output.

Table 9.8 Example of Stata ordered logit output (suppressing LR and R^2 test statistics)

WTPmusic	Coef.	Std. error	z	P>|z|	[95% Conf.	Interval]
Female	0.2	0.52	0.38	0.35	-0.84	1.24
country2	1.2	0.31	3.87	0.00	0.58	1.82
country3	-0.8	0.14	-5.71	1.00	-1.08	-0.52
country4	0.7	0.04	17.50	0.00	0.62	0.78
country5	-0.3	0.12	-2.50	0.99	-0.54	-0.06
country6	-0.1	0.24	-0.42	0.66	-0.58	0.38
/cut1	0.5					
/cut2	1.5					
/cut3	3.2					
/cut4	4.9					
/cut5	5.5					
/cut6	6.2					

These coefficients and cut offs are used to calculate the probability that hypothetical people with a given characteristic and otherwise average characteristics are willing to pay a price in a given price range. Table 9.9 shows with an example how the probabilities are calculated in Excel. The probability that a person is willing to pay more than a price Pj is defined in the logit model as

$$\frac{Exp(xb\ -Pj)}{1+\exp(xb-Pj)}$$

Where x represents a person's characteristics and b their coefficients that are estimated. In the example of Table 9.9, xb = 3 (cell C3). The cut-off values of the price ranges are given in cells D3:K3 in the example of Table 9.9. Here, -

[53] Sinha, R. K., Machado, F. S., & Sellman, C. (2010). Don't think twice, it's all right: music piracy and pricing in a DRM-free environment. *Journal of Marketing*, *74*(2), 40-54.

200 and +200 are the default values for -∞ and +∞. The cells D4:K4 present the values of the above formula for D3:K4, e.g. in cell F4,

$$0.73 = \frac{Exp(3\ -2)}{1+\exp(3-2)}$$

Naturally, the probability that a person is willing to pay a price in a certain range, is the probability that the person is wiling to pay more than the lower bound minus the probability that the person is willing to pay more than the upper bound. These probabilities are given in cells E5:K5. For example, the probability that the person is willing to pay a price between 1 and 2 is the difference between the probabilities of cells E4 and F4:

$$0.15 = 0.88 - 0.73$$

Table 9.9 Example of calculating ordered logit probabilities in Excel

	B	C	D	E	F	G	H	I	J	K
2		Xb	P[-4]	P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	P[+3]
3	Values	3	-200	1	2	3	4	5	6	200
4	e/(1+e)		1.00	0.88	0.73	0.50	0.27	0.12	0.05	0.00
5	Prob.			0.12	0.15	0.23	0.23	0.15	0.07	0.05
6	Formula			+D4-E4	+E4-F4	…	…	…	+I4-J4	+J4-K4

The probabilities have been calculated for hypothetical respondents with average characteristics, except for successively gender, age, education, employment status and type of his or her last online transaction.

9.3 Interpretation of the ordered logit model:

Table 9.10 presents the probabilities that hypothetical persons in the EU with average characteristics except for one aspect are (a) not willing to pay more than the lowest price shown and (b) the probability that this person is willing to pay the highest price shown. For example, for music 24 per cent of men with otherwise average characteristics is not willing to pay more than the lowest price (€ 0.10 for Germans and zł 0.5 for Polish people), and 27 per cent of them are willing to pay the highest price shown (€ 2.8 for Germans and zł 12 for Polish people). The remaining 49 per cent of them is willing to pay a price between the lowest and highest prices shown.

Table 9.10 Impact of variables on the percentage point probability of likely paying a price in in the highest and lowest range for EU28*

Charac-	Music		Films/TV-series		Books		Games	
teristic	≤ P[-3]	≥ P[+3]	≤ P[-3]	≥ P[+3]	≤ P[-3]	≥ P[+3]	≤ P[-3]	≥ P[+3]
Male	24	27	76	5	23	19	32	27
Female	32	15	70	5	14	28	32	27
Age 15	45	10	74	4	38	11	47	13
Low educated	40	14	72	6	17	29	32	31
High educated	32	21	70	6	26	17	61	12
N	2,186		3,841		2,638		1,976	

* Weighted as discussed in Section 1.5.

The prices shown vary for respondents of each country and are given in the tables below.

Music

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	.10-.30	.30-.60	.60-.80	.80-1.0	1.0-1.3	1.3-1.8	1.8-2.8
ES, €	.05-.10	.10-.30	.30-.60	.60-.80	.80-1.0	1.0-1.4	1.4-2.0
FR, €	.10-.30	.30-.50	.50-.70	.70-1.0	1.0-1.3	1.3-1.8	1.8-2.8
PL, zł	.5-1.5	1.5-2.5	2.5-3	3-4	4-6	6-8	8-12
SE, SEK	1-3	3-5	5-7	7-9	9-12	12-15	15-25
UK, £	.05-.10	.10-.25	.25-.50	.50-.75	.75-1.0	1.0-1.5	1.5-2.5

Source: DE, ES, UK: interviews

SE, PL, FR: iTunes Sverige, iTunes Polska, iTunes France;

Polish: iTunes euro's converted to zł.

Film / episode

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	2-4	4-6	6-8	8-10	10-12	12-15	15-25
ES, €	2-5	5-7	7-10	10-13	13-17	17-22	22-30
FR, €	2-5	5-7	7-10	10-13	13-17	17-22	22-30
PL, zł	10-20	20-30	30-40	40-50	50-70	70-90	90-120
SE, SEK	40-70	70-100	100-120	120-140	140-170	170-250	250-300
UK, £	1-2	2-4	4-7	7-10	10-15	15-20	20-30

Source: iTunes (Deutschland, Espana, France, Polska, Sverige)

Polish: iTunes euro's converted to zł.

Books

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	1-2	2-4	4-6	6-10	10-15	15-25	25-50
ES, €	1-2	2-3	3-4	4-6	6-10	10-18	18-35
FR, €	1-2	2-3	3-5	5-7	7-10	10-20	20-40
PL, zł	4-8	8-12	12-20	20-30	30-40	40-80	80-150
SE, SEK	10-20	20-40	40-60	80-100	100-150	150-250	250-500
UK, £	1-2	2-4	4-6	6-10	10-15	15-25	25-50

Source: iTunes (Deutschland, Espana, France, Polska, Sverige), Polish: iTunes euro's converted to zł.

Games

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	1-2	2-3	3-5	5-7	7-10	10-15	15-20
ES, €	1-2	2-3	3-5	5-7	7-10	10-15	15-20
FR, €	1-2	2-3	3-5	5-7	7-10	10-15	15-20
PL, zł	4-8	8-12	12-20	20-30	30-40	40-60	60-80
SE, SEK	10-20	20-30	30-50	50-70	70-100	100-150	150-200
UK, £	.5-1	1-2	2-3	3-5	5-7	7-10	10-15

Source: FIFA, Runescape for the middle price, Wow for the upper price
Polish and Swedish: euro's converted to national currencies.

Music – willingness to pay by characteristics

Gender: 24% of the males is not willing to pay more than the lowest price given as to 32% of females. 27% of males is willing to pay a price in the highest price range, compared to 15% of females.

Age: There is a large difference between minors and adults, when we look at the 15 year olds in the lowest price category, 45% the minors are not willing to pay more than this lowest price (compared to 30% other ages). In the highest price category, 10% of the 15year olds are willing to pay more than the highest price category, compared to 17% of the other age categories.

Education: There is an interesting difference in the lowest educational group, 40% of this group is not willing to pay more than the lowest price range, compared to 29% for people with other educational attainments.

Country differences: In the UK the males are most willing to pay high prices for music, compared to the other countries (75% of males is willing to pay more than the highest price), and only 1% of males is not willing to pay more than the lowest price category.

Films / TV-series – willingness to pay by characteristics

There is small variation between characteristics with 70-76 per cent not willing to pay more than the lowest price and only 4-6 per cent willing to pay the highest price shown. This means that people would not have been willing to pay much for the price of the last download, namely less than € 2 in France, Germany and Spain, less than zł 10 in Poland, less than SEK 40 in Sweden and less than £ 1 in the United Kingdom.

Country differences: Of the six countries, people from the UK have the lowest willingness to pay for films and TV-series (92% of males is not willing to pay more than the lowest price category, compared to 60% of females), even though converted into euros respondents from the UK were shown the lowest price of all countries.

Books – willingness to pay by characteristics

Gender: 23% of males is not wiling to pay more than the lowest price category, as to 14% of females. In the highest price category, 28% of the

females are willing to pay more than the highest price category as opposed to 19% of females.

Age: 38% of the 15 year olds is not willing to pay more than the lowest price category as opposed to 11% of the other ages. In the highest price category only 11% of the minors are willing to pay the highest price, as opposed to 34% of the others.

Education: From the high educated, 26% is not willing to pay more than the lowest price, as to 11% of the lower educated. In the highest price category, 17% of the high educated are willing to pay more than the highest price category, as to 32% of the lower educated.

Type of books: Willingness to pay for counselling books is the lowest compared to the other categories.

Country differences: In the UK, 41% of males is not wiling to pay more than the lowest price category (this is the highest compared to the other counties). It is striking that in this country (the UK) the proportion of women that are not willing to pay more than the lowest price for books is the smallest, compared to the other countries.

Games – willingness to pay by characteristics
Gender: the willingness to pay does not differ between males and females

Age: 47% of the 15 year olds are not willing to pay more than the lowest price category, as to 28 percent of the rest of the age categories. In the highest price category, 13% of 15 year olds is willing to pay more than the highest price category, as to 30% of the rest of the age categories.
50% of the 60 year olds is not willing to pay more than the lowest price category, as to 29% of the rest of ages. In the highest price category only 19% of 60 year olds are willing to pay more, as opposed to 29% of the rest of the age categories.

Education: 61% of the highly educated respondents is not willing to pay more than the lowest price category, as to 31% of the lower educated respondents. 12% of the highly educated respondents is willing to pay more than the highest price category, as to 28% of the lower educated respondents.

Country differences: The French are the least willing to pay for games, compared to other countries (64% of males and 52% of females is not willing to pay more than the lowest price range). In Sweden, the males are most willing to pay for games, compared to other countries, and in the UK the females are most willing to pay for games compared to other countries (only 5% is not willing to pay more than the lowest price category, and 62% of females is willing to pay more than the highest price category).

9.4 Conclusions

The proportion of people who illegally downloaded or streamed creative content while they are willing to pay the market price, is the lowest for films and TV-series, and the highest for books. For films and TV-series the average willingness to pay is € 6.90, which is slightly below the average market price. However, 73% of the people is not willing to pay more than the lowest price range, and only 5% of the respondents is willing to pay more than the highest price range. The low willingness to pay any price suggests that if the film or TV-series were no longer illegally available, they would not have downloaded the film or TV-series from a pay site.

The average willingness to pay for books is € 15.80. 19% of the people is not willing to pay more than the lowest price range, and 24% is willing to pay more than the highest price range for books. People seem willing to download or stream books legally but do so illegally because the book is not available online on legal sites, or to save out the money they would in fact have been willing to spend.

For music the average willingness to pay is € 0.90. 28% of the respondents is not willing to pay more that the lowest price range, and 21% is willing to pay more than the highest price category. For music the average price of a track is around € 0.90. Therefore the price for music should not be an issue for most illegal downloaders, as their average willingness to pay is equal to this.

For games the average willingness to pay is equal to € 8.40. 32% of respondents is not willing to pay more than the lowest price range, and almost equal share, 27% is willing to pay more than the highest price range for games. The average price of one month of gaming is generally less than the average willingness to pay, and hence the price should not be an issue for most illegal downloaders.

The willingness to pay for music seems to be highest in the United Kingdom and in Sweden, the lowest willingness to pay is reported in France and Poland. For films and tv-series the differences between countries are very small. For books, the willingness to pay is highest in the United Kingdom and in France, the lowest willingness to pay for books is in Sweden, Poland and Spain. The highest willingness to pay for games is reported in the United Kingdom and in Germany. The lowest willingness to pay is reported in Poland.

Overall, the price is one factor that helps explain the piracy of films and TV-series, but the price does not help explain the piracy of music, e-books and games.

10 METHODOLOGICAL CONCLUSIONS

There are few estimates of displacement rates of copyrighted content by illegal online transactions that have been accepted without criticism. The most robust estimates have been achieved by using data from repeat surveys such as Barker and Maloney (2012) and Hennig-Thurau (2007) and a studies based on a survey about the most popular songs or films of the last three years (Rob and Waldfogel, 2007a and 2007b). Like Rob and Waldfogel, Hennig-Thurau asked about the channels used for the views of individual films.

In this study, three approaches were applied to estimate displacement rates. The approach of Rob and Waldfogel allows the assumption that people see films in the year of their release, and hence to indirectly observe legal and illegal consumption in different years. The application of this approach in this study resulted in a robust average displacement rate of 40 per cent for the 100 top box office films of 2011, 2012 and 2013 (30-35 per year). Interestingly, the estimated displacement rate for second views drops to 20 per cent. Combined with the fact that half of the last films illegally downloaded or streamed were more than two years old, this suggests an average displacement rate of 30 films across all films. This estimate is in line with a previous robust estimate 27 per cent displacement by Hennig-Thurau (2007; both top box office films and other films) and also the robust estimate of 30 per cent displacement in the one-off survey of Leenheer and Poort (2014; including any film). Rob and Waldfogel (2007b) estimated a robust and much higher displacement rate for American students in 2005, however this is arguably a different population than the whole EU internet using population of this study.

OLS estimates based on self-reported numbers of transactions and control variables for (self-reported) interest in creative content and internet usage result generally in positive correlations between illegal and legal transactions, both in this study and in previous studies. The theoretically preferred instrumental variables estimates applied in this study indicate that these estimates suffer from so-called endogeneity problems: there still are factors that influence both legal and illegal online transactions that are not controlled for and which result in spurious positive estimates. That being said, no "golden" instrumental variable was identified that resulted in robust estimates of displacement rates. The best or perhaps least bad candidate instrumental variable was moral attitudes. An argument for this candidate instrument is that the moral attitudes questions were not asked about piracy, but an argument against this candidate instrument is that relaxed moral attitudes could be a proxy for truthful responses about piracy. Neutral assumptions about the relation between knowledge of piracy terms among pirates and legal buyers indicate that the sample of self-reporting legal buyers is not contaminated with denying pirates. However, even if one accepts the truthfulness of responses about illegal behaviour in this study, the use of moral attitudes as an instrumental variable only result in estimates with extremely large error margins.

The methodological conclusion is therefore that the approach of Rob and Waldfogel is the most promising, both from a theoretical point of view and given the results. A drawback is that the most popular songs, books, films and games of the last 3 years are not representative for all creative content. To assess to which extent people illegally download or stream one of the "hit" contents, the survey should include a question whether the last illegal download or stream was content from the last three years or older content. For films, an estimated displacement rate for second views could be used as a proxy for the displacement rate of older films, and hence to estimate average displacement rates across both recent hits and other content. The challenge for future surveys applying Rob and Waldfogel to estimate displacement rates for music, books and games is to formulate the appropriate questions for these types of content.

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B: INTERVIEWED ORGANISATIONS

Table 0.1 National authorities, copyright collecting organisations, experts

Country	Organisation / expert
France	SACEM (Société des auteurs, compositeurs et éditeurs de musique)
Germany	GEMA (Gesellschaft für musikalische Aufführungs- und mechanische Vervielfältigungsrechte)
Poland	ZAPA (The Union of Audiovisual Authors and Producers)
Spain	Ministry of Education, Culture and Sports, Directorate General for Intellectual Property
Sweden	Dr. Jonas Andersson Schwarz, Senior Media Researcher / Medieforskare, Flexit (Riksbankens Jubileumfond)
UK	(none)

Table 0.2 Music content providers

Company	Type	Country
City Slang	Record label	Germany
K7	Record label	Germany
Everlasting Records and Popstock Distribuciones	Record label	Spain
Playground Music Scandinavia	Record label	Sweden
Beggars Group	Record label	United Kingdom

Table 0.3 Producer associations Audio-visual

Organisation	Type	country
FIAPF - International Federation of Film Producers Associations	Film producer association	EU
CEPI	TV producer association	EU
KIPA-Polish Audiovisual producers chamber of commerce	Film producer association	Poland

Table 0.4 Computer games developers associations

Company	Type	Country
EGDF – European Games Developer Federation	Association	EU
ES-DEV	Association	Spain
Dataspelsbranschen	Association	Sweden

Table 0.5 Book publishers associations

Company	Type	Country
The Publishers Association Limited	Association	United Kingdom

C: INTERVIEW TOPIC LISTS

Questions National Authorities and copyright collecting organisations

Regulations

- What are the main regulations in your country on the issue of copyright?
  - Please summarise the key elements of the relevant regulation.

- In the application of national regulations, is the consumption of copyright infringing content by end-users considered to be illegal or is it only the unauthorized dissemination of such content that is considered to be illegal?

- What types of online sources for end users to stream/acquire music, films/TV-series, video games, e-books do you consider to be legal in your country?
  - What types of online sources for end users to stream/acquire music, films/TV-series, video games, e-books do you consider to be illegal in your country?

- Which actions to combat internet piracy are available under civil law?

- Which actions to combat internet piracy are available under criminal law?

- Do available actions differ depending on the type of copyrighted product (music, films/TV-series, video games, e-books)? If yes, what are the differences? What is the rationale behind these differences?

- Is there a difference in regulation between uploading and downloading material?

- Are the provisions in the law with regard to copyright different for children (aged below 16) as compared to adults? If yes, what are the differences?
  - For example are children accountable or their parents?
  - And are penalties different for illegal downloads of children (e.g. due to juvenile justice)?

- Are incidental and frequent illegal downloads treated differently?
  - If yes, how?

- Are downloads for commercial purposes treated differently than other downloads?
  - If yes, how?

- Who besides copyright owners is entitled to start a civil procedure against copyright infringements?
  - For example: Content providers? Private enforcement bodies? Other persons or bodies?

Enforcement

- How is copyright enforced by public enforcement bodies? And what role do private enforcement organisations play?

- How strictly do you feel that public enforcement is done (e.g. professionalism/ much time and money spent on enforcement)? Are there differences in enforcement efforts by type of copyrighted product (music, films/TV-series, video games, e-books)?

- What are the main difficulties faced in enforcement?

- What are the competences of public enforcement officers to monitor internet activities and what are the conditions for monitoring these?
  - And what are the competences and conditions for private enforcers?

- Can you provide concrete examples of recent enforcement actions? Have these received attention in the media (if so, how and to what extent)?

- Have any legal action, like law-suits, taken place? Who initiated there actions? Who were defendants in these lawsuits?
  - Could you provide a reference / describe the outcome if the lawsuit was decided?

- Have any non-legal actions, like information campaigns, taken place? Who initiated these actions? Who financed these actions?

Developments and policy alternatives

- What are new developments in online availability of copyrighted content that require new legislation?

- What are the positions of various stakeholders with regard to the current legislation?

- Are there perhaps flaws in the current legislation?
  - What are these main flaws?

- If the current legislation would be revised, what do you think could be major changes?

Other

- Do you have any suggestions for sources of statistics on volume and sales for each type of content and each type of distribution channel (e.g. CD's, DVD's)?

- Do you have any suggestions for national-level studies/ data on sizes of legal offer, illegal offer and their interaction?

- Are there any other issues not yet discussed?

Questions for content providers

- Our research focusses on several types of content i.e. music, films, tv-series, video-games, books, music and theatre attendance. Please fill out the questionnaire for only one of the content types. For which of the content types are you going to fill out the questionnaire?

- What international media distribution channels are available? We are already aware of many distribution channels including Spotify, Netflix, YouTube, Canal+. In the appendix of this document we included a list with the major online channels we are aware of. If we have missed major international online channels in the EU please indicate them in the table below.

- Please also fill out in the table if these additional channels are:
  - Free or paid for by the end-user
  - Download/streaming/ subscription

- Are there differences in legality of these distribution channels within the EU (if yes, please indicate main differences)?

- What country specific online distribution channels are used in the 6 countries covered by this study (France, Germany, Poland, Spain, Sweden and the UK)?
  - Note: The annex includes mostly specific channels for your country but we are happy to learn about other country specific channels. As in the previous question, we mainly seek to make sure we miss no major online distribution channels.

- What are the main price/product categories used by your branch e.g.
  - Music: Singles / albums / streaming / live concerts (music)
  - Film: Blockbusters/ arthouse / premium / cinema / dvd rent and purchase
  - Videogames: MORPG / console games / subscriptions or micro transactions
  - Books: Hardcopy / paperback, audio books / ebooks

etc.? Is your organisation active in these price/product categories?

- What would you estimate is the share of sales of each main price/product category filled in under question 4 for each country? For example in the UK the share of blockbusters in sales is 60% and of niche content 40% or in Sweden the share of blockbusters in sales is 70% and of niche content is 30%.

- What are the price ranges of the price/product categories filled in under question 4 for each country (please use the local currency)?

- What legal actions do you or other private stakeholders take to protect copyrighted content? Note: like the previous questions, this applies to the type of content (music, film, tv, video games or book/ebooks) for which you answer the questionnaire.
  - To what extent have they been successful?

- Have any non-legal actions, like information campaigns, taken place? Who initiated these actions? Who financed these actions?

- Can you provide specific examples of recent public or private enforcement actions? Have these received attention in the media (if so, how and to what extent)?
  - Please mention whether it is a public or private action

- What do you think would be the impact of reduced internet piracy on:

1) the prices of copyrighted content	
2) the quality of copyrighted content	
3) the diversity of copyrighted content	

- What would be the impact of reduced internet piracy for bestsellers as compared to niche content?

- Compared to several years ago, what are new developments in the revenues of copyrighted content?

- What is your position with regard to the current legislation on copyright (especially in France, Germany, Poland, Spain, Sweden and the UK)?

- What can be improved in legislation, if any?

Other

- Do you have any suggestions for sources of statistics on volume and sales for each type of content and each type of distribution channel (e.g. CD's, DVD's)? And the turnover of online content providers?

- Are there any other issues which would be relevant for our study not yet discussed?

D: QUESTIONNAIRES

Questionnaire for adults for the 2014 September test launch and October full launch

	Online copyright questionnaire adults
	Introduction *Nowadays, there are many ways to acquire or access music, films and series, books and games.* *The purpose of this questionnaire is to explore how the internet affects consumer choices and attitudes about them.* *Your responses will only be used anonymously. Where opinions are asked, there is no "good" or "bad" answer – it is your opinion that counts. Whenever you do not know the exact answer, please give your best estimate.* *The survey will take around 15 minutes to complete.*
	General questions
	Known for all panel members: **Gender, age**
	Initialize: **book counter = 0** **(number of respondents who answer the first WTP question about books)** **game counter = 0** **(number of respondents who answer the first WTP about computer games)**

	Online copyright questionnaire adults
1.	*ALL RESPONDENTS* Researcher comment (not for respondent): Regular internet use has been used as IV for "internet familiarity" and hence "ease of downloading" and can be used at least as control variable. On average, how many hours per week do you access internet or online apps for private use? *Please leave out time spent on emails* ❑ Less than 3 hours per week ❑ 3 to 5 hours per week ❑ 6 to 9 hours per week ❑ 10 to 14 hours per week ❑ 15 to 19 hours per week ❑ 20 to 29 hours per week ❑ 30 or more hours per week
2.	*ALL RESPONDENTS* Researcher comment (not for respondent): Aguiar and Martens use the number of clicks on content information sites as a control for taste for content. How often do you search internet for information on: a. Music: Every day / At least each week / At least each month / Rarely or never b. Films or TV series Every day / At least each week / At least each month / Rarely or never c. Books Every day / At least each week / At least each month / Rarely or never d. Computer games Every day / At least each week / At least each month / Rarely or never
3.	*ALL RESPONDENTS* Researcher comment (not for respondent): This variable is another general control variable for taste for content, used in various articles on this topic, and relevant to compare our results with theirs using a similar control variable.

	Online copyright questionnaire adults
	Compared to other people, how would you describe your interest in: a. Music Much lower | Lower | Same | Higher | Much higher b. Films and series Much lower | Lower | Same | Higher | Much higher c. Books Much lower | Lower | Same | Higher | Much higher d. Computer games Much lower | Lower | Same | Higher | Much higher
4.	*ALL RESPONDENTS* Please indicate if you know what each of the following terms means in the context of internet

INTERNET TERM	NO	NOT SURE	YES
Paypal			
VPN			
SSD			
P2P site			
P2P game			
RAM			
Torrents			
FTP			
Port forwarding			
Bitcoin			
Warez			

	Purchases, downloads, streaming and live visits of content

	Online copyright questionnaire adults
5.	*ALL RESPONDENTS* Researcher comment (not for respondent): This is an overarching question to enable skipping subsequent detailed questions if they are not relevant. *As in the remainder of the questionnaire, please exclude downloads or streams on tablets and smartphones.* a. In the past year, have you purchased, rented, downloaded or streamed **music** or visited a live **concert**? [YES/NO] b. In the past year, have you purchased, rented, downloaded or streamed **films or TV-series** or visited a **cinema**? [YES/NO] c. In the past year, have you purchased, downloaded, or streamed **books or audio-books** or borrowed or e-borrowed any of these from a **library**? [YES/NO] d. In the past year, have you purchased, downloaded or streamed **computer/video games**, or played online games? [YES/NO]
6.	*RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED MUSIC OR VISITED A LIVE CONCERT* **[MUSIC: If q5a = NO then skip q6 and set q6a – q6f =999]** The next few questions are about the way you acquire or experience **music**. Please tell us when was the last time you did the following things: *(single choice for each type of music consumption)* **a.** Bought music on a new CD or vinyl record in a physical store or online? ***1.*** Less than a week ago | ***2.*** Between 1 week and 1 month ago | ***3.*** Between 1 and 3 months ago | ***4.*** Between 3 and 6 months ago | ***5.*** Between 6 and 12 months ago | ***6.*** More than a year ago | ***7.*** Never **b.** Downloaded music from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician, etc.? ***1.*** Less than a week ago | ***2.*** Between 1 week and 1 month ago | ***3.*** Between 1 and 3 months ago | ***4.*** Between 3 and 6 months ago | ***5.*** Between 6 and 12 months ago | ***6.*** More than a year ago | ***7.*** Never

c. Streamed music from services such as Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify or directly from the website of a band or musician, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

d. Downloaded music from file sharing and hosting sites such as isoHunt, Btjunkie, Torrentz, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

e. Streamed music from file sharing and hosting sites such as Hypster, Musicplayon, NOSEQ, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

f. Visited a live concert or a music festival?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

7. *RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED MUSIC OR VISITED A LIVE CONCERT IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS*

[MUSIC: Skip If q5a = NO; else questions conditional on question q6]

If ((q6a = 5) OR (q6b = 5) OR (q6c = 5) OR (q6d = 5) OR (q6e = 5) OR (q6f = 5))

In the last 12 months, how many:

	Online copyright questionnaire adults
	a. If q6a = 5 **New (first-hand) CDs** or **vinyl records** did you buy in a physical store or online? … CDs or vinyl records b. If q6b = 5 **Music tracks** and **albums** did you <u>download</u> from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician etc.? … Music tracks … Albums c. If q6c = 5 **Hours** did you <u>stream</u> from services such as Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify or directly from the website of a band or musician, etc.? … Hours d. If 6d = 5 **Music tracks** and **albums** did you <u>download</u> from file sharing and hosting sites such as isoHunt, Btjunkie, Torrentz, etc.? … Music tracks … Albums e. If q6e = 5 **Hours** did you <u>stream</u> from file sharing and hosting sites such as Hypster, Musicplayon, NOSEQ, etc.? … Hours f. If q6f = 5 **Live concerts** or **music festivals** did you visit? … Live concerts or music festivals *If you do not recall the exact number, please give your best estimate.*
8.	*RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED MUSIC OR VISITED A LIVE CONCERT IN THE LAST 6 MONTHS BUT NOT THE LAST 3 MONTHS* **[MUSIC: Skip If q5a = NO; else questions conditional on question q6]**

If (q6a = 4) OR (q6b = 4) OR (q6c = 4) OR (q6d = 4)) OR (q6e = 4) OR (q6f = 4)

In the last 6 months, how many:

a. If q6a = 4
New (first-hand) CDs or **vinyl records** did you buy in a physical store or online?

…	CDs or vinyl records

b. If q6b = 4
Music tracks and **albums** did you download from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician etc.?

…	Music tracks
…	Albums

c. If q6c = 4
Hours did you stream from services such as Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify, or directly from the website of a band or musician, etc.?

…	Hours

d. If q6d = 4
Music tracks and **albums** did you download from file sharing or hosting sites such as isoHunt, Btjunkie, Torrentz, etc.?

…	Music tracks
…	Albums

e. If q6e = 4
Hours did you stream from file sharing and hosting sites such as Hypster, Musicplayon, NOSEQ, etc.?

…	Hours

f. If q6f = 4
Live concerts or **music festivals** did you visit?

…	Live concerts or music festivals

If you do not recall the exact number, please give your best estimate.

	Online copyright questionnaire adults
9.	*RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED MUSIC OR VISITED A LIVE CONCERT IN THE LAST 3 MONTHS* **[MUSIC: Skip If q5a = NO; else questions conditional on question q6]** If (q6a ≤ 3) OR (q6b ≤ 3) OR (q6c ≤ 3) OR (q6d ≤ 3) OR (q6e ≤ 3) OR (q6f ≤ 3) In the last 3 months, how many: a. If q6a ≤ 3 **New (first-hand) CDs** or **vinyl records** did you buy in a physical store or online? … CDs or vinyl records b. If q6b ≤ 3 **Music tracks** and **albums** did you download from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician etc.? … Music tracks … Albums c. If q6c ≤ 3 **Hours** did you stream from services such as Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify, or directly from the website of a band or musician, etc.? … Hours d. If q6d ≤ 3 **Music tracks** and **albums** did you download from file sharing and hosting sites such as isoHunt, Btjunkie, Torrentz, etc.? … Music tracks e. If q6e ≤ 3 **Hours** did you stream from file sharing and hosting services such as Hypster, Musicplayon, NOSEQ, etc.? … Hours f. If q6f ≤ 3 **Live concerts** or **music festivals** did you visit? … Live concerts or music festivals *If you do not recall the exact number, please give your best estimate.*

	Online copyright questionnaire adults
10.	*RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED FILMS OR TV-SERIES OR VISITED A CINEMA* **[FILMS AND SERIES: If q5b = NO then skip q10 and set q10a – q10g = 999]** The next few questions are about the way you purchase or experience **films and TV-series**. Please tell us when was the last time you did the following things: *(single choice for each type of film or TV-series consumption)*

a. Bought a film or TV-series on a DVD or Blu-ray disk in a physical store or online?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

b. Rent a film or TV-series on DVD or Blu-ray disk in a physical store?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

c. Downloaded a film or TV-series from services such as Blinkbox, Apple TV, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

d. Streamed a film or TV-series from services such as YouTube, Film 4OD, Netflix, paid cable/satellite-tv, catch-up services, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

e. Downloaded a film or TV-series from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

f. Streamed a film or TV-series from file sharing and hosting sites such as Usenet, iiTV, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

g. Watched a film in a cinema?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

11.

RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED FILMS OR TV-SERIES OR VISITED A CINEMA IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS

[FILMS AND SERIES: Skip If q5b = NO; else questions conditional on question q10]

If (q10a = 5) OR (q10b = 5) OR (q10c = 5) OR (q10d = 5) OR (q10e = 5) OR (q10f = 5) OR (q10g = 5)

In the last <u>12 months</u>, how many:

a. If q10a = 5
Films and TV-series did you buy on new (first-hand) DVD or Blu-ray disk in a physical store or online?

…	Films or full seasons
…	Episodes

b. If q10b = 5
Films and TV-series did you rent on DVD or Blu-ray disk in a physical store?

…	Films or full seasons
…	Episodes

c. If q10c = 5
Films and TV-series episodes did you download from services such as Blinkbox, Apple TV, etc.?

…	Films or full seasons
…	Episodes

d. If q10d = 5
Films and TV-series episodes did you stream from services such as YouTube, Film 4OD, Netflix, paid cable/satellite-tv, catch-up services, etc.?

…	Films or full seasons
…	Episodes

e. If q10e = 5
Films and TV-series episodes did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.?

…	Films or full seasons
…	Episodes

f. If q10f = 5
Films and TV-series episodes did you stream from file sharing services and torrent websites such as Usenet, iiTV etc.?

…	Films or full seasons
…	Episodes

g. If q10g = 5
Films did you see in the cinema?

…	Films

If you do not recall the exact number, please give your best estimate.

12.

RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED FILMS OR TV-SERIES OR VISITED A CINEMA IN THE LAST 6 MONTHS BUT NOT THE LAST 3 MONTHS

[FILMS AND SERIES: Skip If q5b = NO; else questions conditional on q10]

If (q10a = 4) OR (q10b = 4) OR (q10c = 4) OR (q10d = 4) OR (q10e = 4) OR (q10f = 4) OR (q10g = 4)

In the last 6 months, how many:

a. If q10a = 4
Films and TV-series did you buy on new (first-hand) DVD or Blu-ray disk in a physical store or online?

… Films or full seasons
… Episodes

b. If q10b = 4
Films and TV-series did you rent on DVD or Blu-ray disk in a physical store?

… Films or full seasons
… Episodes

c. If q10c = 4
Films and TV-series episodes did you download from services such as Blinkbox, Apple TV, etc.?

… Films or full seasons
… Episodes

d. If q10d = 4
Films and TV-series episodes did you stream from services such as YouTube, Film 4OD, Netflix, paid cable/satellite-tv, catch-up services, etc.?

… Films or full seasons
… Episodes

e. If q10e = 4
Films and TV-series episodes did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.?

… Films or full seasons
… Episodes

f. If q10f = 4
Films and TV-series episodes did you stream from file sharing services and torrent websites such as Usenet, iiTV etc.?

… Films or full seasons
… Episodes

g. If q10g = 4
Films did you see in the cinema?

… Films

If you do not recall the exact number, please give your best estimate.

13. *RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED FILMS OR TV-SERIES OR VISITED A CINEMA IN THE LAST YEAR BUT NOT THE LAST 3 MONTHS*

[FILMS AND SERIES: Skip If q5b = NO; else questions conditional on q10]

If (q10a ≤ 3) OR (q10b ≤ 3) OR (q10c ≤ 3) OR (q10d ≤ 3) OR (q10e ≤ 3) OR (q10f ≤ 3) OR (q10g ≤ 3)

In the last 3 months, how many:

a. If q10a ≤ 3
Films and TV-series did you buy on new (first-hand) DVD or Blu-ray disk in a physical store or online?

…	Films or full seasons
…	Episodes

b. If q10b ≤ 3
Films and TV-series did you rent on DVD or Blu-ray disk in a physical store?

…	Films or full seasons
…	Episodes

c. If q10c ≤ 3
Films and TV-series episodes did you download from services such as Blinkbox, Apple TV, etc.?

…	Films or full seasons
…	Episodes

d. If q10d ≤ 3
Films and TV-series episodes did you stream from services such as YouTube, Film 4OD, Netflix, paid cable/satellite-tv, catch-up services, etc.?

…	Films or full seasons
…	Episodes

e. If q10e ≤ 3
Films and TV-series episodes did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.?

	… Films or full seasons … Episodes

f. If q10f ≤ 3
Films and TV-series episodes did you stream from file sharing services and torrent websites such as Usenet, iiTV etc.?

	… Films or full seasons … Episodes

g. If q10g ≤ 3
Films did you see in the cinema?

	… Films

If you do not recall the exact number, please give your best estimate.

14. *RESPONDENTS WHO PURCHASED OR DOWNLOADED BOOKS OR AUDIO-BOOKS OR BORROWED OR E-BORROWED ANY OF THESE FROM A LIBRARY*

[BOOKS: If q5c = NO then skip q14 and set q14a – q14f = 999]

The next few questions are about the way you purchase or experience **books**.

Please tell us when was the last time you did the following things:

(single choice for each type of book consumption)

a. Bought a printed book or audio-book in a physical store or online?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

b. Borrowed a printed book or audio-book from a library?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

c. Downloaded e-books or audio-books from services such as thebookdepository, kobo, iBooks, Nook, the website of an e-book seller, publisher, author, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

d. Streamed or e-borrowed an e-book or audio-book from services such as CourseSmart, Overdrive, eBooks, the website of an e-book seller, publisher, author, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

e. Downloaded an e-book or audio book from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

f. Streamed or e-borrowed an e-book or audio book from file sharing and hosting sites such as slideshare, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

15.

RESPONDENTS WHO PURCHASED OR DOWNLOADED BOOKS OR AUDIO-BOOKS OR BORROWED OR E-BORROWED ANY OF THESE FROM A LIBRARY IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS

[BOOKS: Skip If q5c = NO; else questions conditional on question q14]

If (q14a= 5) OR (q14b= 5) OR (q14c= 5) OR (q14d= 5) OR (q14e= 5) OR (q14f= 5)

In the last 12 months, how many:

a. If (q14a = 5)
   New (first-hand) printed books or audio books did you buy in a physical store or online?

	… Books or audio books b. If (q14b = 5) Printed books or audio books did you borrow from a physical library? … Books or audio books c. If (q14c = 5) E-books or audio books did you download from services such as thebookdepository, kobo, iBooks, Nook, the website of an e-book seller, publisher, author, etc.? … E-Books or audio books d. If (q14d = 5) E-books or audio books did you stream or e-borrow from services such as CourseSmart, Overdrive, eBooks, the website of an e-book seller, publisher, author, etc.? … E-Books or audio books e. If (q14e = 5) E-books or audio books did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.? … E-Books or audio books f. If (q14f = 5) E-books or audio books did you stream or e-borrow from file sharing and hosting sites such as slideshare, etc.? … E-Books or audio books *If you do not recall the exact number, please give your best estimate.*
16.	*RESPONDENTS WHO PURCHASED OR DOWNLOADED BOOKS OR AUDIO-BOOKS OR BORROWED OR E-BORROWED ANY OF THESE FROM A LIBRARY IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS* **[BOOKS: Skip If q5c = NO; else questions conditional on question q14]** If (q14a= 4) OR (q14b= 4) OR (q14c= 4) OR (q14d= 4) OR (q14e= 4) OR (q14f= 4)

	Online copyright questionnaire adults
	In the last 6 months, how many: a. If (q14a = 4) New (first-hand) printed books or audio books did you buy in a physical store or online? … Books or audio books b. If (q14b = 4) Printed books or audio books did you borrow from a physical library? … Books or audio books c. If (q14c = 4) E-books or audio books did you download from services such as thebookdepository, kobo, iBooks, Nook, the website of an e-book seller, publisher, author, etc.? … E-Books or audio books d. If (q14d = 4) E-books or audio books did you stream or e-borrow from services such as CourseSmart, Overdrive, eBooks, the website of an e-book seller, publisher, author, etc.? … E-Books or audio books e. If (q14e = 4) E-books or audio books did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.? … E-Books or audio books f. If (q14f = 4) E-books or audio books did you stream or e-borrow from file sharing and hosting sites such as slideshare, etc.? … E-Books or audio books *If you do not recall the exact number, please give your best estimate.*
17.	*RESPONDENTS WHO PURCHASED OR DOWNLOADED BOOKS OR AUDIO-BOOKS OR BORROWED OR E-BORROWED ANY OF THESE FROM A LIBRARY IN THE LAST 3 MONTHS* **[BOOKS: Skip If q5c = NO; else questions conditional on question q14]** If (q14a≤ 3) OR (q14b≤ 3) OR (q14c≤ 3) OR (q14d≤ 3) OR (q14e≤ 3) OR (q14f≤ 3)

	Online copyright questionnaire adults
	In the last 3 months, how many: a. If (q14a ≤ 3) New (first-hand) printed books or audio books did you buy in a physical store or online? … Books or audio books b. If (q14b ≤ 3) Printed books or audio books did you borrow from a physical library? … Books or audio books c. If (q14c ≤ 3) E-books or audio books did you download from services such as thebookdepository, kobo, iBooks, Nook, the website of an e-book seller, publisher, author, etc.? … E-Books or audio books d. If (q14d ≤ 3) E-books or audio books did you stream or e-borrow from services such as CourseSmart, Overdrive, eBooks, the website of an e-book seller, publisher, author, etc.? … E-Books or audio books e. If (q14e ≤ 3) E-books or audio books did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.? … E-Books or audio books f. If (q14f ≤ 3) E-books or audio books did you stream or e-borrow from file sharing and hosting sites such as slideshare, etc.? … E-Books or audio books *If you do not recall the exact number, please give your best estimate.*
18.	*RESPONDENTS WHO PURCHASED OR DOWNLOADED COMPUTER GAMES OR PLAYED ONLINE GAMES* **[GAMES: If 5d = NO then skip q18 and set q18a – q18g = 999]** The next few questions are about the way you purchase or experience **computer/video games**.

Online copyright questionnaire adults

Please include games for PC/laptop/console only and exclude games for smartphones/tablets.

Please tell us when was the last time you did the following things:

(single choice for each type of games consumption)

a. Bought a game on a CD, DVD, Blu-ray disk, or memory card in a physical store or online?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

b. Downloaded a game from services such as Amazon, GAME, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

c. Streamed a game from services such as Google Play, App-store etc., online consoles Xbox Live, Playstation Network, DS Ware, Nintendo eShop, or Wii, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

d. Paid for cloud gaming from Gaikai or Onlive, etc. or directly from the game developer?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

e. Played a <u>new</u> free online game, e.g. from Miniclip, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

f. Downloaded a game from file sharing and hosting sites such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc.?

<table>
<tr><th></th><th>Online copyright questionnaire adults</th></tr>
<tr><td></td><td>
<table>
<tr><td>1. Less than a week ago</td><td>2. Between 1 week and 1 month ago</td><td>3. Between 1 and 3 months ago</td><td>4. Between 3 and 6 months ago</td><td>5. Between 6 and 12 months ago</td><td>6. More than a year ago</td><td>7. Never</td></tr>
</table>
g. Played a game for free on a chipped, modded, or flashed console?
<table>
<tr><td>1. Less than a week ago</td><td>2. Between 1 week and 1 month ago</td><td>3. Between 1 and 3 months ago</td><td>4. Between 3 and 6 months ago</td><td>5. Between 6 and 12 months ago</td><td>6. More than a year ago</td><td>7. Never</td></tr>
</table>
</td></tr>
<tr><td>19.</td><td>
RESPONDENTS WHO PURCHASED OR DOWNLOADED COMPUTER GAMES OR PLAYED ONLINE GAMES IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS

[GAMES: Skip If q5d = NO; questions conditional on question q18]

If (q18a = 5) OR (q18b = 5) OR (q18c = 5) OR (q18d = 5) OR (q18e = 5) OR
(q18f = 5) OR (q18g = 5)

Please include games for PC/laptop/console only and exclude games for smartphones/tablets

In the last <u>12 months</u>, how many:

a. If (q18a = 5)
Games did you buy on a new (first-hand) CD, DVD, Blu-ray disk, or memory card in a physical store or online?

… Games

b. If (q18b = 5)
Games did you download from services such as Amazon, GAME, etc.?

… Games

c. If (q18c = 5)
Games did you stream or play on services such as Google Play, App-store etc., online consoles Xbox Live, Playstation Network, DS Ware, Nintendo eShop, or Wii, etc.?
</td></tr>
</table>

… Games

d. If (q18d = 5)
Games did you play on Gaikai, Onlive, etc. or directly from the game developer?

… Games

e. If (q18e = 5)
Games did you play for free on sites such as Miniclip, etc.?

… Games

f. If (q18f = 5)
Games did you download (or stream) from other sources such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc.?

… Games

g. If (q18g = 5)
Games did you play for free on a chipped, modded or flashed console?

… Games

If you do not recall the exact number, please give your best estimate.

20.

RESPONDENTS WHO PURCHASED OR DOWNLOADED COMPUTER GAMES OR PLAYED ONLINE GAMES IN THE 6 MONTHS BUT NOT THE LAST 3 MONTHS

[GAMES: Skip If q5d = NO; else questions conditional on question q18]

If (q18a = 4) OR (q18b = 4) OR (q18c = 4) OR (q18d = 4) OR (q18e = 4) OR

(q18f = 4) OR (q18g = 4)

Please include games for PC/laptop/console only and exclude games for smartphones/tablets

In the last 6 months, how many:

a. If (q18a = 4)
Games did you buy on a new (first-hand) CD, DVD, Blu-ray disk, or memory

card in a physical store or online?

… Games

b. If (q18b = 4)
Games did you download from services such as Amazon, GAME, etc.?

… Games

c. If (q18c = 4)
Games did you stream or play on services such as Google Play, App-store etc., online consoles Xbox Live, Playstation Network, DS Ware, Nintendo eShop, or Wii, etc.?

… Games

d. If (q18d = 4)
Games did you play on Gaikai, Onlive, etc. or directly from the game developer?

… Games

e. If (q18e = 4)
Games did you play for free on sites such as Miniclip, etc.?

… Games

f. If (q18f = 4)
Games did you download (or stream) from other sources such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc.?

… Games

g. If (q18g = 4)
Games did you play for free on a chipped, modded or flashed console?

… Games

If you do not recall the exact number, please give your best estimate.

21. *RESPONDENTS WHO PURCHASED OR DOWNLOADED COMPUTER GAMES OR PLAYED ONLINE GAMES IN THE LAST 3 MONTHS*

[GAMES: Skip If q5d = NO; questions conditional on question q18]

	Online copyright questionnaire adults
	If (q18a ≤ 3) OR (q18b ≤ 3) OR (q18c ≤ 3) OR (q18d ≤ 3) OR (q18e ≤ 3) OR (q18f ≤ 3) OR (q18g ≤ 3) Please include games for PC/laptop/console only and exclude games for smartphones/tablets In the last 3 months, how many: a. If q18a ≤ 3 Games did you buy on a new (first-hand) CD, DVD, Blu-ray disk, or memory card in a physical store or online? … New games b. If q18b ≤ 3 Games did you download from services such as Amazon, GAME, etc.? … Games c. If q18c ≤ 3 Games did you stream or play on services such as Google Play, App-store etc., online consoles Xbox Live, Playstation Network, DS Ware, Nintendo eShop, or Wii, etc.? … Games d. If q18d ≤ 3 Games did you play on Gaikai, Onlive, etc. or directly from the game developer? … Games e. If q18e ≤ 3 Games did you play for free on sites such as Miniclip, etc.? … Games f. If q18f ≤ 3 Games did you download (or stream) from other sources such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc.? … Games g. If q18g ≤ 3 Games did you play for free on a chipped, modded or flashed console? … Games

	Online copyright questionnaire adults
	If you do not recall the exact number, please give your best estimate.
	The last unlawful download or stream Define LAST_UNLAWFUL = NONE if: - no music consumption (q5a) or last unlawful download/stream > 1 year ago or never (q6d ≥ 6 & q6e ≥ 6) - no audio-visual consumption (q5b) or last unlawful download/stream > 1 year ago or never (q10e ≥ 6 & q10f ≥ 6) - no book consumption (q5c) or last unlawful download/stream > 1 year ago or never (q14e ≥ 6 & q14f ≥ 6) - no game consumption (q5d) or last unlawful download/stream > 1 year ago or never (q18f ≥ 6 & q18g ≥ 6) Note: if q5a = NO then q6a – q6f = 999 if q5b = NO then q10a – q10g = 999 if q5c = NO then q14a – q14f = 999 if q5d = NO then q18a – q18g = 999 If (q6d ≥ 6 AND q6e ≥ 6 AND q10e ≥ 6 AND q10f ≥ 6 AND q14e ≥ 6 AND q14f ≥ 6 AND q18f ≥ 6) AND q18g ≥ 6) LAST_UNLAWFUL = NONE. If LAST_UNLAWFUL <> NONE: 1. If (q14e ≤ 5 OR q14f ≤ 5) and (book counter < book quotum): LAST_UNLAWFUL = e-book 2. Else if ((q18f ≤ 5 OR q18g ≤ 5) and game counter < game quotum: LAST_UNLAWFUL = computer game 3. Else LAST_UNLAWFUL = OPEN If LAST_UNLAWFUL = NONE GO TO QUESTION 28 (EDUCATIONAL LEVEL ETC. → 100 FILMS → WHERE DOES RESPONDENT LIVE)
22.	*RESPONDENTS WHO ARE NOT AUTOMATICALLY ROUTED TO QUESTIONS ABOUT THE LAST UNLAWFUL E-BOOK OR VIDEO GAME DOWNLOAD OR STREAM TO FILL THE QUOTUM* These calculations and the question are for further routing to the type of content last downloaded or streamed Skip if LAST_UNLAWFUL = e-book or LAST_UNLAWFUL = computer game Note: in the above cases the routing is already determined by the need to fill one of two quotums.

MIN_Music = MIN(q6d, q6e)
MIN_Film = MIN(q10e,q10f)
MIN_Book = MIN(q14e, q14f)
MIN_Game = MIN(q18f, q18g)

Define help variables to determine how long ago the last download or stream of each type took place

IF MIN_Music < MIN(MIN_Film, MIN_Book, MIN_Game) LAST_UNLAWFUL = Music
IF MIN_Film < MIN(MIN_Music, MIN_Book, MIN_Game) LAST_UNLAWFUL = Film or TV-series
IF MIN_Book < MIN(MIN_Music, MIN_Film, MIN_Game) LAST_UNLAWFUL = E-book
IF MIN_Game < MIN(MIN_Music, MIN_Film, MIN_Book) LAST_UNLAWFUL = Computer game.

If LAST_UNLAWFUL = OPEN:

What type of content did you last download or stream from a file sharing or hosting site such as The Pirate Bay or Mega-Upload?

a. Music
b. Film or TV-series
c. E-book or audio-book
d. Computer/video game

If ((LAST_UNLAWFUL = OPEN) AND (Q22 = a)) LAST_UNLAWFUL = Music

If ((LAST_UNLAWFUL = OPEN) AND (Q22 = b)) LAST_UNLAWFUL = Film or TV-series

If ((LAST_UNLAWFUL = OPEN) AND (Q22 = c)) LAST_UNLAWFUL = E-book

If ((LAST_UNLAWFUL = OPEN) AND (Q22 = d)) LAST_UNLAWFUL = Computer game

GENERAL QUESTIONS ABOUT LAST UNLAWFUL DOWNLOAD OR STREAM

LAST_UNLAWFUL = MUSIC

23. *RESPONDENTS WHO LAST DOWNLOADED OR STREAMED MUSIC UNLAWFULLY*

LAST_UNLAWFUL = Music

If q6d ≤ q6e
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream)

According to your answers, you have downloaded music from a file sharing or hosting site such as
isoHunt, Btjunkie, Torrentz, etc.

	Online copyright questionnaire adults
	What type of music did you last download from such a site? If q6d > q6e (respondent ticked off a more recent period for illegal stream compared to illegal download) According to your answers, you have streamed music from a file sharing or hosting site such as Hypster, Musicplayon, NOSEQ, etc. What type of music did you last stream from such a site? a. Alternative & Indie b. Blues, jazz, R&B, Soul c. Children's Music d. Classical e. Dance & Electronic f. Easy Listening g. Folk & Songwriter h. Hard Rock & Metal i. Miscellaneous j. Pop k. Rap & Hip-Hop l. Reggae m. Rock n. Soundtracks & Musicals o. World Music
	ACCORDING TO AN OVERVIEW STUDY OF WILLINGNESS TO PAY STUDY, SURVEY-BASED MEASUREMENTS OF WILLINGNESS TO PAY CAN BE DIRECT (WHAT PRICE?) OR INDIRECT (WOULD YOU BUY THAT AT THIS PRICE?). THE MAIN DRAWBACK OF DIRECT QUESTIONS IS THAT IT IS NOT CLEAR WHAT EXACTLY THE RESPONDENT IS PAYING FOR, LIMITING THE VALIDITY OF THE MEASUREMENT. *INDIRECT MEASUREMENTS FALL IN ONE OF TWO CLASSES: DISCRETE CHOICE OR CONJOINT. A DRAWBACK OF A PURE CONJOINT ANALYSIS IS THAT ACTUAL PURCHASE BEHAVIOUR IS NOT OBSERVED AT ALL. FOR THIS REASON WE CENTER THE WILLINGNESS-TO-PAY QUESTIONS AROUND THE LAST DOWNLOAD OR STREAM: Breidert et al. (2006), 'A review of methods for measuring willingness-to-pay', Innovative Marketing, vol.2, issue 4, 8-32.* *ACCORDING TO GENERAL LITERATURE ON WILLINGNESS TO PAY (WTP), DIRECTLY ASKING AFTER THE WTP COMES WITH A RISK OF UNDERPRICING. IN THIS CASE THE BASE SITUATION IS AN UNLAWFUL DOWNLOAD OR STREAM, WHICH GENERALLY IS FREE. DIRECTLY ASKING AFTER THE WTP THEN COMES WITH A FURTHER RISK OF*

	Online copyright questionnaire adults
	PROTEST VOTES OR NONRESPONSE *WE THEREFORE ASK HOW LIKELY THE RESPONDENT IS TO PAY A PRICE IN A CERTAIN RANGE. DEPENDING ON WHETHER THE RESPONDENT IS LIKELY OR UNLIKELY TO PAY, A HIGHER OR LOWER PRICE RANGE IS OFFERED FOR AN IMPROVED DOWNLOAD OR PLAY.* *THIS IS REPEATED A SECOND TIME TO COVER A BROAD PRICE RANGE.* *THIS VARIATION IN PRICES HAS BEEN USED IN A PREVIOUS WILLINGNESS TO PAY STUDY: SINHA ET AL. (2010), 'Don't think twice, It's alright: Music piracy and pricing in a DRM-FREE environment', Journal of Marketing, vol. 74, 40-54.* *THE IDEA TO COMBINE PRICE RANGES AND LIKERT SCALES IS BASED ON TWO RECENT STUDIES:* *Schlereth et al. (2012), 'Using discrete choice experiments to estimate willingness to pay intervals', Marketing Letters 23(3), 761-776* *Dost, F. and R. Wilken (2012), 'Measuring willingness to pay as a price range: When should we care?', International Journal of Research in Marketing, 29(2), 148-166.*
	RESPONDENTS WHO LAST DOWNLOADED OR STREAMED MUSIC UNLAWFULLY MUSIC_PRICE_-3 = between £ 0.05 and 0.10 MUSIC_PRICE_-2 = between £ 0.10 and 0.25 MUSIC_PRICE_-1 = between £ 0.25 and 0.50 MUSIC_PRICE_0 = between £ 0.50 and 0.75 MUSIC_PRICE_+1 = between £ 0.75 and 1.00 MUSIC_PRICE_+2 = between £ 1.00 and 1.50 MUSIC_PRICE_+3 = between £ 1.50 and 2.50
	The next three questions are about how likely you would get music from a pay site under various conditions, ranging from "certainly not" to "certainly yes" meaning the

following percentages:

Certainly not	Very unlikely	Unlikely	Perhaps	Likely	Very likely	Certainly yes
0%	1-20%	20-40%	40-60%	60-80%	80-99%	100%

24.

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED MUSIC UNLAWFULLY

If (LAST_UNLAWFUL = Music)

Price Range = MUSIC_PRICE_0

If q6d ≤ q6e
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream)

Suppose that the music you downloaded had been removed from all file sharing and hosting sites and can only be downloaded from a new pay site.

On that new pay site, availability of tracks, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded from.

How likely would you be to download the music track from this pay site, if you had to pay [**Price range**] per track?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

If q6d > q6e
(respondent ticked off a more recent period for illegal stream compared to illegal download)

Suppose that the music you streamed had been removed from all file sharing and hosting sites and can only be streamed from a new pay site.

On that new pay site, availability of tracks, play speed, presence or absence of advertisements and copy restrictions are the same as the site you streamed from.

How likely would you be to stream the music track from this pay site, if you had to pay [**Price range**] per track?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

<table>
<tr><th></th><th>Online copyright questionnaire adults</th></tr>
<tr><td>25.</td><td>

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED MUSIC UNLAWFULLY

If (LAST_UNLAWFUL = Music)
Now suppose that the download speed of this pay site is doubled, but the price is also different.

If q24 ≥ d: Price Range = MUSIC_PRICE_+2
If q24 ≤ c: Price Range = MUSIC_PRICE_-2

If q6d ≤ q6e
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream)

How likely would you be to download get the music track from this improved pay site, if you had to pay [**Price range**] per track?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

If q6d > q6e
(respondent ticked off a more recent period for illegal stream compared to illegal download)

How likely would you be to stream the music track from this improved pay site, if you had to pay [**Price Range**] per track?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

</td></tr>
<tr><td>26.</td><td>

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED MUSIC UNLAWFULLY

If (LAST_UNLAWFUL = Music)

Finally, suppose that instead of a higher download speed, the pay site is improved with an easier search function, and the price is also different...

If (q24 ≥ d) AND (q25 ≥ d): Price Range = MUSIC_PRICE_+3
If (q24 ≤ c) AND (q25 ≤ c): Price Range = MUSIC_PRICE_-3
If (q24 ≥ d) AND (q25 ≤ c): Price Range = MUSIC_PRICE_+1
If (q24 ≤ c) AND (q25 ≥ d): Price Range = MUSIC_PRICE_-1

If q6d ≤ q6e
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream)

How likely would you be to download the music track from this different pay site, if you had to pay [**Price Range**] per track?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

</td></tr>
</table>

If q6d > q6e
(respondent ticked off a more recent period for illegal stream compared to illegal download)

How likely would you be to stream the music track from this different pay site, if you had to pay [**Price Range**] per track?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

LAST_UNLAWFUL = FILM OR TV

(SIMILAR AS FOR MUSIC ABOVE)

23B. *RESPONDENTS WHO LAST DOWNLOADED OR STREAMED FILM OR TV SERIES UNLAWFULLY*

If LAST_UNLAWFUL = Film or TV-series

If q10e ≤ q10f
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream)

According to your answers, you have downloaded a film or TV-series from a file sharing or hosting site such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.

What type of film or TV-series did you last download from such a site?

a. TV series of the last 2 years
b. TV series more than 2 years old
c. Film of the last 2 years
d. Film more than 2 years old

If q10e > q10f
(respondent ticked off the same or a more recent period for illegal stream compared to illegal download)

According to your answers, you have streamed a film or TV-series from a file sharing or hosting site such as Usenet, iiTV, etc.

What type of film or TV-series did you last stream from such a site?

a. TV series of the last 2 years
b. TV series more than 2 years old
c. Film of the last 2 years
d. Film more than 2 years old

FILM_TV_PRICE_-3 = between £ 1 and 2
FILM_TV_PRICE_-2 = between £ 2 and 4

FILM_TV_PRICE_-1 = between £ 4 and 7
FILM_TV_PRICE_0 = between £ 7 and 10
FILM_TV_PRICE_+1 = between £ 10 and 15
FILM_TV_PRICE_+2 = between £ 15 and 20
FILM_TV_PRICE_+3 = between £ 20 and 30

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED FILM OR TV SERIES UNLAWFULLY

If (LAST_UNLAWFUL = Film or TV series)

The next three questions are about how likely you would get a film or TV series from a pay site under various conditions, ranging from "certainly yes" to "certainly not" meaning the following percentages:

Certainly not	Very unlikely	Unlikely	Perhaps	Likely	Very likely	Certainly yes
0%	1-20%	20-40%	40-60%	60-80%	80-99%	100%

24B.

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED FILM OR TV SERIES UNLAWFULLY

If (LAST_UNLAWFUL = Film or TV-series)

Price Range = FILM_TV_PRICE_0.

If (q23B ≤ b) AND (q10e ≤ q10f)
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream; TV)

Suppose that the TV-series you downloaded had been removed from all file sharing and hosting sites and can only be downloaded from a new pay site.

On that new pay site, availability of TV-series, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded from.

How likely would you download an episode from this pay site, if you had to pay [**Price Range**] per episode? :

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

---

If (q23B ≥ c) AND (q10e ≤ q10f))
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream; film)

	Online copyright questionnaire adults

Suppose that the film you downloaded had been removed from all file sharing and hosting sites and can only be downloaded from a new pay site.

On that new pay site, availability of films, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded from.

How likely would you download the film from this pay site, if you had to pay [**Price Range**] per film?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

---

If (q23B ≤ b) AND (q10e > q10f)
(respondent ticked off the same or a more recent period for illegal stream compared to illegal download; TV)

Suppose that the TV-series you streamed had been removed from all file sharing and hosting sites and can only be streamed from a new pay site.

On that new pay site, availability of TV-series, play speed, presence or absence of advertisements and copy restrictions are the same as the site you streamed from.

How likely would you stream an episode from this pay site, if you had to pay [**Price Range**] per episode?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

---

If (q23B ≥ c) AND (q10e > q10f)
(respondent ticked off the same or a more recent period for illegal stream compared to illegal download; film)

Suppose that the film you streamed had been removed from all file sharing and hosting sites and can only be streamed from a new pay site.

On that new pay site, availability of films, play speed, presence or absence of advertisements and copy restrictions are the same as the site you streamed from.

How likely would you stream the film from this pay site, if you had to pay [**Price Range**] per film?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

	Online copyright questionnaire adults

25B.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED FILM OR TV SERIES UNLAWFULLY*
	
	If (LAST_UNLAWFUL = Film or TV series)
	
	Now suppose that the download speed of this pay site is doubled, but the price is different.
	
	If q24B ≥ d: Price Range = FILM_TV_PRICE_+2
	If q24B ≤ c: Price Range = FILM_TV_PRICE_-2
	
	If (q23B ≤ b) AND (q10e ≤ q10f):
	How likely would you download an episode from this improved pay site, if you had to pay [**Price Range**] per episode?:
	If (q23B ≥ c) AND (q10e ≤ q10f):
	How likely would you download the film from this improved pay site, if you had to pay [**Price Range**] per film?:
	If (q23B ≤ b) AND (q10e > q10f):
	How likely would you stream an episode from this improved pay site, if you had to pay [**Price Range**] per episode?:
	If (q23B ≥ c) AND (q10e > q10f):
	How likely would you stream the film from this improved pay site, if you had to pay [**Price Range**] per film?:
	
	a. Certainly not | b. Very unlikely | c. Unlikely | d. Perhaps | e. Likely | f. Very likely | g. Certainly yes

26B.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED FILM OR TV SERIES UNLAWFULLY*
	
	If (LAST_UNLAWFUL = Film or TV-series)
	
	If (q24B ≥ d) AND (25B ≥ d): Price Range = FILM_TV_PRICE_+3
	If (q24B ≤ c) AND (25B ≤ c): Price Range = FILM_TV_PRICE_-3
	If (q24B ≥ d) AND (25B ≤ c): Price Range = FILM_TV_PRICE_+1
	If (q24B ≤ c) AND (25B ≥ d): Price Range = FILM_TV_PRICE_-1
	
	If (q23B ≤ b) AND (q10e ≤ q10f):
	Finally, suppose that instead of a higher download speed, the search function of TV-series is improved, and the price is also different.
	
	How likely would you download an episode from this different pay site, if you had to pay [**Price Range**] per episode?:

If (q23B ≥ c) AND (q10e ≤ q10f):
Finally, suppose that instead of a higher download speed, the search function of films is improved, and the price is also different.

How likely would you download an episode from this different pay site, if you had to pay [**Price Range**] per episode?:

If (q23B ≤ b) AND (q10e > q10f):
Finally, suppose that instead of a higher play speed, the search function of TV-series is improved, and the price is also different.

How likely would you stream an episode from this different pay site, if you had to pay [**Price Range**] per episode?:

If (q23B ≥ c) AND (q10e > q10f):
Finally, suppose that instead of a higher play speed, the search function of films is improved, and the price is also different.

How likely would you stream the film from this different pay site, if you had to pay [**Price Range**] per film?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

LAST_UNLAWFUL = E-BOOK

(SIMILAR AS FOR MUSIC ABOVE)

23C.

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED AN E-BOOK UNLAWFULLY

If LAST_UNLAWFUL = E-book

If q14e ≤ q14f
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream)

According to your answers, you have downloaded an e-book or audio book from a file sharing or hosting site such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.

What type of book did you last download from such a site?

If q14e > q14f
(respondent ticked off the same or a more recent period for illegal stream compared to illegal download)

According to your answers, you have streamed an e-book or audio book from a file

sharing or hosting site such as slideshare, etc.

What type of book did you last view from such a site?

a. An audio book
b. An e-book novel (including crime, literature, romance, science fiction, fantasy)
c. An e-book, nonfiction (including biography, history, politics, social sciences)
d. An e-book, professional (including computing, business, finance, math, science, technical)
e. An e-book, art & photography
f. An children's e-book
g. An e-book, comics & graphic novels
h. An e-book, education & reference
i. An e-book, leisure (including food & drink, health & fitness, home & garden, sport)
j. An e-book, counselling (including self-help, parenting & families religion & spirituality)
k. An e-book, gay & lesbian or teen
l. An e-book, travel guide
m. An e-book, humour

EBOOK_PRICE_-3 = between £ 1 and 2
EBOOK_PRICE_-2 = between £ 2 and 4
EBOOK_PRICE_-1 = between £ 4 and 6
EBOOK_PRICE_0 = between £ 6 and 10
EBOOK_PRICE_+1 = between £ 10 and 15
EBOOK_PRICE_+2 = between £ 15 and 25
EBOOK_PRICE_+3 = between £ 25 and 50

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED AN E-BOOK UNLAWFULLY

If (LAST_UNLAWFUL = E-book)

The next three questions are about how likely you would get an audio or e-book from a pay site under various conditions, ranging from "certainly not" to "certainly yes" meaning the following percentages:

Certainly not	Very unlikely	Unlikely	Perhaps	Likely	Very likely	Certainly yes

0%	1-20%	20-40%	40-60%	60-80%	80-99%	100%

24C.

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED AN E-BOOK UNLAWFULLY

If (LAST_UNLAWFUL = E-book)

Price Range = EBOOK_PRICE_0

If (q23C = a) and (q14e ≤ q14f)
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream, audio)

Suppose that the audio book you last downloaded had been removed from all file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc. and can only be downloaded from a new pay site.

On that new pay site, availability of audio books, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded from.

How likely would you download the audio book from this pay site, if you had to pay [**Price Range**] per audio book?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

---

If (q23C ≥ b) and (q14e ≤ q14f)
(respondent ticked off the same or a more recent period for illegal download compared to illegal stream, e-book)

Suppose that this e-book had been removed from all file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc. and can only be downloaded from a new pay site.

On that new pay site, availability of e-books, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded or streamed from.

How likely would you download the e-book from this pay site, if you had to pay [**Price Range**] per e-book?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

---

If (q23C =a) and (q14e > q14f)
(respondent ticked off the same or a more recent period for illegal stream compared to illegal download, audio)

Suppose that this audio book had been removed from all file sharing and hosting sites such as slideshare, etc. and can only be listened to from a new pay site.

On that new pay site, availability of audio books, play speed, presence or absence of advertisements and copy restrictions are the same as the site you listened to.

How likely would you listen to the audio book from this pay site, if you had to pay [**Price Range**] per audio book?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

---

If (q23C ≥ b) and (q14e > q14f)
(respondent ticked off the same or a more recent period for illegal stream compared to illegal download, audio)

Suppose that this e-book had been removed from all file sharing and hosting sites such as slideshare, etc. and can only be viwed from a new pay site.

On that new pay site, availability of e-books, view speed, presence or absence of advertisements and copy restrictions are the same as the site you viewed from.

How likely would you view the e-book from this pay site, if you had to pay [**Price Range**] per e-book?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

25C.

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED AN E-BOOK UNLAWFULLY

If (LAST_UNLAWFUL = E-book)

If q24C ≥ d: EBOOK_PRICE_+2
If q24C ≤ c: EBOOK_PRICE_-2

Now suppose that the download speed of this pay site is doubled, but the price is also different.

If (q23C = a) AND (q14e ≤ q14f):
How likely would you download an audio book from this improved pay site, if you had to pay [**Price Range**] per audio book?:

If (q23C ≥ b) AND (q14e ≤ q14f):
How likely would you download an e-book from this improved pay site, if you had to pay [**Price Range**] per e-book?:

If (q23C = a) AND (q14e > q14f):
How likely would you listen to an audio book from this improved pay site, if you had to pay [**Price Range**] per audio book?:

If (q23C ≥ b) AND (q14e > q14f):
How likely would you view an e-book from this improved pay site, if you had to pay [**Price Range**] per e-book?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

26C.

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED AN E-BOOK UNLAWFULLY

If (LAST_UNLAWFUL = E-book)

If (q24C ≥ d) AND (q25C ≥ d): EBOOK_PRICE_+3
If (q24C ≤ c) AND (q25C ≤ c): EBOOK_PRICE_-3
If (q24C ≥ d) AND (q25C ≤ c): EBOOK_PRICE_+1
If (q24C ≤ c) AND (q25C ≥ d): EBOOK_PRICE_-1

Finally, suppose that instead of a higher download speed, the search function is improved and the price is also different.

If (q23C = a) AND (q14e ≤ q14f):
How likely would you download the audio book from this different pay site, if you had to pay [**Price Range**] per audio book?:

If (q20C ≥ b) AND (q14e ≤ q14f):
How likely would you download the e-book from this different pay site, if you had to pay [**Price Range**] per e-book?:

If (q23C = a) AND (q14e > q14f):
How likely would you listen to the audio book from this different pay site, if you had to pay [**Price Range**] per audio book?:

If (q23C ≥ b) AND (q14e > q14f):
How likely would you view the e-book from this different pay site, if you had to pay [**Price Range**] per e-book?:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

	Online copyright questionnaire adults
	If 24C = Filled in: Book counter = Book counter + 1
	LAST_UNLAWFUL = COMPUTER GAME *(SIMILAR AS FOR MUSIC ABOVE)*
23D.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED A GAME UNLAWFULLY* If LAST_UNLAWFUL = Computer game According to your answers, you last played a computer/video game from a file sharing or hosting site such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc. or from a chipped, modded or flashed console. What type was the last of these games you played? a. A Mass online Role Playing Game (MORPG) b. A shooter game c. A racing game d. A puzzle game e. Otherwise, please explain
	GAME_PRICE_-3 = between £ 0.5 and 1 GAME_PRICE_-2 = between £ 1 and 2 GAME_PRICE_-1 = between £ 2 and 3 GAME_PRICE_0 = between £ 3 and 5 GAME_PRICE_+1 = between £ 5 and 7 GAME_PRICE_+2 = between £ 7 and 10 GAME_PRICE_+3 = between £ 10 and 15
	RESPONDENTS WHO LAST DOWNLOADED OR STREAMED A GAME UNLAWFULLY If (LAST_UNLAWFUL = Computer game) *The next three questions are about how likely you would play a computer/video game from a pay site under various conditions, ranging from "certainly not" to "certainly yes"*

meaning the following percentages:

Certainly not	Very unlikely	Unlikely	Perhaps	Likely	Very likely	Certainly yes
0%	1-20%	20-40%	40-60%	60-80%	80-99%	100%

24D. *RESPONDENTS WHO LAST DOWNLOADED OR STREAMED A GAME UNLAWFULLY*

If (LAST_UNLAWFUL = Computer game)

Price Range = GAME_PRICE_0

Suppose that this game had been removed from all file sharing or hosting site such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc. and cannot be played from a chipped, modded or flashed console, but can only be played for a monthly subscription on a new pay site.

On that new pay site, game content/levels, frame speed (smooth play), presence or absence of advertisements and copy restrictions are the same as the site you downloaded or streamed from. The game comes with a free trial of 10 hours of game play after which the subscription fee is charged.

How likely would you play the game on this pay site, if you had to pay [**Price Range**] for every month that you used it:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

25D. *RESPONDENTS WHO LAST DOWNLOADED OR STREAMED A GAME UNLAWFULLY*

If (LAST_UNLAWFUL = Computer game)

If q24D ≥ d: GAME_PRICE_+2
If q24D ≤ c: GAME_PRICE_-2

Now suppose that the frame speed (for smooth play) of this pay site is doubled, but the price is also different.

How likely would you play the game on this improved pay site, if you had to pay [**Price Range**] for every month that you used it:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

26D.

RESPONDENTS WHO LAST DOWNLOADED OR STREAMED A GAME UNLAWFULLY

If (LAST_UNLAWFUL = Computer game)

If (q24D ≥ d) AND (q25D ≥ d): GAME_PRICE_+3
If (q24D ≤ c) AND (q25D ≤ c): GAME_PRICE_-3
If (q24D ≥ d) AND (q25D ≤ c): GAME_PRICE_+1
If (q24D ≤ c) AND (q25D ≥ d): GAME_PRICE_-1

Finally, suppose that instead of a higher frame speed, the pay site is improved with 50% more content or levels.

In addition the price is now in the range:

How likely would you play the game on this different pay site, if you had to pay [**Price Range**] for every month that you used it:

a. Certainly not	b. Very unlikely	c. Unlikely	d. Perhaps	e. Likely	f. Very likely	g. Certainly yes

If 24D = Filled in: Game counter = Game counter + 1

27.

ALL RESPONDENTS WHO ANSWERED AT LEAST ONE WTP QUESTION

If (q24 = Filled in OR q24B = Filled in OR q24C = Filled in OR q24D = Filled in)
Note of researcher (not for respondent): this question is used to flag possible unreliability of answers if answering the willingness to pay questions was very hard.

How easy or hard was it to answer the three questions about your willingness to pay

a. Very easy	b. Easy	c. Not easy or hard	d. Hard	e. Very hard

VARIOUS GENERAL QUESTIONS

28.

ALL RESPONDENTS

Researcher comment (not for respondent): educational level is a standard and significant control variable in piracy studies

What is the highest level of education or professional training you successfully

completed?

- ❑ Primary school or none
- ❑ Lower secondary education / intermediate qualification
- ❑ Upper secondary education / full maturity certificate
- ❑ Further education (diploma, certificate etc.)
- ❑ Higher education (university bachelor, master, PhD)

29. *ALL RESPONDENTS*

Researcher comment (not for respondent): employment status indicates both income and leisure time

Did you do any work for pay or profit during the last week, or do you have a job or business you will return to within the next four weeks?

- ❑ Yes
- ❑ No

30. *ALL RESPONDENTS*

Researcher comment (not for respondent): DangNguyen, Dejean and Moreau use this as an IV.

How often do you use internet to read news from:

a. National newspapers

Every day	At least each week	At least each month	Rarely or never

b. Local newspapers

Every day	At least each week	At least each month	Rarely or never

c. Google News or Yahoo News

Every day	At least each week	At least each month	Rarely or never

d. Website of TV channels

Every day	At least each week	At least each month	Rarely or never

e. Blogs

Every day	At least each week	At least each month	Rarely or never

f. Other internet news providers

Every day	At least each week	At least each month	Rarely or never

31. *ALL RESPONDENTS*

Researcher comment (not for respondent): the idea is to instrument for certain moral attitudes

that are arguably correlated with the propensity of illegal downloading or streaming, but not with preferences for music, audio-visual, books or computer games. The examples do not immediately harm others as is the case with illegal downloading or streaming.

If no one else is around, do you consider the following behaviour acceptable:

a. Jaywalking

Totally not	Mostly not	Slightly not	Undecided	Slightly yes	Mostly yes	Totally yes

b. Travelling in public transportation without a fare

Totally not	Mostly not	Slightly not	Undecided	Slightly yes	Mostly yes	Totally yes

c. Exceeding the highway speed limit

Totally not	Mostly not	Slightly not	Undecided	Slightly yes	Mostly yes	Totally yes

d. Photographing with flashlight in a museum where that is not allowed

Totally not	Mostly not	Slightly not	Undecided	Slightly yes	Mostly yes	Totally yes

e. Having a plumber work for cash without invoicing

Totally not	Mostly not	Slightly not	Undecided	Slightly yes	Mostly yes	Totally yes

f. Not declaring a small gift from a business relation

Totally not	Mostly not	Slightly not	Undecided	Slightly yes	Mostly yes	Totally yes

g. Forgetting a promise to do community work

Totally not	Mostly not	Slightly not	Undecided	Slightly yes	Mostly yes	Totally yes

	Online copyright questionnaire adults
	List of 100 films
32.	*We present a list of popular films in the past 3 years. Please select which you have seen.*

Snow White and the Huntsman	The Adventures of Tintin	Anchorman 2: The Legend Continues
Turbo	Magic Mike	Looper
The King's Speech	Life of Pi	Sherlock Holmes: A Game of Shadows
The Great Gatsby (2013)	Puss in Boots	Hotel Transylvania
Madagascar 3: Europe's Most Wanted	Titanic 3D	Kung Fu Panda 2
Man of Steel	Tangled	Jack Reacher
Iron Man 3	The Best Exotic Marigold Hotel	The Hunger Games
The Hunger Games: Catching Fire	Johnny English Reborn	Captain Phillips
The Bourne Legacy	The Croods	MIB 3
The Hangover Part II	The Hangover Part III	The Pirates! Band of Misfits
Tinker, Tailor, Soldier, Spy	Monsters University	Cloudy with a Chance of Meatballs 2
The Amazing Spider-Man	Ice Age: Continental Drift	Les Miserables (2012)
The Twilight Saga: Breaking Dawn Part 1	The Twilight Saga: Breaking Dawn Part 2	American Reunion
The Impossible	The Conjuring	Despicable Me 2
The Lion King (in 3D)	Bridesmaids	The Muppets
The Woman in Black	The Girl with the Dragon Tattoo (2011)	Prometheus
The Avengers (2012)	Paul	Gravity
Rise of the Planets of the Apes	The Iron Lady	The Dark Knight Rises
Fast & Furious 6	The Smurfs	The Smurfs 2
Now You See Me	Alvin and the Chipmunks: Chipwrecked	Fast Five
Rio	Elysium	Ted
Django Unchained	Arthur Christmas	Thor
Thor: The Dark World	Gnomeo and Juliet	World War Z
Rise of the Guardians	The Hobbit: An unexpected Journey	The Hobbit: The Desolation of Smaug
Harry Potter and the Deathly Hallows (Part Two)	Pirates of the Caribbean: On Stranger Tides (3D)	Oblivion
War Horse	Philomena	The Inbetweeners Movie
Diary of a Wimpy Kid: Dog Days	Black Swan	X-Men: First Class
Nativity 2	Transformers 3	Oz The Great and Powerful

21 Jump Street	Rush (2013)	The Descendants
Skyfall	Epic	Mission: Impossible - Ghost Protocol
Cars 2	A Good Day to Die Hard	The Wolverine
Star Trek Into Darkness	Brave	American Hustle
Wreck-It Ralph	The Dictator	Taken 2
Frozen (2013)		

33.

NOTE: only present films that the respondent has selected above

Present a maximum of 20 films in a random order on one page (no need here to keep sequels together)
The films are randomized both for respondents who ticked off 20 films or more, and those who ticked off less than 20 films.

If ≤ 20 films ticked off
Please indicate how you have seen the film.

If > 20 films ticked off:
Please indicate how you have seen the following 20 films.

Some films you may have seen twice. If so, please also indicate how you saw it the second time. For example if you saw a film first in the cinema and then downloaded it from a file sharing or hosting site, please tick the box "Cinema" under seen 1st time and "File sharing or hosting site" under seen 2nd time.

	Seen 1st time					Seen 2nd time				
	Cinema	Legal download, streaming or video on demand	DVD or Blu-Ray disk	File sharing or hosting site	TV (pay or free broadcast)	Cinema	Legal download, streaming or video on demand	DVD or Blu-Ray disk	File sharing or hosting site	TV (pay or free broadcast)
Random film 1										
Random film 2										
Random film 3										
Random film 4										
Random film 5										

Random film 6	
Random film 7	
Random film 8	
Random film 9	
Random film 10	
Random film 11	
Random film 12	
Random film 13	
Random film 14	
Random film 15	
Random film 16	
Random film 17	
Random film 18	
Random film 19	
Random film 20	

34. *ALL RESPONDENTS*

The next three questions will be used to determine the region you live in. Your information will only be used to publish statistics at the regional level (district, county, council area, or metropolitan area)

In what town or city do you live?

35. *ALL RESPONDENTS*

What is the outer postal code of your address?

	Online copyright questionnaire adults
36.	*ALL RESPONDENTS* *(This question is used to determine the so-called Nielsen region of panel members)* In which region do you live? ❑ London ❑ Yorkshire & Humberside ❑ East Midlands ❑ East Anglia ❑ South East ❑ South West ❑ West Midlands ❑ North West ❑ Scotland ❑ Wales ❑ Northern Ireland ❑ North East
	Final remarks

	Online copyright questionnaire adults
37.	**Questions or remarks on this survey or the topic of the survey can be given below.** .... *We thank you cordially for your time and dedication to respond to this survey. Please click on the next button in order to be recorded.*

Questionnaire for minors of the 2014 September test launch and the October full launch

	Online copyright questionnaire minors
	Introduction *Nowadays, there are many ways to acquire or access music, films and series, books and games.* *The purpose of this questionnaire is to explore how the internet affects consumer choices and attitudes about them.* *Your responses will only be used anonymously. Where opinions are asked, there is no "good" or "bad" answer – it is your opinion that counts. Whenever you do not know the exact answer, please give your best estimate.* *The survey will take around 15 minutes to complete.*
	General questions
	Known for all panel members: **Gender, age**
	Initialize: **book counter = 0** **(number of respondents who answer the first WTP question about books)** **game counter = 0** **(number of respondents who answer the first WTP about computer games)**

	Online copyright questionnaire minors
1.	*ALL RESPONDENTS* Researcher comment (not for respondent): Regular internet use has been used as IV for "internet familiarity" and hence "ease of downloading" and can be used at least as control variable. On average, how many hours per week do you access internet or online apps for private use? *Please leave out time spent on emails* ❑ Less than 3 hours per week ❑ 3 to 5 hours per week ❑ 6 to 9 hours per week ❑ 10 to 14 hours per week ❑ 15 to 19 hours per week ❑ 20 to 29 hours per week ❑ 30 or more hours per week
2.	*ALL RESPONDENTS* Researcher comment (not for respondent): Aguiar and Martens use the number of clicks on content information sites as a control for taste for content. How often do you search internet for information on: a. Music: Every day | At least each week | At least each month | Rarely or never b. Films or TV series Every day | At least each week | At least each month | Rarely or never c. Books Every day | At least each week | At least each month | Rarely or never d. Computer games Every day | At least each week | At least each month | Rarely or never
3.	*ALL RESPONDENTS* Researcher comment (not for respondent): This variable is another general control variable for taste for content, used in various articles on this topic, and relevant to compare our results with theirs using a similar control variable.

	Online copyright questionnaire minors
	Compared to other persons of your age and from your country, how would you describe your interest in: a. Music Much lower | Lower | Same | Higher | Much higher b. Films and series Much lower | Lower | Same | Higher | Much higher c. Books Much lower | Lower | Same | Higher | Much higher d. Computer games Much lower | Lower | Same | Higher | Much higher
4.	*ALL RESPONDENTS* Please indicate if you know what each of the following terms means in the context of internet

INTERNET TERM	NO	NOT SURE	YES
Paypal			
VPN			
SSD			
P2P site			
P2P game			
RAM			
Torrents			
FTP			
Port forwarding			
Bitcoin			
Warez			

Purchases, downloads, streaming and live visits of content

	Online copyright questionnaire minors
5.	*ALL RESPONDENTS* Researcher comment (not for respondent): This is an overarching question to enable skipping subsequent detailed questions if they are not relevant. *As in the remainder of the questionnaire, please exclude downloads or streams on tablets and smartphones.* a. In the past year, have you purchased, rented, downloaded or streamed **music** or visited a live **concert**? [YES/NO] b. In the past year, have you purchased, rented, downloaded or streamed **films or TV-series** or visited a **cinema**? [YES/NO] c. In the past year, have you purchased, downloaded, or streamed **books or audio-books** or borrowed or e-borrowed any of these from a **library**? [YES/NO] d. In the past year, have you purchased, downloaded or streamed **computer/video games**, or played online games? [YES/NO]
6.	*RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED MUSIC OR VISITED A LIVE CONCERT* **[MUSIC: If q5a = NO then skip q6 and set q6a – q6f =999]** The next few questions are about the way you acquire or experience **music**. Please tell us when was the last time you did the following things: *(single choice for each type of music consumption)* a. Bought music on a new CD or vinyl record in a physical store or online? ***1.*** Less than a week ago | ***2.*** Between 1 week and 1 month ago | ***3.*** Between 1 and 3 months ago | ***4.*** Between 3 and 6 months ago | ***5.*** Between 6 and 12 months ago | ***6.*** More than a year ago | ***7.*** Never b. Downloaded music from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician, etc.? ***1.*** Less than a week ago | ***2.*** Between 1 week and 1 month ago | ***3.*** Between 1 and 3 months ago | ***4.*** Between 3 and 6 months ago | ***5.*** Between 6 and 12 months ago | ***6.*** More than a year ago | ***7.*** Never

c. Streamed music from services such as Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify or directly from the website of a band or musician, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

d. Downloaded music from file sharing and hosting sites such as isoHunt, Btjunkie, Torrentz, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

e. Streamed music from file sharing and hosting sites such as Hypster, Musicplayon, NOSEQ, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

f. Visited a live concert or a music festival?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

7. *RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED MUSIC OR VISITED A LIVE CONCERT IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS*

[MUSIC: Skip If q5a = NO; else questions conditional on question q6]

If ((q6a = 5) OR (q6b = 5) OR (q6c = 5) OR (q6d = 5) OR (q6e = 5) OR (q6f = 5))

In the last 12 months, how many:

a. If q6a = 5
New (first-hand) CDs or **vinyl records** did you buy in a physical store or online?

	… CDs or vinyl records

b. If q6b = 5
Music tracks and **albums** did you download from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician etc.?

…	Music tracks
…	Albums

c. If q6c = 5
Hours did you stream from services such as Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify or directly from the website of a band or musician, etc.?

…	Hours

d. If 6d = 5
Music tracks and **albums** did you download from file sharing and hosting sites such as isoHunt, Btjunkie, Torrentz, etc.?

…	Music tracks
…	Albums

e. If q6e = 5
Hours did you stream from file sharing and hosting sites such as Hypster, Musicplayon, NOSEQ, etc.?

…	Hours

f. If q6f = 5
Live concerts or **music festivals** did you visit?

…	Live concerts or music festivals

If you do not recall the exact number, please give your best estimate.

8. *RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED MUSIC OR VISITED A LIVE CONCERT IN THE LAST 6 MONTHS BUT NOT THE LAST 3 MONTHS*

[MUSIC: Skip If q5a = NO; else questions conditional on question q6]

If (q6a = 4) OR (q6b = 4) OR (q6c = 4) OR (q6d = 4)) OR (q6e = 4) OR (q6f = 4)

	Online copyright questionnaire minors
	In the last 6 months, how many: a. If q6a = 4 **New (first-hand) CDs** or **vinyl records** did you buy in a physical store or online? … CDs or vinyl records b. If q6b = 4 **Music tracks** and **albums** did you download from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician etc.? … Music tracks … Albums c. If q6c = 4 **Hours** did you stream from services such as Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify, or directly from the website of a band or musician, etc.? … Hours d. If q6d = 4 **Music tracks** and **albums** did you download from file sharing or hosting sites such as isoHunt, Btjunkie, Torrentz, etc.? … Music tracks … Albums e. If q6e = 4 **Hours** did you stream from file sharing and hosting sites such as Hypster, Musicplayon, NOSEQ, etc.? … Hours f. If q6f = 4 **Live concerts** or **music festivals** did you visit? … Live concerts or music festivals *If you do not recall the exact number, please give your best estimate.*
9.	*RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED MUSIC OR VISITED A LIVE CONCERT IN THE LAST 3 MONTHS* **[MUSIC: Skip If q5a = NO; else questions conditional on question q6]** If (q6a ≤ 3) OR (q6b ≤ 3) OR (q6c ≤ 3) OR (q6d ≤ 3) OR (q6e ≤ 3) OR (q6f ≤ 3)

	Online copyright questionnaire minors
	In the last 3 months, how many: a. If q6a ≤ 3 **New (first-hand) CDs** or **vinyl records** did you buy in a physical store or online? … CDs or vinyl records b. If q6b ≤ 3 **Music tracks** and **albums** did you download from services such as iTunes, AOL Music, eMusic, directly from the website of a band or musician etc.? … Music tracks … Albums c. If q6c ≤ 3 **Hours** did you stream from services such as Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify, or directly from the website of a band or musician, etc.? … Hours d. If q6d ≤ 3 **Music tracks** and **albums** did you download from file sharing and hosting sites such as isoHunt, Btjunkie, Torrentz, etc.? … Music tracks e. If q6e ≤ 3 **Hours** did you stream from file sharing and hosting services such as Hypster, Musicplayon, NOSEQ, etc.? … Hours f. If q6f ≤ 3 **Live concerts** or **music festivals** did you visit? … Live concerts or music festivals *If you do not recall the exact number, please give your best estimate.*
10.	*RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED FILMS OR TV-SERIES OR VISITED A CINEMA* **[FILMS AND SERIES: If q5b = NO then skip q10 and set q10a – q10g = 999]** The next few questions are about the way you purchase or experience **films and TV-series**.

	Online copyright questionnaire minors

Please tell us when was the last time you did the following things:

(single choice for each type of film or TV-series consumption)

a. Bought a film or TV-series on a DVD or Blu-ray disk in a physical store or online?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

b. Rent a film or TV-series on DVD or Blu-ray disk in a physical store?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

c. Downloaded a film or TV-series from services such as Blinkbox, Apple TV, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

d. Streamed a film or TV-series from services such as YouTube, Film 4OD, Netflix, paid cable/satellite-tv, catch-up services, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

e. Downloaded a film or TV-series from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

f. Streamed a film or TV-series from file sharing and hosting sites such as Usenet, iiTV, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

g. Watched a film in a cinema?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

11. *RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED FILMS OR TV-SERIES OR VISITED A CINEMA IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS*

[FILMS AND SERIES: Skip If q5b = NO; else questions conditional on question q10]

If (q10a = 5) OR (q10b = 5) OR (q10c = 5) OR (q10d = 5) OR (q10e = 5) OR (q10f = 5) OR (q10g = 5)

In the last 12 months, how many:

a. If q10a = 5
Films and TV-series did you buy on new (first-hand) DVD or Blu-ray disk in a physical store or online?

…	Films or full seasons
…	Episodes

b. If q10b = 5
Films and TV-series did you rent on DVD or Blu-ray disk in a physical store?

…	Films or full seasons
…	Episodes

c. If q10c = 5
Films and TV-series episodes did you download from services such as Blinkbox, Apple TV, etc.?

…	Films or full seasons
…	Episodes

d. If q10d = 5
Films and TV-series episodes did you stream from services such as YouTube, Film 4OD, Netflix, paid cable/satellite-tv, catch-up services, etc.?

…	Films or full seasons

	… Episodes

e. If q10e = 5
Films and TV-series episodes did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.?

… Films or full seasons
… Episodes

f. If q10f = 5
Films and TV-series episodes did you stream from file sharing services and torrent websites such as Usenet, iiTV etc.?

… Films or full seasons
… Episodes

g. If q10g = 5
Films did you see in the cinema?

… Films

If you do not recall the exact number, please give your best estimate.

12. *RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED FILMS OR TV-SERIES OR VISITED A CINEMA IN THE LAST 6 MONTHS BUT NOT THE LAST 3 MONTHS*

[FILMS AND SERIES: Skip If q5b = NO; else questions conditional on question q10]

If (q10a = 4) OR (q10b = 4) OR (q10c = 4) OR (q10d = 4) OR (q10e = 4) OR (q10f = 4) OR (q10g = 4)

In the last 6 months, how many:

a. If q10a = 4
Films and TV-series did you buy on new (first-hand) DVD or Blu-ray disk in a physical store or online?

… Films or full seasons
… Episodes

b. If q10b = 4

Films and TV-series did you rent on DVD or Blu-ray disk in a physical store?

…	Films or full seasons
…	Episodes

c. If q10c = 4
Films and TV-series episodes did you download from services such as Blinkbox, Apple TV, etc.?

…	Films or full seasons
…	Episodes

d. If q10d = 4
Films and TV-series episodes did you stream from services such as YouTube, Film 4OD, Netflix, paid cable/satellite-tv, catch-up services, etc.?

…	Films or full seasons
…	Episodes

e. If q10e = 4
Films and TV-series episodes did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.?

…	Films or full seasons
…	Episodes

f. If q10f = 4
Films and TV-series episodes did you stream from file sharing services and torrent websites such as Usenet, iiTV etc.?

…	Films or full seasons
…	Episodes

g. If q10g = 4
Films did you see in the cinema?

…	Films

If you do not recall the exact number, please give your best estimate.

13. *RESPONDENTS WHO PURCHASED, DOWNLOADED OR STREAMED FILMS OR TV-SERIES OR VISITED A CINEMA IN THE LAST YEAR BUT NOT THE LAST 3 MONTHS*

[FILMS AND SERIES: Skip If q5b = NO; else questions conditional on question q10]

	Online copyright questionnaire minors
	If (q10a ≤ 3) OR (q10b ≤ 3) OR (q10c ≤ 3) OR (q10d ≤ 3) OR (q10e ≤ 3) OR (q10f ≤ 3) OR (q10g ≤ 3) In the last 3 months, how many: a. If q10a ≤ 3 Films and TV-series did you buy on new (first-hand) DVD or Blu-ray disk in a physical store or online? … Films or full seasons … Episodes b. If q10b ≤ 3 Films and TV-series did you rent on DVD or Blu-ray disk in a physical store? … Films or full seasons … Episodes c. If q10c ≤ 3 Films and TV-series episodes did you download from services such as Blinkbox, Apple TV, etc.? … Films or full seasons … Episodes d. If q10d ≤ 3 Films and TV-series episodes did you stream from services such as YouTube, Film 4OD, Netflix, paid cable/satellite-tv, catch-up services, etc.? … Films or full seasons … Episodes e. If q10e ≤ 3 Films and TV-series episodes did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc.? … Films or full seasons … Episodes f. If q10f ≤ 3 Films and TV-series episodes did you stream from file sharing services and torrent websites such as Usenet, iiTV etc.? … Films or full seasons … Episodes g. If q10g ≤ 3

Films did you see in the cinema?

… Films

If you do not recall the exact number, please give your best estimate.

14. *RESPONDENTS WHO PURCHASED OR DOWNLOADED BOOKS OR AUDIO-BOOKS OR BORROWED OR E-BORROWED ANY OF THESE FROM A LIBRARY*

[BOOKS: If q5c = NO then skip q14 and set q14a – q14f = 999]

The next few questions are about the way you purchase or experience **books**.

Please tell us when was the last time you did the following things:

(single choice for each type of book consumption)

a. Bought a printed book or audio-book in a physical store or online?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

b. Borrowed a printed book or audio-book from a library?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

c. Downloaded e-books or audio-books from services such as thebookdepository, kobo, iBooks, Nook, the website of an e-book seller, publisher, author, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

d. Streamed or e-borrowed an e-book or audio-book from services such as CourseSmart, Overdrive, eBooks, the website of an e-book seller, publisher, author, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

e. Downloaded an e-book or audio book from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

f. Streamed or e-borrowed an e-book or audio book from file sharing and hosting sites such as slideshare, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

15. *RESPONDENTS WHO PURCHASED OR DOWNLOADED BOOKS OR AUDIO-BOOKS OR BORROWED OR E-BORROWED ANY OF THESE FROM A LIBRARY IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS*

[BOOKS: Skip If q5c = NO; else questions conditional on question q14]

If (q14a = 5) OR (q14b = 5) OR (q14c = 5) OR (q14d = 5) OR (q14e = 5) OR (q14f = 5)

In the last <u>12 months</u>, how many:

a. If (q14a = 5)
New (first-hand) printed books or audio books did you buy in a physical store or online?

… Books or audio books

b. If (q14b = 5)
Printed books or audio books did you borrow from a physical library?

… Books or audio books

c. If (q14c = 5)
E-books or audio books did you download from services such as thebookdepository, kobo, iBooks, Nook, the website of an e-book seller, publisher, author, etc.?

… E-Books or audio books

d. If (q14d = 5)
E-books or audio books did you stream or e-borrow from services such as CourseSmart, Overdrive, eBooks, the website of an e-book seller, publisher, author, etc.?

… E-Books or audio books

e. If (q14e = 5)
E-books or audio books did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.?

… E-Books or audio books

f. If (q14f = 5)
E-books or audio books did you stream or e-borrow from file sharing and hosting sites such as slideshare, etc.?

… E-Books or audio books

If you do not recall the exact number, please give your best estimate.

16. *RESPONDENTS WHO PURCHASED OR DOWNLOADED BOOKS OR AUDIO-BOOKS OR BORROWED OR E-BORROWED ANY OF THESE FROM A LIBRARY IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS*

[BOOKS: Skip If q5c = NO; else questions conditional on question q14]

If (q14a = 4) OR (q14b = 4) OR (q14c = 4) OR (q14d = 4) OR (q14e = 4) OR (q14f = 4)

In the last 6 months, how many:

a. If (q14a = 4)
New (first-hand) printed books or audio books did you buy in a physical store or online?

… Books or audio books

b. If (q14b = 4)
Printed books or audio books did you borrow from a physical library?

… Books or audio books

c. If (q14c = 4)
E-books or audio books did you download from services such as thebookdepository, kobo, iBooks, Nook, the website of an e-book seller, publisher, author, etc.?

… E-Books or audio books

d. If (q14d = 4)
E-books or audio books did you stream or e-borrow from services such as CourseSmart, Overdrive, eBooks, the website of an e-book seller, publisher, author, etc.?

… E-Books or audio books

e. If (q14e = 4)
E-books or audio books did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.?

… E-Books or audio books

f. If (q14f = 4)
E-books or audio books did you stream or e-borrow from file sharing and hosting sites such as slideshare, etc.?

… E-Books or audio books

If you do not recall the exact number, please give your best estimate.

17. *RESPONDENTS WHO PURCHASED OR DOWNLOADED BOOKS OR AUDIO-BOOKS OR BORROWED OR E-BORROWED ANY OF THESE FROM A LIBRARY IN THE LAST 3 MONTHS*

[BOOKS: Skip If q5c = NO; else questions conditional on question q14]

If (q14a ≤ 3) OR (q14b ≤ 3) OR (q14c ≤ 3) OR (q14d ≤ 3) OR (q14e ≤ 3) OR (q14f ≤ 3)

In the last 3 months, how many:

a. If (q14a ≤ 3)
New (first-hand) printed books or audio books did you buy in a physical store or online?

… Books or audio books

b. If (q14b ≤ 3)
Printed books or audio books did you borrow from a physical library?

… Books or audio books

c. If (q14c ≤ 3)
E-books or audio books did you download from services such as thebookdepository, kobo, iBooks, Nook, the website of an e-book seller, publisher, author, etc.?

… E-Books or audio books

d. If (q14d ≤ 3)
E-books or audio books did you stream or e-borrow from services such as CourseSmart, Overdrive, eBooks, the website of an e-book seller, publisher, author, etc.?

… E-Books or audio books

e. If (q14e ≤ 3)
E-books or audio books did you download from file sharing and hosting sites such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc.?

… E-Books or audio books

f. If (q14f ≤ 3)
E-books or audio books did you stream or e-borrow from file sharing and hosting sites such as slideshare, etc.?

… E-Books or audio books

If you do not recall the exact number, please give your best estimate.

18. *RESPONDENTS WHO PURCHASED OR DOWNLOADED COMPUTER GAMES OR PLAYED ONLINE GAMES*

[GAMES: If 5d = NO then skip q18 and set q18a – q18g = 999]

The next few questions are about the way you purchase or experience **computer/video games**.

Please include games for PC/laptop/console only and exclude games for smartphones/tablets.

Online copyright questionnaire minors

Please tell us when was the last time you did the following things:

(single choice for each type of games consumption)

a. Bought a game on a CD, DVD, Blu-ray disk, or memory card in a physical store or online?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

b. Downloaded a game from services such as Amazon, GAME, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

c. Streamed a game from services such as Google Play, App-store etc., online consoles Xbox Live, Playstation Network, DS Ware, Nintendo eShop, or Wii, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

d. Paid for cloud gaming from Gaikai or Onlive, etc. or directly from the game developer?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

e. Played a <u>new</u> free online game, e.g. from Miniclip, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

f. Downloaded a game from file sharing and hosting sites such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc.?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months	***4.*** Between 3 and 6 months	***5.*** Between 6 and 12 months	***6.*** More than a year ago	***7.*** Never

		ago	ago	ago		

g. Played a game for free on a chipped, modded, or flashed console?

1. Less than a week ago	***2.*** Between 1 week and 1 month ago	***3.*** Between 1 and 3 months ago	***4.*** Between 3 and 6 months ago	***5.*** Between 6 and 12 months ago	***6.*** More than a year ago	***7.*** Never

19. *RESPONDENTS WHO PURCHASED OR DOWNLOADED COMPUTER GAMES OR PLAYED ONLINE GAMES IN THE LAST YEAR BUT NOT THE LAST 6 MONTHS*

[GAMES: Skip If q5d = NO; questions conditional on question q18]

If (q18a = 5) OR (q18b = 5) OR (q18c = 5) OR (q18d = 5) OR (q18e = 5) OR (q18f = 5) OR

(q18g = 5)

Please include games for PC/laptop/console only and exclude games for smartphones/tablets

In the last 12 months, how many:

a. If (q18a = 5)
Games did you buy on a new (first-hand) CD, DVD, Blu-ray disk, or memory card in a physical store or online?

… Games

b. If (q18b = 5)
Games did you download from services such as Amazon, GAME, etc.?

… Games

c. If (q18c = 5)
Games did you stream or play on services such as Google Play, App-store etc., online consoles Xbox Live, Playstation Network, DS Ware, Nintendo eShop, or Wii, etc.?

… Games

d. If (q18d = 5)
Games did you play on Gaikai, Onlive, etc. or directly from the game developer?

… Games

e. If (q18e = 5)
Games did you play for free on sites such as Miniclip, etc.?

… Games

f. If (q18f = 5)
Games did you download (or stream) from other sources such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc.?

… Games

g. If (q18g = 5)
Games did you play for free on a chipped, modded or flashed console?

… Games

If you do not recall the exact number, please give your best estimate.

20. *RESPONDENTS WHO PURCHASED OR DOWNLOADED COMPUTER GAMES OR PLAYED ONLINE GAMES IN THE 6 MONTHS BUT NOT THE LAST 3 MONTHS*

[GAMES: Skip If q5d = NO; else questions conditional on question q18]

If (q18a = 4) OR (q18b = 4) OR (q18c = 4) OR (q18d = 4) OR (q18e = 4) OR (q18f = 4) OR (q18g = 4)

Please include games for PC/laptop/console only and exclude games for smartphones/tablets

In the last 6 months, how many:

a. If (q18a = 4)
Games did you buy on a new (first-hand) CD, DVD, Blu-ray disk, or memory card in a physical store or online?

… Games

b. If (q18b = 4)
Games did you download from services such as Amazon, GAME, etc.?

	Online copyright questionnaire minors
	… Games c. If (q18c = 4) Games did you stream or play on services such as Google Play, App-store etc., online consoles Xbox Live, Playstation Network, DS Ware, Nintendo eShop, or Wii, etc.? … Games d. If (q18d = 4) Games did you play on Gaikai, Onlive, etc. or directly from the game developer? … Games e. If (q18e = 4) Games did you play for free on sites such as Miniclip, etc.? … Games f. If (q18f = 4) Games did you download (or stream) from other sources such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc.? … Games g. If (q18g = 4) Games did you play for free on a chipped, modded or flashed console? … Games *If you do not recall the exact number, please give your best estimate.*
21.	*RESPONDENTS WHO PURCHASED OR DOWNLOADED COMPUTER GAMES OR PLAYED ONLINE GAMES IN THE LAST 3 MONTHS* **[GAMES: Skip If q5d = NO; questions conditional on question q18]** If (q18a ≤ 3) OR (q18b ≤ 3) OR (q18c ≤ 3) OR (q18d ≤ 3) OR (q18e ≤ 3) OR (q18f ≤ 3) OR (q18g ≤ 3) Please include games for PC/laptop/console only and exclude games for smartphones/tablets

	Online copyright questionnaire minors
	In the last 3 months, how many: a. If q18a ≤ 3 Games did you buy on a new (first-hand) CD, DVD, Blu-ray disk, or memory card in a physical store or online? … New games b. If q18b ≤ 3 Games did you download from services such as Amazon, GAME, etc.? … Games c. If q18c ≤ 3 Games did you stream or play on services such as Google Play, App-store etc., online consoles Xbox Live, Playstation Network, DS Ware, Nintendo eShop, or Wii, etc.? … Games d. If q18d ≤ 3 Games did you play on Gaikai, Onlive, etc. or directly from the game developer? … Games e. If q18e ≤ 3 Games did you play for free on sites such as Miniclip, etc.? … Games f. If q18f ≤ 3 Games did you download (or stream) from other sources such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc.? … Games g. If q18g ≤ 3 Games did you play for free on a chipped, modded or flashed console? … Games *If you do not recall the exact number, please give your best estimate.*
	The last unlawful download or stream Define LAST_UNLAWFUL = NONE if: - no music consumption (q5a) or last unlawful download/stream > 1 year ago or never (q6d ≥ 6 & q6e ≥ 6)

- no audio-visual consumption (q5b) or last unlawful download/stream > 1 year ago or never (q10e ≥ 6 & q10f ≥ 6)
- no book consumption (q5c) or last unlawful download/stream > 1 year ago or never (q14e ≥ 6 & q14f ≥ 6)
- no game consumption (q5d) or last unlawful download/stream > 1 year ago or never (q18f ≥ 6 & q18g ≥ 6)

Note:
if q5a = NO then q6a – q6f = 999
if q5b = NO then q10a – q10g = 999
if q5c = NO then q14a – q14f = 999
if q5d = NO then q18a – q18g = 999

If (q6d ≥ 6 AND q6e ≥ 6 AND
q10e ≥ 6 AND q10f ≥ 6 AND
q14e ≥ 6 AND q14f ≥ 6 AND
q18f ≥ 6) AND q18g ≥ 6)
LAST_UNLAWFUL = NONE.

If LAST_UNLAWFUL <> NONE:

1. If (q14e ≤ 5 OR q14f ≤ 5) and (book counter < book quotum):
   LAST_UNLAWFUL = e-book
2. Else if ((q18f ≤ 5 OR q18g ≤ 5) and game counter < game quotum:
   LAST_UNLAWFUL = computer game
3. Else LAST_UNLAWFUL = OPEN

If LAST_UNLAWFUL = NONE GO TO QUESTION 26
(EDUCATIONAL LEVEL ETC. → 100 FILMS → WHERE DOES RESPONDENT LIVE)

22. *RESPONDENTS WHO ARE NOT AUTOMATICALLY ROUTED TO QUESTIONS ABOUT THE LAST UNLAWFUL E-BOOK OR VIDEO GAME DOWNLOAD OR STREAM TO FILL THE QUOTUM*

These calculations and the question are for further routing to the type of content last downloaded or streamed

Skip if LAST_UNLAWFUL = e-book or LAST_UNLAWFUL = computer game
Note: in the above cases the routing is already determined by the need to fill one of two quotums.

MIN_Music = MIN(q6d, q6e)
MIN_Film = MIN(q10e,q10f)
MIN_Book = MIN(q14e, q14f)
MIN_Game = MIN(q18f, q18g)

Define help variables to determine how long ago the last download or stream of each type took place
IF MIN_Music < MIN(MIN_Film, MIN_Book, MIN_Game) LAST_UNLAWFUL = Music
IF MIN_Film < MIN(MIN_Music, MIN_Book, MIN_Game) LAST_UNLAWFUL = Film or TV-series
IF MIN_Book < MIN(MIN_Music, MIN_Film, MIN_Game) LAST_UNLAWFUL = E-book
IF MIN_Game < MIN(MIN_Music, MIN_Film, MIN_Book) LAST_UNLAWFUL = Computer game.

	Online copyright questionnaire minors

	If LAST_UNLAWFUL = OPEN:
	
	What type of content did you last download or stream from a file sharing or hosting site such as The Pirate Bay or Mega-Upload?
	a. Music
	b. Film or TV-series
	c. E-book or audio-book
	d. Computer/video game
	
	If ((LAST_UNLAWFUL = OPEN) AND (Q22 = a)) LAST_UNLAWFUL = Music
	
	If ((LAST_UNLAWFUL = OPEN) AND (Q22 = b)) LAST_UNLAWFUL = Film or TV-series
	
	If ((LAST_UNLAWFUL = OPEN) AND (Q22 = c)) LAST_UNLAWFUL = E-book
	
	If ((LAST_UNLAWFUL = OPEN) AND (Q22 = d)) LAST_UNLAWFUL = Computer game

	GENERAL QUESTIONS ABOUT LAST UNLAWFUL DOWNLOAD OR STREAM
	ACCORDING TO AN OVERVIEW STUDY OF WILLINGNESS TO PAY STUDY, SURVEY-BASED MEASUREMENTS OF WILLINGNESS TO PAY CAN BE DIRECT (WHAT PRICE?) OR INDIRECT (WOULD YOU BUY THAT AT THIS PRICE?). THE MAIN DRAWBACK OF DIRECT QUESTIONS IS THAT IT IS NOT CLEAR WHAT EXACTLY THE RESPONDENT IS PAYING FOR, LIMITING THE VALIDITY OF THE MEASUREMENT. *FOR MINORS WE WOULD NOT RISK ATTRITION (AND THE ANSWERS ON THE 100 MOVIES) DUE TO REPETITIVE WILLINGNESS TO PAY (WTP) QUESTIONS.*
	LAST_UNLAWFUL = MUSIC
23.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED MUSIC UNLAWFULLY* LAST_UNLAWFUL = Music If MIN(q6d) ≤ MIN(q6e) (respondent ticked off the same or a more recent period for illegal download compared to illegal stream) According to your answers, you have downloaded music from a file sharing or hosting site such as isoHunt, Btjunkie, Torrentz, etc.

	Online copyright questionnaire minors
	What type of music did you last download from such a site? If MIN(q6d) > MIN(q6e) (respondent ticked off a more recent period for illegal stream compared to illegal download) According to your answers, you have streamed music from a file sharing or hosting site such as Hypster, Musicplayon, NOSEQ, etc. What type of music did you last stream from such a site? a. Alternative & Indie b. Blues, jazz, R&B, Soul c. Children's Music d. Classical e. Dance & Electronic f. Easy Listening g. Folk & Songwriter h. Hard Rock & Metal i. Miscellaneous j. Pop k. Rap & Hip-Hop l. Reggae m. Rock n. Soundtracks & Musicals o. World Music
	RESPONDENTS WHO LAST DOWNLOADED OR STREAMED MUSIC UNLAWFULLY MUSIC_PRICE_-3 = less than £ 0.10 MUSIC_PRICE_-2 = between £ 0.10 and 0.25 MUSIC_PRICE_-1 = between £ 0.25 and 0.50 MUSIC_PRICE_0 = between £ 0.50 and 0.75 MUSIC_PRICE_+1 = between £ 0.75 and 1.00 MUSIC_PRICE_+2 = between £ 1.00 and 1.50 MUSIC_PRICE_+3 = more than £ 1.50
24.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED MUSIC UNLAWFULLY* If (LAST_UNLAWFUL = Music) If q6d ≤ q6e (respondent ticked off the same or a more recent period for illegal download compared to illegal stream) Suppose that the music you downloaded had been removed from all file sharing and hosting sites and can only be downloaded from a new pay site.

	Online copyright questionnaire minors
	On that new pay site, availability of tracks, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded from. If q6d > q6e (respondent ticked off a more recent period for illegal stream compared to illegal download) Suppose that the music you streamed had been removed from all file sharing and hosting sites and can only be streamed from a new pay site. *Note: on that new pay site, availability of tracks, play speed, presence or absence of advertisements and copy restrictions are the same as the site you streamed from.* What is the maximum price range you are likely to pay or ask an adult to pay for the track? MUSIC_PRICE_-3 | MUSIC_PRICE_-2 | MUSIC_PRICE_-1 | MUSIC_PRICE_0 | MUSIC_PRICE_+1 | MUSIC_PRICE_+2 | MUSIC_PRICE_+3
	LAST_UNLAWFUL = FILM OR TV *(SIMILAR AS FOR MUSIC ABOVE)*
23B.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED FILM OR TV SERIES UNLAWFULLY* If LAST_UNLAWFUL = Film or TV-series If q10e ≤ q10f (respondent ticked off the same or a more recent period for illegal download compared to illegal stream) According to your answers, you have downloaded a film or TV-series from a file sharing or hosting site such as The Pirate Bay, Mega-upload, Rapidshare, Torrents, etc. What type of film or TV-series did you last download from such a site? a. TV series of the last 2 years b. TV series more than 2 years old c. Film of the last 2 years d. Film more than 2 years old If q10e > q10f (respondent ticked off the same or a more recent period for illegal stream compared to illegal download) According to your answers, you have streamed a film or TV-series from a file sharing or hosting site such as Usenet, iiTV, etc.

	Online copyright questionnaire minors
	What type of film or TV-series did you last stream from such a site? a. TV series of the last 2 years b. TV series more than 2 years old c. Film of the last 2 years d. Film more than 2 years old
	FILM_TV_PRICE_-3 = less than £ 2 FILM_TV_PRICE_-2 = between £ 2 and 4 FILM_TV_PRICE_-1 = between £ 4 and 7 FILM_TV_PRICE_0 = between £ 7 and 10 FILM_TV_PRICE_+1 = between £ 10 and 15 FILM_TV_PRICE_+2 = between £ 15 and 20 FILM_TV_PRICE_+3 = more than £ 20

24B.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED FILM OR TV SERIES UNLAWFULLY*
	
	If (LAST_UNLAWFUL = Film or TV-series)
	
	If (Q23B = a or b) AND (MIN(10e) ≤ MIN(10f))
	(respondent ticked off the same or a more recent period for illegal download compared to illegal stream; TV)
	
	Suppose that this TV-series had been removed from all file sharing and hosting sites can only be downloaded from a new pay site.
	
	On that new pay site, availability of TV-series, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded from.
	
	What is the maximum price range you are likely to pay or ask an adult to pay for an episode of that TV-series?
	
	FILM_TV_PRICE_-3 | FILM_TV_PRICE_-2 | FILM_TV_PRICE_-1 | FILM_TV_PRICE_0 | FILM_TV_PRICE_+1 | FILM_TV_PRICE_+2 | FILM_TV_PRICE_+3
	
	--- 	
	
	If (Q23B ≥ c) AND (q10e ≤ q10f)
	(respondent ticked off the same or a more recent period for illegal download compared to illegal stream; film)
	
	Suppose that this film had been removed from all file sharing and hosting sites and can only be downloaded from a new pay site.

On that new pay site, availability of films, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded from.

What is the maximum price range you are likely to pay or ask an adult to pay for that film?

FILM_TV_ PRICE_-3	FILM_TV_ PRICE_-2	FILM_TV_ PRICE_-1	FILM_TV_ PRICE_0	FILM_TV_ PRICE_+1	FILM_TV_ PRICE_+2	FILM_TV_ PRICE_+3

If (Q23B = a or b) AND (q10e > q10f)
(respondent ticked off the same or a more recent period for illegal stream compared to illegal download; TV)

Suppose that this TV-series had been removed from all file sharing and hosting sites and can only be streamed from a new pay site.

On that new pay site, availability of TV-series, play speed, presence or absence of advertisements and copy restrictions are the same as the site you streamed from.

What is the maximum price range you are likely to pay or ask an adult to pay for an episode of that TV-series?

FILM_TV_ PRICE_-3	FILM_TV_ PRICE_-2	FILM_TV_ PRICE_-1	FILM_TV_ PRICE_0	FILM_TV_ PRICE_+1	FILM_TV_ PRICE_+2	FILM_TV_ PRICE_+3

If (Q23B ≥ c) AND (q10e > q10f)
(respondent ticked off the same or a more recent period for illegal stream compared to illegal download; film)

Suppose that this film had been removed from all file sharing and hosting sites and can only be streamed from a new pay site.

On that new pay site, availability of films, play speed, presence or absence of advertisements and copy restrictions are the same as the site you streamed from.

What is the maximum price range you are likely to pay or ask an adult to pay for that film?

FILM_TV_ PRICE_-3	FILM_TV_ PRICE_-2	FILM_TV_ PRICE_-1	FILM_TV_ PRICE_0	FILM_TV_ PRICE_+1	FILM_TV_ PRICE_+2	FILM_TV_ PRICE_+3

LAST_UNLAWFUL = E-BOOK

(SIMILAR AS FOR MUSIC ABOVE)

	Online copyright questionnaire minors
23C.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED AN E-BOOK UNLAWFULLY* If LAST_UNLAWFUL = E-book If q14e ≤ q14f (respondent ticked off the same or a more recent period for illegal download compared to illegal stream) According to your answers, you have downloaded an e-book or audio book from a file sharing or hosting site such as The Pirate Bay, Mega-upload, Scribd, library.nu, etc. What type of book did you last download from such a site? If q14e > q14f (respondent ticked off the same or a more recent period for illegal stream compared to illegal download) According to your answers, you have streamed an e-book or audio book from a file sharing or hosting site such as slideshare, etc. What type of book did you last view from such a site? a. An audio book b. An e-book novel (including crime, literature, romance, science fiction, fantasy) c. An e-book, nonfiction (including biography, history, politics, social sciences) d. An e-book, professional (including computing, business, finance, math, science, technical) e. An e-book, art & photography f. An children's e-book g. An e-book, comics & graphic novels h. An e-book, education & reference i. An e-book, leisure (including food & drink, health & fitness, home & garden, sport) j. An e-book, counselling (including self-help, parenting & families religion & spirituality) k. An e-book, gay & lesbian or teen l. An e-book, travel guide m. An e-book, humour
	EBOOK_PRICE_-3 = less than £ 2 EBOOK_PRICE_-2 = between £ 2 and 4 EBOOK_PRICE_-1 = between £ 4 and 6 EBOOK_PRICE_0 = between £ 6 and 10 EBOOK_PRICE_+1 = between £ 10 and 15 EBOOK_PRICE_+2 = between £ 15 and 25 EBOOK_PRICE_+3 = more than £ 25

	Online copyright questionnaire minors

24C.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED AN E-BOOK UNLAWFULLY*
	
	If (LAST_UNLAWFUL = E-book)
	
	If (Q23C = a) and (q14e ≤ q14f)
	(respondent ticked off the same or a more recent period for illegal download compared to illegal stream, audio)
	
	Suppose that this audio book had been removed from all file sharing and hosting sites and can only be downloaded from a new pay site.
	
	On that new pay site, availability of audio books, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded from.
	
	What is the maximum price range you are likely to pay or ask an adult to pay for that audio book?
	
	EBOOK_PRICE_-3 | EBOOK_PRICE_-2 | EBOOK_PRICE_-1 | EBOOK_PRICE_0 | EBOOK_PRICE_+1 | EBOOK_PRICE_+2 | EBOOK_PRICE_+3
	
	--- 	
	If (Q23C ≥ b) and (q14e ≤ q14f)
	(respondent ticked off the same or a more recent period for illegal download compared to illegal stream, e-book)
	
	Suppose that this e-book had been removed from all file sharing and hosting sites and can only be downloaded from a new pay site.
	
	On that new pay site, availability of e-books, download speed, presence or absence of advertisements and copy restrictions are the same as the site you downloaded or streamed from.
	
	What is the maximum price range you are likely to pay or ask an adult to pay for that e-book?
	
	EBOOK_PRICE_-3 | EBOOK_PRICE_-2 | EBOOK_PRICE_-1 | EBOOK_PRICE_0 | EBOOK_PRICE_+1 | EBOOK_PRICE_+2 | EBOOK_PRICE_+3
	
	--- 	
	If (Q23C =a) and (q14e > q14f)
	(respondent ticked off the same or a more recent period for illegal stream compared to illegal download, audio)
	
	Suppose that this audio book had been removed from all file sharing and hosting sites and can only be listened to from a new pay site.
	
	On that new pay site, availability of audio books, play speed, presence or absence of advertisements and copy restrictions are the same as the site you listened to.

	Online copyright questionnaire minors
	What is the maximum price range you are likely to pay or ask an adult to pay for that audio book? EBOOK_PRICE_-3 | EBOOK_PRICE_-2 | EBOOK_PRICE_-1 | EBOOK_PRICE_0 | EBOOK_PRICE_+1 | EBOOK_PRICE_+2 | EBOOK_PRICE_+3 --- If (Q23C ≥ b) and (q14e > q14f) (respondent ticked off the same or a more recent period for illegal stream compared to illegal download, audio) Suppose that this e-book had been removed from all file sharing and hosting sites and can only be viewed from a new pay site. *On that new pay site, availability of e-books, view speed, presence or absence of advertisements and copy restrictions are the same as the site you viewed from.* What is the maximum price range you are likely to pay or ask an adult to pay for that e-book? EBOOK_PRICE_-3 | EBOOK_PRICE_-2 | EBOOK_PRICE_-1 | EBOOK_PRICE_0 | EBOOK_PRICE_+1 | EBOOK_PRICE_+2 | EBOOK_PRICE_+3
	If 24C = Filled in: Book counter = Book counter + 1
	LAST_UNLAWFUL = COMPUTER GAME *(SIMILAR AS FOR MUSIC ABOVE)*
23D.	*RESPONDENTS WHO LAST DOWNLOADED OR STREAMED A GAME UNLAWFULLY* If LAST_UNLAWFUL = Computer game According to your answers, you last played a computer/video game from a file sharing or hosting site such as Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames, etc. or from a chipped, modded or flashed console. What type was the last of these games you played? a. A Mass online Role Playing Game (MORPG) b. A shooter game c. A racing game d. A puzzle game e. Otherwise, please explain

GAME_PRICE_-3 = less than £ 1
GAME_PRICE_-2 = between £ 1 and 2
GAME_PRICE_-1 = between £ 2 and 3
GAME_PRICE_0 = between £ 3 and 5
GAME_PRICE_+1 = between £ 5 and 7
GAME_PRICE_+2 = between £ 7 and 10
GAME_PRICE_+3 = more than £ 10

24D. *RESPONDENTS WHO LAST DOWNLOADED OR STREAMED A GAME UNLAWFULLY*

If (LAST_UNLAWFUL = Computer game)

Suppose that this game had been removed from all file sharing or hosting sites and cannot be played from a chipped, modded or flashed console, but can only be played for a monthly subscription on a new pay site.

On that new pay site, game content/levels, frame speed (smooth play), presence or absence of advertisements and copy restrictions are the same as the site you downloaded or played from. The game comes with a free trial of 10 hours of game play after which the subscription fee is charged.

What is the maximum price range you are likely to pay or ask an adult to pay for one month of playing that game?

GAME_ PRICE_-3	GAME_ PRICE_-2	GAME_ PRICE_-1	GAME_ PRICE_0	GAME_ PRICE_+1	GAME_ PRICE_+2	GAME_ PRICE_+3

If 24D = Filled in: Game counter = Game counter + 1

25. *ALL RESPONDENTS WHO ANSWERED AT LEAST ONE WTP QUESTION*

If (q24 = Filled in OR q24B = Filled in OR q24C = Filled in OR q24D = Filled in)
Note of researcher (not for respondent): this question is used to flag possible unreliability of answers if answering the willingness to pay questions was very hard.

How easy or hard was it to answer the three questions about your willingness to pay

a. Very easy	b. Easy	c. Not easy or hard	d. Hard	e. Very hard

VARIOUS GENERAL QUESTIONS

	Online copyright questionnaire minors
26.	*ALL RESPONDENTS* Researcher comment (not for respondent): educational level is a standard and significant control variable in piracy studies Do you currently attend education or professional training? ❑ Yes ❑ No
27.	*ALL RESPONDENTS* Researcher comment (not for respondent): educational level is a standard and significant control variable in piracy studies If 26 = Yes (currently attends education or professional training): What is the level of the education or professional training you currently attend? If 26 = No: What is the highest level of education or professional training you successfully completed? ❑ Primary school or none ❑ Lower secondary education / intermediate qualification ❑ Upper secondary education / full maturity certificate ❑ Further education ❑ Higher education
28.	*ALL RESPONDENTS* Researcher comment (not for respondent): employment status indicates both income and leisure time Did you do any work for pay or profit during the last week? ❑ Yes ❑ No
29.	*ALL RESPONDENTS* Researcher comment (not for respondent): DangNguyen, Dejean and Moreau use an elaborate version of this question for adults as an IV. How often do you use internet for homework or to read news: Every day | At least each week | At least each month | Rarely or never

	Online copyright questionnaire minors
30.	*ALL RESPONDENTS* Researcher comment (not for respondent): the idea is to instrument for certain moral attitudes that are arguably correlated with the propensity of illegal downloading or streaming, but not with preferences for music, audio-visual, books or computer games. The examples do not immediately harm others as is the case with illegal downloading or streaming. *If no one else is around, do you consider the following behaviour acceptable:* a. Jaywalking Totally not | Mostly not | Slightly not | Undecided | Slightly yes | Mostly yes | Totally yes b. Travelling in public transportation without a fare Totally not | Mostly not | Slightly not | Undecided | Slightly yes | Mostly yes | Totally yes c. Going over a red light when there is no traffic? Totally not | Mostly not | Slightly not | Undecided | Slightly yes | Mostly yes | Totally yes d. Photographing with flashlight in a museum where that's not allowed Totally not | Mostly not | Slightly not | Undecided | Slightly yes | Mostly yes | Totally yes e. Lying about your age when you buy alcoholic beverages/tobacco/cinema ticket Totally not | Mostly not | Slightly not | Undecided | Slightly yes | Mostly yes | Totally yes f. Borrowing money without telling your parents Totally not | Mostly not | Slightly not | Undecided | Slightly yes | Mostly yes | Totally yes g. Forgetting a promise to do community work Totally not | Mostly not | Slightly not | Undecided | Slightly yes | Mostly yes | Totally yes
	List of 100 films

	Online copyright questionnaire minors		
31.	*We present a list of popular films in the past 3 years. Please select which you have seen.*		
	Snow White and the Huntsman	The Adventures of Tintin	Anchorman 2: The Legend Continues
	Turbo	Magic Mike	Looper
	The King's Speech	Life of Pi	Sherlock Holmes: A Game of Shadows
	The Great Gatsby (2013)	Puss in Boots	Hotel Transylvania
	Madagascar 3: Europe's Most Wanted	Titanic 3D	Kung Fu Panda 2
	Man of Steel	Tangled	Jack Reacher
	Iron Man 3	The Best Exotic Marigold Hotel	The Hunger Games
	The Hunger Games: Catching Fire	Johnny English Reborn	Captain Phillips
	The Bourne Legacy	The Croods	MIB 3
	The Hangover Part II	The Hangover Part III	The Pirates! Band of Misfits
	Tinker, Tailor, Soldier, Spy	Monsters University	Cloudy with a Chance of Meatballs 2
	The Amazing Spider-Man	Ice Age: Continental Drift	Les Miserables (2012)
	The Twilight Saga: Breaking Dawn Part 1	The Twilight Saga: Breaking Dawn Part 2	American Reunion
	The Impossible	The Conjuring	Despicable Me 2
	The Lion King (in 3D)	Bridesmaids	The Muppets
	The Woman in Black	The Girl with the Dragon Tattoo (2011)	Prometheus
	The Avengers (2012)	Paul	Gravity
	Rise of the Planets of the Apes	The Iron Lady	The Dark Knight Rises
	Fast & Furious 6	The Smurfs	The Smurfs 2
	Now You See Me	Alvin and the Chipmunks: Chipwrecked	Fast Five
	Rio	Elysium	Ted
	Django Unchained	Arthur Christmas	Thor
	Thor: The Dark World	Gnomeo and Juliet	World War Z
	Rise of the Guardians	The Hobbit: An unexpected Journey	The Hobbit: The Desolation of Smaug
	Harry Potter and the Deathly Hallows (Part Two)	Pirates of the Caribbean: On Stranger Tides (3D)	Oblivion
	War Horse	Philomena	The Inbetweeners Movie
	Diary of a Wimpy Kid: Dog Days	Black Swan	X-Men: First Class
	Nativity 2	Transformers 3	Oz The Great and Powerful
	21 Jump Street	Rush (2013)	The Descendants
	Skyfall	Epic	Mission: Impossible - Ghost Protocol
	Cars 2	A Good Day to Die Hard	The Wolverine
	Star Trek Into Darkness	Brave	American Hustle
	Wreck-It Ralph	The Dictator	Taken 2
	Frozen (2013)		

	Online copyright questionnaire minors
32.	*NOTE: only present films that the respondent has selected above* Present a maximum of 20 films in a random order on one page (no need here to keep sequels together) The films are randomized both for respondents who ticked off 20 films or more, and those who ticked off less than 20 films. If < 20 films ticked off ***Please indicate how you have seen the film.*** If ≥ 20 films ticked off: ***Please indicate how you have seen the following 20 films.*** *Some films you may have seen twice. If so, please also indicate how you saw it the second time. For example if you saw a film first in the cinema and then downloaded it from a file sharing or hosting site, please tick the box "Cinema" under seen 1st time and "File sharing or hosting site" under seen 2nd time.*

	Seen 1st time					Seen 2nd time					
	Cinema	Legal download, streaming or video on demand	DVD or Blu-Ray disk	File sharing or hosting site	TV (pay or free broadcast)	Cinema	Legal download, streaming or video on demand	DVD or Blu-Ray disk	File sharing or hosting site	TV (pay or free broadcast)	Not seen 2nd time
Random film 1											
Random film 2											
Random film 3											
Random film 4											
Random film 5											
Random film 6											
Random film 7											
Random film 8											
Random film 9											

	Online copyright questionnaire minors											
	Random film 10											
	Random film 11											
	Random film 12											
	Random film 13											
	Random film 14											
	Random film 15											
	Random film 16											
	Random film 17											
	Random film 18											
	Random film 19											
	Random film 20											
33.	*ALL RESPONDENTS* *The next three questions will be used to determine the region you live in. Your information will only be used to publish statistics at the regional level (district, county, council area, or metropolitan area)* In what town or city do you live?											
34.	*ALL RESPONDENTS* What is the outer postal code of your address?											
35.	*ALL RESPONDENTS* *(This question is used to determine the so-called Nielsen region of panel members)*											

	Online copyright questionnaire minors
	In which region do you live? ❑ London ❑ Yorkshire & Humberside ❑ East Midlands ❑ East Anglia ❑ South East ❑ South West ❑ West Midlands ❑ North West ❑ Scotland ❑ Wales ❑ Northern Ireland ❑ North East
	Final remarks
36.	**Questions or remarks on this survey or the topic of the survey can be given below.** .... *We thank you cordially for your time and dedication to respond to this survey. Please click on the next button in order to be recorded.*

Country specific questions

Apart from the 100 films, questions about educational level and region where people live, questions differed also between countries with regards to the examples of popular sites presented in the questions about channels used for accessing creative content and numbers of transactions, and the price ranges shown for the last illegal transaction.

Educational levels Q28 (Adults), Q27 (Minors)

DE	ES	FR	PL	SE	UK
Grundschule oder keine	Educación primaria o ninguno	École élémentaire ou aucun	Szkoła podstawowa lub brak	Grundskola år 1-6, eller ingen	Primary school or none
Gymnasium, Realschule, Hauptschule und Äquivalente	Educación secundaria obligatoria	Collège	Gimnazjum	Grundskola år 7-9	Lower secondary education / intermediate qualification
Gymnasiale Oberstufe, Fachoberschule, Berufsfachschule, Berufsschule + Betrieb (1-3 Jahre)	Bachillerato	Lycée	Lyceum, technikum lub zasadnicza szkoła zawodowa	Gymnasie-skola	Upper secondary education / full maturity certificate
Berufsfachschule, Berufsschule + Betrieb (4-5 Jahre), Abendgymnasium/ Kolleg	Cualificación profesional inicial, grados medios	Centre de formation d'apprentis	Szkoły policealne, technikum uzupełniające	Kommunal vuxenutbildning/ Folkhögskola/ Yrkeshögskola	Further education (diploma, certificate etc.)
Universität, Hochschule, Berufsakademie, Fachschule	Enseñanzas universitarias, grados superiores	Université, Grande école, Écoles spécialisées, STS/IUT	Wyzsze Skoly, Akademie, Uczelnia, Kolegium, Politechniki, Uniwersytety	Universitet/ Högskola/ (kandidat, master, licentiat, PhD)	Higher education (university bachelor, master, PhD)

Region of residence Q34-Q35 (Adults), Q33-Q34 (Minors)

DE	In which Kreise or Kreisfreie Stadt do you live? What is the postal code of your address?
ES	In which isla or provincia do you live?
FR	In which departement do you live?
PL	In which town or city do you live? What is the postal code of your address?
SE	In which Län do you live?
UK	In what town or city do you live? What is the outer postal code of your address?

Popular sites - music

Q6b,Q7b,Q8b,Q9b (legal music downloads)	
DE	T-Online Musicload, musicstar, beatport, iTunes
ES	AOL Music, iTunes, jamendo, 7 Digital
FR	Beezic, MusicMe, iTunes, AOL Music
PL	Beatport, iTunes
SE	iTunes, TDC
UK	iTunes, AOL Music, eMusic

Q6c,Q7c,Q8c,Q9c (legal music streams)	
DE	Grooveshark, Last.fm, Soundcloud, Napster, tunestar
ES	Grooveshark, Last.fm, GoEar, Spotify, Radionomy
FR	Deezer, Radionomy, Grooveshark, AlloMusic, Soundcloud
PL	WiMP, Grooveshark
SE	Spotify, WiMP, Radical.fm, Grooveshark
UK	Soundcloud, Grooveshark, Last.fm, Yahoo! Music, Spotify

Q6d,Q7d,Q8d,Q9d, Q23 [if q6d ≤ q6e] (illegal music downloads)	
DE	Canna Power, Rapidshare, torrents, Megaupload
ES	Megaupload, Rapidshare, Dilandau, torrents
FR	Megaupload, torrents, Dilandau, iMesh
PL	Chomikuj, Megaupload
SE	The Pirate Bay, torrents
UK	isoHunt, Btjunkie, Torrentz

Q6e,Q7e,Q8e,Q9e Q23 [if q6d > q6e] (illegal music streams)	
DE	Jukebox-heroes-radio, Hypster, Musicplayon, NOSEQ
ES	Fulltono, NOSEQ, Enladisco
FR	Hypster, Musicplayon, NOSEQ
PL	Hypster, Musicplayon, NOSEQ
SE	Hypster, Musicplayon, NOSEQ
UK	Hypster, Musicplayon, NOSEQ

Sources:
DE, ES, FR: Aguiar and Mertens (2012)
DE, PL, SE: interview with CitySlang
SE: Interview with Musicplayground
PL and SE illegal music streams: similar site as for FR and UK used

Popular sites - audiovisual

Q10c,Q11c,Q12c,Q13c (legal film / TV-series downloads)

DE	Sky.de
ES	Cineclick, filmin, PLAT
FR	Uptobox, YouTube
PL	Cineman
SE	Zune Video
UK	Blinkbox, Apple TV

Q10d,Q11d,Q12d,Q13d (legal film / TV-series streams)

DE	A1TV, LoveFilm
ES	Movistar, Orange TV
FR	Canal+, INA, MegaVOD
PL	IPLA, VOD, TVN Player
SE	Netflix, SVT, Voddler
UK	YouTube, Film 4OD, Netflix

Q10e,Q11e,Q12e,Q13e, Q23B [if q10e ≤ q10f] (illegal film / TV-series downloads)

DE	MegaUpload, Movie2K
ES	Badongo, taringa.net,
FR	Cpasbien, torrents
PL	Chomikuj
SE	The Pirate Bay, torrents
UK	The Pirate Bay, Mega-upload, Rapidshare, Torrents

Q10f,Q11f,Q12f,Q13f, Q23B [if q10e > q10f] (illegal film / TV-series streams)

DE	Kinox.to
ES	Peliculas Yonkis
FR	Allostreaming, DP Stream
PL	iiTV
SE	Swefilmer
UK	Usenet, iiTV

Sources:

DE, ES, FR, PL, SE, UK: interview with FIAPF

From the sites mentioned, those with (by far) most google hits including country name (Deutschland, Espana, France, Sverige) were selected

FR: Hadopi publications

PL: interview with KIPLA

SE: http://www.thelocal.se/20130429/47614

Popular sites - books

Q14c,Q15c,Q16c,Q17c (legal book downloads)	
DE	Thalia.de
ES	Casadellibro.com, Nook
FR	BNF, Chapitre.com, Amazon.fr
PL	Empik.pl
SE	Bokus.com
UK	thebookdepository, kobo, iBooks, Nook

Q14d,Q15d,Q16d,Q17d (legal book streams)	
DE	Oyster
ES	Oyster
FR	Oyster
PL	Oyster
SE	Oyster
UK	CourseSmart, Overdrive, eBooks

Q14e,Q15e,Q16e,Q17e, Q23C [if q14e ≤ q14f] (illegal book downloads)	
DE	Bookos.org, The Pirate Bay
ES	Epubgratis, The Pirate Bay
FR	Vosbooks, The Pirate Bay
PL	Chomikuj, The Pirate Bay
SE	Bookos.org, The Pirate Bay
UK	The Pirate Bay, Rapidshare, bookos.org

Q14f,Q15f,Q16f,Q17f, Q23C [if q14e > q14f] (illegal book views)	
DE	Slideshare
ES	slideshare
FR	slideshare
PL	slideshare
SE	slideshare
UK	slideshare

Sources:
www.legalnakultura.pl
www.offrelegale.fr

Legal book streams: many references to Oyster in news of all countries, many hits on internet search on "Oyster ebooks Deutschland / Espana etc.".

Scribd is not included among legal book streams since a lawsuit against it was started in 2009 though it was dropped in 2010. Scribd is a system where authors can upload their books, and a certain portion of the uploads are alleged to be illegal.

Popular sites - games

Q18b,Q19b,Q20b,Q21b (legal game downloads)	
DE	JPC, Amazon
ES	Xtralive.es, Amazon
FR	Cultura, Amazon
PL	Allegro, Amazon
SE	CDON, Amazon
UK	Amazon, GAME

Q18c,Q19c,Q20c,Q21c (legal game streams)	
DE	Google Play, App-store etc.
ES	Google Play, App-store etc.
FR	Google Play, App-store etc.
PL	Google Play, App-store etc.
SE	Google Play, App-store etc.
UK	Google Play, App-store etc.

Q18d,Q19d,Q20d,Q21d (paid-for cloud gaming)	
DE	Gaikai or Onlive
ES	Gaikai or Onlive
FR	Gaikai or Onlive
PL	Gaikai or Onlive
SE	Gaikai or Onlive
UK	Gaikai or Onlive

Q18e,Q19e,Q20e,Q21e (new free online games)	
DE	Spielen.com, Jetztspielen, Bildspielt, Spielaffe
ES	Juegos.com
FR	Jeux.fr, Funnygames
PL	Gry.pl
SE	Spela.se
UK	Miniclip

Q18e,Q19e,Q20e,Q21e, Q23D (illegal downloads)	
DE	Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames
ES	Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames
FR	Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames
PL	Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames
SE	Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames
UK	Top 10 Games, Aomine, Icore Games, Goomia, Torrents, Fullypcgames

Source:
Interview with EGDF: Games are distributed globally.
For legal game downloads, sites of retail companies with many Google hits that provide download services are presented
For "new free (online) games", the sites with most Google hits are shown, in most countries one site dwarfs all others in number of hits.

PRICE RANGES ADULTS

Please indicate prices as "Between € [lower price] and [upper price]" (as for UK adults) and similarly for zł (Poland) and SEK (Sweden).

Music

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	.10-.30	.30-.60	.60-.80	.80-1.0	1.0-1.3	1.3-1.8	1.8-2.8
ES, €	.05-.10	.10-.30	.30-.60	.60-.80	.80-1.0	1.0-1.4	1.4-2.0
FR, €	.10-.30	.30-.50	.50-.70	.70-1.0	1.0-1.3	1.3-1.8	1.8-2.8
PL, zł	.5-1.5	1.5-2.5	2.5-3	3-4	4-6	6-8	8-12
SE, SEK	1-3	3-5	5-7	7-9	9-12	12-15	15-25
UK, £	.05-.10	.10-.25	.25-.50	.50-.75	.75-1.0	1.0-1.5	1.5-2.5

Source: DE, ES, UK: interviews
SE, PL, FR: iTunes Sverige, iTunes Polska, iTunes France
Polish: iTunes euro's converted to zł

Film / episode

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	2-4	4-6	6-8	8-10	10-12	12-15	15-25
ES, €	2-5	5-7	7-10	10-13	13-17	17-22	22-30
FR, €	2-5	5-7	7-10	10-13	13-17	17-22	22-30
PL, zł	10-20	20-30	30-40	40-50	50-70	70-90	90-120
SE, SEK	40-70	70-100	100-120	120-140	140-170	170-250	250-300
UK, £	1-2	2-4	4-7	7-10	10-15	15-20	20-30

Source: iTunes (Deutschland, Espana, France, Polska, Sverige)
Polish: iTunes euro's converted to zł

Books

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	1-2	2-4	4-6	6-10	10-15	15-25	25-50
ES, €	1-2	2-3	3-4	4-6	6-10	10-18	18-35
FR, €	1-2	2-3	3-5	5-7	7-10	10-20	20-40
PL, zł	4-8	8-12	12-20	20-30	30-40	40-80	80-150
SE, SEK	10-20	20-40	40-60	80-100	100-150	150-250	250-500
UK, £	1-2	2-4	4-6	6-10	10-15	15-25	25-50

Source: iTunes (Deutschland, Espana, France, Polska, Sverige),
Polish: iTunes euro's converted to zł

Games

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	1-2	2-3	3-5	5-7	7-10	10-15	15-20
ES, €	1-2	2-3	3-5	5-7	7-10	10-15	15-20
FR, €	1-2	2-3	3-5	5-7	7-10	10-15	15-20
PL, zł	4-8	8-12	12-20	20-30	30-40	40-60	60-80
SE, SEK	10-20	20-30	30-50	50-70	70-100	100-150	150-200
UK, £	.5-1	1-2	2-3	3-5	5-7	7-10	10-15

Source: FIFA, Runescape for the middle price, Wow for the upper price
Polish and Swedish: euro's converted to national currencies

PRICE RANGES MINORS

Please indicate price ranges as "Less than € [Price Range[-3]]", "More than € [Price Range[+3]]" and "Between € [lower price] and [upper price]" as for UK minors and similarly for zł (Poland) and SEK (Sweden). All amounts are the same as for adults.

Music

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	< .30	.30-.60	.60-.80	.80-1.0	1.0-1.3	1.3-1.8	> 1.8
ES, €	< .10	.10-.30	.30-.60	.60-.80	.80-1.0	1.0-1.4	> 1.4
FR, €	< .30	.30-.50	.50-.70	.70-1.0	1.0-1.3	1.3-1.8	> 1.8
PL, zł	< 1.5	1.5-2.5	2.5-3	3-4	4-6	6-8	> 8
SE, SEK	< 3	3-5	5-7	7-9	9-12	12-15	> 15
UK, £	< .10	.10-.25	.25-.50	.50-.75	.75-1.0	1.0-1.5	> 1.5

Film / episode

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	< 4	4-6	6-8	8-10	10-12	12-15	> 15
ES, €	< 5	5-7	7-10	10-13	13-17	17-22	> 22
FR, €	< 5	5-7	7-10	10-13	13-17	17-22	> 22
PL, zł	< 20	20-30	30-40	40-50	50-70	70-90	> 90
SE, SEK	< 70	70-100	100-120	120-140	140-170	170-250	> 250
UK, £	< 2	2-4	4-7	7-10	10-15	15-20	> 20

Books

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	< 2	2-4	4-6	6-10	10-15	15-25	> 25
ES, €	< 2	2-3	3-4	4-6	6-10	10-18	> 18
FR, €	< 2	2-3	3-5	5-7	7-10	10-20	> 20
PL, zł	< 8	8-12	12-20	20-30	30-40	40-80	> 80
SE, SEK	< 20	20-40	40-60	60-100	100-150	150-250	> 250
UK, £	< 2	2-4	4-6	6-10	10-15	15-25	> 25

Games

Country	[-3]	[-2]	[-1]	[0]	[+1]	[+2]	[+3]
DE, €	< 2	2-3	3-5	5-7	7-10	10-15	> 15
ES, €	< 2	2-3	3-5	5-7	7-10	10-15	> 15
FR, €	< 2	2-3	3-5	5-7	7-10	10-15	> 15
PL, zł	< 8	8-12	12-20	20-30	30-40	40-60	> 60
SE, SEK	< 20	20-30	30-50	50-70	70-100	100-150	> 150
UK, £	< 1	1-2	2-3	3-5	5-7	7-10	> 10

Lists of 100 films

United Kingdom

2011	2012	2013
Harry Potter and the Deathly Hallows (Part Two)	Skyfall	Despicable Me 2
The King's Speech	The Dark Knight Rises	The Hobbit: The Desolation of Smaug
The Inbetweeners Movie	The Avengers (2012)	Frozen (2013)
Pirates of the Caribbean: On Stranger Tides (3D)	The Hobbit: An Unexpected Journey	Les Miserables (2012)
The Hangover Part II	The Twilight Saga: Breaking Dawn Part 2	Iron Man 3
The Twilight Saga: Breaking Dawn Part 1	Ted	The Hunger Games: Catching Fire
Transformers 3	Ice Age: Continental Drift	Gravity
Sherlock Holmes: A Game of Shadows	Life of Pi	Monsters University
Bridesmaids	The Amazing Spider-Man	Man of Steel
Arthur Christmas	Prometheus	The Croods
Johnny English Reborn	Taken 2	Star Trek Into Darkness
Tangled	The Hunger Games	Fast & Furious 6
Rise of the Planet of the Apes	Brave	Wreck-It Ralph
Fast Five	The Woman in Black	Thor: The Dark World
Mission: Impossible - Ghost Protocol	Madagascar 3: Europe's Most Wanted	The Hangover Part III
The Smurfs	MIB 3	Captain Phillips
Kung Fu Panda 2	The Best Exotic Marigold Hotel	Django Unchained
Black Swan	War Horse	The Great Gatsby (2013)
The Adventures of Tintin	The Muppets	Anchorman 2: The Legend Continues
Gnomeo and Juliet	The Pirates! Band of Misfits	Oz The Great and Powerful
Cars 2	American Reunion	American Hustle
X-Men: First Class	Snow White and the Huntsman	World War Z
Puss in Boots	Rise of the Guardians	The Wolverine
Alvin and the Chipmunks: Chipwrecked	The Dictator	Epic
Paul	The Bourne Legacy	The Impossible
Tinker, Tailor, Soldier, Spy	Titanic 3D	Cloudy with a Chance of Meatballs 2
Thor	Looper	Turbo
Rio	21 Jump Street	The Smurfs 2
The Lion King (in 3D)	The Iron Lady	Philomena
The Girl with the Dragon Tattoo (2011)	Jack Reacher	Now You See Me
	Nativity 2	A Good Day to Die Hard
	Magic Mike	Oblivion
	The Descendants	The Conjuring
	Diary of a Wimpy Kid: Dog Days	Rush (2013)
	Hotel Transylvania	Elysium

Germany

2011	2012	2013
Harry Potter und die Heiligtümer des Todes - Teil 2	Ziemlich beste Freunde	Fack ju Göhte
Pirates of the Caribbean - Fremde Gezeiten	Skyfall	Der Hobbit: Smaugs Einöde
Kokowääh	Ice Age 4 - Voll verschoben	Django Unchained
Hangover 2	Der Hobbit: Eine unerwartete Reise	Ich - Einfach Unverbesserlich 2
Breaking Dawn - Bis(s) zum Ende der Nacht: Teil 1	Madagascar 3: Flucht durch Europa	Die Tribute von Panem - Catching Fire
Die Schlümpfe	Breaking Dawn - Bis(s) zum Ende der Nacht: Teil 2	Die Eiskönigin - Völlig unverfroren
Transformers 3	Ted	Hangover 3
Fast & Furious Five	The Dark Knight Rises	Fast & Furious 6
The King's Speech	American Pie: Das Klassentreffen	Kokowääh 2
Black Swan	Türkisch für Anfänger	Schlussmacher
Der gestiefelte Kater	Marvel's The Avengers	Die Schlümpfe 2
Der Zoowärter	Men in Black 3	Die Croods
Kung Fu Panda 2	Die Tribute von Panem - The Hunger Games	Iron Man 3
Bad Teacher	Snow White & the Huntsman	Life of Pi: Schiffbruch mit Tiger
Cars 2	The Amazing Spider-Man	Stirb langsam - Ein guter Tag zum Sterben
What a Man	Merida - Legende der Highlands	Star Trek: Into Darkness
Rio	Der Diktator	Kindsköpfe 2
Wickie auf großer Fahrt	The Expendables 2	Die Monster Uni
Johnny English - Jetzt erst recht	Alvin und die Chipmunks 3: Chipbruch	Thor - The Dark Kingdom
Almanya - Willkommen in Deutschland	Hotel Transsilvanien	World War Z
Männerherzen… und die ganz, ganz große Liebe	96 Hours - Taken 2	Hänsel und Gretel: Hexenjäger
Die Abenteuer von Tim und Struppi	Prometheus - Dunkle Zeichen	Der große Gatsby
Rapunzel - Neu verföhnt	Cloud Atlas	Gravity
Meine erfundene Frau	Fünf Freunde	Wir sind die Millers
Die drei Musketiere	Step Up: Miami Heat	Frau Ella
Planet der Affen: Prevolution	Dark Shadows	White House Down
Thor	Star Wars: Episode I - Die dunkle Bedrohung 3D	Die fantastische Welt von Oz
Freunde mit gewissen Vorzügen	Battleship	Turbo - Kleine Schnecke, großer Traum
Rubbeldiekatz	Verblendung	Fünf Freunde 2
The Tourist	Für immer Liebe	Epic - Verborgenes Königreich
	Hanni & Nanni 2	Wolkig mit Aussicht auf Fleischbällchen 2
	Paranormal Activity 4	Der Medicus
	Das Schwergewicht	Lone Ranger
	Die Piraten! - Ein Haufen merkwürdiger Typen	Elysium
	Mann tut was Mann kann	Feuchtgebiete

Spain

2011	2012	2013
Torrente 4	Lo imposible	El Hobbit: La desolación de Smaug
Piratas del Caribe. En mareas misteriosas	La Saga Crepúsculo: Amanecer - Parte 2	Frozen: El reino del hielo
La saga Crepúsculo: Amanecer - Parte 1	El Hobbit: Un viaje inesperado	Los Croods: una aventura prehistórica
Harry Potter y las reliquias de la muerte - Parte 2	Las aventuras de Tadeo Jones	Gru - Mi villano favorito 2
El gato con botas	Intocable	Guerra mundial Z
Enredados	Los Vengadores	Los juegos del hambre: En llamas
Los Pitufos	Ice Age 4: la formación de los continentes	Monstruos University
El origen del planeta de los simios	Indomable	Django desencadenado
Fast & Furious 5	Tengo ganas de ti	Ahora me ves...
Cisne negro	El caballero oscuro: La leyenda renace	Los pitufos 2
Cars 2	Hotel Transilvania	Iron Man 3
El discurso del rey	Ted	Fast & Furious 6
Más allá de la vida	Skyfall	El lado bueno de las cosas
Las aventuras de Tintín: El secreto del unicornio	Madagascar 3: De marcha por Europa	Gravity
Super 8	Prometheus	Elysium
Rio	¡Rompe Ralph!	Mamá
Thor	La vida de Pi	El hombre de acero
Transformers 3: El lado oscuro de la luna	Blancanieves y la leyenda del cazador	El médico
Kung Fu Panda 2	The Amazing Spider-Man	After Earth
Midnight in Paris	Sherlock Holmes: Juego de sombras	Thor: el mundo oscuro
Resacón 2 ¡Ahora en Tailandia!	Los descendientes	Oblivion
Misión imposible: Protocolo Fantasma	Los miserables	Tres bodas de más
Alvin y las ardillas 3	Los juegos del hambre	Oz, un mundo de fantasía
X-Men: Primera generación	El Lorax	12 años de esclavitud
Gnomeo y Julieta	Hombres de negro III	El llanero solitario
In Time	Argo	La vida secreta de Walter Mitty
Insidious 2	El cuerpo	Expediente Warren
Capitán América: El primer vengador	El origen de los guardianes	Aviones
Immortals	Ira de titanes	Turbo
Rango	La invención de Hugo	Lluvia de albóndigas 2
	John Carter	R3sacón
	Sombras tenebrosas	Zipi y Zape y el club de la canica
	Los mercenarios 2	El mayordomo
	El legado de Bourne	Lincoln
	El invitado	Los amantes pasajeros

France

2011	2012	2013
Intouchables	Skyfall	Moi, moche et méchant 2
Rien à déclarer	L'âge de glace 4: La dérive des continents	Django Unchained
Harry Potter et les reliques de la mort: 2ème partie	Sur la piste du Marsupilami	Iron Man 3
Les aventures de Tintin: Le secret de la Licorne	Twilight: Chapitre 5 - Révélation, 2e partie	Gravity
Pirates des Caraïbes: La fontaine de jouvence	Avengers	Les Profs
Twilight: Chapitre 4 - Révélation, 1ère partie	The Dark Knight Rises	Le Hobbit: La désolation de Smaug
Le Chat potté	La vérité si je mens! 3	La Reine des neiges
La planète des singes: Les origins	Astérix & Obélix: Au service de sa Majesté	Insaisissables
Le discours d'un roi	Madagascar 3: Bons baisers d'Europe	Fast & Furious 6
Cars 2	Le Hobbit: Un voyage inattendu	Hunger Games: l'embrasement
Les Schtroumpfs	Le Prénom	World War Z
Kung Fu Panda 2	Rebelle	Turbo
Black Swan	Taken 2	Les Croods
Transformers 3: La face cachée de la lune	Les Seigneurs	Man of Steel
Fast & Furious 5	The Amazing Spider-Man	Thor: le monde des ténèbres
Very Bad Trip 2	Sherlock Holmes - Jeu d'ombres	Les Schtroumpfs 2
Rio	Les cinq légendes	Les Garçons et Guillaume, à table!
Polisse	Les infidèles	Monstres Academy
Les femmes du 6ème étage	Men in Black 3	Boule et Bill
X-Men: Le commencement	Blanche-Neige et le chasseur	Wolverine: Le combat de l'immortel
Au-delà	Expendables 2: Unité spéciale	9 mois ferme
Hollywoo	Dark Shadows	Le Majordome
Case départ	De rouille et d'os	Very Bad Trip 3
Mission: Impossible - Protocole fantôme	Projet X	Die Hard: Belle journée pour mourir
Un monstre à Paris	Prometheus	Jappeloup
Minuit à Paris	Un bonheur n'arrive jamais seul	Eyjafjallojokull
Thor	Stars 80	Hôtel Transylvanie
The Artist	Cloclo	Belle et Sébastien
Drive	Hunger Games	Les Gamins
La nouvelle guerre des boutons	American Pie 4	Planes
	Mince alors!	Gatsby le magnifique
	Zarafa	Le Monde fantastique d'Oz
	J. Edgar	Elysium
	Clochette et le secret des fées	Percy Jackson: La mer des monstres
	Ted	Blue Jasmine

Poland

2011	2012	2013
Listy do M.	Hobbit: Niezwykła podróż	Hobbit: Pustkowie Smauga
Och, Karol 2	Madagaskar 3	Kraina lodu
Piraci z Karaibów: Na nieznanych wodach	Skyfall	Drogówka
Harry Potter i Insygnia Śmierci: Część II	Epoka lodowcowa 4: Wędrówka kontynentów	Walesa. Czlowiek z nadziei
Bitwa warszawska 1920	Jesteś Bogiem	Smerfy 2
Kac Vegas w Bangkoku	W ciemności	Iron Man 3
Smerfy	Kot w butach	Igrzyska śmierci: w pierścieniu ognia
Jak zostać królem	Saga 'Zmierzch': Przed switem - czesc II	Grawitacja
Auta 2	Nietykalni	Krudowie
Baby są jakieś inne	Mroczny Rycerz powstaje	Układ zamknięty
Sala samobójców	Prometeusz	Potwory i spółka 2
Wyjazd integracyjny	Dziewczyna z tatuażem	Samoloty
Transformers 3	Sherlock Holmes: Gra cieni	Sęp
Kung Fu Panda 2	Alvin i wiewiórki 3	Zambezia
Zupełnie inny weekend	Merida Waleczna	Thor: Mroczny świat
Gnomeo i Julia	Avengers	Minionki rozrabiaja
O północy w Paryzu	Atlas chmur	Iluzja
Saga "Zmierzch": Przed świtem – część 1	Zakochani w Rzymie	Kac Vegas III
Czarny czwartek	Asterix i Obelix: W służbie Jej Królewskiej Mości	Niemożliwe
Rio	Mój rower	Szybcy i wściekli 6
Miś Yogi	Igrzyska smierci	Django
Megamocny	Hotel Transylwania	Zycie Pi
Oszukać przeznaczenie 5	Ted	Ralph Demolka
Czarny łabędź	Róża	Poradnik pozytywnego myslenia
Sanctum (3D)	I że cię nie opuszczę	Tajemnica zielonego królestwa
Jak się pozbyć cellulitu	Renifer Niko ratuje brata	Oszukane
Podróże Guliwera	Uprowadzona 2	Blue Jasmine
Jestem Bogiem	Podróż na Tajemniczą Wyspę	World War Z
Artur ratuje gwiazdkę	American Pie: Zjazd absolwentów	Bejbi blues
Wojna żeńsko-męska	Bitwa pod Wiedniem	Turbo
	Królewna Śnieżka i Łowca	Last Vegas
	Dwoje do poprawki	Oz: Wielki i potezny
	Sztos 2	Millerowie
	Faceci w czerni 3	Elizjum
	Żelazna Dama	Kapitan Phillips

Sweden

2011	2012	2013
Harry Potter och dödsrelikerna, del 2	Skyfall	Hobbit: Smaugs ödemark
Pirates of the Caribbean: I främmande farvatten	Hobbit - en oväntad resa	The Hunger Games: Catching Fire
Tintins äventyr: Enhörningens hemlighet	The Dark Knight Rises	Hundraåringen som klev ut genom fönstret och försvann
Jägarna 2	Ice Age 4: jorden skakar loss	Monica Z
Trassel	Breaking Dawn - del 2	Dumma mej 2
Änglagård - tredje gången gillt	Hamilton - I nationens intresse	Röjar-Ralf
The Twilight Saga: Breaking Dawn - Part 1	Hunger Games	Django Unchained
Bilar 2	Mästerkatten	Iron Man 3
The King's Speech	Avengers	Flygplan
Hur många lingon finns det i världen	En oväntad vänskap	Croodarna
Smurfarna	En gång i Phuket	Fast & Furious 6
Baksmällan del II	Modig	Sune på bilsemester
Svinalängorna	Madagaskar 3	Monsters University
Transformers 3	The Amazing Spider-Man	Smurfarna 2
Bridesmaids	Snabba cash II	World War Z
Åsa-Nisse - wälkom to Knohult	Prometheus	Snabba cash - Livet deluxe
Narnia: Kung Caspian och skeppet Gryningen	Snow White and the Huntsman	Gravity
Kung Fu Panda 2	Cockpit	Thor: The Dark World
Fast & Furious 5	Ted	LasseMajas detektivbyrå - von Broms hemlighet
Sherlock Holmes: A Game of Shadows	Sune i Grekland - all inclusive	Baksmällan - del III
Apornas planet: (r)evolution	Hypnotisören	Känn ingen sorg
The Tourist	Mission: Impossible - Ghost Protocol	Man of Steel
Rio	Simon och ekarna	Mig äger ingen
Black Swan	Palme	Den store Gatsby
The Stig-Helmer Story	Järnladyn	Les misérables
Hotell Gyllene Knorren - filmen	Hotell Transylvanien	Elysium
The Girl with the Dragon Tattoo	Berättelsen om Pi	Turbo
True Grit	Hamilton 2 - men inte om det gäller din dotter	A Good Day to Die Hard
In Time	Mammas pojkar	The Lone Ranger
Alvin och gänget 3	The Dictator	Du gör mig galen!
	Tinker Tailor Soldier Spy	Oblivion
	Taken 2	Oz - The Great and Powerful
	American Pie: Reunion	Hur många kramar finns det i världen
	Men in Black 3	The Wolverine
	Dark Shadows	Små citroner gula

E: WILLINGNESS TO PAY DISTRIBUTIONS

Table 0.1 Max WTP price for music per country

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Germany	27	14	8	12	9	12	18	100
UK	10	9	10	14	19	15	23	100
Spain	28	12	5	13	11	14	17	100
France	44	9	6	17	5	9	10	100
Poland	44	10	9	11	7	8	11	100
Sweden	27	10	7	10	12	9	24	100
Total	33	11	7	13	10	11	16	100

Table 0.2 Max WTP price for films / tv-series per country

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Germany	59	10	5	9	3	4	9	100
UK	47	15	11	12	4	2	9	100
Spain	68	6	4	8	3	3	9	100
France	77	7	3	6	0	3	3	100
Poland	73	4	4	6	3	2	8	100
Sweden	68	9	4	8	4	5	4	100
Total	68	7	5	8	3	3	7	100

Table 0.3 Max WTP price for ebooks per country

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Germany	15	6	12	12	10	13	32	100
UK	9	8	8	10	7	11	47	100
Spain	16	8	11	13	15	12	25	100
France	13	7	15	11	10	10	35	100
Poland	19	9	13	13	15	10	22	100
Sweden	15	10	13	13	11	14	25	100
Total	16	8	12	12	13	11	28	100

Table 0.4 Max WTP price for games per country

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Germany	22	6	10	7	7	12	36	100
UK	16	9	7	9	10	12	37	100
Spain	28	5	9	7	9	9	33	100
France	32	5	12	9	9	7	25	100
Poland	41	7	13	7	7	4	21	100
Sweden	26	5	10	5	13	11	29	100
Total	29	6	10	7	9	8	29	100

By gender and age, the variation in willingness to pay (or to pay or ask adults to pay for minors aged 14-17 years old) is much less than expected in advance. Equal proportions of minors are willing to pay more than a minimal amount, although minors are less likely to pay prices in the maximum price ranges shown than adults. Another interesting differences is that women of all ages are less likely to pay more than a minimal amount than men for computer games.

Table 0.5 Max WTP for music by gender and age

Gender	Age	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Male	14-17	27	22	16	14	9	5	8	100
	18-24	31	6	5	13	15	12	19	100
	25-34	30	9	6	12	12	12	20	100
	35-44	32	9	5	14	11	10	19	100
	45-54	31	6	5	16	8	15	19	100
	55-74	38	9	4	7	8	14	21	100
Female	14-17	33	22	13	12	10	5	4	100
	18-24	37	11	9	15	8	9	10	100
	25-34	33	14	6	11	7	14	16	100
	35-44	35	7	9	12	4	14	20	100
	45-54	42	6	10	10	6	9	18	100
	55-74	39	5	10	8	6	13	19	100

Table 0.6 Max WTP for films / tv-series by gender and age

Gender	Age	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Male	14-17	62	13	12	4	5	1	3	100
	18-24	64	7	6	9	2	5	8	100
	25-34	65	6	6	6	4	4	8	100
	35-44	61	7	3	10	2	4	12	100
	45-54	64	6	3	14	4	4	6	100
	55-74	67	6	4	8	3	6	6	100
Female	14-17	66	15	8	5	2	2	2	100
	18-24	77	7	2	6	2	2	4	100
	25-34	76	6	3	5	2	2	7	100
	35-44	70	5	2	11	3	3	7	100
	45-54	67	5	5	9	3	2	8	100
	55-74	73	6	4	12	2	1	3	100

Table 0.7 Max WTP for ebooks by gender and age

Gender	Age	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Male	14-17	18	18	21	21	10	7	4	100
	18-24	13	5	9	12	11	11	39	100
	25-34	11	5	11	9	15	13	37	100
	35-44	13	5	12	7	12	16	35	100
	45-54	20	7	8	12	12	13	28	100
	55-74	20	12	13	10	16	7	22	100
Female	14-17	22	17	20	23	11	4	3	100
	18-24	21	11	16	11	14	5	23	100
	25-34	17	9	8	15	12	12	27	100
	35-44	14	10	8	14	12	17	26	100
	45-54	10	12	12	16	15	14	20	100
	55-74	27	5	5	14	24	11	15	100

Table 0.8 Max WTP for games by gender and age

Gender	Age	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total
Male	14-17	26	11	17	13	8	10	15	100
	18-24	26	5	8	8	9	12	32	100
	25-34	23	6	8	7	8	9	39	100
	35-44	27	2	7	6	11	8	39	100
	45-54	36	4	8	7	8	9	28	100
	55-74	53	4	6	7	3	4	23	100
Female	14-17	31	16	25	10	9	5	5	100
	18-24	36	7	16	4	8	5	23	100
	25-34	27	8	8	7	10	8	33	100
	35-44	47	2	11	9	11	2	17	100
	45-54	40	2	5	7	10	5	31	100
	55-74	53	8	11	12	3	3	11	100

Respondents were also asked after the category of their last illegal download or stream. This reveals, for example, the highest willingness to pay for illegally accessed easy listening and less for soundtracks & musicals.

Table 0.9 Max WTP price for music per category

Category	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total	N
Alternative & Indie	23	15	6	20	14	6	16	100	403
Blues, jazz, R&B, Soul	27	6	12	11	13	10	22	100	366
Children's Music	30	20	6	15	8	8	13	100	142
Classical	40	6	8	7	5	11	22	100	178
Dance & Electronic	30	10	6	14	11	16	14	100	714
Easy Listening	27	5	13	6		19	31	100	64
Folk & Songwriter	25	12	5	27	5	7	19	100	59
Hard Rock & Metal	39	11	5	10	8	8	21	100	451
Miscellaneous	41	10	6	12	10	9	13	100	602
Pop	32	11	8	10	11	12	17	100	1241
Rap & Hip-Hop	35	8	5	17	9	8	18	100	637
Reggae	30	14	11	14	6	8	18	100	133
Rock	30	14	8	12	9	16	10	100	683
Soundtracks & Musicals	39	10	14	11	8	9	8	100	155
World Music	34	8	7	16	9	11	14	100	119

For audio-visual, there is surprisingly little difference in willingness to pay for recent and older films or TV-series, although for TV-series a slightly greater proportion is willing to pay no more than a minimal amount (or nothing at all!) for the last illegal download.

Table 0.10 Max WTP price for films/tv-series per category

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total	N
TV series of the last 2 years	72	5	4	8	2	2	7	100	3140
TV series > 2 years old	74	5	2	6	3	3	7	100	1047
Film of the last 2 years	62	11	7	7	3	4	6	100	1836
Film > 2 years old	60	10	6	8	5	4	7	100	1073

Apart from self-help books, respondents are quite willing to pay high prices for the last illegally downloaded (or streamed) book, especially for art books and travel guides.

Table 0.11 Max WTP price for ebooks per category

Country	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total	N
An audio book	17	7	12	10	12	11	32	100	555
An e-book novel (incl. crime, literature, romance, science fiction, fantasy)	16	10	12	14	16	10	22	100	1156
An e-book, nonfiction (incl. biography, history, politics, social sciences)	14	7	10	13	12	14	31	100	243
An e-book, professional (incl. computing, business, finance, math, science, technical)	14	9	12	14	12	12	27	100	293
An e-book, art & photography	13	5	7	7	3	22	44	100	134
A children's e-book	13	8	9	11	13	15	31	100	180
An e-book, comics & graphic novels	12	8	13	13	14	8	33	100	154
An e-book, education & reference	13	8	14	13	11	10	31	100	159
An e-book, leisure (incl. food & drink, health & fitness, home & garden, sport)	13	13	9	8	11	14	32	100	112
An e-book, counselling (incl. self-help, parenting & families religion & spirituality)	21	10	21	14	10	13	13	100	72
An e-book, travel guide	18	1	11	7	13	11	39	100	94
An e-book, humour	22	5	10	10	11	14	28	100	130

For games, respondents are typically not willing to pay more than a minimal amount for puzzle games or other games (often hidden object games according to the "other, please specify" question).

Table 0.12 Max WTP price for games per category

Category	≤ P[-3]	P[-2]	P[-1]	P[0]	P[+1]	P[+2]	≥ P[+3]	Total	N
A Mass online Role Playing Game (MORPG)	25	6	10	11	8	10	30	100	864
A shooter game	24	6	10	5	10	9	36	100	1088
A racing game	27	7	11	6	8	8	33	100	685
A puzzle game	41	6	9	7	10	4	23	100	540
Otherwise, please explain	41	6	12	11	7	8	14	100	404

F: FULL TABLES OF ESTIMATED COEFFICIENTS

Table 0.1 Music: OLS coefficients of numbers of illegal transactions on legal transactions

	N physical		N legal downloads		N legal streams		N live visits	
N illegal downloads	0.015***		0.298***		0.031***		0.001***	
	0.001		0.008		0.002		0.000	
N illegal streams		0.139***		1.885***		0.534***		0.011***
		0.007		0.060		0.015		0.001
Male	0.874***	0.824***	2.481**	4.000***	0.026	-0.017	-0.070***	-0.068***
	0.146	0.147	1.154	1.162	0.326	0.307	0.021	0.021
Age	0.125***	0.101***	0.445*	0.027	-0.435***	-0.473***	-0.026***	-0.030***
	0.033	0.034	0.263	0.265	0.074	0.070	0.005	0.005
Age^2	-0.001**	-0.001*	-0.006**	-0.003	0.003***	0.003***	0.000***	0.000***
	0.000	0.000	0.003	0.003	0.001	0.001	0.000	0.000
Age 14-17	1.003***	0.881***	16.974***	12.025***	-2.323***	-2.060***	-0.068	-0.064
	0.328	0.325	2.611	2.605	0.741	0.690	0.048	0.047
Hours of internet use	-0.134***	-0.179***	-0.174	-0.424	1.123***	1.001***	-0.028***	-0.027***
	0.039	0.039	0.309	0.311	0.088	0.083	0.006	0.006
Educational level	0.187***	0.177**	1.110**	0.725	0.502***	0.541***	0.063***	0.065***
	0.071	0.072	0.560	0.566	0.158	0.149	0.010	0.010
Employed	1.097***	0.857***	9.790***	8.526***	1.673***	0.917***	0.122***	0.112***
	0.161	0.162	1.272	1.284	0.359	0.340	0.024	0.024
Interest in music – much lower	2.289***	2.161***	16.801***	15.461***	-0.029	-1.094	0.038	0.071
	0.399	0.407	3.152	3.224	0.881	0.844	0.059	0.059
Interest in music – lower	-0.078	-0.128	4.836**	4.628**	-1.101**	-1.696***	0.023	-0.006
	0.244	0.246	1.916	1.940	0.537	0.512	0.036	0.036
Interest in music – higher	1.118***	1.082***	7.687***	7.589***	2.354***	1.946***	0.161***	0.160***
	0.177	0.178	1.393	1.405	0.393	0.372	0.026	0.026
Interest in music – much higher	3.466***	3.424***	8.388***	10.097***	2.995***	2.777***	0.226***	0.230***
	0.227	0.228	1.796	1.804	0.509	0.477	0.033	0.033
Frequency online search on music	1.525***	1.420***	16.952***	16.181***	4.491***	3.390***	0.116***	0.106***
	0.089	0.090	0.697	0.710	0.196	0.188	0.013	0.013
Germany	0.647***	0.628**	-15.18***	-17.81***	-4.488***	-4.433***	0.016	0.014
	0.242	0.244	1.920	1.939	0.533	0.506	0.035	0.035
Spain	-1.538***	-1.400***	-24.83***	-19.99***	3.445***	2.894***	0.183***	0.219***
	0.249	0.248	1.976	1.973	0.555	0.519	0.036	0.036
France	-1.789***	-2.043***	-31.27***	-32.83***	3.343***	2.532***	-0.088**	-0.086**
	0.262	0.265	2.073	2.100	0.584	0.555	0.038	0.039
Poland	-0.923***	-0.863***	-29.71***	-28.77***	-0.672	-1.794***	0.293***	0.315***
	0.253	0.254	1.991	2.006	0.557	0.525	0.037	0.037
Sweden	-3.457***	-3.381***	-30.86***	-30.21***	9.062***	9.788***	-0.007	0.006
	0.247	0.248	1.956	1.970	0.559	0.530	0.036	0.036
Constant	4.069***	4.906***	72.659***	87.947***	25.596***	23.979***	1.393***	1.453***
	0.761	0.760	5.997	6.017	1.699	1.596	0.111	0.111
Nr. observations	15,485	15,739	15,308	15,452	15,139	15,500	15,604	15,887

Table 0.2 Films and TV-series: OLS coefficients of numbers of illegal transactions on legal transactions

	N physical		N rentals		N legal downloads		N legal streams		N cinema visits	
N illegal downloads	0.113***		0.112***		0.201***		0.202***		0.078***	
	0.008		0.005		0.005		0.012		0.007	
N illegal streams		0.052***		0.060***		0.112***		0.192***		0.082***
		0.006		0.004		0.004		0.010		0.006
Male	0.677***	0.878***	0.230**	0.348***	0.384***	0.711***	-0.357	-0.082	0.217	0.328**
	0.163	0.164	0.113	0.115	0.113	0.115	0.248	0.247	0.157	0.157
Age	0.029	0.031	0.022	0.034	-0.021	-0.005	-0.001	0.041	-0.227***	-0.197***
	0.037	0.038	0.026	0.026	0.026	0.026	0.057	0.057	0.036	0.036
Age^2	-0.001*	-0.001*	-0.000*	-0.001**	-0.000	-0.000	-0.001	-0.001	0.003***	0.002***
	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000
Age 14-17	-0.459	-0.566	0.427	0.389	0.490*	0.116	1.721***	1.656***	2.109***	1.880***
	0.380	0.386	0.264	0.269	0.262	0.269	0.581	0.584	0.369	0.369
Hours of internet use	-0.075*	-0.088*	-0.140***	-0.149***	-0.042	-0.044	0.356***	0.307***	-0.025	-0.049
	0.045	0.045	0.031	0.031	0.031	0.031	0.068	0.068	0.043	0.043
Educational level	-0.005	0.028	0.044	0.056	0.053	0.052	0.166	0.191	0.534***	0.562***
	0.080	0.080	0.055	0.056	0.055	0.056	0.121	0.121	0.077	0.077
Employed	0.917***	0.984***	0.970***	1.039***	0.759***	0.801***	0.966***	1.151***	1.442***	1.496***
	0.180	0.182	0.125	0.127	0.124	0.127	0.274	0.273	0.174	0.173
Interest in movies – much lower	1.862***	2.054***	1.777***	1.857***	1.402***	1.392***	-1.637**	-1.444**	0.325	0.321
	0.472	0.477	0.329	0.333	0.327	0.333	0.715	0.711	0.459	0.456
Interest in movies – lower	0.365	0.500*	0.525***	0.555***	0.391**	0.554***	-0.913**	-0.792**	-0.195	-0.075
	0.259	0.261	0.180	0.182	0.179	0.182	0.391	0.390	0.250	0.249
Interest in movies – higher	1.386***	1.396***	0.498***	0.510***	0.388***	0.489***	1.020***	0.890***	0.938***	0.906***
	0.198	0.200	0.138	0.139	0.137	0.139	0.301	0.301	0.191	0.191
Interest in movies – much higher	3.648***	3.736***	0.926***	1.021***	1.188***	1.365***	1.694***	1.780***	2.329***	2.509***
	0.283	0.285	0.196	0.198	0.195	0.198	0.431	0.430	0.272	0.271
Frequency online search on movies	1.633***	1.748***	1.213***	1.288***	1.253***	1.304***	2.832***	2.738***	1.451***	1.375***
	0.104	0.105	0.072	0.073	0.072	0.073	0.158	0.158	0.100	0.100
Germany	-0.219	-0.305	1.069***	0.896***	-0.317*	-0.604***	-7.645***	-8.079***	-0.286	-0.362
	0.279	0.281	0.194	0.196	0.192	0.195	0.423	0.421	0.267	0.266
Spain	-3.716***	-3.569***	0.635***	0.606***	0.919***	0.763***	-6.238***	-7.178***	4.428***	4.089***
	0.273	0.279	0.190	0.195	0.189	0.195	0.415	0.419	0.265	0.266
France	-3.704***	-3.709***	-1.493***	-1.481***	1.556***	1.630***	-4.535***	-4.816***	2.003***	1.864***
	0.288	0.290	0.200	0.202	0.200	0.203	0.437	0.436	0.277	0.275
Poland	-4.064***	-3.899***	-0.146	0.011	-0.095	0.063	1.005**	0.841*	0.781***	0.623**
	0.282	0.284	0.197	0.199	0.195	0.198	0.434	0.433	0.273	0.272
Sweden	-3.468***	-3.620***	-0.402**	-0.543***	-2.052***	-2.437***	-0.605	-1.644***	-2.761***	-3.047***
	0.275	0.280	0.191	0.195	0.189	0.194	0.422	0.424	0.263	0.264
Constant	10.821***	11.102***	4.974***	4.976***	5.189***	5.185***	17.094***	15.939***	11.845***	10.906***
	0.873	0.888	0.607	0.618	0.602	0.618	1.332	1.337	0.842	0.844
Nr. observations	17,461	17,420	17,608	17,571	17,568	17,508	17,039	17,003	17,403	17,375

Table 0.3 Books: OLS coefficients of numbers of illegal transactions on legal transactions

	N physical	N legal borrowed	N legal downloads	N legal streams
N illegal downloads	0.105***	0.151***	0.309***	0.293***
	0.016	0.018	0.012	0.006
Male	-0.888***	-1.207***	0.109	0.383***
	0.208	0.237	0.153	0.081
Age	0.021	-0.027	0.011	-0.031*
	0.046	0.052	0.034	0.018
Age^2	0.000	0.001	-0.000	0.000
	0.001	0.001	0.000	0.000
Age 14-17	2.898***	3.069***	0.356	0.170
	0.485	0.553	0.354	0.188
Hours of internet use	-0.181***	-0.285***	0.022	-0.032
	0.055	0.064	0.041	0.022
Educational level	0.397***	0.283**	0.001	-0.053
	0.100	0.114	0.073	0.039
Employed	1.083***	0.340	0.656***	0.403***
	0.225	0.257	0.165	0.088
Interest in books – much lower	-0.888	-0.615	0.773*	0.833***
	0.567	0.645	0.415	0.222
Interest in books – lower	-0.784**	-0.531	0.248	0.211
	0.353	0.402	0.259	0.138
Interest in books – higher	3.043***	2.338***	0.369**	-0.265***
	0.251	0.286	0.184	0.098
Interest in books – much higher	6.513***	4.017***	0.855***	-0.445***
	0.321	0.367	0.234	0.124
Frequency online search on books	1.760***	0.779***	1.725***	0.987***
	0.129	0.147	0.094	0.050
Germany	1.704***	-1.876***	-2.852***	-0.609***
	0.316	0.359	0.233	0.123
Spain	-1.579***	0.114	-3.477***	-0.388***
	0.339	0.386	0.251	0.132
France	1.359***	1.457***	-3.715***	-0.285*
	0.397	0.454	0.292	0.155
Poland	0.485	4.989***	-4.029***	0.157
	0.352	0.405	0.258	0.137
Sweden	-0.754**	2.488***	-4.143***	-0.027
	0.351	0.404	0.260	0.138
Constant	10.263***	7.673***	10.134***	4.968***
	1.107	1.264	0.812	0.431
Nr. observations	12,220	12,079	12,387	12,486

Table 0.4 Games: OLS coefficients of numbers of illegal transactions on legal transactions

	N physical		N legal downloads		N legal streams		N free games		N cloud gaming	
N illegal online	0.323***		0.332***		0.405***		0.407***		0.281***	
	0.010		0.007		0.013		0.013		0.005	
N console chipped		0.325***		0.307***		0.394***		0.341***		0.282***
		0.011		0.007		0.013		0.013		0.005
Male	0.722***	0.870***	0.268**	0.340***	0.146	0.232	-1.633***	-1.471***	0.036	0.089
	0.170	0.172	0.111	0.114	0.206	0.208	0.207	0.211	0.077	0.078
Age	0.030	0.031	0.006	-0.011	-0.106**	-0.127***	-0.035	-0.063	0.018	0.005
	0.039	0.039	0.025	0.026	0.047	0.048	0.047	0.048	0.018	0.018
Age^2	-0.001**	-0.001**	-0.000	-0.000	0.000	0.001	0.001**	0.001**	-0.000**	-0.000
	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.000
Age 14-17	-0.001	0.231	-0.259	-0.267	1.625***	1.553***	1.120***	0.854**	-0.259	-0.351**
	0.352	0.355	0.229	0.235	0.426	0.430	0.426	0.435	0.159	0.161
Hours of internet use	-0.104**	-0.083*	-0.065**	-0.038	0.064	0.121**	0.162***	0.201***	-0.074***	-0.035*
	0.044	0.044	0.029	0.029	0.053	0.054	0.053	0.055	0.020	0.020
Educational level	-0.022	-0.080	0.136***	0.097*	0.079	0.094	-0.152	-0.199**	0.066*	0.030
	0.080	0.081	0.052	0.054	0.097	0.098	0.097	0.100	0.037	0.037
Employed	0.904***	0.982***	0.440***	0.548***	0.657***	0.697***	0.108	0.156	0.469***	0.515***
	0.183	0.185	0.119	0.123	0.221	0.223	0.222	0.227	0.083	0.084
Interest in games – much lower	-0.016	0.052	0.542***	0.619***	0.148	0.214	-1.009***	-0.866**	0.705***	0.737***
	0.317	0.320	0.207	0.212	0.381	0.385	0.384	0.391	0.145	0.146
Interest in games – lower	-0.456*	-0.327	0.102	0.200	0.034	0.109	-0.171	-0.076	0.359***	0.341***
	0.241	0.244	0.157	0.162	0.291	0.295	0.292	0.299	0.110	0.111
Interest in games – higher	0.971***	1.218***	0.235	0.505***	0.296	0.544**	0.074	0.447	-0.034	0.114
	0.227	0.229	0.148	0.152	0.274	0.277	0.275	0.281	0.103	0.104
Interest in games – much higher	1.778***	2.086***	0.892***	1.220***	0.919***	1.390***	0.028	0.600*	-0.045	0.248*
	0.282	0.285	0.183	0.188	0.340	0.343	0.340	0.348	0.128	0.129
Frequency online search on games	1.615***	1.632***	1.097***	1.157***	1.300***	1.363***	1.067***	1.176***	0.768***	0.774***
	0.101	0.102	0.066	0.068	0.122	0.124	0.123	0.126	0.046	0.047
Germany	-0.325	-0.247	-0.774***	-0.686***	-0.122	0.020	1.316***	1.261***	-0.145	-0.103
	0.275	0.278	0.180	0.184	0.332	0.335	0.331	0.338	0.125	0.126
Spain	-1.267***	-0.933***	-1.564***	-1.202***	-0.239	0.244	2.727***	3.121***	-0.201	-0.067
	0.274	0.278	0.179	0.184	0.331	0.335	0.331	0.339	0.125	0.126
France	-2.309***	-2.277***	-1.642***	-1.624***	-0.062	-0.047	1.992***	1.932***	-0.458***	-0.506***
	0.288	0.291	0.188	0.193	0.347	0.351	0.348	0.355	0.131	0.132
Poland	-1.287***	-0.654**	-1.512***	-0.860***	0.451	1.250***	5.684***	6.485***	-0.224*	0.296**
	0.286	0.286	0.186	0.189	0.344	0.345	0.349	0.354	0.130	0.130
Sweden	-2.468***	-2.416***	-1.459***	-1.377***	0.123	0.228	0.208	0.244	-0.364***	-0.354***
	0.285	0.288	0.187	0.192	0.345	0.349	0.344	0.351	0.130	0.131
Constant	10.149***	9.952***	5.454***	5.763***	10.622***	10.622***	6.814***	7.603***	2.705***	2.841***
	0.867	0.876	0.565	0.580	1.046	1.058	1.051	1.074	0.394	0.398
Nr. observations	11,944	11,914	12,018	11,982	11,879	11,850	11,720	11,668	12,033	12,004

Note on the number of observations: the tables 0.5-0.8 in this Annex present the first-stage regression results for various potential instrumental variables (IV). The tables 0.5-0.8 in this annex correspond to tables 7.5-7.8 in Chapter 7.

The tables 0.9-0.12 in this Annex present for each legal channel the second-stage regression results for moral attitudes. Since for each legal channel the same instrument is used, the numbers of observations in the columns for moral attitudes in table 0.5-0.8 (the first and firth column with results) are the same as in tables 0.9-0.12 in this annex, give or take 1 to 4 observations due to partial nonresponse.

Table 0.5 Music: First stage coefficients of potential instruments on numbers of illegal transactions

	N illegal downloads				N illegal streams			
Moral attitude	5.553***				0.353***			
	0.613				0.0821			
Internet familiarity		10.09***				1.383***		
		0.665				0.089		
Internet use			4.491***				0.741***	
			0.554				0.074	
Internet speed				-0.010				-0.0001
				0.013				0.0017
Male	10.11***	4.638***	10.38***	11.13***	0.943***	0.0913	0.887***	1.005***
	1.189	1.254	1.188	1.187	0.159	0.168	0.158	0.158
Age	-0.822***	-1.162***	-1.049***	-0.929***	0.0624*	0.0224	0.0356	0.0562
	0.271	0.27	0.271	0.272	0.0362	0.036	0.0362	0.0362
Age^2	0.00265	0.00649**	0.00353	0.00273	-0.0010**	-0.0004	-0.0008**	-0.0010**
	0.00308	0.00307	0.00308	0.00309	0.000412	0.00041	0.000411	0.000412
Age 14-17	-14.01***	-13.95***	-21.26***	-16.04***	-0.643*	-0.488	-1.625***	-0.751**
	2.669	2.649	2.735	2.665	0.352	0.349	0.36	0.351
Hours of internet use	0.867***	0.398	0.819**	0.929***	0.170***	0.101**	0.155***	0.173***
	0.319	0.319	0.32	0.32	0.0426	0.0425	0.0425	0.0426
Educational level	0.275	-0.472	-0.316	0.294	-0.0225	-0.122	-0.119	-0.0228
	0.578	0.577	0.582	0.579	0.0773	0.0771	0.0777	0.0774
Employed	2.557*	1.752	2.223*	3.017**	1.095***	0.950***	0.997***	1.122***
	1.309	1.304	1.312	1.311	0.175	0.174	0.175	0.175
Interest in music – much lower	20.84***	19.72***	20.59***	21.20***	2.941***	2.758***	-0.129	-0.336
	3.234	3.22	3.236	3.242	0.438	0.436	0.263	0.272
Interest in music – lower	3.183	2.901	3.001	3.323*	0.642**	0.589**	2.831***	3.037***
	1.978	1.968	1.979	1.983	0.266	0.264	0.267	0.272
Interest in music – higher	2.699*	1.985	2.575*	2.658*	0.398**	0.307	1.873***	1.776***
	1.434	1.427	1.435	1.437	0.192	0.19	0.285	0.286
Interest in music – much higher	6.951***	6.203***	6.978***	6.769***	0.492**	0.402*	2.548***	2.537***
	1.846	1.837	1.847	1.85	0.246	0.244	0.273	0.287
Frequency online search on music	13.75***	12.26***	12.80***	13.97***	2.366***	2.150***	1.225***	1.182***
	0.713	0.718	0.728	0.714	0.0955	0.096	0.267	0.273
Germany	-9.889***	-9.317***	-9.047***	-10.63***	-0.301	-0.218	2.855***	0.648**
	1.963	1.954	1.969	2.033	0.263	0.261	0.437	0.266
Spain	39.11***	35.77***	36.54***	37.51***	3.130***	2.762***	0.597**	0.389**
	2.004	1.995	2.008	2.047	0.267	0.265	0.265	0.192
France	11.17***	11.91***	11.67***	11.18***	1.785***	1.878***	0.390**	0.473*
	2.128	2.118	2.129	2.133	0.286	0.284	0.191	0.246
Poland	27.28***	23.26***	25.54***	25.04***	2.661***	2.237***	0.528**	-2.383***
	2.055	2.042	2.048	2.149	0.275	0.272	0.245	0.0956
Sweden	-2.744	-2.334	-2.849	-2.183	-1.190***	-1.160***	-2.185***	
	2.007	1.997	2.008	2.051	0.268	0.266	0.0972	
Constant	75.59***	86.70***	95.08***	81.11***	5.788***	7.023***	8.540***	6.097***
	6.161	6.125	6.416	6.296	0.821	0.815	0.853	0.838
Nr. Observations	15,480	15,485	15,480	15,485	15,735	15,739	15,735	15,739

Table 0.6 Films and TV-series: First stage coefficients of potential instruments on numbers of illegal transactions

	N illegal downloads				N illegal streams			
Moral attitude	0.824***				0.713***			
	0.0856				0.107			
Internet familiarity		1.362***				0.603***		
		0.0908				0.114		
Internet use			0.397***				0.261***	
			0.0738				0.0924	
Internet speed				-0.00013				0.00285
				0.00169				0.00211
Male	1.028***	0.271	1.107***	1.189***	-0.412**	-0.677***	-0.324	-0.27
	0.159	0.169	0.16	0.159	0.2	0.213	0.2	0.199
Age	-0.172***	-0.219***	-0.201***	-0.192***	-0.455***	-0.485***	-0.478***	-0.473***
	0.0364	0.0362	0.0364	0.0364	0.0457	0.0457	0.0457	0.0457
Age^2	0.00098**	0.0015***	0.0011***	0.0011**	0.0037***	0.0039***	0.0038***	0.0037***
	0.000409	0.000409	0.00041	0.00041	0.000513	0.000515	0.000514	0.000514
Age 14-17	-2.109***	-2.266***	-2.948***	-2.411***	-0.452	-0.683	-1.073**	-0.743
	0.371	0.368	0.383	0.371	0.47	0.468	0.484	0.468
Hours of internet use	0.137***	0.0775*	0.139***	0.150***	0.305***	0.286***	0.310***	0.318***
	0.0434	0.0435	0.0435	0.0435	0.0545	0.0548	0.0546	0.0545
Educational level	-0.0349	-0.131*	-0.0877	-0.0314	-0.158	-0.201**	-0.191*	-0.161*
	0.0777	0.0777	0.0786	0.078	0.0974	0.0978	0.0984	0.0976
Employed	0.258	0.165	0.256	0.322*	0.168	0.149	0.176	0.215
	0.176	0.175	0.176	0.176	0.22	0.221	0.221	0.221
Interest in movies – much lower	0.67	0.525	0.63	0.641	-0.158	-0.241	-0.193	-0.188
	0.46	0.458	0.461	0.461	0.577	0.578	0.578	0.578
Interest in movies – lower	0.0332	0.0405	0.0138	0.0398	-0.43	-0.429	-0.444	-0.428
	0.252	0.251	0.253	0.253	0.316	0.316	0.317	0.317
Interest in movies – higher	0.981***	0.915***	0.976***	0.986***	1.038***	1.003***	1.032***	1.035***
	0.193	0.192	0.193	0.193	0.242	0.242	0.242	0.242
Interest in movies – much higher	2.106***	1.972***	2.105***	2.094***	2.113***	2.037***	2.112***	2.091***
	0.275	0.274	0.276	0.276	0.345	0.345	0.346	0.345
Frequency online search on movies	1.551***	1.319***	1.450***	1.558***	2.419***	2.317***	2.354***	2.424***
	0.101	0.101	0.103	0.101	0.126	0.128	0.129	0.126
Germany	-1.165***	-1.163***	-1.121***	-1.218***	0.716**	0.692**	0.731**	0.786**
	0.272	0.271	0.273	0.281	0.34	0.341	0.341	0.351
Spain	3.817***	3.323***	3.495***	3.607***	8.336***	8.039***	8.083***	8.260***
	0.266	0.264	0.266	0.271	0.333	0.333	0.333	0.339
France	1.720***	1.839***	1.746***	1.710***	3.377***	3.416***	3.386***	3.358***
	0.28	0.279	0.281	0.281	0.35	0.351	0.351	0.351
Poland	3.331***	2.732***	3.067***	3.083***	4.603***	4.240***	4.376***	4.536***
	0.275	0.274	0.274	0.287	0.344	0.344	0.343	0.359
Sweden	1.621***	1.669***	1.636***	1.656***	6.010***	6.039***	6.027***	5.951***
	0.268	0.267	0.268	0.273	0.336	0.336	0.336	0.342
Constant	10.32***	11.83***	12.31***	10.97***	18.74***	19.71***	20.17***	19.03***
	0.85	0.846	0.885	0.866	1.068	1.068	1.111	1.088
Nr. observations	17,456	17,461	17,456	17,461	17,416	17,420	17,416	17,420

Table 0.7 Books: First stage coefficients of potential instruments on numbers of illegal transactions

	N illegal downloads			
Moral attitude	0.310***			
	0.0612			
Internet familiarity		0.882***		
		0.065		
Internet use			0.294***	
			0.0536	
Internet speed				0.0015
				0.00133
Male	0.972***	0.408***	0.950***	1.034***
	0.117	0.124	0.117	0.116
Age	-0.150***	-0.173***	-0.164***	-0.158***
	0.0256	0.0254	0.0256	0.0256
Age^2	0.00114***	0.00147***	0.00122***	0.00117***
	0.00029	0.00028	0.00029	0.00029
Age 14-17	-1.546***	-1.553***	-2.039***	-1.658***
	0.272	0.269	0.28	0.271
Hours of internet use	0.0906***	0.0375	0.0860***	0.0965***
	0.0311	0.0311	0.0311	0.0311
Educational level	0.123**	0.0747	0.0930*	0.123**
	0.056	0.0557	0.0563	0.056
Employed	0.0478	-0.0431	0.0323	0.0698
	0.126	0.125	0.126	0.126
Interest in books – much lower	0.568*	0.532*	0.581*	0.612*
	0.317	0.315	0.317	0.318
Interest in books – lower	0.443**	0.472**	0.449**	0.442**
	0.197	0.196	0.197	0.197
Interest in books – higher	-0.0415	0.0293	-0.0573	-0.0536
	0.14	0.14	0.14	0.14
Interest in books – much higher	0.0342	0.0899	0.00506	0.00136
	0.18	0.179	0.18	0.18
Frequency online search on books	1.243***	1.074***	1.153***	1.240***
	0.0712	0.0718	0.073	0.0713
Germany	-0.28	-0.242	-0.218	-0.252
	0.177	0.176	0.177	0.185
Spain	3.776***	3.440***	3.597***	3.749***
	0.187	0.187	0.188	0.192
France	0.523**	0.483**	0.512**	0.502**
	0.222	0.221	0.222	0.222
Poland	2.802***	2.421***	2.661***	2.772***
	0.196	0.195	0.195	0.206
Sweden	0.181	0.138	0.135	0.139
	0.197	0.195	0.197	0.201
Constant	7.345***	7.914***	8.456***	7.439***
	0.618	0.612	0.636	0.632
Nr. Observations	12,217	12,220	12,217	12,220

Table 0.8 Games: First stage coefficients of potential instruments on numbers of illegal transactions

	N illegal downloads & streams				N console chipped			
Moral attitude	0.482***				0.494***			
	0.0715				0.0694			
Internet familiarity		0.978***				0.709***		
		0.0819				0.0801		
Internet use			0.718***				0.636***	
			0.0671				0.0654	
Internet speed				0.00129				0.00304**
				0.00153				0.00149
Male	0.268*	-0.181	0.252*	0.345**	0.039	-0.268*	0.0325	0.118
	0.149	0.154	0.148	0.148	0.145	0.151	0.144	0.145
Age	-0.0529	-0.0935***	-0.0834**	-0.0616*	-0.0252	-0.0563*	-0.0528	-0.0331
	0.034	0.0339	0.0339	0.034	0.0331	0.0331	0.033	0.0331
Age^2	0.000271	0.000749*	0.000474	0.000272	-3.1E-05	0.000308	0.000143	-4.1E-05
	0.000395	0.000396	0.000394	0.000396	0.000385	0.000386	0.000385	0.000386
Age 14-17	-0.369	-0.436	-1.404***	-0.566*	-0.0628	-0.162	-1.000***	-0.262
	0.308	0.306	0.316	0.307	0.3	0.298	0.307	0.299
Hours of internet use	0.0205	-0.0179	0.0107	0.0274	-0.116***	-0.142***	-0.125***	-0.110***
	0.0384	0.0384	0.0383	0.0384	0.0373	0.0374	0.0372	0.0373
Educational level	-0.113	-0.209***	-0.221***	-0.109	0.0533	-0.0151	-0.0427	0.0534
	0.07	0.0702	0.0706	0.0702	0.0683	0.0687	0.0689	0.0684
Employed	0.949***	0.864***	0.857***	0.995***	0.778***	0.730***	0.703***	0.819***
	0.159	0.159	0.159	0.16	0.155	0.155	0.155	0.155
Interest in games – much lower	0.946***	1.044***	0.833***	0.938***	0.860***	0.928***	0.753***	0.851***
	0.276	0.275	0.276	0.277	0.269	0.269	0.269	0.269
Interest in games – lower	0.416**	0.481**	0.333	0.411*	0.245	0.292	0.169	0.242
	0.21	0.209	0.209	0.21	0.205	0.204	0.204	0.205
Interest in games – higher	0.832***	0.715***	0.870***	0.842***	0.252	0.171	0.288	0.264
	0.197	0.197	0.197	0.198	0.192	0.192	0.192	0.193
Interest in games – much higher	1.200***	0.940***	1.318***	1.189***	0.185	-0.00658	0.289	0.172
	0.246	0.246	0.245	0.246	0.239	0.24	0.239	0.24
Frequency online search on games	1.647***	1.508***	1.488***	1.657***	1.578***	1.480***	1.438***	1.589***
	0.087	0.0875	0.0882	0.0872	0.0848	0.0855	0.086	0.0849
Germany	-0.743***	-0.742***	-0.551**	-0.732***	-0.888***	-0.898***	-0.727***	-0.804***
	0.24	0.239	0.24	0.248	0.233	0.233	0.234	0.241
Spain	3.568***	3.235***	3.246***	3.498***	3.090***	2.808***	2.781***	3.075***
	0.237	0.236	0.237	0.243	0.232	0.232	0.232	0.237
France	0.115	0.21	0.214	0.122	0.143	0.218	0.229	0.158
	0.251	0.25	0.25	0.251	0.244	0.244	0.244	0.245
Poland	2.339***	1.937***	2.176***	2.255***	0.569**	0.235	0.408*	0.573**
	0.249	0.248	0.248	0.261	0.241	0.241	0.24	0.252
Sweden	-0.051	-0.0975	-0.0478	-0.071	-0.245	-0.272	-0.247	-0.316
	0.248	0.247	0.248	0.253	0.242	0.242	0.242	0.246
Constant	7.279***	8.384***	10.02***	7.501***	7.086***	7.970***	9.563***	7.132***
	0.754	0.752	0.783	0.77	0.735	0.734	0.763	0.75
Nr. observations	11,942	11,944	11,942	11,944	11,912	11,914	11,912	11,914

Note on the number of observations: the tables 0.9-0.12 in this Annex present the second-stage regression results for various legal channels. For each legal channel, moral attitudes are used as the instrumental variable (IV). The tables 0.9-0.12 in this annex correspond to tables 7.9-7.12 in Chapter 7.

Since for each legal channel the same instrument is used, the numbers of observations in table 0.9-0.12 are the same as in the columns for moral attitudes in table 0.5-0.8 (the first and fifth column with results in those tables) in this annex, give or take 1 to 4 observations due to partial nonresponse.

Table 0.9 Music: IV coefficients of numbers of illegal transactions on legal transactions

	N physical		N legal downloads		N legal streams		N live visits	
N illegal downloads	-0.023		0.213*		0.017		0.007***	
	0.016		0.111		0.031		0.002	
N illegal streams		-0.451		2.968		0.162		0.129***
		0.285		1.927		0.474		0.044
Male	1.301***	1.417***	3.439**	3.046	0.172	0.332	-0.136***	-0.185***
	0.231	0.332	1.703	2.026	0.469	0.549	0.034	0.051
Age	0.090**	0.134***	0.356	-0.009	-0.449***	-0.460***	-0.021***	-0.033***
	0.038	0.042	0.283	0.265	0.081	0.072	0.006	0.006
Age^2	-0.001*	-0.001**	-0.006**	-0.003	0.003***	0.003***	0.000***	0.000***
	0.000	0.001	0.003	0.003	0.001	0.001	0.000	0.000
Age 14-17	-0.098**	-0.077	-0.096	-0.619	1.135***	1.063***	-0.032***	-0.047***
	0.043	0.068	0.331	0.463	0.097	0.120	0.006	0.011
Hours of internet use	0.385	0.434	15.498***	13.021***	-2.569**	-2.466**	0.026	0.051
	0.434	0.455	3.564	3.476	1.027	0.977	0.066	0.082
Educational level	0.198***	0.164*	1.143**	0.756	0.502***	0.535***	0.061***	0.069***
	0.076	0.087	0.548	0.557	0.153	0.146	0.011	0.014
Employed	1.208***	1.518***	10.045***	7.363***	1.714***	1.340**	0.105***	-0.027
	0.176	0.373	1.288	2.416	0.369	0.645	0.026	0.061
Interest in music – much lower	3.104***	3.906***	18.428***	12.372*	0.269	-0.124	-0.093	-0.267*
	0.561	1.006	3.846	6.368	1.090	1.491	0.080	0.149
Interest in music – lower	0.048	0.255	5.097***	4.105**	-1.060**	-1.496***	0.006	-0.066
	0.222	0.310	1.715	1.932	0.466	0.507	0.036	0.047
Interest in music – higher	1.220***	1.314***	7.943***	7.116***	2.390***	2.077***	0.145***	0.106***
	0.183	0.230	1.405	1.582	0.401	0.413	0.027	0.039
Interest in music – much higher	3.726***	3.708***	8.950***	9.717***	3.099***	2.898***	0.184***	0.172***
	0.301	0.339	2.051	2.060	0.608	0.554	0.040	0.052
Frequency online search on music	2.063***	2.824***	18.094***	13.687***	4.674***	4.293***	0.034	-0.172
	0.232	0.681	1.628	4.475	0.464	1.168	0.033	0.105
Germany	0.253	0.436	-15.96***	-17.43***	-4.626***	-4.608***	0.075*	0.055
	0.307	0.306	2.230	2.131	0.566	0.503	0.039	0.044
Spain	-0.081	0.396	-21.566***	-23.206***	3.972***	4.043***	-0.043	-0.151
	0.662	0.931	4.734	6.160	1.327	1.556	0.092	0.147
France	-1.360***	-0.992*	-30.33***	-34.86***	3.496***	3.181***	-0.155***	-0.294***
	0.315	0.598	2.344	4.118	0.687	1.012	0.044	0.092
Poland	0.060	0.640	-27.65***	-31.42***	-0.345	-0.895	0.144**	0.006
	0.494	0.801	3.384	5.036	0.912	1.250	0.069	0.127
Sweden	-3.554***	-4.074***	-31.09***	-28.88***	9.042***	9.326***	0.011	0.151**
	0.231	0.414	1.968	3.055	0.610	0.848	0.035	0.067
Constant	7.151***	8.486***	79.505***	81.150***	26.712***	26.523***	0.918***	0.656**
	1.491	1.949	10.805	13.668	3.145	3.707	0.210	0.331
Nr. observations	15,480	15,735	15,303	15,448	15,135	15,496	15,599	15,883

Table 0.10 Films and TV-series: IV coefficients of numbers of illegal transactions on legal transactions

	N physical		N rentals		N legal downloads		N legal streams		N cinema visits	
N illegal downloads	-0.105		0.102		0.209**		-0.169		-0.205*	
	0.121		0.082		0.085		0.166		0.111	
N illegal streams		-0.088		0.156*		0.221**		-0.214		-0.218*
		0.141		0.093		0.101		0.190		0.128
Male	0.941***	0.841***	0.242	0.371***	0.374**	0.740***	0.143	-0.195	0.577***	0.281*
	0.222	0.172	0.151	0.119	0.160	0.120	0.336	0.266	0.220	0.168
Age	-0.014	-0.036	0.020	0.080	-0.020	0.045	-0.062	-0.153	-0.279***	-0.338***
	0.045	0.078	0.029	0.051	0.030	0.055	0.064	0.108	0.042	0.071
Age^2	-0.001	-0.000	-0.000*	-0.001**	-0.000	-0.001	-0.000	0.001	0.003***	0.003***
	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001
Age 14-17	-0.040	-0.043	-0.139***	-0.179***	-0.043	-0.079*	0.419***	0.436***	0.019	0.046
	0.049	0.064	0.034	0.044	0.034	0.046	0.077	0.094	0.048	0.062
Hours of internet use	-1.019**	-0.671	0.398	0.452	0.494	0.189	0.953	1.372**	1.515***	1.698***
	0.510	0.426	0.337	0.301	0.367	0.324	0.734	0.678	0.480	0.440
Educational level	-0.014	0.005	0.045	0.069	0.053	0.069	0.155	0.158	0.532***	0.530***
	0.083	0.085	0.057	0.059	0.056	0.060	0.121	0.124	0.079	0.081
Employed	0.991***	1.015***	0.974***	1.025***	0.760***	0.779***	1.117***	1.265***	1.558***	1.574***
	0.185	0.185	0.126	0.129	0.126	0.129	0.287	0.289	0.184	0.185
Interest in films and TV-series – much lower	2.012***	2.027***	1.785***	1.871***	1.402***	1.425***	-1.387**	-1.516**	0.500	0.348
	0.520	0.524	0.360	0.369	0.314	0.302	0.599	0.604	0.436	0.439
Interest in films and TV-series – lower	0.383*	0.440*	0.527***	0.609***	0.396***	0.610***	-0.873**	-0.987***	-0.179	-0.215
	0.228	0.243	0.157	0.170	0.148	0.164	0.345	0.364	0.233	0.249
Interest in films – higher	1.603***	1.538***	0.509***	0.413**	0.385**	0.384**	1.358***	1.329***	1.228***	1.244***
	0.229	0.246	0.161	0.171	0.152	0.169	0.347	0.379	0.227	0.247
Interest in films – much higher	4.101***	4.020***	0.949***	0.837***	1.176***	1.153***	2.489***	2.647***	2.902***	3.122***
	0.432	0.461	0.279	0.296	0.284	0.313	0.611	0.653	0.400	0.431
Frequency online search on films and TV-series	1.980***	2.090***	1.229***	1.053***	1.241***	1.042***	3.444***	3.737***	1.911***	2.099***
	0.212	0.350	0.149	0.236	0.151	0.253	0.314	0.493	0.203	0.322
Germany	-0.464	-0.210	1.061***	0.827***	-0.298	-0.683***	-8.131***	-7.823***	-0.631**	-0.168
	0.332	0.316	0.216	0.213	0.193	0.185	0.447	0.419	0.276	0.253
Spain	-2.907***	-2.425**	0.677*	-0.175	0.899**	-0.121	-4.888***	-3.859**	5.478***	6.501***
	0.522	1.181	0.368	0.789	0.373	0.851	0.742	1.616	0.520	1.088
France	-3.310***	-3.238***	-1.471***	-1.812***	1.550***	1.259***	-3.880***	-3.433***	2.521***	2.873***
	0.355	0.554	0.234	0.367	0.267	0.416	0.539	0.795	0.359	0.528
Poland	-3.367***	-3.282***	-0.114	-0.419	-0.116	-0.423	2.195***	2.552***	1.675***	1.903***
	0.482	0.688	0.337	0.465	0.334	0.493	0.729	0.950	0.462	0.630
Sweden	-3.088***	-2.776***	-0.380	-1.129*	-2.057***	-3.101***	-0.026	0.669	-2.303***	-1.238
	0.353	0.905	0.240	0.611	0.210	0.635	0.533	1.185	0.284	0.809
Constant	13.218***	13.815***	5.084***	3.122*	5.102***	3.119	20.973***	23.766***	14.877***	16.572***
	1.642	2.864	1.070	1.881	1.118	2.051	2.222	3.890	1.467	2.571
Nr. observations	17,456	17,416	17,603	17,567	17,563	17,504	17,034	16,999	17,398	17,371

Table 0.11 Books: IV coefficients of numbers of illegal transactions on legal transactions

	N physical	N legal borrowed	N legal downloads	N legal streams
N illegal downloads	-0.730*	-0.180	-0.035	0.502***
	0.396	0.367	0.262	0.150
Male	-0.015	-0.864*	0.471	0.180
	0.467	0.442	0.320	0.167
Age	-0.109	-0.078	-0.037	-0.004
	0.080	0.078	0.050	0.027
Age^2	0.001	0.001	0.000	-0.000
	0.001	0.001	0.000	0.000
Age 14-17	-0.104	-0.255***	0.056	-0.049*
	0.074	0.073	0.050	0.027
Hours of internet use	1.537*	2.561***	-0.143	0.407
	0.865	0.785	0.532	0.282
Educational level	0.503***	0.334**	0.050	-0.079*
	0.122	0.130	0.086	0.044
Employed	1.158***	0.364	0.661***	0.378***
	0.249	0.264	0.171	0.094
Interest in books – much lower	-0.383	-0.301	1.035**	0.671**
	0.622	0.683	0.413	0.277
Interest in books – lower	-0.422	-0.366	0.414	0.115
	0.383	0.389	0.274	0.152
Interest in books – higher	2.996***	2.339***	0.360**	-0.268***
	0.261	0.280	0.180	0.097
Interest in books – much higher	6.491***	4.026***	0.853***	-0.441***
	0.390	0.409	0.258	0.135
Frequency online search on books	2.801***	1.192**	2.153***	0.748***
	0.517	0.493	0.344	0.182
Germany	1.446***	-1.977***	-2.964***	-0.539***
	0.344	0.356	0.290	0.118
Spain	1.497	1.387	-2.210**	-1.168**
	1.509	1.449	0.987	0.576
France	1.792***	1.649***	-3.529***	-0.381**
	0.484	0.530	0.335	0.159
Poland	2.743**	5.857***	-3.132***	-0.373
	1.157	1.075	0.742	0.414
Sweden	-0.589	2.563***	-4.084***	-0.059
	0.363	0.419	0.267	0.135
Constant	16.565***	10.107***	12.599***	3.573***
	3.241	2.990	2.057	1.123
Nr. observations	12,217	12,076	12,384	12,483

Table 0.12 Games: IV coefficients of numbers of illegal transactions on legal transactions

	N physical		N legal downloads		N legal streams		N free games		N cloud gaming	
N illegal online	0.078		0.340***		0.085		-0.422*		0.603***	
	0.188		0.120		0.219		0.251		0.103	
N console chipped		0.085		0.378***		0.191		-0.302		0.632***
		0.183		0.120		0.208		0.232		0.106
Male	0.807***	0.898***	0.265**	0.331***	0.272	0.270	-1.250***	-1.431***	-0.098	0.047
	0.184	0.171	0.116	0.111	0.227	0.211	0.275	0.234	0.096	0.089
Age	0.014	0.022	0.006	-0.009	-0.122**	-0.134***	-0.070	-0.092*	0.038*	0.016
	0.041	0.040	0.026	0.026	0.049	0.048	0.056	0.054	0.021	0.021
Age^2	-0.001**	-0.001**	-0.000	-0.000	0.000	0.001	0.001*	0.002**	-0.001**	-0.000
	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.000
Age 14-17	-0.098**	-0.109**	-0.065**	-0.030	0.074	0.097	0.174***	0.118*	-0.089***	0.005
	0.046	0.050	0.029	0.033	0.057	0.061	0.064	0.069	0.025	0.027
Hours of internet use	-0.144	0.164	-0.257	-0.256	1.525***	1.518***	0.740	0.614	-0.110	-0.233
	0.409	0.408	0.256	0.264	0.512	0.504	0.528	0.503	0.209	0.214
Educational level	-0.048	-0.066	0.137**	0.094*	0.044	0.097	-0.228*	-0.168	0.099**	0.019
	0.084	0.083	0.053	0.055	0.101	0.097	0.118	0.110	0.044	0.045
Employed	1.149***	1.182***	0.431**	0.487***	0.994***	0.882***	0.892**	0.734**	0.170	0.247*
	0.264	0.243	0.173	0.161	0.322	0.293	0.351	0.322	0.138	0.130
Interest in games – much lower	0.208	0.252	0.534**	0.556***	0.475	0.411	-0.226	-0.362	0.433***	0.466***
	0.323	0.312	0.210	0.205	0.439	0.422	0.483	0.443	0.161	0.171
Interest in games – lower	-0.355	-0.268	0.098	0.180	0.162	0.178	0.166	0.089	0.215*	0.223*
	0.222	0.214	0.139	0.137	0.283	0.276	0.327	0.306	0.117	0.117
Interest in games – higher	1.176***	1.281***	0.227	0.488***	0.569*	0.604**	0.761*	0.593*	-0.332**	0.008
	0.294	0.248	0.187	0.155	0.333	0.288	0.392	0.321	0.153	0.130
Interest in games – much higher	2.069***	2.129***	0.882***	1.203***	1.320***	1.433***	0.918*	0.684*	-0.395*	0.189
	0.397	0.337	0.263	0.233	0.467	0.385	0.507	0.416	0.207	0.182
Frequency online search on games	2.020***	2.013***	1.083***	1.044***	1.824***	1.692***	2.406***	2.202***	0.268	0.252
	0.325	0.305	0.209	0.204	0.385	0.362	0.430	0.394	0.170	0.168
Germany	-0.514	-0.467	-0.767***	-0.619***	-0.368	-0.166	0.646*	0.697*	0.064	0.175
	0.313	0.326	0.204	0.213	0.376	0.383	0.386	0.372	0.127	0.142
Spain	-0.420	-0.216	-1.593***	-1.408***	0.905	0.844	5.551***	4.971***	-1.313***	-1.065***
	0.692	0.595	0.447	0.393	0.835	0.674	0.938	0.756	0.387	0.345
France	-2.276***	-2.238***	-1.642***	-1.637***	-0.032	-0.032	2.070***	2.013***	-0.531***	-0.592***
	0.278	0.277	0.183	0.187	0.342	0.334	0.377	0.361	0.123	0.148
Poland	-0.750	-0.551*	-1.530***	-0.889***	1.044*	1.335***	7.350***	6.838***	-0.952***	0.144
	0.510	0.319	0.310	0.199	0.544	0.363	0.670	0.433	0.274	0.154
Sweden	-2.473***	-2.467***	-1.458***	-1.357***	0.092	0.186	0.156	0.066	-0.368***	-0.291**
	0.272	0.273	0.189	0.192	0.362	0.361	0.341	0.335	0.127	0.132
Constant	12.02***	11.74***	5.394***	5.250***	12.94***	12.15***	12.77***	12.60***	0.434	0.330
	1.704	1.646	1.043	1.073	1.994	1.956	2.200	2.168	0.853	0.896
Nr. observations	11,942	11,912	12,016	11,980	11,877	11,848	11,718	11,666	12,031	12,002

Table 0.13 Music, Films & TV-series, Games & Books: IV coefficients of numbers of total illegal transactions on total legal transactions

	Music, N total legal	Films & TV-series, N total legal	Books, N total legal	Games, N total legal
N total illegal [a)]	0.031	-0.270	-0.382	0.241
	0.217	0.182	0.752	0.224
Male	11.089*	1.806***	-0.570	-0.518
	5.828	0.475	0.840	0.381
Age	-5.485***	-0.350**	-0.184	0.015
	0.838	0.150	0.138	0.083
Age^2	0.035***	0.002	0.002	-0.001
	0.009	0.001	0.001	0.001
Age 14-17	10.831***	0.459***	-0.383***	-0.008
	1.155	0.146	0.145	0.097
Hours of internet use	-21.389*	1.487	4.065***	0.838
	11.174	1.268	1.477	0.832
Educational level	5.350***	0.725***	0.768***	-0.130
	1.682	0.212	0.238	0.174
Employed	26.168***	3.672***	2.614***	2.501***
	4.912	0.485	0.469	0.522
Interest in subject* – much lower	12.066	0.744	0.135	0.525
	12.669	1.208	1.278	0.684
Interest in subject – lower	-11.756**	-0.899	-0.838	0.316
	5.020	0.596	0.737	0.488
Interest in subject – higher	27.473***	4.697***	5.897***	2.370***
	4.507	0.639	0.496	0.553
Interest in subject – much higher	43.817***	11.235***	11.147***	3.912***
	6.835	1.202	0.718	0.720
Frequency online search on subject [a)]	63.702***	8.574***	6.293***	5.533***
	7.693	0.705	0.938	0.708
Germany	-60.905***	-8.758***	-4.251***	-0.424
	5.916	0.681	0.650	0.633
Spain	26.907*	-0.035	-1.400	2.470*
	15.598	2.131	2.790	1.376
France	5.854	-2.539**	-1.016	-2.181***
	8.751	1.146	0.888	0.597
Poland	-32.371***	0.699	3.786*	4.363***
	11.443	1.461	2.003	0.838
Sweden	58.945***	-5.259***	-2.120***	-4.277***
	7.066	1.460	0.685	0.562
Constant	386.840***	53.701***	40.005***	28.921***
	36.219	5.586	5.536	3.657
Nr. observations	13,896	15,851	11,383	11,226

a) Either music, movies, games or books, depending on the dependent variable mentioned in the top row.

G: SAMPLE STATISTICS

Table 0.1 Summary statistics (in percentages and N) Unweighted

Characteristic	Minors (10.5)	Adults (89.5)
Employed	20.6	56.6
Country		
Germany	16.9	17.1
United Kingdom	16.5	16.5
Spain	17.0	16.6
France	16.7	16.8
Poland	16.6	16.7
Sweden	16.3	16.4
N	*2,994*	*25,647*
Internet familiarity		
Do you know what each of the following terms mean in the context of internet?		
Paypal – yes	80.4	86.5
VPN – yes	16.7	23
SSD – yes	21.5	24.1
P2P site – yes	28.3	32.6
P2P game – yes	35.4	32.7
RAM – yes	58.6	64.2
Torrents – yes	53.1	46.4
FTP – yes	19.1	27.2
Port forwarding – yes	21.9	21.5
Bitcoin – yes	29.9	37.9
Warez – yes	9.6	13.7
N	*2,994*	*2,5647*
Moral questions		
If no one else is around, do you consider the following behaviour acceptable:		
Jaywalking – totally not	24.1	24.3
Not	28.4	29.8
Undecided – totally yes	47.5	45.9
Travelling in public transport without a fare – totally not	43.5	51.9
Not	32.3	27.5
Undecided – totally yes	24.2	20.6
Photographing with flashlight in a museum where that is not allowed – totally not	41.1	46.9
Not	32.4	29.5
Undecided – totally yes	26.5	23.6
Forgetting a promise to do community work – totally not	42.6	42.6
Not	37.0	34.2
Undecided – totally yes	20.4	23.2
N	*2,993*	*25,626*
Internet use		
How often do you read news from:		
National newspaper – Once a month or more		69.0
Rarely or never		31.0
Local newspaper – Once a month or more		72.0
Rarely or never		28.0
Google or Yahoo news – Once a month or more		57.4
Rarely or never		42.6
Website or TV channels – Once a month or more		63.4
Rarely or never		36.6
Blogs – Once a month or more		48.6
Rarely or never		51.4
Other internet news providers – Once a month or more		71.6

Characteristic	Minors (10.5)	Adults (89.5)
Rarely or never		28.4
How often do you use internet for homework or to read news? – Once a month or more	96.3	
Rarely of never	3.7	
N	*2,993*	*25,626*

Table 0.2 Summary statistics (in percentages and N) Weighted

Characteristic	Minors (10.5)	Adults (89.5)
Employed	20.6	56.6
Country		
Germany	16.5	19.7
United Kingdom	16.1	15.7
Spain	20.6	21.7
France	18.6	16.3
Poland	20.3	17.5
Sweden	7.9	9.1
N	*1,923*	*26,681*
Internet familiarity		
Do you know what each of the following terms mean in the context of internet?		
Paypal – yes	78.5	88.4
VPN – yes	16.5	24.3
SSD – yes	21.1	25.8
P2P site – yes	29.2	36.0
P2P game – yes	36.5	36.3
RAM – yes	59.8	67.0
Torrents – yes	52.0	50.0
FTP – yes	19.2	29.3
Port forwarding – yes	22.4	23.9
Bitcoin – yes	29.0	39.2
Warez – yes	10.3	15.7
N	*1,923*	*26,683*
Moral questions		
If no one else is around, do you consider the following behaviour acceptable		
Jaywalking – totally not	26.6	24.5
Not	29.9	30.4
Undecided – totally yes	43.5	45.1
Travelling in public transport without a fare – totally not	44.0	49.5
Not	32.9	28.6
Undecided – totally yes	23.1	21.9
Photographing with flashlight in a museum where that is not allowed – totally not	41.0	44.5
Not	33.1	30.6
Undecided – totally yes	25.9	24.9
Forgetting a promise to do community work – totally not	41.9	41.2
Not	36.2	35
Undecided – totally yes	21.9	23.8
N	*1,923*	*26,662*
Internet use		
How often do you read news from:		
National newspaper – Once a month or more		69.5
Rarely or never		30.5
Local newspaper – Once a month or more		72.2
Rarely or never		27.8
Google or Yahoo news – Once a month or more		60.1
Rarely or never		39.9

Characteristic	Minors (10.5)	Adults (89.5)
Website or TV channels – Once a month or more		64.7
Rarely or never		35.3
Blogs – Once a month or more		51.7
Rarely or never		48.3
Other internet news providers – Once a month or more		72.6
Rarely or never		27.4
How often do you use internet for homework or to read news? – Once a month or more	96.1	
Rarely of never	3.9	
N	*1,923*	*26,663*

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