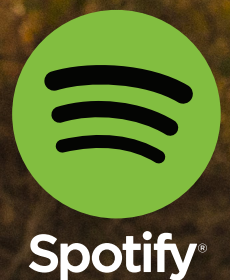# Adventures in the Netherlands

Spotify, Piracy and the new Dutch experience

Spotify®

Adventures in the Netherlands
Spotify, Piracy and the new Dutch experience

Spotify was founded in 2006 to provide a superior legal alternative to piracy. Yet despite launching in 28 markets and acquiring 24 million active users, there has been little recent research on the impact Spotify has had on piracy. Until now.

The Swedish success story is well known: in 2012, their music industry grew by almost 20 percent. Here we're turning our attention to the recent success of Spotify in the Netherlands, helping us establish new insights on an old debate.

Not only has the number of people engaging in music piracy in the Netherlands fallen in recent times, but new Long Tail insights reveal that 29% of the 1.8m Dutch BitTorrent pirates took just 1 file in 2012 while the top 10% took over half of the content.

A second insight from this work comes from examining the impact of holdout strategies on sales and illegal torrent volumes. We found that artists who delayed their release on Spotify suffered higher levels of piracy than those who did not.

The Netherlands offers positive signs: piracy overall is now lower, and artists that engage with Spotify see less piracy. To give these insights context, we compare the Netherlands with Spotify's new market, Italy, where piracy is mainstream.

Will Page, Director of Economics @ Spotify

Summarify

When Spotify was founded in 2006, one of the original goals was to beat piracy at its own game and offer the music consumer a superior and legal alternative.

The last published study on the relationship between Spotify and piracy was in 2011, when an industry report stated that piracy in Sweden had fallen by 25%.

Looking beyond Sweden and to bring the debate up to date, in this report we focus on Spotify's recent success in the Netherlands. What does piracy look like there, now?

Working with analytics company Musicmetric, we are able to understand how regularly people use BitTorrent for music piracy and how levels of piracy differ from one artist to the next.

Not only has the number of people engaging in music piracy in the Netherlands fallen in recent times, it also appears to be an infrequent activity for most of those who remain.

There were 6.8m residential broadband connections in the Netherlands in 2012

- BitTorrent music piracy occurred on 1.8m unique IPs in 2012, around a quarter of the total
- Of that 1.8m, a large passive group of 532,000 (29%) downloaded just one music file
- A minority of 188,000 (10%) 'hardcore' pirates downloaded 16 files or more

This Long Tail distribution is an important insight, as it highlights that most people take very little. Meanwhile, the top 10% take over half of the content.

To further understand this distribution and infrequent use of BitTorrent in a country where Spotify is popular, we investigated the impact of 'artist holdout' (delayed release) strategies on sales, streams and illegal torrents.

At one end of the spectrum, take two releases that appeared on Spotify at the same time as iTunes and other sales channels: One Direction's album Take Me Home and Robbie Williams' single Candy. Both were successful on Spotify and sold 4 copies per BitTorrent download.

At the other end of the spectrum, Spotify holdouts suffered higher levels of piracy: Rihanna's Unapologetic and Taylor Swift's Red sold only 1 copy per BitTorrent download.

Unexpectedly, another driver of BitTorrent activity was festivals. Artists like Racoon and Gers Pardoel saw illegal download spikes immediately after festival performances.

These insights will help Spotify continue to reduce piracy in the Netherlands. To show how that game will play out elsewhere, we turn to Italy, where Spotify has recently launched.

Summarify continued...

Italy's music industry exhibits all the same troubles as Sweden pre-Spotify 2009.

Music piracy there looks distinctly different from the Netherlands in 2012. There is twice as much piracy per capita in Italy, but in the Netherlands there are disproportionately more hardcore 'frequent' pirates remaining.

Reducing Italian piracy levels to those seen in the Netherlands would see 7m consumers using legal alternatives and 47m fewer files being taken.

We conclude by reminding ourselves that piracy is a business with real revenues and costs to cover. If Spotify is winning now, piracy will evolve to fight for market share.

This helps illustrate the scope and limitations of legal alternatives: the majority may switch to Spotify's legal service, but a hardcore minority may stubbornly remain.

This offers us a timely reminder that it has and always will take a combination of superior legal offerings alongside effective public policy to improve the climate for copyright online.

Contents

Sources and Notes

Spotify internal data
Musicmetric BitTorrent data
GfK Netherlands chart data
Point Topic broadband penetration data
IFPI (2013) Recording Industry in Numbers
Forrester Research (2008) Netherlands Recorded Music Market Losses Model
Media Vision (2011) 'Musiksverige – Fildelning & nedladdning'
Poort (2012) 'File sharing 2©12: Downloading from illegal sources in the Netherlands'

Privacy

Spotify and Musicmetric respect privacy. Personally identifiable information has not been used in this analysis – all unique identifiers are anonymous.

Disclaimer

This material has been prepared by Will Page, Director of Economics at Spotify Limited for information purposes only. The opinions expressed in this report are, unless otherwise indicated, the author's own and do not necessarily constitute the view of the Management or the Board of Spotify and any affiliated companies. For further enquiries, please contact: press@spotify.com.

Acknowledgements

Chapter 1:
Measuring the 'known unknown'
Time to put down surveys and pick up new measurement tools

A Swedish success story that needs updating

1. When Spotify launched their first beta in the fall of 2008, it was branded "an alternative to music piracy." In the five years that have followed, Spotify's success story has been remarkable: it's now in 28 markets with over 24 million active users and 6 million paying subscribers. To date, it has paid over $500m to music rights holders and it intends to do the same (again) in 2013.

2. In 2011, a Swedish music industry study titled 'Music Sweden: File Sharing & Download, 2011 Q2' looked into online music consumption habits. It showed that the number of people who pirated music fell by 25 percent in Sweden between 2009 and 2011.

3. So Spotify was successful and piracy fell in Sweden – but with only one example this could be a coincidence. Two years on, the question is: has this been replicated elsewhere?

4. Measurement methods have evolved since: the Swedish study, like many others, collected survey data asking people to describe their piracy habits. Other measurement techniques using audience panels like Nielsen and ComScore are able to measure 'visits' to sites, but cannot distinguish between music piracy and piracy of other types of media content.

5. It is no longer sufficient to simply measure the number of pirates without finding out what they've stolen. Spotify may have successfully converted a music pirate into a €120-a-year subscriber, but that user may still visit KickAssTorrents to download film content. In this example, the user is still a pirate but legal alternatives to piracy have succeeded.

6. In this study, we were determined to move away from survey-based evidence and other sampling methods where there is a risk of double-counting users and/or missing some altogether. For this report, we were fortunate to work with media measurement company Musicmetric, who provide insights and understanding into consumer behaviour globally for the entertainment industry. Not only did they allow Spotify to work with their data, they enabled us to build pioneering new insights to inform and advance this perennial debate.

Counting cars: how Musicmetric measures torrent activity

Imagine someone sitting on a bridge of a motorway counting and identifying vehicles. That is a reasonable analogy to describe how Musicmetric counts and identifies torrent files moving across a network. Musicmetric collects BitTorrent usage data that allows it to see the number of unique IP addresses active over a given period. They can also identify the type of media content being taken, overcoming the survey problem mentioned earlier, and can track the number of times a specific album or single has been pirated

7. Counting IP addresses and BitTorrent files is more accurate than surveying the population (especially when the survey question refers to an illegal and ambiguous act). It can describe pirate behaviour such as the number of files taken and how often the activity occurs. Looking at what is taken, the level of piracy suffered by different artists can be compared, and the data allows time-series analysis of events like artist holdouts and festivals.

8. Nevertheless, in any data analysis, you have to be careful to understand the limits of the data and the risk of misinterpretation. For the reader, it's important that we are clear on the caveats. Musicmetric only tracks BitTorrent P2P: they do not measure cyberlockers, virtual private network (VPN) activities, YouTube rips or piracy over mobile networks. This should not be too problematic for countries like the Netherlands and Italy, where torrents on the internet are the dominant form of music piracy, according to the IFPI.

9. Because Musicmetric is a new service, we don't have data for the Netherlands before November 2011. Unfortunately, this means we cannot show a before-and-after picture of Spotify's explosion there. However, we will be putting this benchmark in place for our newly launched market of Italy.

10. The table below lays out all the pros and cons of Musicmetric data and, where possible, how those cons were curbed for this study.

| Table 1: What Musicmetric data is, and isn't		
Pros	Cons	Curbing those Cons
Counts unique IP addresses so frequency of activity can be understood.	Counting IP addresses isn't the same as counting people. Could be too high: IP addresses can change which would cause more unique users to be counted than actually exist. Could be too low: Multi-occupancy households may have >1 pirate using 1 IP address.	We also investigate download volume. The number of files taken using BitTorrent is a useful check for the unique IP count. Unaffected metrics move in line with unique IP count.
Allows music piracy to be studied independently of other content.	Does not include cyberlocker and non-BitTorrent P2P.	IFPI report that the vast majority of piracy in NL is via BitTorrent.
Allows geo-location of demand.	Does not geo-locate known proxies. Does not geo-locate IP addresses used by mobile data networks. Mobile device piracy is not counted when it uses 3G / 4G networks.	BitTorrent does not work so well through proxies and is thus a low % of all activity. BitTorrent is not used directly on phones.
Counts download volume per artist per item per day. Understanding the content taken reveals big differences by artist.	Content must be identified and this is not possible for each and every file.	In the Netherlands, over half of all BitTorrent music files taken are identified by track & artist (75% in Italy).

Chapter 2:
Reducing the frequency of the Dutch disease
Distinguishing the hardcore minority from the passive majority

11. Since the turn of the century, both Sweden's and the Netherlands' respective music industries followed similar paths. Both saw steep falls in their recorded music revenues since 2001, with 'rampant' piracy (and the Pirate Bay especially) taking much of the blame. Yet after halving in size by 2008, Swedish music revenues are now showing clear signs of sustainable growth thanks largely to the success of Spotify. The IFPI recently reported that the overall (physical included) Swedish music industry grew by almost 20% in 2012.

IFPI Recording Industry Revenues: Sweden and Netherlands

Chart 1. Index of Industry Revenues, 2001 = 100

The Swedish recording music industry stabilises in 2009 and grows almost 20% in 2012
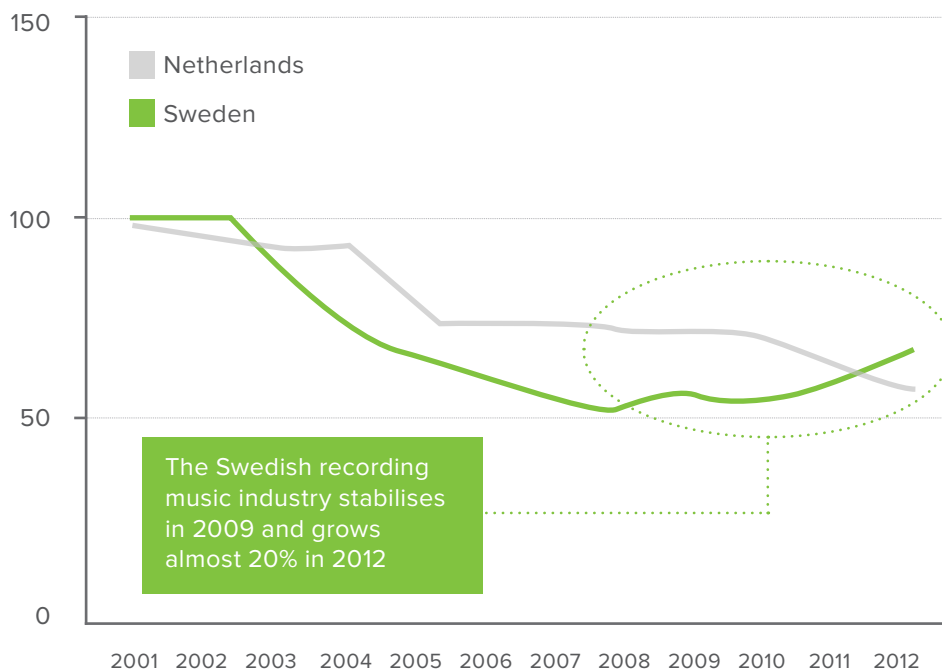
12. If Sweden has finally got out of its tunnel, then the Netherlands is beginning to see light at the end of theirs. Since late 2011, Spotify has made serious inroads to the Dutch market, thanks in part to a successful KPN Telco partnership. Whilst overall Dutch music industry revenues declined in 2012, the IFPI reported digital revenue growth of 66% in the Netherlands for 2012, the highest in Western Europe. Consequently, label executives like Thierry van Engelen of Universal Music have described the Netherlands as resembling Sweden 2-3 years ago.

13. There are a number of factors that affected the Dutch music industry in 2012. Firstly, it's worth noting the blocking of the Pirate Bay in May 2012, which created lots of press coverage. Secondly, there is the worrying state of the high street music retailers, with Free Record Store facing an uncertain future. Thirdly, there are anecdotal reports of the live music sector 'softening' as consumers' wallets feel the pinch.

14. Last year also saw the publication of a study titled 'File sharing 2©12: Downloading from illegal sources in the Netherlands' by Joost Poort of IViR and the University of Amsterdam. The author claimed that illegal downloading of music has fallen between 2008 and 2012, whilst film and TV piracy is increasing (see table 2). The author cited the popularity of legal alternatives such as Spotify and YouTube as being the primary reason for explaining the fall in piracy over the four year period.

Table 2: Percentage of the population aged 15 years and up who had downloaded from an illegal source in the past year		
Downloading from an illegal source of	**2008**	**2012**
Music	32%	22%
Films/series	10%*	18%
Games	7%	6%
Books	Not known	6%
Total	35%**	27%
Source: IViR/CentERdata (2012) *Excluding series; **Excluding series and books.		

15. In our study, Musicmetric data was constructed in a way that enabled us to count the number of unique IP addresses involved in at least one act of music piracy in 2012. To compare these results with previous studies, a workaround solution had to be developed to establish an indicative trend, which could be compared with different surveys that deployed different methodologies.

16. The image on the next page captures this 'indicative trend', showing that piracy is not at the same level as it once was. The figures we obtained from Musicmetric (showing 1.8m unique IP addresses active in 2012) support Poort's claims. For a music market which has been ravaged by piracy, this indicative trend is especially encouraging.
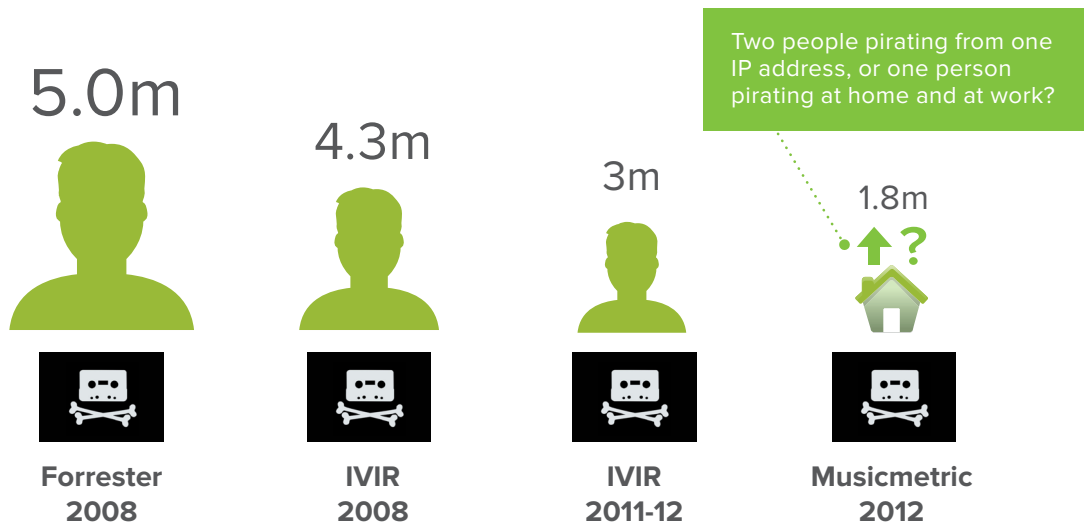
5.0m
4.3m
3m

Two people pirating from one IP address, or one person pirating at home and at work?

1.8m

Forrester 2008

IVIR 2008

IVIR 2011-12

Musicmetric 2012

Chart 2. Number of active pirates is falling

17. We need to be clear that Musicmetric's 1.8m figure is a count of all unique IP addresses used for BitTorrent music downloads. As the image suggests, this equates to households – not people as in the past surveys. Two student pirates in one flat means two pirates on one IP address, so there needs to be an upward revision to this figure to equate to people. On the other hand, if one music pirate used both his home and work connections for piracy, that's two IP addresses – where in reality this is one person. So there will be some double-counting in this figure too.

18. According to Point Topic, there are 6.8m residential broadband connections in the Netherlands. While there is some piracy on busines connections, this figure provides a useful proxy for the total number of IP addresses that could be used for piracy. So, if 1.8m unique IP addresses were used for BitTorrent music downloads in 2012, we can say that music piracy occurs on 27 IPs per 100 residential broadband connections. In chapter 5, we will see how this figure is as high as 77 in Italy!

A transient market for music piracy, in Holland

19. We were also able to see how many files were taken by each of the 1.8m unique IPs. From this data we produced frequency counts as shown in Chart 3 (the number of connections) and Chart 4 (the volume of files taken). We created four groups: those who downloaded just 1 file, those lighter users taking between 2 and 5 files, heavier users taking 6 to 15 files and a power user group taking more than 16 files. The following observations are striking:

- 29% downloaded just 1 file – 532k downloaded just one thing all year
- 10% downloaded 16 files or more - The hardcore group is only 188k connections

Number and proportion of all active CONNECTIONS
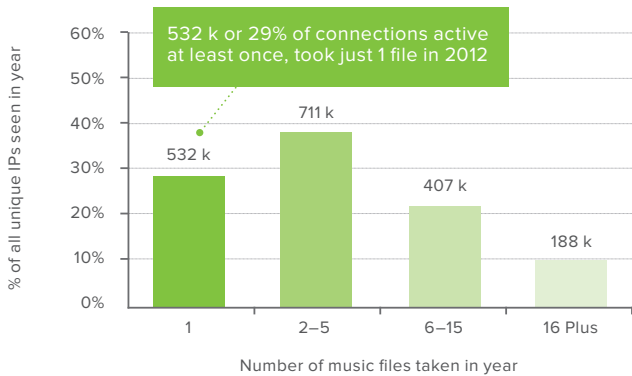Source: Musicmetric, Netherlands 2012

Amount and proportions of all FILES taken
Source: Musicmetric, Netherlands 2012
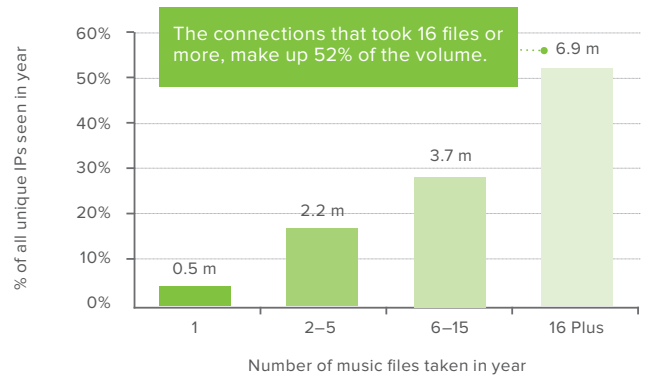

Chart 3. Proportion of all connections

Chart 4. Proportion of total volume

20. This analysis tells us a lot about the nature (and distribution) of music piracy in the Netherlands. Chart 5 below maps connections to volume to emphasise why this is such a revealing insight. Here, you can see that the least active 68% take 5 files or less, accounting for only 20% of the content, while the most active 10% take 52% of files. This harks back to the Long Tail debate, in that it suggests a hit-heavy (or hardcore-heavy) distribution.

Chart 5. Netherlands Frequency & Volume
Source Musicmetric, Netherlands 2012
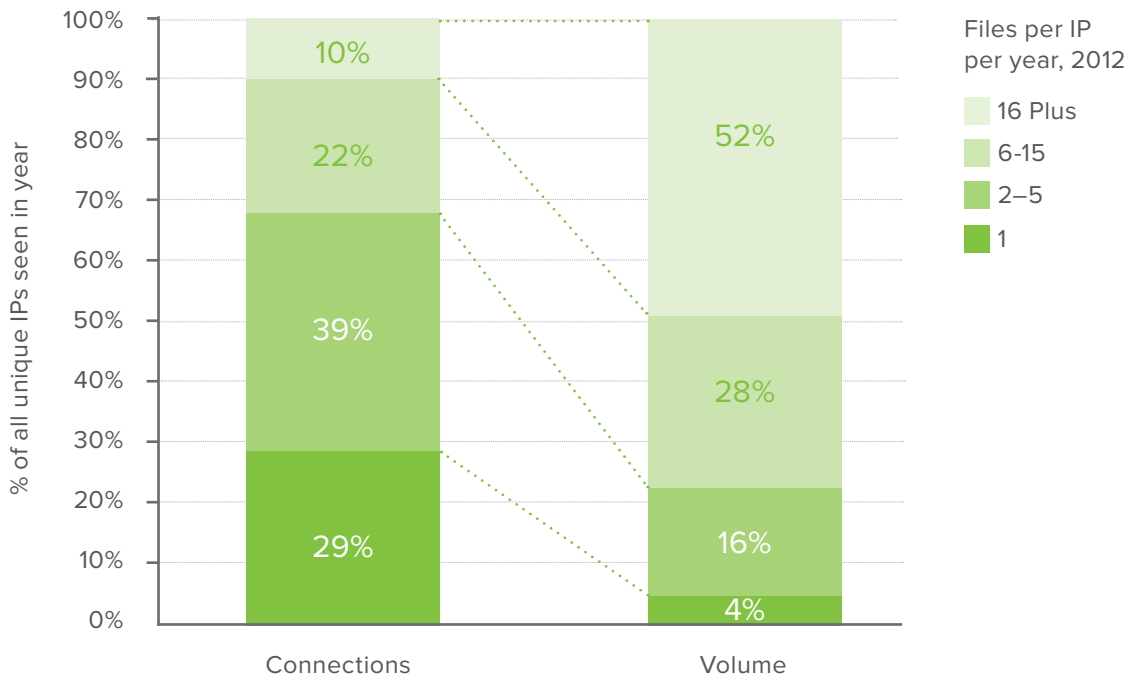
21. To understand this transient user base, the intuitive question to ask is why do people dip in and out? Artist holdouts, which are a frequent 'event' on Spotify, may be part of the answer — especially given the scale of users in the Netherlands.

Chapter 3:
Holding out for three degrees of instant gratification

Differences between artists in their mix of sales, streams and torrents

22. Eric Garland, CEO and co-founder of BigChampagne, coined the term 'popular is popular' to describe how the popularity of illegal downloads mirrors the legal charts. It was and remains an astute observation that emphasizes how careful one must be when exploring causal relationships in this area.

23. Here, we want to go one step further than 'popular is popular' and examine the relationship between sales, torrents and Spotify streams. There are two reasons why we are able to do this: (i) we have the data for each thanks to Musicmetric and GfK Netherlands, and importantly (ii) all three are 'big' in the Netherlands.
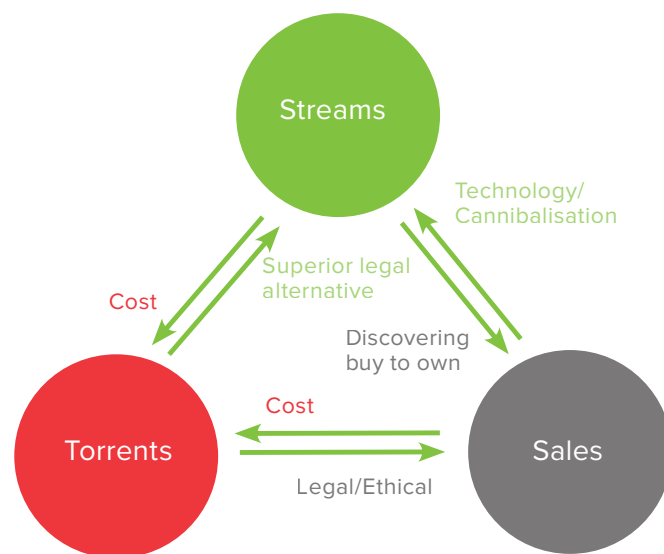
24. Given the complexity of all these moving parts, the methodology established here was to simply draw down singles and album sales from GfK and compare that to the equivalent torrent downloads. This provides us with a simple ratio: the number of sales per BitTorrent download. If this is high, you sold more than you were stolen; if it is below 1, you were stolen more than you sold.

25. Once the relationship between sales and torrents has been established, we then turn to Spotify streaming data to observe the streaming pattern and determine if there is a causal relationship there. Where there has been a 'holdout' from Spotify, a counterfactual is provided to compare and contrast.

26. We have to be very careful when trying to identify dependencies: if A tends to be high when B is low, it could be because i) A being high caused B to be low, ii) B being low caused A to be high, or iii) simply a spurious correlation. In our study, 'high' and 'low' are relative to the overall popularity of a track or album so we use the sales volume to establish that benchmark.

## Interpreting the charts: sales and torrents to the left, streams to the right

27. In this study, we're going to focus on just four popular artists who not only pursued distinctly different release strategies but importantly released 'pop' music that would appeal to the same type of fan around the same time. This was important to cancel out differences caused by factors like the production and marketing budget, timing and the strength of release schedule. Finally we checked these results with a wider sample of 14 other popular artists which helped control for spurious correlations.

28. The following holdout charts are not straightforward to understand, but relatively easy to interpret. The reader should note the following four points before we begin:

- Firstly, to respect confidentiality at the request of GfK, the actual volumes of sales, BitTorrent downloads and Spotify streams are not shown. This does not matter for our purpose as we are highlighting the relationships between the lines.

- Secondly, the charts have two vertical Y-axes. Sales (grey) and BitTorrent (red) volume are plotted on the left hand axis, and Spotify (green) streams are plotted to the right hand axis. Note also that other streaming services are not included.

- Third, Spotify streams are counted when 30 seconds or more of the track is played. These counts are rebased. The green line (Spotify) follows a slightly different pattern to the sales demand lines, decaying markedly slower.

- Fourth, you can see how the gap between the grey (sales) and red (BitTorrent) lines is quite different from one artist to the next, representing differences in demand for the music through each channel. What's key is to keep the red line down.

29. For the 12 month time period, we studied 14 'popular' artists (16 albums and 19 singles). These included local and international acts, with a range of different release strategies. Some artists were simply on Spotify, others were exceptionally pro-Spotify and others held out for either finite or infinite periods. In this report we concentrate on the two artists from our sample with the best sales to BitTorrent ratio (One Direction and Robbie Williams) and the two with the worst (Rihanna and Taylor Swift).

30. Importantly, and much to our surprise, we learned that some artists adopted highly publicised album holdouts on Spotify but did release singles on the service.

31. One Direction is an example of an act that saw high sales, high numbers of Spotify streams but relatively low levels of piracy for their November 2012 single and album releases. The '1D Music' Spotify app launched on 13th November to coincide with the album release.

Chart 6. One Direction, Sales, BitTorrent and Spotify
Albums & Singles, Netherlands 2012, Sources: Spotify, GfK and Musicmetric
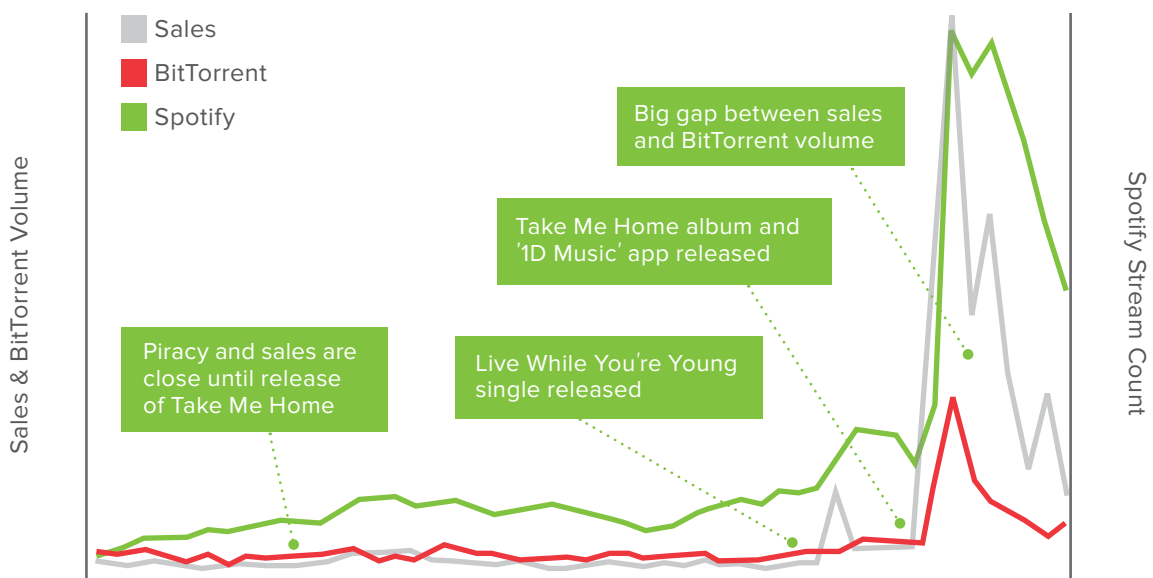
32. One Direction's Take Me Home was the most popular album on Spotify from our sample and also had the highest (best) sales to piracy ratio of 3.79 copies sold per BitTorrent download. Unapologetic, by Rihanna, was released the following week but did much worse, selling only 1.36 copies per BitTorrent download. This ratio is evident in the gap between the sales and BitTorrent lines on the charts below.

Chart 7. One Direction, Take Me Home
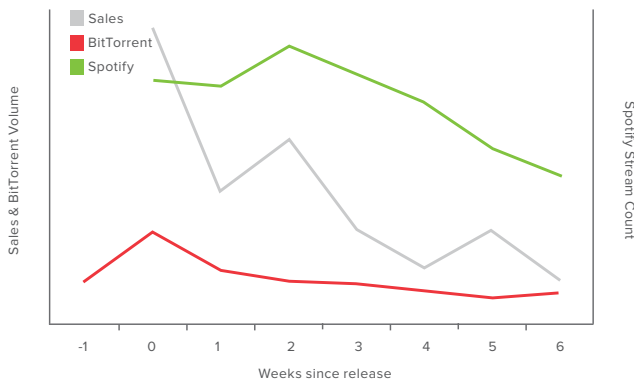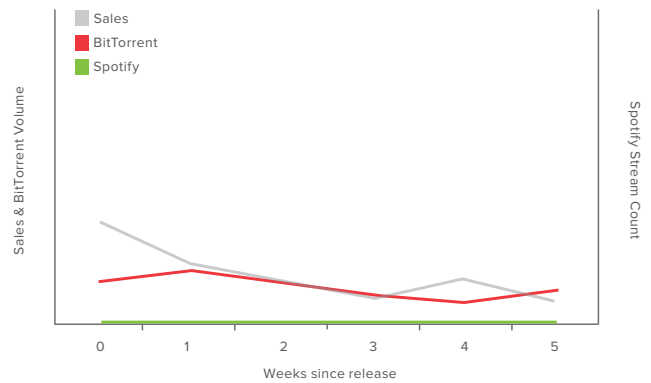Netherlands 2012. Sources: Spotify, GfK and Musicmetric

Chart 8. Rihanna, Unapologetic
Netherlands 2012. Sources: Spotify, GfK and Musicmetric

33. The pattern is repeated by Robbie Williams' Take The Crown and Taylor Swift's Red albums. Like Take Me Home, Take The Crown was released on Spotify on the same day as through other channels and it suffered a lower level of piracy. By contrast neither Unapologetic nor Red were on Spotify and both suffered relatively more piracy.

Chart 9. Robbie Williams, Take The Crown
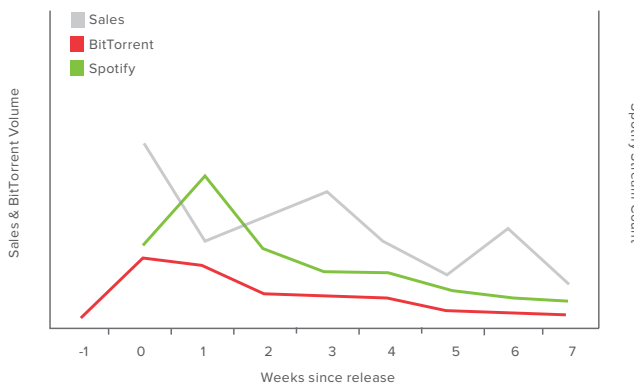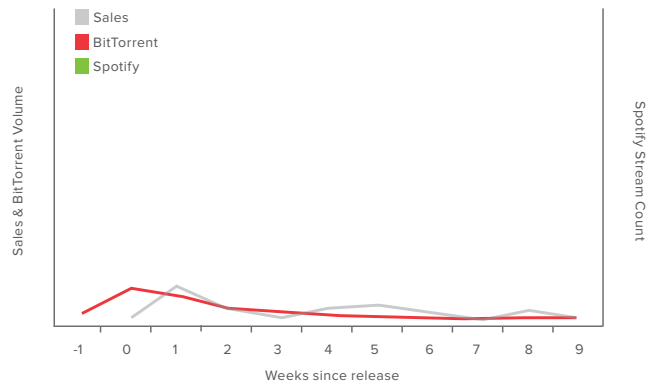Netherlands 2012. Sources: Spotify, GfK and Musicmetric

Chart 10. Taylow Swift, Red
Netherlands 2012. Sources: Spotify, GfK and Musicmetric

34. Rihanna released her singles on Spotify after holdbacks lasting between 2 and 5 weeks. Even so, once released, Diamonds was especially popular on Spotify. Below, we compare Diamonds with Robbie Williams' Candy which has the highest sales per BitTorrent download. Diamonds became available on Spotify 12 days after its release for sale but there is no evidence that this then cannibalised sales. In fact, Diamonds continued to sell strongly after this point, although BitTorrent demand did appear to weaken.

35. Sales of Candy really took off when the accompanying album, Take The Crown, was released. Interestingly, this sales spike has no matching spike in piracy.

Chart 11. Rihanna, Diamonds
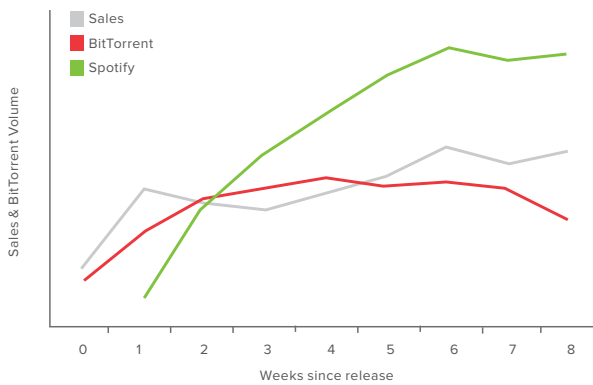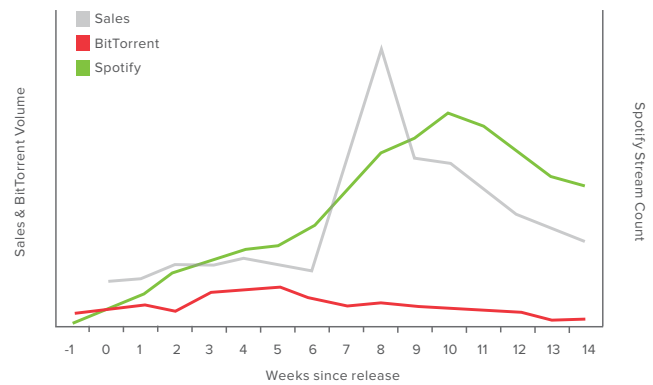Netherlands 2012. Sources: Spotify, GfK and Musicmetric

Chart 12. Robbie Williams, Candy
Netherlands 2012. Sources: Spotify, GfK and Musicmetric


Conclusions from triangulation

36. This analysis presents some striking differences between four similar artists: One Direction and Robbie Williams sold 4 copies for each BitTorrent download whereas Rihanna and Taylor Swift sold only 1. These findings cannot be explained by differences in their target audience because all four acts offer Pop music to a similar segment of the market.

37. Holdouts are not black and white. Care should be taken when examining holdouts because although an album may not be available, an act may do a delayed release of their singles on Spotify.

38. There is no evidence in the 4 case studies showing that streaming on Spotify hurts sales. Furthermore, across all 14 popular artists studied there are no examples of high stream counts, high piracy and low sales. The most popular album on Spotify had the highest (best) sales to piracy ratio. One Direction's Take Me Home was available on Spotify on its release day; it had the highest weekly Spotify stream count and sold the second largest volume of albums in its release week.

39. There is no evidence from our sample that holdouts sell more. Unapologetic and Red were not available on Spotify but neither album sold well in the Netherlands: Unapologetic entered the chart at number 6 and fell to number 11 in its second week while Red entered at number 7 and fell to number 22 in its second week. Both suffered 3-4 times as much piracy per sale as Take Me Home.

40. There is no evidence from these four case studies of a decline in sales at the end of a holdback. Rhianna's singles Diamonds and Where Have You Been, along with Taylor Swift's We Are Never Ever, didn't experience a sales drop when their music finally became available on Spotify.

41. Many of the charts show how sales and torrent demand decays steeply after the initial peak whereas the performance of streams remains more resilient. For an artist that is paid each time their music is streamed, these lines show how their income from Spotify may come over a much longer period than the sudden burst they see from item sales.

Festivals as a cause of spikes in piracy?

In a market where Spotify is large, it is perhaps unsurprising that artist holdouts often lead to spikes in torrent activity. What is surprising is that our analysis uncovered some examples of torrents spiking immediately after festival performances. Here, we explore two such examples.

Chart 13. Gers Pardoel and Racoon piracy spike in August 2012
Sources: Spotify, GfK and Musicmetric
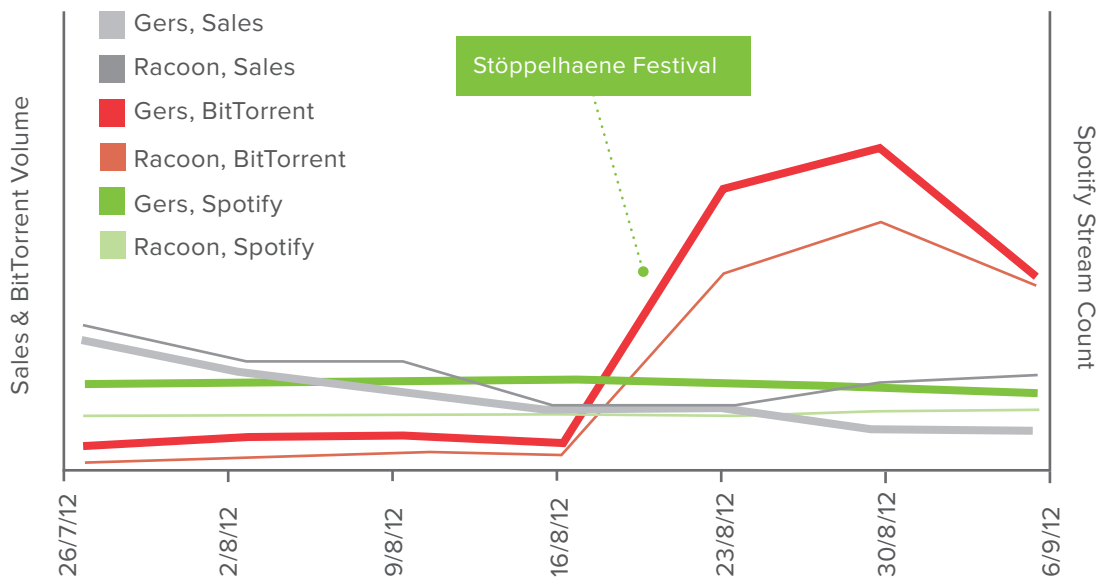
Gers Pardoel and Racoon both appeared at the Stöppelhaene Festival in late August 2012. Before that point, neither suffered a great deal of piracy even though they were popular in the charts. Both saw a dramatic increase in BitTorrent downloads of their albums after this event with little accompanying blip in album sales, single sales or Spotify demand.

Explanations for these spikes merits further study, but one intuitive driver is instant gratification. Academics and policy makers who are researching this topic may want to consider other events such as awards and talent shows to see if similar spikes occur.

Chapter 4:
# What makes Italian pirates different from the Dutch?

More of them, more mainstream

42. Earlier, we used the analogy of the tunnel to differentiate the music markets of Sweden and the Netherlands; the former had got out of its tunnel whereas the latter is just able to see the light. Italy, on the other hand, is still very much stuck in the dark, with steep declines in the value of its music industry. Spotify launched in Italy on 12 February 2013, and there are already signs that this has been well received.

43. The table below presents some key country statistics to provide a backdrop for this comparative analysis. The Netherlands is notably wealthier on a per capita basis, and their economy was in less trouble – an observation that continues into 2013. Broadband penetration is considerably higher in the Netherlands, and their digital market ranks higher than Italy (in absolute terms) despite having a population one quarter of the size.

Table 3: Country Statistics	Netherlands	Italy
Total population	16.8m	59.6m
Population aged 15 to 64	11.4m	40.2m
Internet users	15.4m	37.3m
Residential broadband connections	6.79m	13.9m
Number of households	7.4m	24.5m
Total population per household	2.27	2.43
GDP per Capita	$42,300	$30,100
GDP % change 2012 on 2011	-0.5%	-2.3%
World ranking for digital music	10	15

44. The table also shows how the Netherlands and Italy compare in terms of internet population. The percentage of the population who use the internet is significantly higher in the Netherlands, including many young and older people. There are more residential broadband connections per internet user in the Netherlands too, partly due to a lower household occupancy rate.

45. What was most striking about the comparative analysis was the sheer 'mainstream' nature of piracy in Italy. Musicmetric reports seeing 10.7m unique Italian IP addresses downloading music torrents in 2012. The Italian ratio is therefore 77 unique torrent IPs for every 100 residential connections. Recall that piracy in the Netherlands in 2012 involved a much smaller proportion of the population.

Chart 14. Unique IP addresses used at least once in 2012 for BitTorrent music downloads, per 100 residential broadband connections. Sources: Musicmetric, Point Topic, 2012
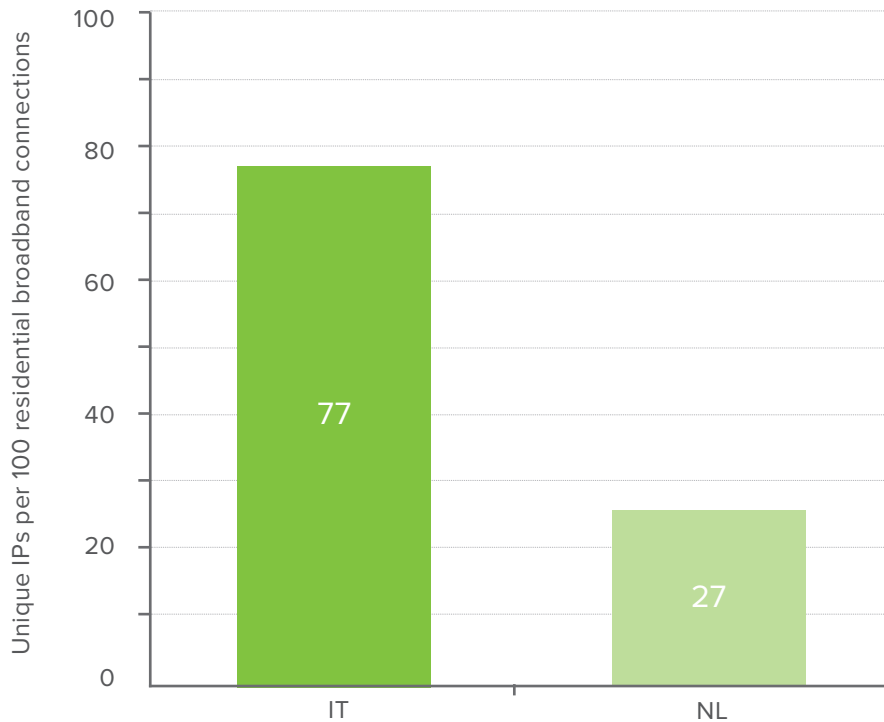
46. We also analysed both frequency and demand data to compare Italian pirates with the Dutch. Our second observation is that Italian IP connections were less likely to churn: 66% of those appearing between January and June 2012 did so again between July and December, compared to 49% in the Netherlands. This is pertinent to the debate about carrots and sticks (legal services and anti-piracy laws), as Italy had yet to develop its legal digital music market in 2012.

47. Our third observation concerns the Long Tail, or the distribution of hardcore and passive pirates. In Italy, only 20% of active connections took just one file (29% in the Netherlands) while 31% of active connections took between 6 and 15 files (22% in the Netherlands). The 'average user' in Italy downloads 2 files more than their equivalent in Netherlands, although Italians were only active on 3 days per year (compared to 4 in the Netherlands). The key takeaway from this chart is that of both countries' pirate population, Italy has more piracy but a lot fewer 'passives' who take just one file compared to the Netherlands in both relative and absolute terms.

Chart 15. More pirates in Italy fall into middle range
Sources: Musicmetric, Netherlands & Italy 2012
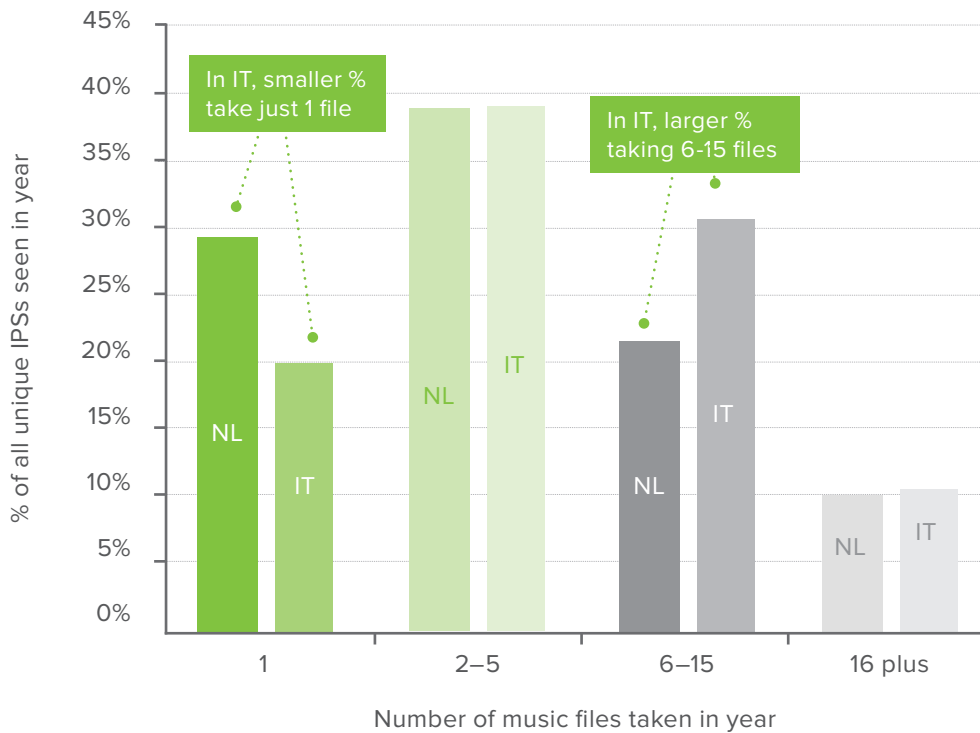
48. Finally, we were able to draw some conclusions about the hardcore minority of 'power users'. The Dutch hardcore pirates (those taking 16 files or more) take 40 files per year on average, compared to 25 in Italy. In long tail language, this means that the Dutch 10% take 52% of total files whereas the Italian 10% take only 38% – implying the Dutch hardcore is even more hardcore.

49. Pulling everything together: Italians pay fewer visits but are more likely to return. Italian pirates take more in a single sitting than a Dutch pirate. The Dutch base is heavily polarised (lower user count, higher % light users but more determined hardcore minority) whereas in Italy, piracy is much more mainstream (higher user count, higher % of high mid range users but less active power users).

50. In conclusion, we find the market in Italy to be ripe for Spotify. There are clearly millions of music fans engaging with BitTorrent to get the songs they want. In Italy, piracy occurs on 77 IPs per 100 residential connections but if, like in the Netherlands, this fell to 27 IPs per 100, there would be 7m fewer Italian households using piracy. As a consequence, this would also mean 47m fewer files being taken.

51. Progress in Italy would see people first moving into the lower frequency groups until eventually they stop coming back altogether. A realistic goal would be to replace regular consumption of piracy with regular consumption of Spotify.

Chapter 5:
Improving the climate for copyright online
Fresh carrots, different sticks

52. Any study into music piracy has to be wary of observation and causation, and the temptation of zero-sum game logic. We stress caution here. Moreover, succumbing to that temptation risks ignoring the significant methodological progress made in this report. The debate has moved on. And let's remind ourselves about the two key outcomes: Spotify has been surprisingly successful in the Netherlands and our analysis supports previous academic studies which show falling levels of music piracy. Both those observations are good news. In this study, we have offered three key insights which build on these positive developments:

- Of the 1.8m active IP addresses in the Netherlands, a large passive group of 532,000 (29%) downloaded just one music file. A minority of 188,000 (10%) 'hardcore' pirates downloaded 16 files or more, representing 52% of the content taken.

- The four artist case studies presented earlier offers little evidence of holdouts leading to increased sales, and strong evidence that Spotify lowers piracy with no effect on sales. Festivals offer a surprise example of a cause of spikes in piracy too.

- Comparative analysis of the Netherlands and Italy shows that piracy is a bigger problem in Italy where it is more mainstream in culture, but that a hardcore minority stubbornly remains in the Netherlands.

53. For all the data crunching that has gone into this economic insight, it's important not to lose sight of the overall goal — which is to grow the legal market for music online.

54. We can illustrate what that goal looks like — and how big the opportunity is — by presenting the recording trade revenues for Sweden, the Netherlands and Italy. Sweden's recording music industry generates digital trade revenues of $11 per head of population, whereas in the Netherlands it's just $3.50 and in Italy — which is more than twice the size of the previous two nations combined — it is a shockingly low $1 per head of population.

55. These figures are plotted in Chart 16 below in dark green, and behind these are the total revenues per capita in light green, which also include physical sales, performance income and sync revenues. [Note: It is sobering to reflect that in 2001, total revenues per capita were $30, $23 and $9 for Sweden, the Netherlands and Italy respectively].

Industry revenues per capita

IFPI Digital and Total Per Capita Revenues, 2012
Sweden, Netherlands and Italy

Number of music files taken in year
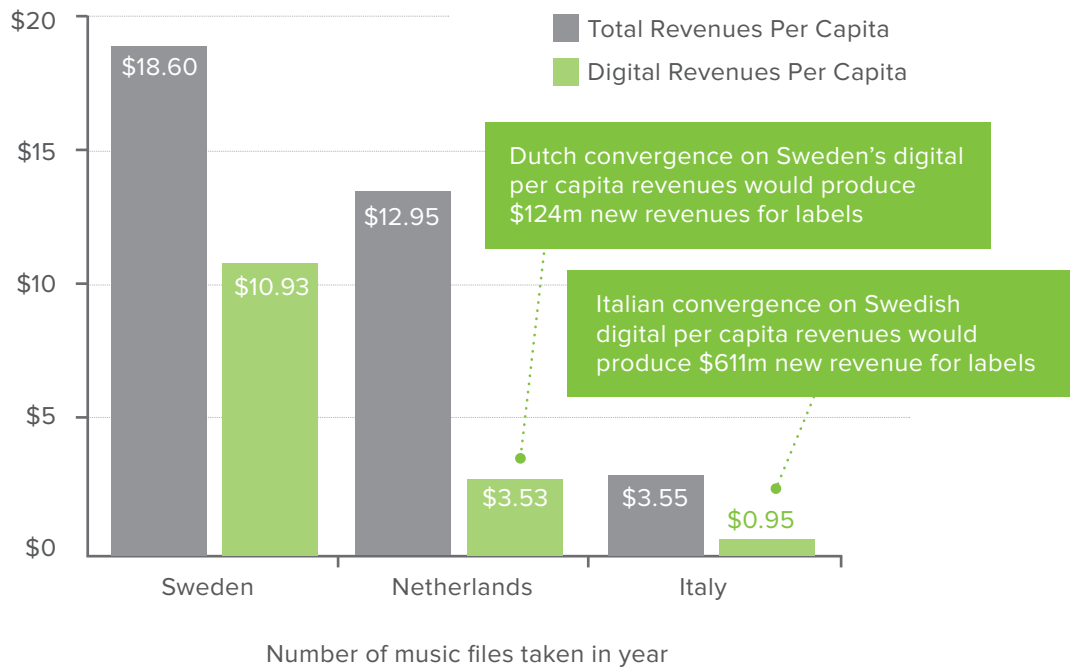
56. To realise the potential for Spotify, think convergence and apply some simple arithmetic. If the Netherlands and Italy were to have converged upon Sweden's digital revenues per capita – essentially producing $11 per head of population for their larger economies – then that would have generated three quarters of a billion additional dollars for record labels alone. That's not an insignificant sum!

57. Finally, we should not forget about the nature of the competition that legal services like Spotify face on the internet. Copyright infringing websites are big businesses – always have been, always will be. A PRS for Music and Google study has shown that 2/3 of piracy sites have advertising, and 1/3 also include credit card logos. This competition is real: consider how ad-pricing is distorted by those unlicensed sites who offer more scale and no content costs. What's more, these businesses will evolve to compete with legal services, just as legal services like Spotify have to keep evolving to compete with them. Legal services must stay ahead – because ex-pirates know how to switch back.

58. This brings us back to the perennial debate over carrots and sticks. Fourteen years after the launch of Napster, it has and always will take a combination of superior legal offerings to the consumer alongside effective public policy to improve the climate for copyright online.