Market fragmentation in Video-on-Demand Services in the EU28

Georgios Alaveras, Estrella Gomez-Herrera and Bertin Martens

2015

Market fragmentation in Video-on-Demand Services in the EU28

Table of Contents

Abstract

The main objective of the present study is to measure the extent of market segmentation for video-on-demand (VoD) services in the EU. We examine access to VoD catalogues in other countries and compare the content of film catalogue available across countries. Using various sources of data on VoD services we find that cross-border access to VoD services in the EU28 is extremely limited at 1.9% of available VoD services in the EU. Cross-border availability of film titles reaches 16.8%. Netflix performs better with 31% cross-border availability. Cross-border availability in VoD catalogues remains far below the 40% availability observed in digital film downloads, 80% in digital music downloads and 93% in e-books catalogues. Even within EU Member States, the VoD market is very fragmented with catalogue overlaps between local VoD providers in the order of 30-50% only. Consumers incur high switching costs to access a wider variety of products in this segmented market.

1. Introduction

With rapid growth in the bandwidth of internet infrastructure and household access to fast broadband services in recent years, online distribution of video content on a commercial scale has become feasible. As a result, the number of Video-on-Demand (VoD) or film streaming and downloading services is growing rapidly (Audiovisual Observatory, 2014) as consumers are gradually shifting film consumption from traditional cinema and TV distribution to online services that offer more choice and flexibility at lower cost. They combine a back catalogue and the absence of fixed time schedules with easy access.

In the US, three VoD services dominate the market: Netflix is the market leader delivering film streaming to 36% of all households, followed by Amazon (13%) and Hulu (6%). Household subscription rates are much lower still in the EU though catching up. Moreover, the EU market is more fragmented than the US market. There is no single home-grown VoD service provider that covers the entire EU Digital Single Market. Instead, the market is geographically fragmented with national services providers covering their home market only in most cases. Same national providers may also cover neighbouring countries that share a language with the country of the provider. Only some US VoD service providers like Netflix and Amazon are more widely available in the EU, with Netflix in the lead and currently covering 13 Member States (Batikas et al, 2015). Even domestic markets are fragmented across a series of small domestic VoD providers. On the one hand this may stimulate competition. On the other hand domestic providers may compete on catalogue content rather than on prices and service quality. That would result in high switching costs for consumers who want to access a larger variety of products, especially in the case of Subscription (SVoD) services where consumers pay a monthly fixed cost. Domestic market fragmentation may be driven by exclusive distribution arrangements with film producers and national distributors.

With the rise of the internet, worldwide unimpeded access to all kinds of online services, irrespective of geographical distance or state borders has become the norm (Cairncross, 1997). Consumers expect to be able to access digital media anytime anywhere on any device. However, the reality is quite different for digital media, especially for film (Gomez & Martens, 2015; Aguiar & Waldfogel, 2015). The European Commission's Digital Single Market policy package (May 2015) seeks to make digital media, including film, more widely availability across the EU. It addresses geo-graphical market segmentation, not local market segmentation.

Cross-border market fragmentation may be due to a combination of factors including regulatory obstacles created by the nationally segmented copyright regime in the EU, cultural policies that seek to protect local films by means of foreign film quota and production subsidies to local films, commercial strategies by (national) film producers and distributors and heterogeneity in consumer preferences across countries. Making films available in other countries often entails additional costs associated with the copyright regime. Translation and publicity costs may affect producers' decisions to make a local version available. Differences in the "windowing" or timing of online releases across countries, and the interaction with cinema releases, may play a role. National distributors often get exclusive territorial distribution licenses that do not allow for cross-border release.

In a trailblazer study the European Audio-Visual Observatory (2014) finds that overall availability of a list of 50 films among six national VoD providers in each of 7 Member States is around 19 per cent only. Batikas, Gomez & Martens (2015) find that average availability among the 11 Netflix film streaming stores in the EU is only 31 per cent. Gomez & Martens (2015) estimate overall availability of downloadable films in the Apple iTunes film stores in 26 Member States at 40 per cent. The Observatory (2014) study did not check for cross-border accessibility of the sampled national VoD services. The Netflix and iTunes film stores in the EU offer no cross-border access.

The main objective of the present study is to measure the extent of market segmentation for VoD services in the EU. Additionally, the data might start to give us some preliminary insights into the drivers of market segmentation. The estimation of the consumer welfare impact of this segmentation is left for subsequent studies.

We look at two dimensions of market segmentation. Accessibility checks if catalogues in other countries are accessible to consumers in their home country, irrespective of the content of the catalogues. Availability compares the content of film catalogue across countries or across VoD service providers within a single country.

We find that cross-border access to VoD services in the EU28 is extremely limited, between 0.4 and 3.8% of available VoD services in the EU. Cross-border availability of film titles is somewhat higher at 16.8%. Netflix performs better with 31% cross-border availability. Cross-border availability in VoD catalogues remains far below the 40% availability observed in digital film downloads, 80% in digital music downloads and 93% in e-books catalogues. Even within EU Member States, the VoD market is very fragmented with catalogue overlaps between local VoD providers in the order of 30-50% only. Consumers incur high switching costs to access a wider variety of products in this segmented market. A variety of factors play a role in this market segmentation including heterogeneous consumer preferences across countries, commercial strategies by film producers and distributors, legal obstacles related to the segmented copyright regime and regulatory measures that give preferential treatment to local products.

2.   Cross-border access to VoD services

The best method to measure cross-border accessibility is a "mystery shopping" survey whereby a panel of shoppers try to access and buy content from a selected sample of VoD service providers in all EU Member States from other EU MS. That would require a team of mystery shoppers in all Member States. Unfortunately, this option was not available given the resource constraints for this study. Our alternative approach is to use cross-border internet traffic data for a list of VoD service providers. While it is not as accurate as mystery shopping it provides a reasonable proxy indicator for cross-border access to VoD sites.

We compile a list of VoD services providers in the EU, based on data from two sources. First, we extract a list of VoD providers from the Mavise database compiled by the Audiovisual Observatory[1] and from a list of online film distributors websites collected by the Office for Harmonization in the Internal Market (OHIM)[2]. The OHIM website provides a list of legitimate online film sales outlets in Europe. From those, we have selected the 72 sites that provide films and/or TV contents. Mavise comprises data on more than 10,000 television channels broadcast in Europe and 3,000 on-demand audiovisual services. The database classifies them into 11 categories that include "VoD" in the description: VoD film, VoD film and TV fiction, catch-up TV services, branded channels, VoD news, VoD general interest, etc. We selected only the categories "VoD film" and "VoD film and TV fiction" – a total 459 services and language versions of services - because we consider these two to be the most related to Over-the-top (OTT) VoD, though they still contain a mix of TV and OTT VoD.

The website addresses on that list of VoD providers are matched with data on domestic and cross-border website traffic (page views and users) from Amazon Alexa. Alexa is an internet survey tool that estimates the number of users and page views (PVs) on a website. For each website and country, Alexa reports the rank relative to other sites and the percentage of users. Alexa figures are expressed per million users and PVs in the Alexa survey; there are no absolute numbers of users and PVs. For a more complete discussion of the Alexa data, including coverage and quality issues, see Alaveras & Martens (2015).

Not all VoD websites from Mavise appear in the Alexa data. Some websites are too small and do not attract enough traffic to pop up on the Alexa radar screen. Due to partial matching only between Alexa and Mavise data, the list of websites was narrowed down to a short list of 188 VoD film services websites available in at least one European country. From OHIM, we add 72 additional sites to the list, so the total number of VoD sites covered is 260[3].

Table 1 shows the country of origin of the webpages included in the sample. Most are based in the France. The second major country of origin of sites is the US. The identification of the country of origin of a VoD service provider is based on a mixture of Mavise data (country of origin of the company) and Alexa (country of origin of the website) data. Alexa does not have country of origin data for all these websites. While both sources coincide in many cases, there are also cases where they differ.

The assumption is that VoD services are accessible from another Member State when users in that country effectively use that website and there is a significant volume of cross-border traffic. In many cases, only the root domain of the URL recorded in Mavise could be found in Alexa traffic data. Alexa aggregates all traffic for sub-domains of websites into root domain traffic. For instance, for "www.a1.net/tv/videothek" only

---

[1] Available at mavise.coe.int/
[2] Available at oami.europa.eu/ohimportal/en/web/observatory/where-to-buy-legally
[3] The list of 260 VoD services for which we have found website traffic data in Alexa and shows in which country traffic on that website could be detected is available on request.

"www.a1.net" could be traced in Alexa. This should not be a major obstacle however since we are only interested in measuring whether a website is used cross-border or not. If there is no cross-border traffic at the level of the root domain there will be no cross-border traffic in subdomains of that website either. However, if there is traffic in the root domain it does not necessarily imply traffic in the subdomain. Our method will therefore overestimate the number of VoD services with cross-border traffic.

Users may stumble accidentally on a website or just try it out and discover that they cannot download the content. To avoid this accidental traffic we have set a traffic threshold level. We experimented with several levels, from zero to 2 and 10 per cent of all traffic on a VoD services website to come from a particular country. If traffic from that country to the VoD website is below the threshold the website is classified as not accessible from that country.

Apart from the Alexa traffic checks we also did manual checks for a subset of 130 VoD sites. This enable us to collect information on the provider, the language, the main targeted country and the payment conditions (free, pay, subscription, etc.). We also compiled information on the country of origin of websites according to whois.net. We tried to access the webpage from a user IP address in Spain and in Italy; some websites rejected that and did not even allow access to the home page. Where we could access the home page we tried to access the contents of the site. While the home pages of most foreign VoD websites can be accessed from Spain and Italy, access to the film contents is basically zero. We did not pursue this manual trial from other country IP addresses.

Based on these data we constructed a picture of cross-border access to VoD services in the EU (see Table 2). The table is based on a 2 per cent threshold level for access. Table 2 should be read as follows: there are 7 Austrian VoD services available in Austria, 6 of them are also accessible from Germany. The column total is the number of VoD services accessible in each country. France, the UK and Germany have access to by far the highest number of VoD services. However, even these countries are far from having access to all 260 EU VoD sites in this sample. From this matrix we can calculate an access index by country (bottom row of Table 2), defined as the percentage of all EU VoD sites that is accessible in a country. This index varies considerably by country.

We calculate an overall (domestic + cross-border) VoD services access index for the EU28, defined as the ratio of actual over potential access to VoD services. The overall access index is 5.3% at the 2% threshold level. It varies between 3.6 and 8.9 per cent in function of threshold levels between 0 and 10%. This overall figure consists mostly of local VoD providers being locally accessible. Cross-border access (excluding domestic access to domestic VoD services) is much lower, ranging between 0.4 and 3.8 per cent with a mid-range value of 1.9 per cent at the 2 per cent threshold level.

3.   Cross-border availability of film titles

For the second dataset film titles were collected[4] from 38 streaming media websites that serve 10 EU member states: Austria, Belgium, France, Germany, Ireland, Italy, Poland, Slovenia, Spain and United Kingdom. On each website we locate all available films and TV series. For each product we record the title, release year, director and price to rent or stream (if available). We match titles with the IMDb dataset to add theatrical release date by country, country origin of the film and language of origin. Out of the 38 targeted sites, 32 were directly accessible. The other 6 are Netflix sites. For these sites, films and TV series catalogue information was obtained from the Netflixable website (see Batikas et al, 2015, for more details). We have no means to check the reliability of this information. The data are corrected for translated versions of the same title. The total number of film titles in the sample is 33,242 (see Table 3). They are grouped into 4 categories, according to IMDb classification: films, TV films, video films and TV series. 7,224 titles could not be classified (21.7 per cent). Films represent 65.8 per cent of the sample.

Table 4 presents the distribution of products by country and category. For films, we include a second column that shows how many films from the total sample (across all countries) are released in cinema/theatres in each country, based on IMDb information.

Figure 1 shows the distribution by country of origin according to IMDb. In 7,589 cases an origin was not found. Out of the remaining 25,653, there are 19,123 films with a single country of origin. The rest have between 2 and 16 producer countries. For practical reasons we consider the first country on the list of co-producers in IMDb as the country of origin. Figure 2 shows that most VoD films are quite recent. For the bulk of film titles, release dates are distributed between 2004 and 2015. The median age of VoD titles is 9 years.

Table 5 presents the number of film titles by country of origin and destination. It collapses 115 countries of origin outside the EU into "Rest of the World", except for the US. The US is by far the largest supplier to the EU VoD market, accounting for about 32% of all available films. Within the EU France is the main producer with nearly 11% of all films, followed by UK, Germany, Spain, Italy and Belgium. Together, these 6 MS produce about 32%, on par with the US. The rest of the world accounts for another 30%, leaving about 5% for all other EU MS. The presence of US films in national VoD markets varies considerably, from 19-23% in Belgium and France to 48% in Italy. Local films represent 31% of all films in France, a heavily regulated and protected film market, but much less in other MS, especially in smaller countries that have hardly any local production.

Table 6 can also be read vertically, by country of destination. Spain is the country best served by VoD catalogues: Spanish VoD customers can access about 20% of the entire stock of VoD film titles available in these 10 EU MS, still far below the 100% benchmark however, followed by France and the UK with 16 and 15% respectively. Smaller countries like Ireland and Slovenia are poorly served, with barely 1% of the combined catalogue available to consumers. This may be due to the fact that VoD markets are still developing in these countries and have not reached the same level of maturity yet.

In Table 6 we finally get to cross-border availability. We define an availability indicator as the ratio of actual over potential availability of products across destination country markets. If the EU Digital Single Market were a perfectly open market, all digital media products would be available in all 10 countries in the sample and the ratio would peak at

100 per cent. Table 6 (lower part) presents the cumulative cross-country distribution of available titles: 19,127 titles (61% of the total) are available in one country only; 7,033 are available in two countries, and so on. The overall availability index is 16.08%, far below the ideal 100% DSM target. For films the figure is somewhat higher while for TV films, video films and TV series availability goes in descending order.

These estimates are in line with a previous study by the European Audio-Visual Observatory (2014) that finds overall cross-border availability of a list of 50 films among six national VoD providers in 7 Member States at around 19 per cent.

There is some evidence that points to higher cross-border availability among the major global VoD platforms than across national VoD service providers. The EAO (2014) study already finds that Netflix has higher cross-border availability than local VoD providers. Batikas et al. (2015) find that cross-border availability among a different set of 11 Netflix film streaming stores in the EU is 31 per cent[5]. Finally, Gomez-Herrera & Martens (2015) estimate overall availability of downloadable films in the Apple iTunes film stores in 26 Member States at 40 per cent.

Table 6 compares cross-border availability with and without Netflix catalogues. It confirms that cross-border availability is higher when we include the Netflix, at least for films (but not for TV series and video films).

The picture is blurred however when we compare availability across providers in each country with or without Netflix (Table 7). Availability of titles across VoD providers in national markets is in the 30-50% range without taking into account Netflix. Adding Netflix to the picture has a mixed impact on availability. Clearly, the composition of the Netflix VoD catalogue differs from the average national VoD catalogue. Table 8 confirms that there is only a limited degree of overlap between national VoD and Netflix VoD catalogues in countries where Netflix is available. That overlap is almost entirely situated in foreign film repertoires, not in domestic films – except in France where domestic film quotas also apply to VoD services. Clearly, Netflix has a more international film catalogue.

---

[5] The difference between the latter two studies is due to (a) differences in country coverage and (b) all seasons of a TV series are considered as a single product in the present study whereas in Batikas et al. (2015) each season of a TV series is considered as a different product.

4. The drivers of cross-border access and availability

Tables 2 and 5 give some clues about the underlying patterns of cross-border access and availability and suggest that socio-economic and cultural factors may drive these patterns. For instance, the size of the market or sharing a language or border increases the probability of bilateral access and availability. Beyond these descriptive statistics we can also explore these patterns with a more analytical tool by running a gravity model on the data.

The gravity model is widely used in international economics to explore the determinants of cross-border trade. Availability and accessibility of films is also a form of cross-border trade. Gomez-Herrera & Martens (2015b) and Batikas et al. (2015) apply the gravity model to the audio-visual market. The intuition behind this model is that trade between countries is proportional to the size of their market and inversely related to the distance between them and the level of all kinds of trade barriers. Physical distance is usually complemented with cultural distance variables, such as a shared language or border. Films are translated (dubbed or subtitled) and made available in the language of the country of destination. This eliminates "common language" as a meaningful explanatory variable in the gravity model. We replace this with "common border" as a proxy for cultural distance between the country of origin and destination. Our dataset does not include information on sales, sales rank or any other demand indicator. Hence, we run the model at the extensive margin of trade only: the number of VoD services accessible or the number of film titles available.

We use the following specification of the gravity mode for cross-border access:

$$(1) \quad lAccess_{ij} = \alpha + \beta_1 ldist_{ij} + \beta_2 \text{home}_{ij} + \beta_3 border_{ij} + \mu_i + \mu_j + \varepsilon_{ij}$$

where

$lAccess_{ij}$ is the logarithm of the number of services from country i available in country j;

$ldist_{ij}$ is the logarithm of geographical distance between the two countries and

$border_{ij}$ is a dummy variable that takes value 1 when origin and destination countries share a frontier.

$Home_{ij}$ takes value one when origin and destination coincides.

μ_i and μ_j are a set of importer and exporter dummies to capture all possible unobserved heterogeneity in a given country.

Home bias measures the inherent preference of consumers for products from their own country or, in this case, the preference of local film producers and distributors to make local films available in local markets. Home bias may of course be affected by film market regulation that gives preferential treatment to local products.

For the VoD cross-border access estimates the sample contains 30 countries of origin (EU28 + US + Rest of the worlds) and EU28 countries of destination, so the total number of observations is 30*28 = 840. Most observations however have a zero value because there is very little cross-border access, as Table 2 already showed[6].

---

[6] Since the OLS estimation of the model requires that the dependent variable is introduced in logarithms –and the logarithm of a zero value for the dependant variable is undefined- we use the PPML estimation of the model proposed by Santos Silva and Tenreyro (2006).

The first window of Table 9 shows the results of the access gravity estimates. All results are in line with expectations from a standard gravity model. All coefficients are statistically significant. The distance coefficient is negative: the further away the provider, the less likely the service is accessible. Sharing a border and a language has a positive impact on accessibility. Home bias is strong. This gravity model estimate only confirms what we could observe in Table 2; it does not add new insights.

In a second step we apply the gravity model to cross-border availability of film titles in VoD catalogues. We use a similar specification for the gravity equation:

$$(2) \quad lAvail_{ij} = \alpha + \beta_1 ldist_{ij} + \beta_2 \hom e_{ij} + \beta_3 border_{ij} + \mu_i + \mu_j + \varepsilon_{ij}$$

Only the dependent variable $lAvail_{ij}$ is different: it is the logarithm of the share of products from country i available in country j. We use Ordinary Least Squares (OLS) estimation and drop zero observations for the dependent variable.

The second window of Table 9 shows the estimation results for availability gravity estimates for all titles, and for film and TV series separately. The gravity estimate is carried out at the country level. Distance is not significant in any case. Common border is positive and significant in all cases. Cultural proximity has a positive effect on availability. High and significant home bias coefficient confirms the strong preferences of providers for local markets. The drivers behind this high home bias could be a mixture of three factors: legal barriers related to the copyright regime, regulatory barriers to favour local film products in VoD catalogues, commercial strategies by the film producers and distributors that focus on local products, and, last but not least, consumer preferences for local products.

In Table 10 we apply the gravity model to cross-border availability at the product level, i.e. at the level of individual film titles. In this case we use a probit estimation whereby the dependent variable measures if a given title from country i is available in country j or not. The dependent variable has only two values: 1 or 0. The gravity equation estimates the probability that a film title from a given country is available in another country. We add some product specific characteristics to the gravity equation (2), such as the age of the film, if it is co-produced and whether a theatrical version is available.

Results in Table 10 confirm the positive effects of home and common border. Again, distance is not significant. The coefficient for age is negative and significant, implying that older films are less widely available. Co-production positively impacts availability in a significant manner. An interesting finding is the positive coefficient for "English", i.e. films originally produced in the English language. English language films are more widely available. This may be heavily influenced by US films.

5.   Conclusions

Cross-border access to VoD services in the EU28 is extremely limited at 1.9% of all available VoD services in the EU.

Cross-border availability of film titles - or cross-country overlaps in film catalogues - is higher but still rather poor at 16.8%. The largest global VoD platform, Netflix, seems to perform better in the EU10 countries where it operates, with 31% cross-border availability.

Cross-border availability in VoD catalogues remains far below the 40% availability observed in digital film download catalogues in the iTunes stores (Gomez & Martens, 2015), 80% availability in digital music download catalogues in iTunes (Gomez & Martens, 2015) and 93% availability in Amazon e-books catalogues (Alaveras et al, 2015).

Even within EU Member States, the VoD market is very fragmented with catalogue overlaps between local VoD providers in the order of 30-50% only. This shows that consumers will have to incur considerable switching costs in order to access a wider variety of products, especially for Subscription VoD services with monthly fixed access fees.

A variety of factors play a role in this market segmentation. On the consumer side, heterogeneous preferences across countries may explain why distributors differentiate their catalogues. It does not explain why consumers have no cross-border access to products that are not available in their country. On the supply side, commercial strategies by (local) film producers and distributors, combined with legal obstacles related to the segmentation of the copyright regime and regulatory measures that give preferential treatment to local products may contribute to this situation. Distributors may piggy-back on the fragmented copyright regime to segment the market.

Bibliography

Alaveras, G and Martens, B (2015) "Online services trade in the EU", JRC/IPTS Digital Economy working paper 2015-08.

Batikas, M., Gomez-Herrera, E. and Martens B. (2015) "Film availability in Netflix country stores in the EU", JRC/IPTS Digital Economy working paper.

Cairncross (1997) "The death of distance", Harvard Business School Press.

European Audio-visual Observatory (2014) "On-demand Audiovisual Markets in the EU", available at http://ec.europa.eu/digital-agenda/en/news/demand-audiovisual-markets-european-union-smart-20120028

Gomez-Herrera E. and Martens B (2015) "Language, copyright and geographic segmentation in the EU Digital Single Market for music and film", JRC/IPTS Digital Economy working paper.

Statistical annex

Table 1: Country of origin of the VoD services

CoO	Freq	%
FR	50	19.2
US	37	14.2
DE	26	10.0
GB	21	8.1
ES	16	6.2
DK	13	5.0
IT	12	4.6
SE	12	4.6
NL	10	3.9
FI	9	3.5
PL	8	3.1
BE	7	2.7
AT	5	1.9
HR	3	1.2
JN	3	1.2
LV	3	1.2
PT	3	1.2
SI	3	1.2
BG	2	0.8
CA	2	0.8
CH	2	0.8
CY	2	0.8
GR	2	0.8
RO	2	0.8
SK	2	0.8
CZ	1	0.4
EE	1	0.4
IN	1	0.4
KR	1	0.4
LU	1	0.4
Total	**260**	**100**

Source: Mavis database and OHIM data (see text)

Table 2: Countries of origin and destination for VoD services in the EU (2% threshold level)

CoO	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	Reach
AT	7	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
BE	0	7	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	13
BG	0	1	2	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6
CY	0	0	0	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
CZ	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	5
DE	8	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
DK	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	14
EE	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
ES	0	0	0	0	0	3	0	0	16	0	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
FI	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
FR	2	17	0	0	1	4	0	0	3	1	50	3	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	84
GB	0	0	0	0	2	0	0	0	0	0	0	23	0	0	4	0	0	0	0	0	0	0	0	3	0	0	0	0	32
GR	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
HR	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
HU	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
IE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
IT	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	13
LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
LU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	10	0	1	0	0	0	0	12
PL	0	1	0	0	0	2	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	11	0	0	0	0	0	19
PT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
RO	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4
SE	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	10
SI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5
SK	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
US	0	0	0	0	0	6	1	0	2	1	9	16	0	0	0	0	4	0	0	0	0	0	0	6	0	1	0	1	47
CA	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
CH	0	0	0	0	0	1	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	6
JN	0	0	0	0	0	2	0	0	1	0	2	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	10
KR	0	0	0	0	0	1	0	0	1	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5
IN	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	18	26	2	2	4	55	15	1	25	14	74	66	3	5	3	6	21	1	2	4	1	19	11	9	3	13	5	3	383
% access	5%	7%	1%	1%	1%	14%	4%	0%	7%	4%	19%	17%	1%	1%	1%	2%	5%	0%	1%	1%	0%	5%	3%	2%	1%	3%	1%	1%	5.3%

Note: All non-zero values are highlighted in the table. The yellow highlighted values refer to domestic access to domestic VoD services.

Source: Authors' calculations, see text.

Table 3. VoD services included in the analysis of catalogues

Country	Websites	Different products
Austria	Flimmit, Maxdome, Skysnap	6,480
Belgium	DVDPost, Plush, Univers Cine	4,934
France	Canal Play, Chili TV, Orange VOD, Univers Cine	8,377
Germany	Maxdome, Skysnap, Watchever	5,703
Ireland	3player, RTE Player, Volta	785
Italy	MyMovies, Timvision	4,646
Poland	ipla, Iplex, Kinoplex, VOD PL	2,961
Slovenia	TViN, Voyo	638
Spain	Cineclick, Filmin, Nubeox, Wuaki, Yomvi	10,541
UK	Blinkbox, Wuaki	7,921

Source: see text

Table 4: Number of titles available in VoD services, per category and per country

Country	Digital film	Theatres	TV film	TV series	Video film	NA	Total
AT	4,285	2,549	682	143	231	1,136	6,477
BE	3,441	4,627	88	79	91	693	4,392
DE	3,839	5,161	613	113	216	919	5,700
ES	7,105	6,109	234	408	312	2,475	10,534
FR	6,011	9,574	163	222	169	1,790	8,355
GB	6,179	6,184	230	180	459	848	7,896
IE	576	4,237	7	4	13	185	785
IT	4,059	5,372	92	53	141	300	4,645
PL	2,013	3,566	93	37	100	716	2,959
SI	491	1,119	11	11	21	104	638
Different products	**21,866**	**21,866**	**1,507**	**1,406**	**1,239**	**7,224**	**55,108**

Table 5: Film titles in VoD catalogues by country of origin and destination

Origin/Dest	AT	BE	DE	ES	FR	GB	IE	IT	PL	SI	#films	%	Exp reach
France	341	1070	273	690	2370	282	113	315	213	56	**3344**	10.7%	141%
UK	332	214	311	740	415	864	113	295	176	52	**1932**	6.2%	306%
Germany	1038	96	952	256	127	142	12	93	98	22	**1499**	4.8%	198%
Spain	109	116	97	1337	180	71	11	86	79	14	**1482**	4.7%	57%
Italy	87	87	80	306	193	72	15	829	53	8	**1278**	4.1%	109%
Belgium	31	435	21	41	111	27	11	21	10	4	**509**	1.6%	64%
Poland	18	12	19	21	29	16	4	6	254	1	**242**	0.8%	50%
Austria	210	25	37	29	29	20	7	9	11		**266**	0.9%	80%
Denmark	44	37	38	85	35	41	7	26	40	5	**189**	0.6%	
Sweden	40	22	28	52	41	32	3	35	21	6	**155**	0.5%	
Ireland	22	16	21	26	20	34	41	14	11		**113**	0.4%	
Netherlands	27	25	22	38	23	36	3	9	6	4	**119**	0.4%	
Finland	22	10	16	24	23	13	1	7	8	1	**67**	0.2%	
Portugal	4	17	3	29	31	13	2	4	3		**72**	0.2%	
Hungary	19	7	14	12	16	11	1	7	5		**56**	0.2%	
Romania	10	14	8	11	15	9	4	6	4	1	**41**	0.1%	
Czech Rep	15	5	12	7	15	8	1	2	15		**56**	0.2%	
Greece	3	7	3	14	10	14	2	5	3		**36**	0.1%	
Bulgaria	7	3	4	6	9	3	2	3	5	1	**24**	0.1%	
Luxemburg	5	10	4	3	8	2		2	3		**21**	0.1%	
Slovenia	2	1	1	1	4	1		1		24	**28**	0.1%	
Estonie	10	1	3	1	2	2			3		**17**	0.1%	
Lithuanie	3	4	3	5					1		**11**	0.0%	
Latvia	4		4	2	1	2					**8**	0.0%	
Slovakia	1	2			3	2				1	**7**	0.0%	
Cyprus		1				1			2		**2**	0.0%	
Malta	1					1					**1**	0.0%	
USA	2008	755	1965	2994	1805	4216	135	2087	874	260	**8608**	27.5%	
RoW	2067	1402	1764	3812	2862	1986	297	784	1063	178	**11067**	35.4%	
Total	**5815**	**3911**	**5094**	**9671**	**7711**	**7167**	**714**	**4312**	**2722**	**597**	**31250**	100.0%	
% local	4%	11%	19%	14%	31%	12%	6%	19%	9%	0%			
% US	35%	19%	39%	31%	23%	59%	19%	48%	32%	44%			
Availability	12%	8%	11%	20%	16%	15%	1%	9%	6%	1%			

Source: See text

Notes: #films = number of unique film titles; "export reach" = (sum of #films in export markets) / #film in domestic market

Table 6: Cross-border availability of film titles										
Including Netflix										
# count	**All products**		**Films**		**TV movies**		**Video movies**		**TV series**	
	Freq	**%**	**Freq**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	18,763	56.44%	11,334	51.83%	626	41.54%	693	55.93%	734	52.20%
2	8,061	24.25%	5,286	24.17%	724	48.04%	301	24.29%	399	28.38%
3	2,869	8.63%	2,325	10.63%	76	5.04%	110	8.88%	91	6.47%
4	1,677	5.04%	1,363	6.23%	39	2.59%	70	5.65%	88	6.26%
5	908	2.73%	754	3.45%	18	1.19%	32	2.58%	37	2.63%
6	615	1.85%	474	2.17%	22	1.46%	28	2.26%	52	3.70%
7	259	0.78%	246	1.13%	1	0.07%	2	0.16%	5	0.36%
8	70	0.21%	64	0.29%	1	0.07%	3	0.24%		
9	18	0.05%	18	0.08%						
10	2	0.01%	2	0.01%						
Total	**33,242**	**100.00%**	**21,866**	**100.00%**	**1,507**	**100.00%**	**1,239**	**100.00%**	**1,406**	**100.00%**
Availability index		**18.35%**		**19.83%**		**17.88%**		**9.16%**		**9.56%**
Excluding Netflix										
#count	**All products**		**Films**		**TV films**		**Video films**		**TV series**	
	Freq	**%**	**Freq**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	19,127	61.2%	11,748	56.3%	625	46.2%	726	65.1%	690	75.2%
2	7,033	22.5%	4,722	22.6%	645	47.7%	237	21.2%	153	16.7%
3	2,708	8.7%	2,275	10.9%	50	3.7%	95	8.5%	50	5.5%
4	1,395	4.5%	1,235	5.9%	20	1.5%	36	3.2%	17	1.9%
5	576	1.8%	518	2.5%	10	0.7%	10	0.9%	6	0.7%
6	304	1.0%	281	1.3%	3	0.2%	10	0.9%	1	0.1%
7	82	0.3%	80	0.4%			2	0.2%		
8	20	0.1%	20	0.1%						
9	4	0.0%	4	0.0%						
10	1	0.0%	1	0.0%						
Total	**31,250**	**100.0%**	**20,884**	**100.0%**	**1,353**	**100.0%**	**1,116**	**100.0%**	**917**	**100.0%**
Availability index		**16.8%**		**18.2%**		**16.4%**		**15.7%**		**13.6%**
Source: authors' calculations.										

Table 7: Availability of film titles across VoD providers (incl/excl Netflix where available)

Including Netflix

# Channels	AT	BE	DE	ES*	FR	GB	IE	IT	PL*	SI*
1	6643	3430	415	6131	4628	4661	822	1744	1198	223
2	675	1163	147	1808	1351	1504	20	333	403	5
3	39	458	26	959	333	287		13	206	
4		42	3	261	40				60	
5					45					
Total	7357	5093	591	9204	6352	6452	842	2090	1867	228
Index	36.7%	35.8%	33.8%	29.7%	33.4%	44.1%	51.2%	39.1%	38.3%	51.1%

Excluding Netflix

# Channels	AT	BE	DE	ES	FR	GB	IE	IT	PL	SI
1	6133	2513	289	6344	4596	4193	321	1943	1225	250
2	344	1245	68	1841	1248	1323		329	414	5
3	1	346	3	975	215			18	228	
4				261	22				64	
5				45						
Total	6478	4104	360	9466	6081	5516	321	2290	1931	255
Index	35.1%	49.1%	40.2%	30.0%	32.2%	62.0%	100.0%	38.6%	38.7%	51.0%

Source: authors' calculations

Country	All films			Domestic films			Foreign films		
	National	Netflix	Overlap	National	Netflix	Overlap	National	Netflix	Overlap
AT	6,478	1,286	407	207			6,271	1,286	407
BE	3,823	1,226	172	420	27	12	3,403	1,199	161
DE	74	219	7	7	34	1	67	185	6
FR	4,562	580	93	1,478	145	46	3,086	435	47
GB	4,448	1,721	289	528	234	48	3,920	1,487	241
IE	280	208	75	30	1	-	250	207	-
Total	19,665	5,240		2,670	441		16,997	4,799	

Table 8: Overlap in film catalogues between national VoD providers and Netflix

source: authors' calculations.

Table 9: Gravity estimates

VARIABLES	VoD access	Film availability in VoD services		
		All	Films	TV series
Distance	-0.8173***	0.0526	0.0398	-0.0506
	(0.166)	(0.066)	(0.065)	(0.158)
Home bias	1.4280***	2.3829***	2.3794***	0.9133**
	(0.288)	(0.249)	(0.247)	(0.357)
Common border	0.5986**	0.4506***	0.4346***	0.3026
	(0.241)	(0.133)	(0.132)	(0.201)
Constant	4.1636***	-1.2456*	-1.1212*	-1.2578
	(1.121)	(0.638)	(0.634)	(1.482)
Observations	840	733	729	201
R-squared	0.840	0.744	0.743	0.818

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Dep var: Log of the number of pages from one country accessible in the other

Source: authors' calculations.

Table 10: Gravity equation for availability (product level)

VARIABLES	All Probit	Movies Probit	TV series Probit
Distance	-0.0179	-0.0165	-0.0077
	(0.011)	(0.011)	(0.061)
Home	1.2748***	1.3455***	0.7399***
	(0.022)	(0.022)	(0.126)
English	0.0315**	0.0390***	-0.0007
	(0.013)	(0.013)	(0.074)
Age	-0.0030***	-0.0033***	0.0006
	(0.000)	(0.000)	(0.002)
Theatrical version	0.7062***	0.6989***	-0.1727*
	(0.008)	(0.008)	(0.097)
Co-produced	0.0616***	0.0619***	-0.2084***
	(0.008)	(0.008)	(0.056)
Common border	0.2767***	0.2916***	0.1785**
	(0.015)	(0.015)	(0.085)
Constant	-0.4542**	-0.4609**	-0.7412
	(0.199)	(0.200)	(0.582)
Observations	257,050	243,220	13,790

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: authors' calculations
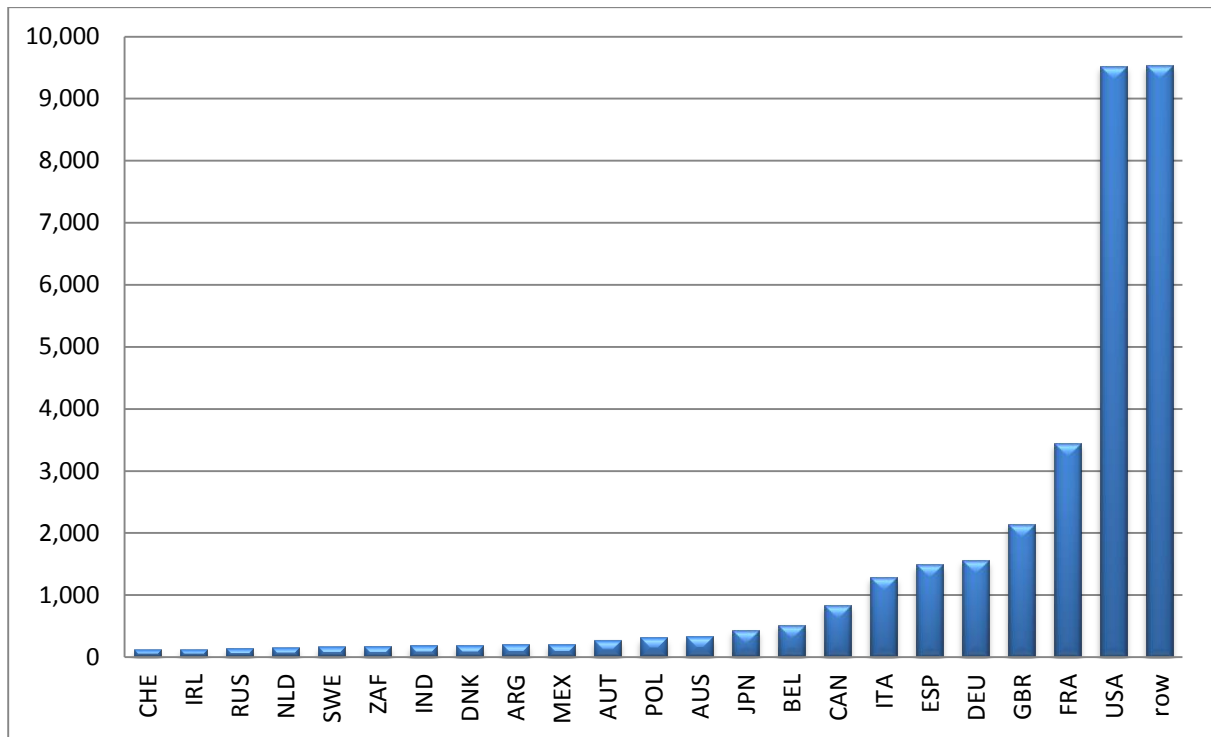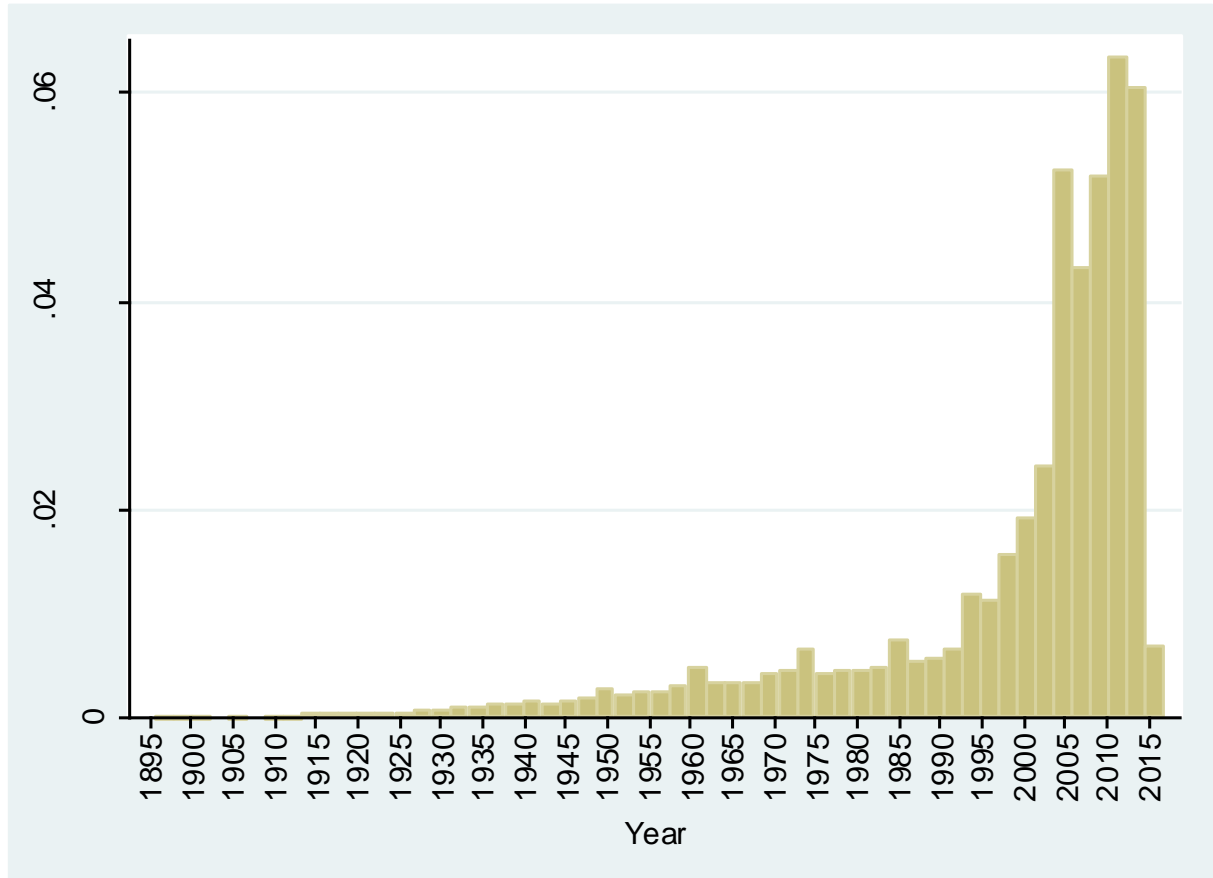
Fig. 1. Number of products by origin

Figure 2. Distribution of products by release date

How to obtain EU publications

Our publications are available from EU Bookshop (http://publications.europa.eu/howto/index_en.htm),
where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents.
You can obtain their contact details by sending a fax to (352) 29 29-42758.

JRC Mission

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

Serving society
Stimulating innovation
Supporting legislation