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Geo-blocking: A literature review and new evidence in online audio-visual services

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Foreword

Unjustified geo-blocking occurs when online sellers apply unjustified barriers and impose restrictions to consumers on the basis of their nationality or place of residence or place of establishment. The EU Geo-blocking Regulation (EU 2018/302) bans that practice in online services. It entered into force on 3 December 2018. It also ensures that consumers can buy goods under exactly the same conditions as local customers that live in a Member State where the trader already pursues economic activity and delivers.

Certain online services are out of scope of the Regulation, particularly audiovisual services. Audio-visual covers online video and film distribution -often labelled as Video-on-Demand (VoD) services-, and broadcasting. Non-audio-visual 'electronically supplied services, the main feature of which is the provision of access to and use of copyright protected works' are partially covered by the Geo-blocking Regulation[1]. These services cover the online distribution of e-books, music, games and software. They are not prevented from applying different conditions of access to goods services.

A planned evaluation of the Geo-blocking regulation in 2020 will assess the impact of a possible extension of the regulation to services giving access to copyright protected content, both audio-visual and non-audio-visual. This working paper contains background material prepared by the JRC to provide evidence to support the Commission services in the evaluation. It was also used as input for a study on "The impact of the extension of the Geo-blocking Regulation to audiovisual and non-audiovisual services" (VVA, Wik, Ipsos and Bruegel, 2020) that was carried out by a group of consultants at the request of the European Commission, Directorate-General for Communications Networks, Content and Technology (CNECT).

[1] Only the provisions related to access to online interfaces (Article 3) and prohibiting discrimination of foreign payments means (Article 5) apply to non-audiovisual electronically supplied services.

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Abstract

This paper is composed of two different parts. In the first part we provide a review of the existing literature dealing with geo-blocking in copyright-protected content. The material is divided between studies that focus on non-audio-visual content and those dealing with audio-visual content. In the second part, we offer recent evidence of cross-border availability of audio-visual content in VoD platforms in the EU.

Introduction

Despite the initial idea that Internet-based transactions would have no borders (Cairncross, 2001), in reality online consumers and firms face several barriers to cross-border online transactions. While the idea of a frictionless digital world may be true for many online services, there are substantial parts of the online world where borders still remain an obstacle to access. Some of these obstacles are imposed by governments for political and legal reasons. Others are of a more commercial nature and imposed by firms facing administrative costs induced by regulatory differences between countries (Duch-Brown et al., 2015). Similarly, consumers face language barriers and may have concerns about their privacy and delivery conditions (Cardona et al., 2015). When online sellers deliberately restrict access to their web shops for users based in other countries, they are geo-blocking.

Geo-blocking is enabled by geo-location tools that allow websites to identify the physical location of their visitors through their IP addresses and other sources of information. Geo-location technologies allow localised advertising and search and as such are valued by companies. Although geo-blocking can be legitimate as a means to respect trade restrictions in national legislation, geo-location tools can also be used for commercial reasons to erect commercial barriers to cross-border online transactions.

As part of its Digital Single Market Strategy, the European Commission (2015) proposed to eliminate unfair discrimination between consumers based on their country of residence. This led to a legislative initiative (European Commission, 2016) to address unjustified geo-blocking based on nationality or place of residence or establishment of the consumer. This initiative covered the online sale of goods and services. Audiovisual services are excluded from the scope of the Regulation. Other (non-audiovisual) 'electronically supplied services, the main feature of which is the provision of access to and use of copyright protected works' are only partially covered by the Regulation and therefore they are not prevented from applying different conditions of access to goods services pursuant to that Regulation[2]. A planned evaluation of the Geo-blocking regulation in 2020 will assess the impact of a possible extension of the regulation to services giving access to copyright protected content, both audio-visual and non-audiovisual. This study contributes to that assessment and it is organised in two main parts. Section 2 contains a short review of the available economic research literature on cross-border trade and geo-blocking in online audio-visual and non-audio-visual services. Section 3 presents some new empirical evidence on the current situation with regard to cross-border availability of audio-visual content in VoD platforms in the EU.

[2] These non-audiovisual services remain subject to the general non-discrimination provision laid down in Article 20(2) of the Services Directive, preventing the application of different conditions of access on the basis of the residence or nationality of the residence, where no objective justification exists for such a differential treatment.

Part 1: A literature review on geo-blocking in copyright-protected content

In this part of the report we provide a literature review on the subject. We first give a short overview of legal studies dealing with geo-blocking. Then, we look at the available empirical evidence. Finally, we put the emphasis on the available empirical evidence dealing with geo-blocking of audio-visual content.

1.1 Geo-blocking in copyright-protected content

1.2 Legal studies on geo-blocking in copyright-protected content

Some legal studies underline the importance of the interaction between geo-blocking and copyright protection. For instance, Mazziotti (2015) stresses that geo-blocking widely frustrates the increasingly high expectations of European citizens to access culture, services and entertainment on an EU-wide basis. According to this study, geo-blocking makes films and TV series for which there is strong demand inaccessible in a legitimate way, with a consequential rise in appeal of online piracy. Mazziotti (2015) argues that copyright is not the only reason why the exploitation of creative works is still rigidly territorial in Europe. He points out that technical restrictions of access to copyright works, especially in sectors like films, might still be necessary to protect sustainability of content production and the various forms of adaptation and versioning of creative content to local and culturally diverse audience. Even though EU copyright directives have been enacted mostly for purposes of market integration, such integration is expected to occur without depriving authors, content producers and the whole creative industry of the support that their creative endeavour and professional content creations deserve.

Mazziotti and Simonelli (2016) provide an overview of the European Commission initiatives to solve the problems of market fragmentation and limited cross-border availability of copyright content in the Digital Single Market. They focus on the relationship between national copyright systems and the existing territorial partitions in the online content markets. In their article, they review the approach followed by the Commission in its legislative initiative aimed at ensuring the cross-border "portability" of online content services. They also review developments in EU competition law regarding the compatibility with EU law of licensing agreements based on territorial exclusivity. In relation to the pay-TV case, they developed two scenarios illustrating the interplay between copyright and competition law. They argue that a "big bang scenario" whereby online copyright content would become accessible for "passive sales"[3] might force content owners and broadcasters (or content suppliers) to re-structure markets for online content and to replace territoriality with other criteria that might help them differentiate their offerings and packages, for instance language differentiation.

[3] Passive sales may not be restricted, neither offline nor online. The Guidelines on Vertical Restraints of the European Commission (2010/C 130/01) define passive sales as follows: Responding to unsolicited requests from individual customers including delivery of goods or services to such customers. General advertising or promotion that reaches customers in other distributors' (exclusive) territories or customer groups but which is a reasonable way to reach customers outside those territories or customer groups, for instance to reach customers in one's own territory, are considered passive selling.

Van Cleynenbreugel (2017) analyses the 2015 Commission's proposal for a regulation on the portability of online streaming services and the 2016 proposal for a regulation on geo-blocking outside the audio-visual context. From his point of view, these two proposals are characterised by a limited enforcement and narrow consistency focus, which would potentially facilitate their circumvention in practice. At the same time, however, he notes that these proposals harbour features for a more coordinated enforcement strategy as well as a technologically pro-active regulatory focus. Acknowledging more explicitly those features in practice could serve to alleviate concerns voiced over the EU DSM regulatory framework.

Trimble (2019) reviews the current relationship between copyright and geo-blocking. The study analyses US and EU markets from a legal perspective. According to the author, the current partial elimination of geo-blocking in the European Union, as well as any further limitation of geo-blocking, will promote the European Commission's digital single market agenda and contribute to a greater cohesiveness within the Union – goals that might be worth pursuing despite any potential negative effects associated with a complete elimination of geo-blocking. However, outside the European Union and among countries that are socially, economically, and legally less close to the EU, including countries that do not share a desire for a common market and social and political cohesiveness, the elimination of geo-blocking might not be an acceptable trade-off, given that it might cause some negative effects. For example, price increases for consumers in some countries when geographical price discrimination is no longer feasible and price convergence would occur.

A number of recent legal studies have underlined the uncomfortable co-habitation between the territoriality of copyright and the principles of the EU Single Market that rejects territorial market segmentation. While they acknowledge the importance of territorial licensing in the business model and financing of EU audio-visual works they also raise the question to what extent territorial exclusivity can or should be maintained while the Single Market principles as well as audio-visual market forces point towards further opening. In a publication of the European Audiovisual Observatory, Cabrera et al (2019) provide a detailed overview of existing regulations in EU Member States that underpin this prevailing business model and discuss to what extent new EU regulations that promote cross-border availability have affected this business model.

Hugenholtz and Poort (2019) acknowledge the importance of territorial licensing in the current financing model for the European film industry. They explain that European films, which are less successful in attracting large audiences than US films, do not benefit from economies of scale, have smaller production budgets and have to rely on subsidies which are often justified to maintain cultural diversity in film production. At the same time the authors recognize that territorial licensing is at odds with consumer market developments and with EU law. Territorial exploitation leaves a significant share of the potential market unserved because territories do not perfectly match with homogenous consumer groups or cultural identities as people move between countries and language groups. The authors argue that a combination of fast growth in global online VoD platforms and changes in EU law that remove national territorial barriers to the Single Market have put pressure on territorial licensing in online VoD markets. They cite the country of origin rules for satellite broadcasting and for broadcasters' ancillary online service, the EU Portability Regulation, and EU competition law that prohibits restrictions on "passive" sales to consumers in non-licensed territories. They suggests that regulators and the industry could take steps that would slow down the erosion of territorial restrictions, allowing the industry to move towards different financing models. The EU could introduce "block exemptions" in competition law that would allow territorial exclusivity for EU films for a limited duration. The industry could switch from exclusive territorial rights to exclusive rights for distinct language versions of a film. This may not work well for widely spoken languages such as English but may be more effective for smaller language groups. Admittedly, rapidly emerging online simultaneous translation tools may circumvent language versions, but the paper notes that also in the context of current territorial limitations circumvention is possible through the use of VPN tools.

In the wake of the Sky pay-TV case, the report prepared by Sirinelli and Dormant (2019) for France's Superior Council of Literary and Artistic Property analyses the consequences of passive sales for the distribution of audiovisual works. According to the passive sales doctrine, a producer cannot prevent a distributor from responding to a cross-border request though the distributor is allowed to ignore the request. According to the GBR, an online distributor cannot ignore a cross-border request. In line with Hugenholtz and Poort (2019) The report explores the passive sales doctrine from a competition law perspective and explains how it has been applied in the Sky case. The authors present a number of difficulties related to the application of the passive sales theory to the online distribution of audiovisual works. Competition law allows the possibility to cancel the prohibition on vertical territorial restraints if there are good economic reasons to do so. The authors argue that the importance of territoriality in the current economic and organisational arrangements for European film product constitute a good reason. They take the view that applying passive sales would disrupt the audio-visual market as it would directly impact the way audio-visual works are financed and distributed. They consider that, without territoriality, only large multi-territorial VoD distributors from outside the EU would survive, undermining the cultural diversity of European film supply. The authors therefore conclude that the application of the passive sales theory for audio-visual works should be rejected. If it is still envisaged, they present a number of safeguards that would need to be considered. The determining factor should be whether the work is already available in the country of the consumer soliciting a passive sale. They also suggest considering a "sanctuarisation" period that would allow to preserve territorial exclusivity for a certain period of time, and, as a last resort, considering setting up pan-European platforms platform that could allow consumers to request licenses directly from producers.

Synodinou (2020) starts by pointing out that EU law is based on the principle of the abolition of national markets and their replacement by a single market where prices tend to converge for the benefit of consumers. Business models based on the fragmentation and separation of markets, including territorial restrictions to the movement of copyright-protected content, are inherently at odds with the Single Market. Her thesis is that competition law alone cannot provide an answer to the legal challenges linked to cross-border access to copyright-protected content in a constantly developing digital environment and that legislative intervention in the field of copyright law will be needed. Geo-blocking restrictions in services offering access to copyright-protected works cannot be maintained in her view. The Murphy case on cross-border sports broadcasting led to the prohibition of restrictions on 'passive sales'. The Sky case expanded this to audio-visual works, subject to an appropriate remuneration for rights holders. The author argues that the completion of a true digital single market requires radical solutions. These will either keep, but significantly limit, the principle of territoriality (such as the introduction of a country of origin principle with adjustments to make it fit for online communications), or abolish it by replacing the territorial copyright laws of Member States by a unified EU Copyright Code which would enable pan-European licensing. She also debunks the view that geo-blocking is a fortress to preserve cultural diversity because it carries the danger of seclusion while we need a vehicle for the discovery of bridges and common values. She proposes a radical solution in the form of compulsory licensing for cross-border access, with an appropriate remuneration for the rights holders.

1.2.1 Geo-blocking in copyright-protected non-audiovisual content

In what follows we provide a summary of the main articles that provide empirical evidence in the field of copyright-protected non-audiovisual content.

1.2.1.1 Music

We begin by reviewing two studies that look at music downloads. Gomez-Herrera and Martens (2015) provide empirical evidence on the extent of market segmentation in the EU, both on the supply and the demand side. They measure the contribution of several drivers of this market segmentation. They analyse music distribution in the Apple iTunes store, the dominant provider of digital music downloads in the EU in the period under analysis. Their results show that cross-border availability of music content in the platform is in the 73-82 per cent range. This implies that there is still some way to go to achieve 100 per cent mark that would be expected in a truly open Digital Single Market. The study also shows that distribution for music is clearly U-shaped. Hence, about 52 per cent of all songs in the sample and 56 per cent of all albums are available in all EU27. From there onwards availability quickly drops. However, at the other end of the distribution there is an upsurge again, with about 13 per cent of all song tracks and 15 per cent of albums being available less than three countries.

Aguiar and Waldfogel (2014) analyse the potential impact of EU policies that aim at reducing cross-border EU trade costs and improve convergence in music availability across countries. More specifically, their study calculates the economic benefits for consumers and producers from further trade opening in digital music. They use a comprehensive dataset from Nielsen on digital music track sales in the US, Canada, 13 EU Member States, and 2 other European countries (Norway and Switzerland) from 2006 to 2011 to estimate a structural model of music demand. Their results show that a European single market for music would bring most of the benefits of worldwide frictionless trade to both consumers and producers alike. More specifically, the benefit of the current (status quo) trade situation, compared to a situation without music trade, for consumers is about €300 million per year across the world (a 11.3% gain from trade). Producers gain €85 million (a 2.8% increase), although producers in some countries lose more from increased competition than they gain from sales in foreign markets. Worldwide liberalization relative to the status quo would deliver additional benefits to consumers, €38 million in total for all countries (a 1.3% increase). Annual gains for European consumers would reach a total of €31 million (a 3% increase). A Europe-wide liberalisation through a single market for music, would achieve €19 million consumer welfare gains (a 1.8% increase). Effects on producers are mixed. North American producers experience small benefits from worldwide frictionless trade (0.4% increase), while European gains average €17 million (a 1.8% increase). Under a European Single Market, European producers' annual gains would reach €10 million (a 1.1% increase), while the total gains to North American producers is €3.7 million (a 0.17% increase).

On the other hand, Waldfogel et al. (2018) observe that while the world generally embraces free trade in most products, policy makers in many countries have misgivings about forces that liberalize trade in cultural products. Digitization – through the sale of digital music and more recently streaming – has sharply reduced the cost of trade in recorded music. Using data on pop charts, 2004-2015, as well as Spotify streaming for 2014-2015 in 18 countries, they pose the following questions: 1) how have trade frictions evolved with digitization? 2) have consumption patterns grown more similar across countries? 3) have sales grown more concentrated in a small number of particular origin countries? 4) how have the repertoires of small and large countries (particularly the US) fared in the world market? They document declining trade frictions (e.g. declining home market shares for domestic music) over time and show that frictions are smaller for streaming vs sales. Second, they find that consumption patterns are converging across countries. Third, although consumption is converging across destinations, it is converging to a mix that is more diversified by country of origin of the music producer. Thus, digitization appears to level the playing field across producing countries.

Finally, Waldfogel (2019) focuses on music streaming services. He examines cross-border price discrimination in online music streaming services. This is a common strategy for multinational firms, including major streaming services such as Spotify and Apple Music. It is of general theoretical interest to understand the quantitative effects of country-specific pricing on revenue and welfare. Policy proposals to create a European Digital Single Market make this a practical question as well. To this end he calibrates a simple empirical logit model of world demand – and subscription pricing – at Spotify, using available data on monthly prices while using data on streaming volumes by country to create measures of the numbers of users. He finds that country-specific pricing raises Spotify revenue by 5.9 percent, and reduces world consumer surplus by 1.0 percent, compared to uniform worldwide pricing. However, when limited to the Union, country-specific pricing would only raises Spotify revenue in Europe by 1.1 percent and would increase consumer surplus by 0.3 percent, compared to uniform pricing. Price discrimination is thus beneficial for the average European consumer, but not worldwide. Consumers in lower-income European countries gain more from price discrimination than do the consumers in higher-income countries. While the main analysis treats Spotify as a monopolist, the author also implements a duopoly model of Spotify and Apple Music using Google search volumes as proxies for Apple Music subscriptions, with similar results.

1.2.1.2 Other copyright protected content

To the best of our knowledge, there are only two articles providing estimates of geo-blocking for copyrighted content outside the music and audio-visual sectors. In the first, Batikas et al. (2015) focus on the market for e-books in the EU. They use data from the Amazon Kindle e-books store, the market leader. They find that residents in all EU countries have access to the Amazon US Kindle store. However, access to Amazon's six e-book stores in the EU (UK, Germany, France, Spain, Italy and the Netherlands) is restricted to residents in each of these countries and in four neighbouring countries with which they share a language. Their results show that there is no cross-border store access between these six countries. Because e-book catalogues are 93% overlapping between these stores, cross-border access restrictions do not significantly affect cross-border availability in the EU. Hence, lifting digital access walls for Amazon e-book stores in the EU would result in a small increase only in the variety of book titles available to EU consumers. E-book prices vary between Amazon EU stores, and between EU and US e-book stores. The study shows that consumers can find price arbitrage opportunities between their local store and the US store only. In this sense, lifting geographical access restrictions would increase price arbitrage options, especially for EU18 e-book consumers. However, the welfare impact is difficult to predict as it might lead to increased price convergence, with winners and losers.

On the other hand, Alaveras et al. (2017) measure the extent of cross-border geo-blocking and the impact on product availability and pricing for three non-audio-visual digital media products (music, e-books and games) in the EU Digital Single Market. They find that cross-border access to online media stores is generally blocked, though it can usually be circumvented. By contrast, cross-border availability is high, reaching around 98.6% for e-books on Amazon, 90% for downloadable music on iTunes, and 81.1% and 90.5% respectively for PS3 and PS4 PlayStation games. Although they do not directly verify cross-border availability of music in streaming services, they provide a small sample test that suggests that it could reach around 96% on Spotify. They also analyse cross-country price differentiation and they find a limited frequency for games in the Sony PlayStation stores (less than 4%) but higher for downloadable music in the Apple iTunes stores (11.5%) and Amazon e-book stores (26%). Much of this price differentiation is driven by exchange rates and rounding off prices in country stores not denominated in Euro. In music, price discrimination is used mostly to extract higher prices from high-income consumers and for more popular songs with a lower price elasticity of demand. Subscription prices for main music streaming services are strongly correlated with country per capita income levels.

1.2.2 Geo-blocking of audio-visual content

The market for audio-visual content is somewhat different from other copyright protected products. The film industry faces high fixed costs but benefits from economies of scale in sales. It tends to be more competitive when located in large home markets. In this respect, a unified single market could entail a number of advantages for this sector. At the same time, the current film financing model in the EU relies on territorial exclusivity in licensing. This does not fit well with open markets. We distinguish between research on offline film distribution channels through cinemas and online distribution through video-on-demand (VoD) platforms.

1.2.2.1 Film distribution in cinemas

Available studies provide evidence of market fragmentation or trade patterns for film distribution through the cinema circuit. For instance, Ferreira et al. (2013) develop a model of the global movie market and show that importing consumers benefit from access to a wider variety of products, while exporting sellers experience higher profits by selling their products to a larger population of consumers.

Evidence for the EU territory is scarce. In a recent study, Alaveras et al. (2018) explore new data sources on multilateral trade in films among EU countries and with the USA in cinema theatres. They take annual cinema screening data at the film title level for the period 1996–2014 in EU Member States from the Lumière database, collected by the European Audiovisual Observatory (EAO). Their results show that the EU film market is highly fragmented and cross-border film availability in cinema is low. Cultural distance, success in the home market and the size of the film budget are among the factors influencing the circulation of films across countries. As shown by Alaveras et al. (2018), US films have a lower propensity to get into export markets, relative to their success in the home market[4]. Consumer demand for imported

[4] Because the number of films in US films markets is higher than in any EU country, competition between films for consumer attention is stronger. The probability that a film is successful is lower and quality requirements to be successful are higher. The average US films that makes it into export market is therefore, on average, of higher quality (as measured by consumer review scores and consumer interest), compared to the average EU film that makes it into export markets. That may explain why US films, once they get into the export circuit in the EU market, are more successful that the average EU film in terms of cross-border circulation. This was also observed in the EAO study on VoD platforms (Grece and Pumares, 2019). Other factors that may contribute to higher film quality in the US are (a) the availability of higher film budgets in a larger domestic market and (b) the fact that US films are often designed for the export market. About half of all revenues from the US film industry come from export markets, compared to less than 15% for EU films (Ferreira, Petrin and Waldfogel, 2013).

films is relatively smaller in large EU economies, except for films imported from the USA that are only marginally affected.

Aguiar and Waldfogel (2019) use box-office revenue data for 21,000 films released in theatres in 52 countries during the years 2002-2014. They develop a structural model of demand for films which allows them to obtain the economic surplus for consumers in each destination country as well as the revenue collected for producers in each origin country. The model however does not explicitly incorporate a supply side. Their model allows them to simulate the effect of a European single market for films, by comparing the current status quo on cross-border availability with a fully open European market in which every film is available everywhere in the EU. Their analysis shows that increasing availability of films across Europe would mostly benefit European film producers at the expense of US film producers. In particular, they find an increase in the revenues to European producers by an average of 0.46 euro per capita as compared to status quo, however with significant differences by country, with for example revenues of Italian and French producers losing about 50 and 4 cents, respectively. By contrast, US producers would lose about 0.78 euro per capita compared to the status quo. The underlying intuition for this decrease is the fact that most US films are already available in most EU countries under the status quo, while European films are much less available prior to opening borders. The main effect of opening borders for films is that ubiquitously available US films face more competition from EU films that were previously less widely available.

1.2.2.2 Video-on-Demand (VoD) distribution

The rapid growth in the bandwidth of internet infrastructure and household access to fast broadband services has made online distribution of video content on a commercial scale feasible. As a result, the number of Video-on-Demand (VoD) through film streaming and downloading services (hence including both transaction and subscription based VoD 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.

Alaveras et al. (2015) measure the extent of market segmentation for video-on-demand (VoD) services in the EU. They look at two dimensions of market segmentation. First, they check if catalogues in other countries are accessible to consumers in their home country, irrespective of the content of the catalogues. Second, they check availability; i.e., they compare the content of film catalogue across countries. They find that cross-border access to VoD services in the EU28 is extremely limited, between 0.4 and 3.8% of available services. 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, distributors and VOD service providers, legal obstacles related to the territorial licensing and measures supporting films and audio-visual productions in the language of the country concerned.

In a similar exercise, Batikas et al. (2015) focus on geographical market segmentation in Netflix, a subscription VoD platform with relatively wide geographical coverage in the EU. In 2015 Netflix offered streaming services for film and TV series in 22 countries, including 11 EU

Member States[5]. They compare film catalogues among the 11 Netflix country stores in the EU that provide film streaming services to consumers on the basis of a subscription (SVoD) business model. They estimate cross-border availability of films in Netflix in the EU at 31% by 2015. Their findings also show that availability patterns are to a large extent driven by consumer preferences and geographical and linguistic proximity. The average delay in availability between theatre and Netflix release ("windowing") in the EU11 is 326 days, with wide variations across countries, compared to only 112 days delay in the US. Windowing delays are shortening for more recent films.

A study by Oxera and O&O consultants (2016), prepared for a group of members of the international audio-visual industry, estimates the potential impact of lifting cross-border geoblocking restrictions and allowing consumers to switch between subscription VoD services in EU member states. It starts from the observation that larger and richer countries tend to have larger film catalogues and early release dates; poorer and smaller countries tend to have smaller catalogues and later release dates. While it does not have empirical observations on cross-border demand, it assumes random switching of consumers between subscriptions in different countries and estimates the impact on consumer welfare, through prices and catalogue contents. The estimation model assumes that domestic offerings are necessarily of higher quality to the consumer than foreign offerings (p 80). This implies that consumers have no incentive to switch to a foreign provider. If they do, as forced by the model, they necessarily loose welfare. The study finds that opening up audio-visual services markets in the EU to cross-border trade would expose consumers and the industry to significant losses (up to €9.3bn annual consumer welfare loss, up to €8.2bn annual producer revenue loss, up to 48% less content made). The analysis suggests that there will still be significant consumer losses in the long run, of up to €4.5bn per annum. Less content would be produced, less mainstream content would be dropped; locally targeted content would be particularly affected, threatening cultural/language diversity; some consumers would pay a higher price and/or be left with a lower-quality offering; others would be priced out of the market altogether. The impact would vary by territory. Consumers in the lower-income EU Member States (mostly Eastern Europe and the Balkans) would be disproportionately negatively affected.

[5] Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Luxembourg, Netherlands, Sweden and United Kingdom.

Part 2: Availability of audio-visual content in VoD platforms in the EU

In the absence of a supply-side response[6], lifting geo-blocking restrictions can potentially increase consumer welfare through two channels: (a) it can increase the variety of products available to consumers and (b) it can facilitate price arbitrage between geographic markets. Here we focus on product variety only. Consumers can increase their choices among the available variety of audio-visual products[7] in two ways: (a) they can switch between VoD platforms in their own country or (b) they can try to access VoD platforms in other countries. The first option is freely available and limited only by temporary lock-in in the case of subscriptions to VoD platforms (SVoD). Consumers can switch after the expiry of a (usually monthly) subscription. There are no lock-in restrictions on transactional VoD (TVoD) platforms where consumers pay per film title. The second option is usually not available to consumers because of geo-blocking. The widespread use of geo-blocking in VoD platforms has been documented in several studies, including the VVA et al (2020) study for DG CNECT and in Alaveras et al (2017).

The European Audio-Visual Observatory (EAO) already studied the characteristics of film and TV series catalogues available in European VoD platforms (Grece and Pumares, 2019), using a variety of data sources including the Lumière and Ampère databases used in the present study. That report focused mainly on the geographical origins of titles available in VoD platforms. It divides VoD platforms into several categories, including pure VoD players (for example Netflix), mixed platforms that provide both VoD and TV services (many national TV stations with playback options), and tech platforms that combine VoD with other services (such as Amazon for example). It explores differences in the geographical origin of contents in the catalogues of these categories of platforms. It confirmed (pp 29-30) the findings from previous studies (Alaveras, Gomez and Martens, 2018) that EU films circulate less across borders in VoD platforms compared to US films, across all types of VoD platforms.

Our focus here is on geo-blocking. The objective is to calculate the potential increase in product variety (number of titles available to consumers) if geo-blocking restrictions would be lifted. The potential increase provides an upper limit to consumer welfare gains from lifting geo-blocking restrictions. In order to estimate the actual increase in welfare gains, consumer demand for cross-border access to additional films and series would have to be taken into account, which is however outside the scope of this report. The nearest we come to the EAO study is when we calculate the difference in cross-border availability according to geographic origins of films and series.

We use two datasets, Lumière[8] and Ampère. The Lumière VoD database contains 31,828 film titles[9] in 75 SVoD and TVoD platforms. It covers all EU27 Member States (excl. UK)[10]. The

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[6] This section only looks at the consumer demand side of the VoD market. It does not assess possible supply side issues such as the European film financing and business model that currently revolves around exclusive territorial licensing.

[7] We distinguish between two types of audio-visual products, films (movies) and (TV) series. Series consist of a number of episodes, sometimes bundled in seasons. The same cast, setting and/or themes usually re-appear in all episodes. Films (movies) consist of a single episode only. Series can build a more stable audience around a bundle of episodes. Films need to attract a new audience for every product. In linear over-the-air TV, series were broadcasted over a longer period of time. This linear aspect has of course disappeared in online services.

[8] The Lumière database is produced by the European Audiovisual Observatory and can be freely access http://lumiere.obs.coe.int/web/search/ The EAO has produced some reports based on the Lumière data. See Grece and Pumares (2019). The Ampère database is a proprietary service produced by a private firm, Ampère Analysis: https://www.ampereanalysis.com/

Ampère database contains information on 47,462 unique products. It is limited to 27 SVoD platforms in the 15 largest EU MS (excl. UK)[11] only. Contrary to Lumière, it also collects data on (TV) series titles and episodes.

Table A1 (In Annex) calculates cross-border availability by country for Lumière and Ampère data. It takes the number of unique titles[12] available in the combined catalogues of all VoD platforms in a country and divides it by the number of unique titles available in all catalogues in all countries. Overall cross-border availability for 15 EU countries in the Ampère database reaches 21%. The Lumière database that covers all EU27 countries (excl UK) gives a much lower overall figure of 14.1%. This means that the average consumer in a Member State has access to 14.1% of all film titles listed in Lumière. This figure is higher in Ampère (21%) because it covers only the largest markets. Availability for countries that appear in both datasets varies considerably, due to differences in the composition of the datasets. Country characteristics affect availability. Availability is higher in larger and higher income markets. Considering only product variety, consumers in smaller and lower income countries would potentially benefit more from lifting geo-blocking restrictions.

Table A2 (in Annex) presents the list of SVoD and TVoD platforms covered by Lumière and their availability by country. As can be observed, a few global VoD platforms (Netflix, Amazon, Apple iTunes, Microsoft) plus some local European players (MUBI, GuideDoc) have wide cross-country availability. The vast majority of platforms are local and active in only 1 or 2 countries.

Table A3 (in Annex) shows the list of SVoD platforms present in the Ampère database, as well as the number of titles (of films and series) in each country catalogue. A few large global platforms (Amazon, Netfix, HBO) account for the vast majority of products and are well-represented across most countries. Smaller platforms have far fewer titles and are available in a few countries only. Switching between platforms inside a country would not significantly increase the number of available titles.

Table A4 shows that country size (measured by population) and income levels (GDP per capita) contribute positively to the number of VoD titles and platforms that consumers can access in their home market. With some exceptions, consumers in large countries have access to a larger number of titles compared to consumers in smaller countries. Lifting geo-blocking restrictions would allow consumers to switch between countries. This would give consumers in smaller countries access to a much larger number of film titles and platforms and put them on an equal footing with consumers in larger countries in terms of available product variety.

Table 1 below splits the Ampère data by films and series and calculates cross-platform and cross-border availability separately for each product type. The upper panel of Table 1 compares cross-border availability within large international SVoD platforms. Considering Netflix catalogues in all 15 EU countries for which data is available, there is a large degree of cross-border availability: on average, there is a 63% chance that a film available in a Netflix catalogue in one country is also available in another country. The corresponding percentage for series is

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9 In this note we assume that different language versions of the same film (or series) are the same product. We assume that all titles are available in the language of the country where the platform is operational. We have information on the available language versions on Netflix if they appear in Similarweb.

10 Although the UK was still an EU Member State in 2019 we explicitly exclude it from these calculations. This has a significant impact on the outcomes since the UK is an important producer and exporter of films and TV series to EU countries, as reported for example in Grece and Pumares (2019).

11 Ampère data for September 2019 only. Catalogue composition varies over time. A title can be available on a platform for a limited period of time, depending on the licences and the catalogue bundling strategies of the platforms.

12 If a title appears in several platforms it is counted only once as a unique title.

even higher at 80%. Cross-border availability between country catalogues in HBO[13] and Amazon is about 20 percentage points lower but still rather high. Clearly, larger platforms are a good conduit for cross-border availability of the products in their catalogue. These figures imply that if geo-blocking restrictions would be lifted inside the Netflix platform, the number of TV series available to the average Netflix consumer would increase by 20% and the number of films by 37%. For HBO and Amazon consumer variety gains would jump up even more, respectively 38-41% for TV series and 56-59% for film titles.

The first line of the middle panel of Table 1 shows that consumers could gain even more variety from switching between the Big-3 SVoD platforms because there is relatively little overlap (19% for films, 12% for series) between their catalogues. Regular switching between the Big-3 would result in an average 88% increase in TV series titles and an 81% increase in films. Provided that these Big-3 operate in the same country, this switching is possible irrespective of any geo-blocking. The second line of the middle panel of Table 1 compares cross-border availability between small national platforms and the Big-3: 22% of all films (21% of all TV series) available in the Big3 are also available in at least one national platform. However, the likelihood of finding them in one particular platform remains very low.

Table 1: SVoD platforms product overlaps

Platforms:	Film title overlaps:	Series title overlaps:
*Cross-border availability **within** the Big-3 international SVoD platforms*		
Netflix	0.63	0.80
HBO	0.44	0.59
Amazon	0.41	0.62
*Cross-platform availability **between** SVoD platforms*		
Between the Big 3	0.19	0.12
Between local platforms and the Big 3	0.22	0.21
*Cross-border availability **within** the Big-3 international SVoD platforms*		
Among the group of local platforms	0.18	0.17

Note: Ampère covers SVoD platforms in 15 EU Member States.

Source: Ampère database and JRC calculations, as described in Annex 2.

The last line of the lower panel in Table 1 compares cross-border availability for smaller SVoD platforms that are usually available in one country only. Cross-border availability among national SVoD platforms drops to very low figures, around 18% for films and 17% for TV series. This implies that the probability that a title available in one platform is also available in another small platform is very low. The low overlap figures for platforms with local or national scope is not only due to the fact that they concentrate their operations on few countries (normally just one) but many also concentrate on only one genre, for example anime or documentaries. While consumers can switch between national platforms in their own country, geo-blocking prevents them from going to platforms in other countries. They would gain very substantial increases in the number of available titles if geo-blocking restrictions would be lifted on small platforms – an increase of 82% for films and 83% for series.

[13] The cross-country availability figures for HBO are a bit misleading. The Nordic countries (DK, FI and SE) have 100% overlapping catalogues and are also very high for Eastern European countries (CZ, PL and RO). Only Spain stands out as a country with relatively less overlap with these two groups. That drags the average for HBO down.

Original productions of large platforms contribute substantially to wider cross-country availability. Graphs 1 and 2 (in Annex) compare cross-country availability in Netflix and Amazon, the two largest (in terms of products) and most widely available VoD services in the EU. Original productions are produced in-house by these platforms. They generally hold worldwide online distribution rights and can make these products widely available, unless they choose to geographically segment the market for commercial reasons. The graphs show that original productions are indeed more widely available, both films and series. The graphs also confirm that original productions are more widely available than non-original productions. This may be linked to the fact that, for non-original productions, platforms hold territorial licenses for a limited number of countries only. However, the graphs also show that, overall, Netflix has wider geographical availability of both original and non-original productions. The difference between Netflix and Amazon is especially striking for EU original productions. They are available in almost every country in Netflix but far less so in Amazon.

Netflix provides some explanation why some Netflix original TV shows or movies are not available in all countries[14]: "With most Netflix originals, it owns all the rights to the title and can stream it anywhere in the world. Some Netflix originals are not available in all regions, for the following reasons:

- When some Netflix originals were created, Netflix was only available in a small number of countries, so they did not secure the licensing rights for all global regions.
- Despite a TV show or movie being a Netflix original, other companies may have the rights to stream it in a particular region due to content deals made before Netflix was available in that region.
- Depending on the region, Netflix may not be able to obtain the licensing rights for an original series for many years".

The concept of "Netflix original" is not unambiguously defined however. Netflix may hold all rights in all territories for a title that was produced at the request of Netflix. But some originals may in fact be co-productions where other producers may hold some of the distribution rights for specific territories, distribution channels and time frames (Barthès, 2018). Nevertheless, the Ampère data show that, on average, titles classified by Netflix as "originals" are more widely available than other titles. Film producers may be interested in collaboration with Netflix because it gives them the possibility to reach a wider international market and increase financing and revenue for their productions[15].

[14] See https://help.netflix.com/en/node/4976?ba=SwiftypeResultClick&q=license
[15] See for example https://www.lesechos.fr/tech-medias/medias/pourquoi-tf1-pactise-avec-netflix-1148446

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Table A1: Cross-border film availability in Lumière and Ampère

	Lumière			Ampère		
country	unique titles	country share		unique titles	country share	
MT	100	0.3%				
SI	105	0.3%				
BG	112	0.4%				
HR	116	0.4%				
CY	121	0.4%				
LU	336	1.1%				
GR	409	1.3%				
RO	1838	5.8%		6158	12.97%	
LV	2995	9.4%				
EE	2995	9.4%				
HU	3139	9.9%				
LT	3238	10.2%				
SK	3635	11.4%				
PT	3914	12.3%		4502	9.49%	
NL	4384	13.8%		6287	13.25%	
DK	4639	14.6%		15739	33.16%	
FI	4720	14.8%		16130	33.99%	
SE	4910	15.4%		12435	26.20%	
CZ	5196	16.3%		6499	13.69%	
PL	5335	16.8%		6232	13.13%	
BE	6456	20.3%		6553	13.81%	
IT	6941	21.8%		10862	22.89%	
ES	8029	25.2%		10292	21.68%	
IE	8139	25.6%		16933	35.68%	
FR	12689	39.9%		9522	20.06%	
AT	12846	40.4%		5327	11.22%	
DE	13723	43.1%		15684	33.05%	
Overall	31828	14.1%		47462	21.0%	

Note: The above table uses 2019 data, before Brexit, but the UK has been excluded from the table. It assumes that the UK has left the EU and that UK catalogues will no longer be available. At this stage in the Brexit process however, we do not know whether UK catalogues will still be available in the EU after the transition period. The overall cross-border availability figures would be 13,6% (both for Lumière and Ampère) if the UK catalogue would be included.

Source: Lumière and Ampère databases. JRC calculations.

Table A2: Platform availability in Lumière

	DE	ES	AT	FR	SE	CZ	SK	IT	PL	IE	NL	BE	DK	FI	PT	HU	LT	EE	LV	RO	GR	BG	CY	HR	LU	MT	SI		
	32	30	24	21	21	20	18	16	16	15	14	12	12	12	10	10	9	8	8	7	4	3	3	2	3	3	3		
Amazon Prime Video	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		27
FilmDoo	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		27
iTunes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1		26
Netflix	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								21
MUBI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									20
Google Play Movies	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1										19
GuideDoc	1	1	1		1			1	1	1	1		1	1			1	1	1										13
RakutenTV	1	1	1	1		1	1	1	1	1	1	1			1														12
Microsoft Films & TV	1	1	1	1	1			1		1	1		1	1															10
Viaplay					1								1	1			1	1	1										6
YouTube Movies	1			1					1						1	1													5
HBO GO						1	1		1							1				1									5
Sky GO	1		1					1		1																			4
Chili	1		1					1	1																				4
Sony Playstation Store	1	1		1				1																					4
Shudder	1		1							1																			3
Sky Store	1		1							1																			3
Pantaflix	1		1	1																									3
HBO Nordic					1								1	1															3
C More					1								1	1															3
UPC My Prime						1	1		1																				3
Sky NOW TV		1						1		1																			3
DaFilms						1	1																						2
Sky Ticket	1		1																										2
Kividoo	1		1																										2
Horizon																1				1									2
Voyo						1	1																						2
Maxdome	1		1																										2
Plejmo					1								1																2
Amazon TVOD	1		1																										2
Flimmit	1		1																										2
Filmbox						1	1																						2
Be2Can						1	1																						2
alles kino	1		1																										2
YouTube Premium												1				1													2
Maxdome Store	1		1																										2
Obbod						1	1																						2
Videobuster	1		1																										2
Aerovod						1	1																						2
Be tv												1																	1
UniversCine	1																												1
Orange VOD				1																									1
Uncut Belgium												1																	1
In-Edit		1																											1
Magio Kino							1																						1
Prima Videopůjčovna						1																							1
TriArt					1																								1
cinema[s] @ la demande				1																									1
Sky Espana		1																											1
BluTV	1																												1
Televeo		1																											1
Kuki						1																							1
Volta										1																			1
Yelo Play												1																	1
Sky Online	1																												1
Filmin TVOD		1																											1
VIMEO TVOD					1																								1
Feelmaker		1																											1
Full Moon Streaming		1																											1
HBO Espana		1																											1
Draken Film					1																								1
Kino VOD Club			1																										1
TIMvision								1																					1
Folkets Bio					1																								1
Disney+											1																		1
Cineman									1																				1
UniversCiné France				1																									1
Pathé Thuis											1																		1
Filmin SVOD		1																											1
Atres Player		1																											1
VOD Poland									1																				1
Ruutu														1															1
Non Stop Entertainment					1																								1
FlixOlé		1																											1
ZMONES Cinema filmai																	1												1
Gaze Net					1																								1
Viaplay Store					1																								1
EntertainTV	1																												1
LaCinetek				1																									1
OCS GO				1																									1
K2Studio							1																						1
MEO															1														1
HBO Go															1														1
MyTF1vod				1																									1
SFR Play				1																									1
Joyn	1																												1
Videoland											1																		1
Infinity TV								1																					1
Horizon/UPC									1																				1
Bbox VOD				1																									1
Vodafone		1																											1
Banaxi						1																							1
Mujeres de Cine VOD		1																											1
Movistar+		1																											1
Filmpopular						1																							1
Mediaset Premium Play								1																					1
Orange TV		1																											1
Fubo TV		1																											1
Otta							1																						1
UniversCiné Belgium												1																	1
Film1											1																		1
Blockbuster					1																								1
IPLA									1																				1
Disney Life										1																			1
SF Anytime					1																								1
Sky X			1																										1
Cineclick		1																											1
realeyz	1																												1
Ziggo											1																		1
Mitele		1																											1
Benece online		1																											1
Starz Play Amazon Channel	1																												1
Canal VOD				1																									1
O2TV						1																							1
Filmo TV				1																									1
Agile TV		1																											1
Filmtastic	1																												1

Source: EAO Lumière and JRC calculations

Table A3: Ampère VoD platforms and number of titles by platform

	TOTAL	Netflix	Amazon Prime Video	Amazon Other	HBO Go	Viaplay	Maxdome	Sky Ticket	Movistar+	CMore	NowTV	Crunchy roll	Video land	Mediaset Infinity	Acorn TV	OCS	Ruutu	TIM Vision	Canal+ Series	Anime on Demand	SFR Play	Film1	Shudder
Belgium	10569	6364	2129	1215											861								
Finland	24000	5276	6112	6469	1718	1948				983					165		1329						
Netherlands	10503	5594	1401	603									2546		185							174	
Spain	16843	5554	2337	1210	1463				4167		954	977			181								
Sweden	20093	5738	4789	3747	1718	2233				1688					180								
Denmark	23122	5750	6034	6378	1718	2233				1009													
France	14531	6251	3137	1926								807				1507			620		283		
Germany	24427	6139	5441	4455			4911	2110				785								467			119
Ireland	23853	8698	7668	7487																			
Italy	15989	5436	2805	1295							2381	712		2530				830					
Poland	9861	5601	1359	558	2343																		
Portugal	7259	5096	1561	602																			
Czech Rep	9972	7617			2355																		
Romania	9429	7084			2345																		
Austria	8226	6116						2110															
TOTAL	228677	92314	44773	35945	13660	6414	4911	4220	4167	3680	3335	3281	2546	2530	1572	1507	1329	830	620	467	283	174	119

Source: Ampère data for September 2019, and JRC Calculations.

Note: "totals" are crude row and column totals, not totals of unique titles across countries and platforms.

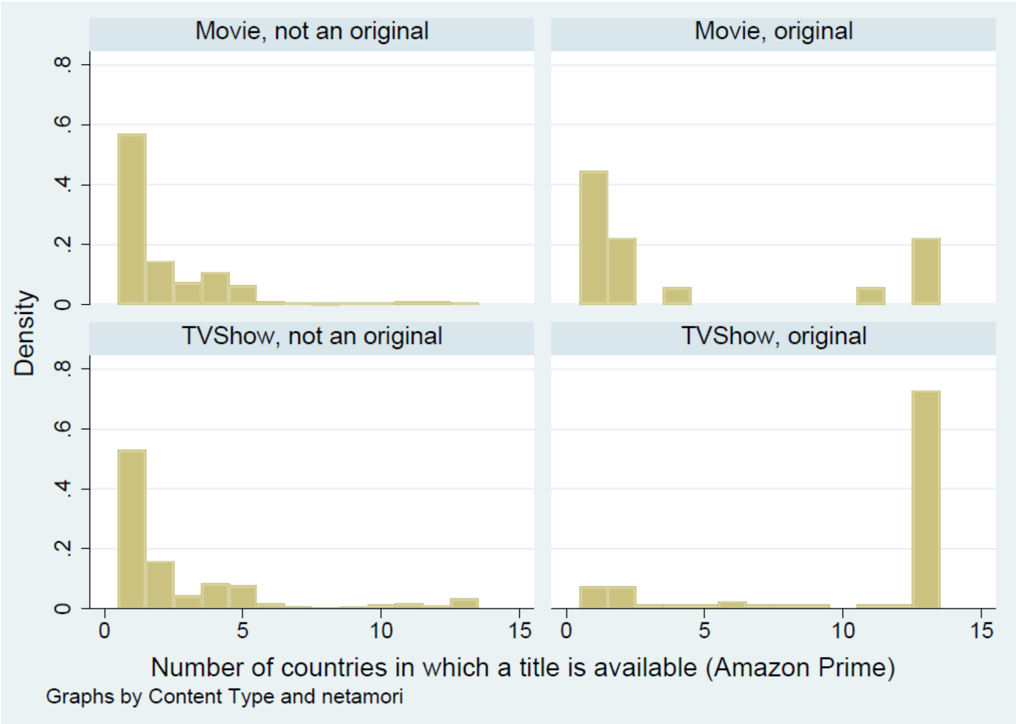
Table A4: The determinants of the number of titles and VoD platforms by country

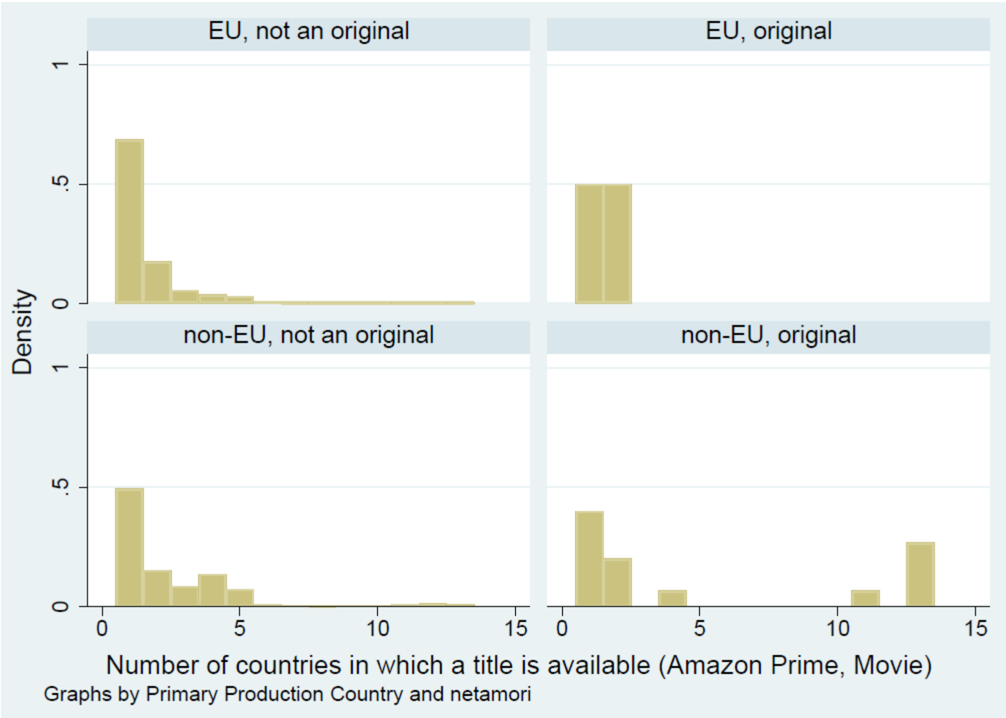
Dependent variable:	Number of titles by platform and country	Number of titles per country	Number of platforms per country
Log GDP per capita	0.890***	0.670***	0.793***
	(0.080)	(0.055)	(0.094)
Log population	0.110***	0.284***	0.284***
	(0.030)	(0.028)	(0.029)
% of households covered by broadband	-2.747***	-1.750***	-1.735***
	(0.603)	(0.443)	(0.611)
% of households subscribing to broadband	0.660***	-0.698***	-2.211***
	(0.210)	(0.200)	(0.381)
Scandinavia (1 if yes, 0 otherwise)	0.099	0.443***	
	(0.064)	(0.037)	
Constant	8.343***	9.223***	4.499***
	(0.869)	(0.644)	(1.188)
Observations	2135	521	174
Adjusted R-squared	0.654	0.590	0.405

Notes: Quarterly Ampère data for 2017-2019. Dependent variable in logs. All regressions include time fixed effects.

Source: Ampère data and JRC calculations.

Graph A1: Country availability in Amazon

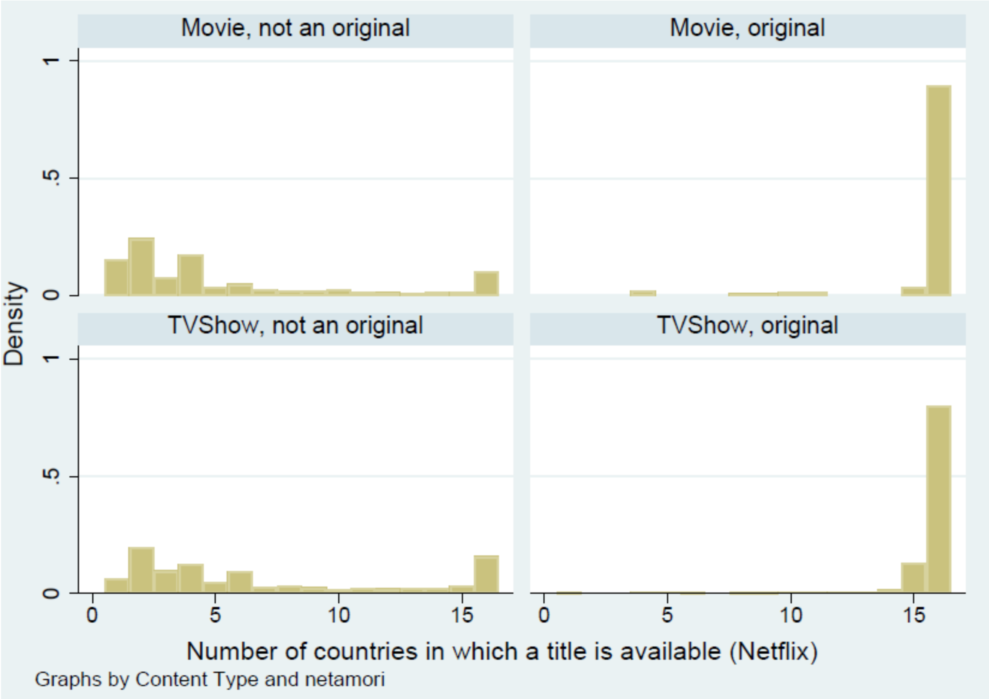


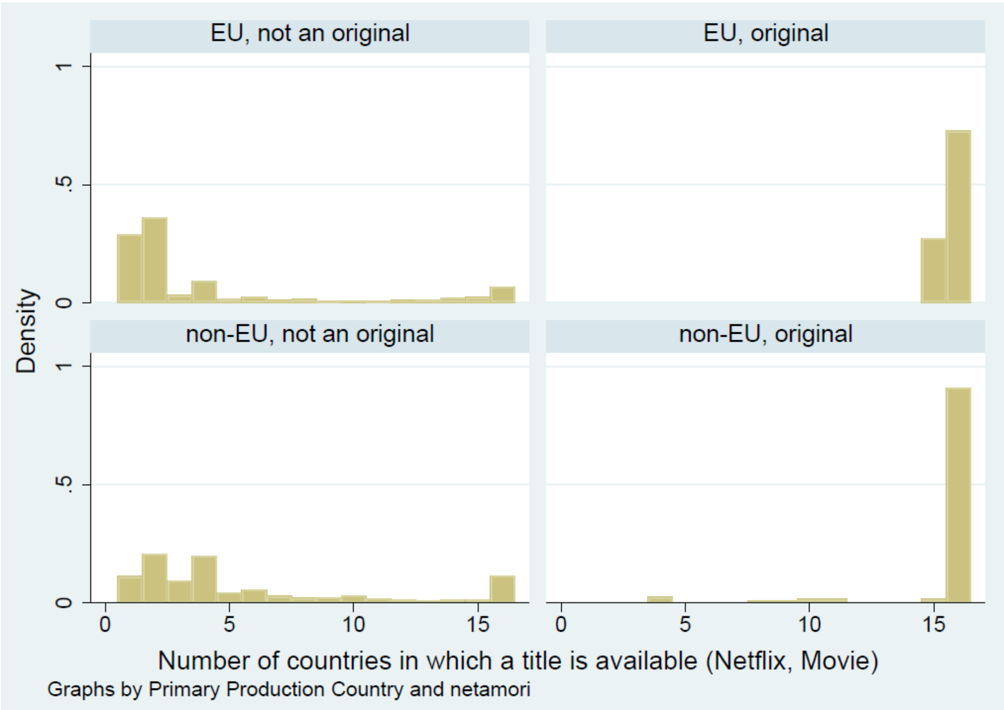


Notes: TV shows = series. Original productions are produced by Amazon. Titles are classified as EU productions when the primary producer is located in an EU Member State.

Source: Ampère data and JRC calculations

Graph A2: Country availability in Netflix





Notes: TV shows = series. Original productions are produced by Netflix. Titles are classified as EU productions when the primary producer is located in an EU Member State.

Source: Ampère data and JRC calculations

Annex 2. Calculation of overlaps

The dataset used for obtaining the values in Table 1 contains 154,895 observations, distributed over 15 countries and 22 platforms. The data spans 77 distinct platform-country combinations. One observation is a unique title-platform-country observation. A unique title is defined by each title-year-primary production country-content type-imdb id-duration combination. There are 47,204 unique titles in total.

Countries	Platforms (# of countries where available)
Austria	AcornTV (5)
Belgium	Amazon Other (12)
Czech Republic	Amazon Prime Video (12)
Denmark	Anime on Demand (1)
Finland	CMore (3)
France	Canal+ Series (1)
Germany	Crunchyroll (4)
Ireland	Film1 (1)
Italy	HBO (7)
Netherlands	Maxdome (1)
Poland	Mediaset Infinity (1)
Portugal	Movistar+ (1)
Romania	Netflix (15)
Spain	NowTV (2)
Sweden	OCS (1)
	Ruutu (1)
	SFR Play (1)
	Shudder (1)
	Sky Ticket (2)
	TIM Vision (1)
	Viaplay (3)
	Videoland (1)

Having this in mind, we calculate "Availability" as follows:

For any pair of platform-country combinations, e.g. "Sky Ticket-Austria" and "Viaplay-Denmark", and for both films and TV shows (→ the content type), we calculate the overlap with respect to each platform-country's catalogue size. Think of this as two (one for films, one for TV shows) large spreadsheets, each cell containing the percentage of overlapping titles with respect to catalogue size. For each pair of country-specific platforms, there are two values. To illustrate with our previous example: The overlap of films between Sky Ticket Austria and Viaplay Denmark is 73 titles. The catalogue size of Sky Ticket Austria is 1058 titles, and the catalogue size of Viaplay Denmark is 449 titles, the resulting overlap percentages are 73/1058= 0.069 and 73/449= 0.163, respectively.

The values in Table 1 (upper panel) take the averages of all overlap percentages within each of the 3 respective platforms. The values in Table 1, line "Among the group of local platforms" are the averages of all percentages for all other values, excluding all combinations involving Netflix, HBO, and Amazon Prime Video.

The line "Between the Big 3" combines all national catalogues per platform, so that we have six imaginary catalogues: one for Amazon Prime Video, one for HBO, and one for Netflix, both for films and TV shows. As before, we calculate the overlap with respect to both involved platforms. The values shown in the table are the averages over all six values per content type.

The line "between local platforms and the Big 3" calculates the percentages between a hypothesized "Big 3"-catalogue for each content type and a hypothesized "all other"-catalogue per content type. The value shown is the number of overlapping titles divided by the number of titles in the "big 3"-catalogue.

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