

# Copyright Protection in the Digital Single Market

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**SNF Working Paper No 04/20**

**Copyright Protection in the Digital Single Market**

**by**

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**SNF project no 10052**

**“Media Competition and Media Policy”**

The project is financed by the Research Council of Norway

CENTRE FOR APPLIED RESEARCH AT NHH  
BERGEN, JUNE 2020  
ISSN 1503-2140

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# Copyright Protection in the Digital Single Market

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June 2020

## Abstract

This paper scrutinizes the effects of the European Directive on Copyright in the Digital Single Market on platform competition in media markets. Platforms that are Online Content-Sharing Service Providers must have a license agreement with collective management organizations that control the content platform users may (or must not) upload to the platform. The paper explains the background and its implications, and it shows that the new directive may imply market concentration and an aggregate welfare loss. The reason is that only users of the large platform will be allowed to upload content if the content asset controlled by a collective management organization is sufficiently valuable and if network effects are strong.

*JEL-Classification:* D43, F12, L86.

*Keywords:* Copyright protection, IPRs, content platforms, trade in services, digital services

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# 1 Introduction

Arguably, no other intellectual property right (IPR) discussion has stirred the EU as much as the new Directive on Copyright in the Digital Single Market (CDSM).<sup>1</sup> Critics accuse it of threatening internet freedom, or even imposing a form of censorship (see Stolton, 2019), whilst proponents see it as an important step in ensuring the protection of IPR in the digital world.<sup>2</sup> Central to this discussion has been the so-called “upload filter” – a mechanism purportedly advanced by Art. 17 of the CDSM Directive. Online Content-Sharing Service Providers (OCSSPs) are content platforms that are required to have the consent from rightholders of protected content or should have an agreement with so-called collective management organizations (CMOs). The EU Collective Management Directive (CMD) defines CMOs as organizations that manage the IPRs of rightholders and, importantly, represent all rightholders of a domestic industry as long as an individual rightholder does not opt out.<sup>3</sup> Thus, CMOs are *de facto* monopolists in European markets.

At the same time, Article 102 of the Treaty on the Functioning of the European Union (TFEU) deals with the abuse of dominant market positions, and it is not clear how CMOs in their new position will be dealt with by DG Competition. The content platforms are liable for any violation of IPRs (though not in a strict legal form). In particular, the CDSM Directive imposes a burden of proof on the content platforms that they have sought an agreement with CMOs for any kind of content that may be uploaded by their users. This has raised the concern that content platforms may use upload filters to control online content, and these upload filters are also seen as a restriction of internet freedom, in particular if their algorithm also blocks content that is not violating IPRs. While we will not deal with potential unwarranted side effects, we will scrutinize the role of CMOs

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<sup>1</sup>See Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC PE/51/2019/REV/1.

<sup>2</sup>For example, Commissioners Ansip and Gabriel expressed this as follows: “This Directive protects creativity in the digital age and ensures that the EU citizens benefit from wider access to content and new guarantees to fully protect their freedom of expression online” in: European Commission Statement, ‘Copyright reform: the Commission welcomes European Parliament’s vote in favour of modernised rules fit for digital age’ (Luxembourg, 26 March 2019).

<sup>3</sup>See Directive 2014/26/EU of the European Parliament and of the Council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online use in the internal market, for which we use the acronym CMD for Collective Management Directive.

in this new IPR regulation set-up. There is a substantial literature on the role of IPRs in digital markets due to the non-rival nature of digital information, in particular on the music industry (see, for example, Section 4.3 in Goldfarb and Tucker, 2019, and the cited literature).<sup>4</sup> However, there is no analysis yet on the role of CMOs as representatives of rightholders vis-a-vis content platforms. This paper fills this gap.

The CDSM Directive affects international trade in services: most content platforms are running servers outside of the EU, have their headquarters outside of the EU, and offer content to an international market. In the language of the WTO, this is mostly mode 1 service trade (services supplied from one country to another), but could also include mode 3 (a foreign company setting up subsidiaries or branches to provide services in another country). The TRIPS Agreement also has a copyright protection clause which gives performers the right to prevent unauthorized recording, but the CDSM Directive goes far beyond that.<sup>5</sup> Furthermore, content platforms are platforms in the classic sense: the marginal benefit of the platform for each user increases with the number of users. At the same time, a CMO collects revenue from users through licenses on behalf of rightholders, but it operates as a non-profit organization such that all proceeds are distributed to rightholders. The more rightholders a CMO will represent, the stronger will be its market power.

While the CDSM Directive is the first legal framework in this context, the political debate has gained momentum also in other countries, in particular in Australia and the US.<sup>6</sup> After an initiative of voluntary compensations for media outlets obviously failed, Australia seeks to introduce legislation under which Facebook and Google will have to compensate media outlets for news content they use. Also in the US, there is a growing concern that these platforms do not compensate media outlets properly. In response to

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<sup>4</sup>There is also an older literature on the role of CMOs, but we will take the existence of CMOs as a fact of life. See, for example, Besen *et al* (1992) and Hollander (1994). CMOs are regarded as natural monopolies due to decreasing average costs of managing content, but this view has been challenged by Katz (2005).

<sup>5</sup>The Berne Convention for the Protection of Literary and Artistic Works was the first international copyright agreement that came already into force in 1886, but its last reform took place in 1971. While all WTO member have to be members of the Berne Convention, it has thus not yet been adapted to digital markets. For a discussion of the impact of digitization on (service) trade, see WTO (2018).

<sup>6</sup>See New York Times, ‘Australia Moves to Force Google and Facebook to Compensate Media Outlets’, April 20, 2020, and New York Times, ‘Big Tech Has Crushed the News Business. That’s About to Change’ May 10, 2020.

a study by the News Media Alliance that claims that Google made USD 4.7 billion by using news content of media outlets for free,<sup>7</sup> the US Congress has introduced a bill that would grant news publishers an antitrust exemption for four years so that they can collectively negotiate with content platforms about models of compensation and revenue sharing which would put them in a similar position as the CMOs in Europe.<sup>8</sup> Google and Facebook have responded by claiming that they are redirecting to media outlets to their benefit, but the bill has obviously bipartisan support. Thus we may expect similar outcomes in Australia and the US in the near future.

Of course, the CDMS Directive can be expected to increase the share of the surplus that accrues to the CMOs. While this would have a distribution effect only, the CDSM Directive may increase the market power of a strong single content platform, even if the CMO does not in principle refuse to license to other content platforms. If a license agreement is only profitable for a large platform, small-scale content platforms may have to make provisions that copyright-protected content is not uploaded, reducing their platform benefit. It is this issue that we scrutinize in this paper, and we show in particular that a most-favoured costumer rule may make an alliance of a CMO with a single, large content platform stronger, while reducing aggregate welfare at the same time. Our results will not depend on the specific type of contracts that are offered by the CMO, as long as the most-favoured customer provision will guarantee that both platforms are offered the same menu of contracts. The difficulty to monitor the detailed content that is uploaded by users may imply a fixed fee.<sup>9</sup> In what follows, we will also consider so-called blanket licenses such that any agreement will allow users of the platform to use all content managed by the CMO, and not only part of it. Blanket licenses are universal in these markets, also because it is impossible or at least very costly to control for content selection in digital markets.<sup>10</sup>

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<sup>7</sup>See “Google Benefit from News Content”, Economic Study by News Media Alliance, June 2019.

<sup>8</sup>See New York Times, ‘Google Made \$4.7 Billion From the News Industry in 2018, Study Says’, June 9, 2019, and for the bill introduced, see Journalism Competition and Preservation Act of 2019, 116th Congress (2019-2020).

<sup>9</sup>There is a literature on fees versus royalties for patent licensing, see for example Kamien and Tauman (1986). There is also a literature considering licensing in vertical product markets that considers exclusion versus non-exclusion, see Li and Wang (2010).

<sup>10</sup>Even before digitization, CMOs offered blanket licenses only. For example, CMOs managing music rights would employ a model of royalties per music track, and radio stations would have to produce a play list, but CMOs did not offer to use only a subset of the rights they manage.

Our analysis contributes to the literature on platform competition in media markets, and many papers have investigated their performance in two-sided markets.<sup>11</sup> We focus on the network externality of media markets in the main body of the paper, and we do so to be able to focus on the role of the CMO as a monopolist controlling an intangible asset that contributes to the quality of the platform as it is perceived by users. In this respect, our analysis is close to papers that consider the role of quality in media markets.<sup>12</sup> However, in these papers, quality provision is an endogenous choice of a platform; in our case, it is the CMO that either has a contractual arrangement with a platform or not, and at least in the short run, the size and quality of these assets are given.<sup>13</sup> There is also a similarity with media platforms that hold exclusive broadcasting rights, for example, for sport events. Copyright protection is not an issue in this case as the platform has acquired the broadcasting rights. The difference is that the CDSM Directive deals with content platforms that allow users to upload potentially copyright-protected content. Furthermore, when users share content on a platform, they are likely to use this platform exclusively, while viewers may use different broadcasting platforms that offer different content at the same time. While our main analysis assumes a single-homing environment in which two content platforms compete for users who want to share content of a platform (and part of this content may be copyright-protected under the CDSM Directive), we show in an appendix that our results extend to two-sided markets and multi-homing.

The remainder of this paper is organized as follows. Section 2 will give a thorough and comprehensive overview of the CDSM Directive, the new role of the CMOs and its potential implications for competition policies. Section 3 develops a Hotelling model of platform competition that is extended to include network externalities and the benefits for users if they have access to licensed content controlled by a CMO. Section 4 shows how the CDSM Directive may lead to substantial industry concentration and aggregate welfare losses. Section 5 concludes.

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<sup>11</sup>See for instance Anderson and Coate (2005), Armstrong (2006), Caillaud and Jullien (2001, 2003), Crampes, Haritchabalet and Jullien (2005), Hagiu (2006) and Rochet and Tirole (2003, 2006).

<sup>12</sup>See for example Armstrong and Weeds (2007), Battaglion and Druifuca (2019), Li and Zhang (2016), Lin (2011) and Kind *et al* (2013).

<sup>13</sup>In this sense, it makes a difference whether a media platform offers high-quality news content, that is, can produce by itself or source from somewhere, or whether its users are allowed to upload news, videos, photos, etc. to share on a platform. It is the latter case the CDSM Directive deals with.



## 2 The Directive on Copyright in the Digital Single Market and the Role of Collective Management Organizations

The CDSM Directive advances a legal framework for copyright in the digital environment, and in doing so seeks to address the complexity of the online content market. *Inter alia*, it creates rules encouraging the authorisation by copyright rightholders to content-sharing service providers for the usage of content, seeking to “foster the development of the licensing market between rightholders and online-content sharing providers,” maintaining that “rightholders should not be obliged to give an authorisation or to conclude licensing agreements.” A corollary problem is presented by competition law: many rightholders are represented by collective management organisations, CMOs, which can wield significant market power. The CDSM Directive provides that rightholders should not be obliged to conclude licensing agreements, but a refusal to license by a dominant CMO can constitute a form of abuse prohibited by the Treaties. On the other hand, online providers need an authorisation, and may be confronted with terms determined by a CMO or face a refusal to license.<sup>14</sup> How can this be reconciled, and what does refusal to license mean in this context?

Concretely, Article 102 TFEU provides that “[a]ny abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States.”<sup>15</sup> Forms of collective management are addressed under EU law by the Collective Management Directive (CMD).<sup>16</sup> The CMD provides that CMOs are “any

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<sup>14</sup>For a discussion how to deal with refusals to license in general, see Hovenkamp *et al* (2006), Katsoulacos (2009) and Kwok (2011).

<sup>15</sup>This outlines three core elements: (1) abuse, (2) a dominant market position and (3) an effect on trade between Member States. The following will consider the position of CMOs under competition law as dominant undertakings in the licensing market (including the effect on trade concept).

<sup>16</sup>The CMD lays down different rules for CMOs and what are called “independent management entities” (IMEs). Both CMOs and IMEs are “any organisation which is authorised by law or by way of assignment, licence or any other contractual arrangement to manage copyright or rights related to copyright on behalf of more than one rightholder, for the collective benefit of those rightholders, as its sole or main purpose.” (Art. 3 CMD) IMEs must be neither owned nor controlled, directly or indirectly, wholly or in part, by rightholders and organised on a for-profit basis. (Art. 3(b) CMD) The distinction is made here in order to ensure certain management entities do not escape certain key obligations of transparency and accountability, but it is of no relevance for our economic analysis. See Guibault and van Gompel

organisation which is authorised by law or by way of assignment, licence or any other contractual arrangement to manage copyright or rights related to copyright on behalf of more than one rightholder, for the collective benefit of those rightholders, as its sole or main purpose” and must be either owned or controlled by its members or organised on a not-for-profit basis. The CMD makes references to the applicable competition rules for CMOs, which underline the fact that the CMD does not preclude competition rules. Specifically, CMOs inhibit (quasi-)monopolistic positions in the market for the management of certain copyrights.

Under the CDSM Directive, CMOs are elevated to a stronger position of influence. Art. 12(1)(a) of the CDSM stipulates that where a CMO enters into a “licensing agreement for the exploitation of works (...) such an agreement can be extended to apply to the rights of rightholders who have not authorised that [CMO] to represent them.” This greatly extends the responsibility of CMOs as any CMO thus “has a legal mandate or is presumed to represent rightholders who have not authorised the organisation accordingly.” Art. 12(3) elaborates on further safeguards, most notably that rightholders that have not authorised the CMO “may at any time easily and effectively exclude their works (...) from the licensing mechanism.” Nonetheless, the fact that CMOs are presumed to represent rightholders that may not have granted a mandate to that CMO strengthens the presumed position of CMOs in the licensing market and CMOs will continue to be subject to EU competition rules as dominant undertakings in a position to affect trade between Member States. The position of national CMOs is strengthened internationally as they are allowed to collect license fees on behalf of foreign CMOs on the basis of representation agreements.<sup>17</sup>

A dominant position under Art. 102 TFEU is not unlawful as such. The Court of Justice (CJEU) has upheld that undertakings enjoying a dominant position also bear a special responsibility not to “allow [their] conduct to impair genuine undistorted competition on the internal market.” Such conduct is substantiated by an abuse: one abuse that is unique to licensing arrangements is the refusal to license, which refers to a situation in which the owner of the intellectual property denies a third party a license. This abuse

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(2016).

<sup>17</sup>See CMD Directive, Art. 14: “Member States shall ensure that a collective management organisation does not discriminate against any rightholder whose rights it manages under a representation agreement [...]” ..

has been recognised by the jurisprudence of the CJEU, namely the Court has repeatedly highlighted that the exercise of an exclusive right attached to an IPR may involve abusive conduct in “exceptional circumstances.” The case law of *Magill* and *IMS Health* has clarified that it is sufficient for a refusal to license to be considered an abuse if four cumulative conditions are fulfilled: (1) access to the material protected by an IPR is “indispensable” in order to carry out a particular business, (2) the refusal prevents the emergence of a “new product” for which there is potential consumer demand, (3) the refusal is “incapable of being justified by objective considerations,” and (4) the refusal is “likely to exclude any competition on a secondary market.” It is not clear whether the CMO does not refuse to license when it offers the same agreement to different content platforms, possibly knowing that it will be acceptable for one, but not for another content platform. Naturally, these conditions are subject to judicial assessment, and have been argued by the General Court to be a non-exhaustive list of criteria that can demonstrate sufficiency.<sup>18</sup>

The controversial so-called “upload filters,” or “effective content identification technologies” as they were labelled *verbatim* in the Commission Proposal for the CDSM Directive, have been removed in the adopted CDSM Directive. Instead, the Parliament and the Council have opted to reform the liability regime applicable to content platforms (OCSSPs).<sup>19</sup> Art. 17 replaces the liability regime of the E-Commerce Directive (ECD). Explicitly, Art. 17(3) of the CDSM Directive stipulates that “the limitation of liability established in Art. 14(1) of [the ECD] shall not apply to situations covered by this Arti-

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<sup>18</sup>*Microsoft Corp. v Commission of the European Communities* (Case T-201/04) [2007] ECLI:EU:T:2007:289 para 303. Further, in *Microsoft*, the General Court particularly merited the “new product” criterion, arguing that it ought to be considered under the ‘limiting production, markets or technical developments to the ... prejudice of consumers’ form of abuse stipulated by Art. 102(2)(b) TFEU. Reinterpretation of the criteria for establishing exceptional circumstances has been interpreted as controversial, yet it leaves the door open for a fresh concretisation by the CJEU for a different *ex ante* context, given that “no substantive theory drives the relationship between *ex ante* IPR policy and *ex post* competition enforcement.”

<sup>19</sup>Art. 2(6) CDSM: “‘online content-sharing service provider’ means a provider of an information society service of which the main or one of the main purposes is to store and give the public access to a large amount of copyright-protected works or other protected subject matter uploaded by its users, which it organises and promotes for profitmaking purposes.’ Art. 1(1)(b) Directive 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services [2015] OJ L241/1: information society service “any service normally provided for remuneration, at a distance, by electronic means and at the individual request of a recipient of services”.

cle.” What does this mean? Art. 14(1) of the ECD provides for a so-called “notice and take-down” regime (see OECD, 2011). Under this regime a host is not liable for stored information where they do “not have actual knowledge of illegal activity or information and, as regards claims for damages, is not aware of facts or circumstances from which the illegal activity or information is apparent,” and “upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information.”<sup>20</sup> Under the CDSM Directive, notice and take-down is suspended. This means that where content platforms perform an “act of communication to the public,” i.e. when they give “the public access to copyright-protected works or other protected subject matter,” a different *ex ante* liability regime is in place under Art. 17(4).<sup>21</sup>

In consideration of the legislative history of the CDSM, it can be argued that this is a constructive move away from the “*de facto* strict liability regime” envisioned by the initial Commission Proposal.<sup>22</sup> However, Art. 17(4) nonetheless imposes a pro-active *ex ante* burden on content platforms as a sub-class of information society service providers, as liability does not arise out of the reception of any notice from rightholders in the sense of Art. 14(1) of the ECD. Instead, liability of the content platform is a rebuttable presumption under the CDSM. In *ex post* competition analysis, whether or not “upload filter” technologies are used to satisfy this burden by an content platform is insubstantial. However, the potential for an exploitative abuse of a CMO’s dominant position is arguably greater, as the new liability regime brings forth further obligations that are owed by an content platform to the CMO. Regarding the effect on trade, the CDSM Directive explicitly recognises the “potential need to lay down rules to give [mechanisms of collective licensing] cross-border effect within the internal market,” highlighting the potential to affect trade between Member States by such agreements.

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<sup>20</sup>See Art. 14(1)(a) ECD and Art. 14(1)(b) of the E-Commerce Directive (ECD), respectively.

<sup>21</sup>This stipulates the following: If no authorisation is granted, online content-sharing service providers shall be liable for unauthorised acts of communication to the public, including making available to the public, of copyright-protected works and other subject matter, unless the service providers demonstrate that they have: (a) made best efforts to obtain an authorisation, and (b) made, in accordance with high industry standards of professional diligence, best efforts to ensure the unavailability of specific works and other subject matter for which the rightholders have provided the service providers with the relevant and necessary information; and in any event (c) acted expeditiously, upon receiving a sufficiently substantiated notice from the rightholders, to disable access to, or to remove from, their websites the notified works or other subject matter, and made best efforts to prevent their future uploads in accordance with point (b).

<sup>22</sup>For the strict liability assertion, see Frosio (2018).

Most crucial from a competition perspective is the requirement for online providers to be able to demonstrate that they have “made best efforts to obtain an authorisation” for the “communication to the public” of protected works. This imposes a burden of proof on content platforms of having sought a license agreement or similar arrangement with rightholders, even on content platforms which have an annual turnover below € 10 million, meaning that a vast range of potential licensees are affected by CMO conduct. Regarding such licensing agreements between management organisations and users, the CMD outlines key principles that should be observed. Art. 16(1) stipulates that parties conduct negotiations for the licensing of rights in good faith. Art 16(2) to (4) CMD outline more concrete obligations borne by CMOs, namely, Art. 16(2) requires licensing terms to be based on objective and non-discriminatory criteria. Interestingly, the CDSM Directive mentions explicitly that a CMO could refuse to licence.<sup>23</sup> CMOs’ presumed mandate under the CDSM Directive effectively elevates them to a one-stop-shop for certain authorisations and content platforms of all sizes will need to seek authorisation from CMOs for communications to the public. Given that the CDSM Directive prescribes the acquisition of authorisations, refusals by CMOs of granting such an authorisation will naturally be subject to scrutiny as a form of a refusal to license. Some legal scholars have argued that a “refusal to license at all” or “a refusal to license otherwise than on terms the rightholder knows to be unacceptable” may be less clear forms of abuse, whilst “discrimination of trading partners” or “unjustified foreclosure of competition” may be more clear violations of Art. 102 TFEU (see Lamping, 2015). Given this legal background, we may expect that CMOs will not openly refuse to license with the goal to restrict competition, but may make offers to different content platforms such that some of them will be *de facto* excluded. In what follows we develop a model that rationalizes this behaviour of a CMO and shows that it will reduce aggregate welfare. Thus, even without an open refusal to license, the new Directive may warrant an active competition policy.

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<sup>23</sup>CMD Article 16(3): “[...]the collective management organisation shall [...] either offer a licence or provide the user with a reasoned statement explaining why it does not intend to license a particular service.”

### 3 A model of content platform competition

In order to model the effects of the CDSM Directive on potential competition, we employ a Hotelling model of platform competition that is extended to include platform externalities and the quality of allowed content upload. In the main body of the paper, we use a single-homing model of platform competition in which platforms compete by setting user prices. Appendix A.3 shows that all our results extend to two-sided platforms with advertising and multi-homing. There are two content platforms, platform 1, located at location 0, and platform 2, located at location 1. Platform users are uniformly distributed between 0 and 1, and their size is normalized to unity. Users can switch without cost from one platform to the other,<sup>24</sup> and their pay-off from using the platform depends on their location, the number of users of the platform and whether the platform has an agreement with a CMO.<sup>25</sup> As usual in this strand of the literature, the location determines the disutility of the platform not being a perfect match for the user. In particular, a user at location  $x$  using platform 1 enjoys a net pay-off of

$$u_1(x) = v + \theta A_1 - p_1 - t_1 x + \mu y - \frac{\mu y^2}{2}. \quad (1)$$

$v$  denotes the gross pay-off of using any platform, and  $A_1$  is the content level the agreement with the CMO allows platform 1 to use where  $\theta$  measures the marginal utility of this content. Hence,  $A_1$  can be regarded as an intangible asset that is owned and managed by the CMO and is of benefit for platform 1 users. We could consider the CMO also as a platform as it is the stronger the more content it manages, but since CMOs are *de facto* monopolists as explained in the previous section, they do not have to fight for market shares as content platforms have to.<sup>26</sup> Using platform 1 has a price of  $p_1$ , and the disutility from the match incompatibility is given by  $t_1 x$ .<sup>27</sup> Finally,  $\mu y - \mu y^2/2$  measures the platform's network externality for all users where  $y$ , to be determined endogenously,

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<sup>24</sup>De Bijl and Goyal (1995) develop a model in which duopolists decide on innovation and compatibility, but they assume a fixed customer base for each (incompatible) standard. Content platforms are internet-based platforms, and hence incompatibilities cannot play a role in this context.

<sup>25</sup>We consider the case that a platform has to deal with a single CMO only in the main model, but we discuss at the end of Section 4 how our results extend to the case in which the platforms have to deal with several national CMOs and/or different CMOs controlling different types of content.

<sup>26</sup>Thus, issues of network interconnectivity and pricing in the context of two-sided platform competition as discussed for example by Armstrong (1998) and Calzada and Valetti (2008) do not arise here.

<sup>27</sup>For a two-sided media market model with similar features, see Peitz and Valetti (2008).

denotes the number of users of platform 1. Note that the marginal effect of an additional user is positive, but decreasing with  $y$  and maximal for  $y = 1$ , that is, if the platform is a monopolist, and  $\mu$  measures the contribution of this positive externality to the user's pay-off. Similarly, a user at location  $x$  using platform 2 enjoys a net pay-off of

$$u_2(x) = v + \theta A_2 - p_2 - t_2(1 - x) + \mu(1 - y) - \frac{1}{2}\mu(1 - y)^2. \quad (2)$$

Note that we allow the two platforms to have different match qualities for users. In particular we assume that  $t_1 \leq t_2$ , which means that platform 1 has a natural cost advantage in reaching out to more users. This will allow us to consider asymmetries in market sizes; platform 2 could then be regarded as a niche platform that aims to serve only some users with special interest while platform 1 is a standard platform. The Commission will have to review the impact of the CDMS Directive on content platforms with a turnover below €10 million, and our model thus has to accommodate differences between platforms in terms of their market potential. Furthermore, we assume that the network externality effect is not too large such that the market is or should not be dominated by one platform only. In particular,  $t_1 + t_2 > 3\mu$  will guarantee that both platforms being active is socially desirable. Otherwise, the CDSM Directive would have redistribution effects only.

We also assume that  $v$  is sufficiently large such that all users will use either platform 1 or 2. We now consider a two-stage game in which a CMO enters into a license agreement with the two platforms, with one platform or with none in stage 1, and the two platforms compete by prices in stage 2. We solve the game in the usual backward induction fashion for stage 2 for given content agreements  $(A_1, A_2)$  where no agreement means  $A_i = 0$ : in this case, platform  $i$  will have to make provisions that guarantee that its users do not violate the CMO's and possibly the other platform's copyrights. Since the CMO has the same content to offer to each platform, any agreement implies  $A_i = A$ .

We focus on the case in which both platforms have a strictly positive demand, that is,  $y \in [0, 1]$ . For this case,  $y$  is determined by  $u_1(y) = u_2(y)$  which yields

$$y = \frac{2\theta(A_1 - A_2) - 2(p_1 - p_2) + 2t_2 - \mu}{2(t_1 + t_2 - \mu)}. \quad (3)$$

$y$  is the demand of platform 1, and  $1 - y$  is the demand of platform 2. Eq. (3) shows that each platform demand depends positively on the difference in its content access compared to the rival and negatively on the price difference between its price and the rival's price.

W.l.o.g. we set marginal platform costs equal to zero, so that platform 1 maximizes  $yp_1$  w.r.t.  $p_1$  and platform 2 maximizes  $(1-y)p_2$  w.r.t.  $p_2$ , leading to equilibrium prices

$$p_1^* = \frac{1}{6}(2\theta(A_1 - A_2) - 3\mu + 2t_1 + 4t_2), p_2^* = \frac{1}{6}(2\theta(A_2 - A_1) - 3\mu + 4t_1 + 2t_2), \quad (4)$$

respectively, and an equilibrium market share of platform 1 of size

$$y^* = \frac{1}{2} + \frac{2\theta(A_1 - A_2) - (t_1 - t_2)}{6(t_1 + t_2 - \mu)}. \quad (5)$$

Eq. (5) allows us to be more precise on our assumption of an interior solution. In what follows, we will show that the CMO will always make a deal with platform 1 as this platform reaches out further than platform 2. Hence  $A_1 - A_2$  is either equal to  $A$  for an exclusive deal with platform 1 or equal to zero if both platforms get a deal. Thus,  $y^* \geq 1/2$ , and the condition  $y^* \leq 1$  for  $(A_1, A_2) = (A, 0)$  determines the restriction for the interior solution and requires

$$A \leq \frac{4t_1 + 2t_2 - 3\mu}{2\theta}. \quad (6)$$

If condition (6) is fulfilled, platform 2 will stay active in the market if the CMO has a deal with platform 1 only.<sup>28</sup> If condition (6) is not fulfilled, platform 2 will stay active only if the CMO is willing to come to an agreement with both platforms. If it will not have an agreement with platform 2, platform 2 will leave the market. This case is equivalent to platform 1 monopolizing the market. We will not consider this case further, but show that monopolization can never be welfare-improving in Appendix A.3.

Without any copyright protection, both platforms would be active and allow users to upload content. Since  $A_1 = A_2 = A$ , the market share of platform 1 would be equal to  $1/2 + (t_2 - t_1)/(6(t_1 + t_2 - \mu)) \geq 1/2$ . It shows also the non-rival nature of using content assets as the use on one platform has no effect on the use on the other platform. This is the benchmark for platform competition without CDSM Directive, and both platforms will be able to appropriate also the surplus that arises from content use. We now explore when and how this directive does not only change the surplus division, but may also lead to a shift in market power.

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<sup>28</sup>Note that the RHS of (6) is strictly positive since  $t_1 > 3\mu - t_2$ .



## 4 Licensing incentives under the CDSM Directive

We now turn to the first stage of the game in which each platform either comes to an agreement with the CMO or has to make provisions that prevent the upload of copyright content on this platform. It should be clear that a platform not allowing to upload copyright-protected content will be at a disadvantage. As in the preceding section, we set  $A_i = 0$  for any platform that does not come to an agreement with the CMO. In this sense,  $v$  includes the utility of being able to share non-copyright-protected content on a platform. In what follows, we assume that the size of the assets the CMO controls does not change with the CDSM Directive, that is, we do not consider that rightholders may want to increase  $A$  in order to make content more attractive for platforms. We will discuss at the end of this section how an endogenous response may change our results.

The CDSM Directive would have no effect on the market performance if the CMO came to agreements with both platforms. In this case, the directive would have only an effect on the surplus division. Without the directive, the platforms could appropriate all surplus, and if they both come to agreement, they will have to share part of the surplus with the CMO, but nothing would change for users. Thus, the CDSM Directive will have an effect beyond distribution only if one platform comes to an agreement with the CMO, but the other does not. We now scrutinize under which conditions the CDSM Directive may lead to a larger industry concentration as a result.

We proceed by comparing the surplus that the CMO can create with platform 1 with the surplus it can create with both platforms. Of course, this does not say much yet about the division of the surplus, as for that we would need a specific bargaining model that specifies a certain bargaining protocol for both regimes. An apparent limitation of having an exclusive deal with platform 1 could be that competition policies may not allow the CMO to refuse to license as discussed in Section 2. In this case, a most-favoured customer (MFC) provision may impose that the same agreement that was concluded with platform 1 will have to be offered to platform 2. This is actually what the CMD Directive imposes,<sup>29</sup> and it allows discrimination only in exceptional cases. This means that any offer, or any set of offers, should be made to both platforms. We will now show that an MFC provision will actually support the shift in market power if the CMO prefers to have an agreement with platform 1 only. Thus, we will be able to show that an agreement with platform 1

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<sup>29</sup>CMD Article 16(2): “Licensing terms shall be based on objective and non-discriminatory criteria.”

will be *de facto* exclusive even if it could also be accepted by platform 2 under the same terms.<sup>30</sup>

Both the CMO and the two platforms anticipate the maximized profits correctly as they may arise from the different licensing arrangements. From (4) and (5), the maximized profits are given by

$$\begin{aligned}\pi_1^*(A_1, A_2) &= \frac{(2\theta(A_1 - A_2) - 3\mu + 2t_1 + 4t_2)^2}{36(t_1 + t_2 - \mu)}, \\ \pi_2^*(A_1, A_2) &= \frac{(2\theta(A_2 - A_1) - 3\mu + 4t_1 + 2t_2)^2}{36(t_1 + t_2 - \mu)},\end{aligned}\tag{7}$$

respectively. Since the CMO can realize revenues only if it will have a license agreement with either platform, we will never find  $A_1 = A_2 = 0$  in equilibrium. Suppose for now that the CMO is able to have an exclusive agreement with platform 1. The maximum willingness of platform 1 to pay for this exclusive deal is given by

$$\pi_1^*(A, 0) - \pi_1^*(0, 0) = \frac{\theta A(2t_1 + 4t_2 - 3\mu + \theta A)}{9(t_1 + t_2 - \mu)}.\tag{8}$$

In this case, platform 1's outside option is to reject this deal and realize a profit for which  $A_1 = A_2 = 0$ . Eq. (8) also proves that any exclusive deal will be with the stronger platform 1 if the bargaining protocol implies that a larger surplus will also give the CMO a larger revenue: since  $2t_1 + 4t_2 \geq 2t_2 + 4t_1$ ,  $\pi_1^*(A, 0) - \pi_1^*(0, 0) \geq \pi_2^*(0, A) - \pi_2^*(0, 0)$ . Of course,  $\pi_1^*(A, 0)$  can be realized only if platform 1 can trust that no offer is made to the other platform or the other platform will not accept any deal. If this condition is met, expression (8) determines the surplus that the CMO creates with platform 1.

If the CMO licenses to both platforms, the maximum willingness of the platforms to pay for a deal with the CMO when the rival platform also has one are respectively given by

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<sup>30</sup>In a different context of oligopoly, MFC provisions are known to lead to less competition. See for example Schnitzer (1994). An MFC provision is also a commitment device for a monopolist that produces a durable good to escape from the outcome of the Coase Conjecture.

$$\begin{aligned}
\pi_1^*(A, A) - \pi_1^*(0, A) &= \frac{\theta A (2t_1 + 4t_2 - 3\mu - \theta A)}{9(t_1 + t_2 - \mu)}, \\
\pi_2^*(A, A) - \pi_2^*(A, 0) &= \frac{\theta A (2t_2 + 4t_1 - 3\mu - \theta A)}{9(t_1 + t_2 - \mu)}.
\end{aligned} \tag{9}$$

Note that the assumption of an interior solution implies that these expressions are positive. In that case, the outside option of each platform is not to have a deal with the CMO, while the other platform has. The surplus that the CMO can create with both platforms is given by  $[\pi_1^*(A, A) - \pi_1^*(0, A)] + [\pi_2^*(A, A) - \pi_2^*(A, 0)]$ . We find:

**Proposition 1.** *The surplus of an exclusive agreement is larger than the surplus of agreements with both platforms if*

$$A > \underline{A} = \frac{4t_1 + 2t_2 - 3\mu}{3\theta}.$$

*Proof.* An exclusive deal with platform 1 only yields a larger profits than a deal with both platforms if  $\pi_1^*(A, 0) - \pi_1^*(0, 0) - [\pi_1^*(A, A) - \pi_1^*(0, A)] - [\pi_2^*(A, A) - \pi_2^*(A, 0)] > 0$  which requires

$$\frac{\theta A (3\theta A + 3\mu - 4t_1 - 2t_2)}{9(t_1 + t_2 - \mu)} > 0.$$

Note that this condition does not violate condition (6). □

Proposition 1 shows that the joint surplus is maximal for the CMO and platform 1 if  $A > \underline{A}$ . Note that the requirement for  $A > \underline{A}$  is less binding with an increase in  $\mu$ . Thus, an exclusive deal is the more attractive the more valuable the content asset is and the stronger the network effect is.

Whether and how the CMO can achieve this outcome depends on the bargaining protocol of the first stage of the game. Instead of going into the details of different bargaining protocols, we want to scrutinize the role an MFC provision can play in this set-up.<sup>31</sup> If the CMO offers an MFC provision or policy imposes it, the CMO will not able to make a more favourable deal with one platform than offered to the other. In particular, suppose that the CMO has an agreement with platform 1. On the one hand, with a binding MFC

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<sup>31</sup>One simple bargaining protocol could be that the CMO makes a take-it-or-leave-it-offer to both platforms, but this not the only bargaining protocol that may lead to *de facto* exclusion.

provision, it will receive a maximum revenue of  $\pi_2^*(A, A) - \pi_2^*(A, 0)$  from platform 2 and would have to offer the same deal to platform 1 as well. Hence the maximum revenue of the CMO is given by  $2[\pi_2^*(A, A) - \pi_2^*(A, 0)]$  if it were to license to both platforms under an MFC provision. On the other hand, any larger revenue it can get from platform 1 only will make the CMO prefer an exclusive licensing agreement with platform 1, and since the license fee must be larger than  $2[\pi_2^*(A, A) - \pi_2^*(A, 0)]$ , platform 2 will find accepting the same agreement unprofitable. Thus, we find:

**Lemma 1.** *If (i)  $A > \underline{A}$ , (ii) an MFC provision applies, and (iii) the bargaining protocol implies that the CMO realizes a revenue not smaller than  $2[\pi_2^*(A, A) - \pi_2^*(A, 0)]$  in a licensing agreement with platform 1, platform 1 will be the sole license holder.*

Note carefully that Lemma 1 gives a sufficient condition: it determines an upper bound as it assumes that the CMO could get the maximum surplus under a MFC provision when it deals with both platforms. Furthermore, if the CMO realizes a revenue larger than  $2[\pi_2^*(A, A) - \pi_2^*(A, 0)]$ , it can still claim that it does not refuse to license as it offers the same license agreement to both platforms, but it is quasi-exclusive as it is not profitable for the smaller platform to accept it. Platform 1 will benefit from such a deal as  $2[\pi_2^*(A, A) - \pi_2^*(A, 0)] < [\pi_1^*(A, A) - \pi_1^*(0, A)] + [\pi_2^*(A, A) - \pi_2^*(A, 0)] < \pi_1^*(A, 0) - \pi_1^*(0, 0)$  (see Proposition 1). Excluding platform 2 can be done in different ways that are not confined to a fixed fee. It could also be done by a more complex fee structure, for example based on platform traffic, as long as the best offer for platform 1 implies a CMO revenue not smaller than  $2[\pi_2^*(A, A) - \pi_2^*(A, 0)]$  and the best offer for platform 2 is still unacceptable for this platform.

What are the welfare implications of a potential shift in market power? In symmetric Hotelling models, all users are served, prices do not distort demand but shift profits from users to firms and the indifferent user is located exactly in the middle in equilibrium and thus the aggregate match incompatibility costs are minimized. Therefore, these standard symmetric models are Pareto-optimal, but this is not true in our asymmetric model. Appendix A.1 shows that a social planner would reduce the market share of platform 2 and increase the market share of platform 1 compared to the laissez-faire with  $A_1 = A_2 = A$ . The reason is that platform 2 has an incentive to make up for its match disadvantage by reducing its price  $p_2$  substantially, and this effect leads to an excessive market share for platform 2. Thus, when considering the potential welfare effects of the CDSM Directive, we compare two distorted outcomes with each other. We have relegated the details of

welfare changes to Appendix A.1 where we show:

**Proposition 2.** *Aggregate welfare declines if only platform 1 has an agreement with the CMO.*

Although an effectively exclusive deal with the CMO corrects the distortion that the market share of platform 1 is too small, it implies that this market share is now potentially too large and platform 2 users have no access to  $A$  any more.

This result is even emphasized when the platforms have to deal with several CMOs at the same time. Suppose that two CMOs control content assets, say  $A$  and  $B$ . Without modelling multilateral bargaining, it is already clear that the surplus that can be realized with a single strong platform is again larger if  $A$  and  $B$  are not too small. Proposition 1 applies to  $A + B$  now that has to be larger than  $\underline{A}$ , and not  $A$  (or  $B$ ) alone. Hence, if platforms have to deal with several CMOs at the same time, the individual requirement of Proposition 1 for the minimum size of the content asset applies now to the size that all CMOs control. Thus, while an individual small CMO controlling less than  $\underline{A}$  would not want to license with one platform only, this will change if several CMOs, say from different countries, join forces as the representation agreements indicate.

Our analysis has taken the size of the content asset controlled by the CMO as given. A common case for IPR protection is that it may incentivise rightholders to increase content. The effect of this will depend on how the CMO will redistribute its revenue to individual rightholders and how strong the incentive will thus be for each rightholder to increase  $A$ . We do not explicitly model this effect, but it should be clear that an increase of  $A$  will also come with a cost to be carried by rightholders. If  $A$  increases as a consequence and both platforms have an agreement, aggregate welfare will increase because  $A$  will increase only if the additional cost is smaller than the additional CMO revenue. However, if  $A > \underline{A}$  or may even be lifted beyond  $\underline{A}$ , only platform 1 users will benefit. It will then depend on the increase in  $A$  whether this effect can make up for the aggregate welfare loss that Proposition 2 found. In Appendix A.2, we report the results of a simulation that specifies a lower bound for the necessary increase in  $A$ . It is a lower bound as it does not take the costs of content producers to increase  $A$  into account. Figure 1 shows that the necessary percentage increases are not marginal, but range from 5 to 17 %.

This leaves us with the question why the CDSM Directive has given CMOs as representatives of rightholders so much market power. First, it is obvious that many platforms

are not located within Europe and thus their profit is not relevant for European welfare. Second, European users who may be negatively affected are only a certain fraction of all users. At the same time, however, small local platforms may be marginalized or may even have to leave the market, so it is not clear whether the CDSM Directive will increase at least European welfare without *ex post* intervention by competition policies.

## 5 Concluding remarks

While former EU Commission President Juncker claimed: “With today’s agreement, we are making copyright rules fit for the digital age (...)”,<sup>32</sup> this paper has shown that the European Directive on Copyright in the Digital Single Market may lead to more industry concentration in digital platform markets. This may even imply an aggregate welfare loss if the increase in content as a response to the Directive is not substantial. Our analysis could confirm concerns that smaller platforms may be marginalized. It is thus not true that this directive will only imply a “fair” redistribution from platforms to content producers. In particular, if the content is very valuable for users and if the network effects are strong, a welfare loss is more likely. It also shows that the case for European competition policies has become more complex, as it will have to scrutinize the behaviour of CMOs very quickly in the near future.

One CMO has already attempted to break new ground on this frontier.<sup>33</sup> The German CMO, VG Media, has sought a settlement of € 1.24 billion for a retrospective authorisation for its copyright used by Google, covering the period from August 2013 to December 2018, arguing that political agreement preceding the CDSM Directive must be taken into account.<sup>34</sup> While this claim has been denied by the Court of Justice because Germany had not notified the Commission,<sup>35</sup> VG Media has gone further and has proposed licensing terms amounting to between € 3.44 billion and € 8.5 billion per annum for a period

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<sup>32</sup>European Commission Press Release, ‘Copyright reform clears final hurdle: Commission welcomes approval of modernised rules fit for digital age’ (Luxembourg, 15 April 2019).

<sup>33</sup>See FAZ.NET, ‘VG Media schickt Google eine Rechnung’, Frankfurter Allgemeine Zeitung (Frankfurt. 18 April 2019).

<sup>34</sup>Judgement of the Court (Fourth Chamber) of 12 September 2019, Case C-299/17, para. 17.

<sup>35</sup>See Reuters, ‘Google wins legal battle with German publishers over fee demands’, Reuters Technology News, September 12, 2019.

from 2019 to 2024.<sup>36</sup> These cases have yet to fully develop, but they raise questions at the core of this discussion: If Google agreed to these terms, would this constitute a new precedent for “objective and non-discriminatory criteria” observable by content platforms of all sizes? Some have argued that content platforms of greater means will be able to “quietly consolidate their position through a *de facto* alliance with right holders rather than fearing entrepreneurs”.<sup>37</sup> If other and smaller content platforms find these or similar terms unacceptable, would a refusal to license under different conditions by VG Media constitute an abuse of its dominant position? Would smaller content platforms have failed the “best effort” criterion by finding the terms proposed by VG Media objectionable?

The CDSM Directive will catalyse the licensing market and extend the breadth of authorised copyright consumption to the digital frontier. In stepping forward with this legislation, however, it is crucial to recognise the key issues: the new *ex ante* dominance of CMOs, the clarity of refusals to license under *ex post* competition analysis, and the possibility of *de facto* exclusion through MFC provisions. The Commission has been charged with “[issuing] guidance on the application of [Article 17], in particular regarding the co-operation referred to in paragraph 4” (see Article 17 (10) of the CDSM Directive). Thus, the Commission is in a unique position to reconcile the lack of an obligation to license by CMOs with the anticompetitive abuse of (*de facto*) refusing to license. Further input can be crucial in highlighting enforcement priorities, codes of conduct for CMOs and content platforms, and providing clarity for national legislators in the forthcoming transposition of the Directive. This may include scrutinizing the role of MFC provisions in this context under Article 101 of the TFEU, which also deals with licensing restraints. MFC provisions are investigated on a case-by-case basis and have not been the focus of European competition policies.<sup>38</sup> However, our analysis has shown that MFC provisions can have strong anti-competitive effects by marginalizing small platforms. The Commission is charged with reviewing the impact of Article 17 on content platforms with a turnover below € 10 million by five years after the CDSM Directive’s entry into force, and this seems to be of

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<sup>36</sup>Furthermore, France has already transposed the CDSM Directive into national law, and French competition authorities will investigate Google’s response to the law; see Los Angeles Times, ‘France accuses Google of flouting EU copyright law meant to help news publishers’, October 17, 2019.

<sup>37</sup>See Nicolas Colin, ‘The EU Copyright Directive Won’t Kill The Internet But It Will Kill Startups’, Forbes, September 17, 2018.

<sup>38</sup>MFC rules are not necessarily regarded as anti-competitive, and only a few investigations, for example on hotel online bookings and on E-books, have led to an elimination of MFC provisions. See Colino (2019), Section 9.4.1.7, and Vandenborre and Frese (2014).

utmost importance given our findings. Thus, the Commission is in an equally unique position to address the problems unique to smaller content platforms. With these stipulations, it is clear that the Commission must take the lead in the next formative developments of the CDSM Directive in this context, as our economic analysis has shown very clearly that more guidance is needed as to avoid further industry concentration in media markets.

## Appendix

### A.1 Social welfare

As for welfare, we apply the Hicks-Kaldor concept such that aggregate welfare is defined by the sum of pay-offs of users, of the two platforms and of the CMO. This concept can be rationalized by assuming that all users do not know their locations at the start of the game, and all users own the two platforms and the CMO. Since we assume that marginal costs are zero, revenues are equal to profits, and since revenues are equal to user expenses, they cancel out when computing aggregate welfare. Consequently, aggregate welfare is given by

$$\begin{aligned} W(A_1, A_2, y(A_1, A_2)) &= v + \int_0^{y(A_1, A_2)} \left( \theta A_1 - t_1 x - \frac{\mu y^2}{2} + \mu y \right) dx \\ &+ \int_{y(A_1, A_2)}^1 \left( \theta A_2 - t_2(1 - x) + \mu(1 - y) - \frac{1}{2}\mu(1 - y)^2 \right) dx, \end{aligned}$$

where  $y(A_1, A_2)$  denotes the demand for platform 1 that depends on the assets both platforms are allowed to use under platform competition. The first best obviously wants all users to be able to use the CMO asset, so  $A_1 = A_2 = A$  must hold. Let

$$\Omega(y) = W(A, A, y) = v + \frac{1}{6} (6\theta A - 3t_1 y^2 - 3t_2(y - 1)^2 + \mu(9(y - 1)y + 5))$$

give the aggregate welfare as a function of the market share of platform 1 for  $A_1 = A_2 = A$ . Differentiation yields

$$\frac{d\Omega(y)}{dy} = -\frac{3\mu}{2} - (t_1 + t_2)y + t_2 + 3\mu y, \quad \frac{d^2\Omega(y)}{dy^2} = 3\mu - t_1 - t_2 < 0$$

such that the socially optimal market share, denoted by  $\tilde{y}$ , is given by

$$\tilde{y} = \frac{3\mu - 2t_2}{6\mu - 2t_1 - 2t_2} \geq y^*(A, A) = \frac{1}{2} + \frac{t_2 - t_1}{6(t_1 + t_2 - \mu)} \quad (\text{A.1})$$

because



$$\tilde{y} - y^*(A, A) = \frac{t_2^2 - t_1^2}{3(t_1 + t_2 - \mu)(t_1 + t_2 - 3\mu)} \geq 0.$$

Thus, eq. (A.1) shows that the socially optimal market share of platform 1 is larger than the one under platform competition if  $A_1 = A_2 = A$ .

We now compare aggregate welfare under the alternative licensing environments. If the CMO has an agreement with both platforms, welfare is equal to

$$W(A, A, y^*(A, A)) = v + \frac{1}{72} \left( 8(9A\theta + 4\mu - 3t_1) + \frac{5(2t_1 - \mu)^2}{t_1 + t_2 - \mu} - 4t_2 \right),$$

and if it has one only with platform 1, welfare is given by

$$W(A, 0, y^*(A, 0)) = v + \frac{1}{72} \left( 8(7A\theta + 4\mu - 3t_1) + \frac{5(2A\theta + \mu - 2t_1)^2}{t_1 + t_2 - \mu} - 4t_2 \right).$$

Taking the difference shows that

$$W(A, A, y^*(A, A)) - W(A, 0, y^*(A, 0)) = \frac{\theta A (14t_1 + 4t_2 - 5\theta A - 9\mu)}{18(t_1 + t_2 - \mu)} > 0,$$

because (6) implies that

$$14t_1 + 4t_2 - 5\theta A - 9\mu > 14t_1 + 4t_2 - 9\mu - \frac{5\theta(4t_1 + 2t_2 - 3\mu)}{2\theta} = 4t_1 - t_2 - \frac{3\mu}{2} > 0.$$

## A.2 Content increase

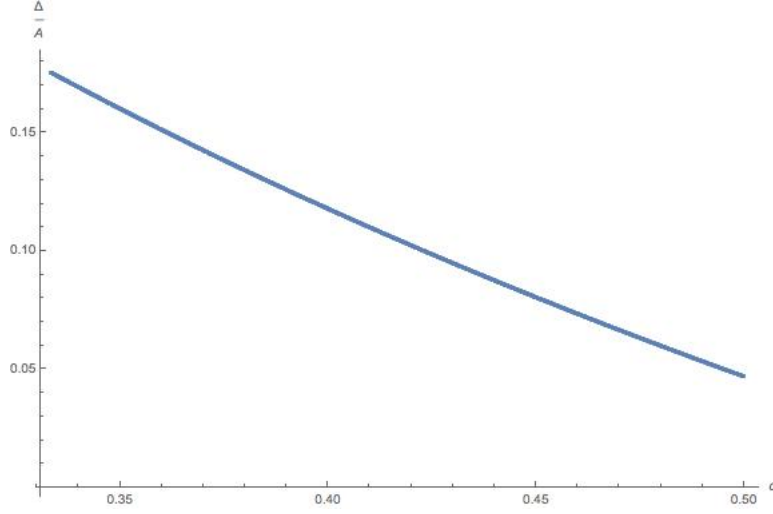
The simulation uses  $t_1 = 0.2$ ,  $t_2 = 0.25$ ,  $\mu = 0.1$  and  $\theta = 1$ . Furthermore, the content asset controlled by the CMO before licensing is given by

$$A = \alpha \frac{4t_1 + 2t_2 - 3\mu}{\theta},$$

where  $\alpha \in [1/3, 1/2]$  defines the range in which (i) an exclusive agreement with platform 1 is surplus-maximizing and (ii) platform 2 is still active, but not allowed to use  $A$ . Figure 1 shows the result of the simulations in this range, where  $\Delta$  denotes the necessary increase in  $A$  to keep  $W$  constant, and thus  $\Delta/A$  measures the necessary percentage increase.<sup>39</sup>

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<sup>39</sup>The corresponding Mathematica file is available upon request.

Figure 1: Percentage increase in  $A$ 

### A.3 Two-sided platforms, monopolization and multi-homing

Content platforms may not only charge user prices, but may also raise revenue from advertising. If they do, they are a two-sided platform as they offer content to users and sell advertising to firms at the same time (for an overview of the literature on advertising in two sided-markets, see Anderson and Jullien, 2015). If platforms are price-takers in the advertising market such that advertising generates a fixed revenue  $r$  per user of platform  $i$  (because they have no market power in the ad market), the profits of platform 1 and 2 are given by  $\pi_1 = (p_1 + r)y$  and  $\pi_2 = (p_2 + r)(1 - y)$ , respectively, where  $y$  remains unchanged (see (3)). The implication is that both platforms compete more aggressively for users such that the new equilibrium prices are given by  $p_1^* - r$  and  $p_2^* - r$ , respectively, with  $p_1^*$  and  $p_2^*$  according to (4). Thus, profits (7) do not change, as the advertising revenue is completely passed on to users. Consequently, our model leads to the same results for a two-sided platform if advertising revenues are constant per user.

Now suppose that each two-sided platform has market power such that the revenue per user depends on the level of advertising, denoted by  $z_i$ . Like in Anderson and Coate (2005) and Peitz and Valletti (2008), we assume now a downward-sloping demand curve for advertising per user. In particular, the advertisers' willingness-to-pay per user is given by  $\omega_i(z_i)$  where  $\omega'_i(z_i) < 0$ . Each platform maximizes  $\omega_i(z_i)z_i$  such that  $\omega'_i(z_i^*)z_i^* + \omega_i(z_i^*) = 0$  holds for the profit-maximizing advertising level. Again, the revenue per user is given by  $r^* = \omega_i(z_i^*)z_i^*$ , and the equilibrium prices will be the same as in (4) reduced by  $r^*$ . Thus, also market power of the two-sided platforms on the advertising market will not change profits (7).

Other models of two-sided platforms have taken into account that advertising may be regarded as a nuisance by users. W.l.o.g. let  $z_i$  be measured such that the disutility effect

of advertising is the same as the user price charged. In this case, a user at location  $x$  using platform 1 enjoys a net pay-off of

$$u_1(x) = v + \theta A_1 - p_1 - z_1 - t_1 x + \mu y - \frac{\mu y^2}{2},$$

and for using platform 2 of

$$u_2(x) = v + \theta A_2 - p_2 - z_2 - t_2(1 - x) + \mu(1 - y) - \frac{1}{2}\mu(1 - y)^2.$$

Since

$$y = \frac{2\theta(A_1 - A_2) - 2(p_1 - p_2) - 2(z_1 - z_2) + 2t_2 - \mu}{2(t_1 + t_2 - \mu)},$$

this model can explain when platforms will compete by user prices only or offer their services for free, but sell ads to firms. Let  $\beta > 0$  denote the sales price of an ad per user and unit of  $z_i$ . Since  $\partial y / \partial p_i = \partial y / \partial z_i$ , it depends on the size of  $\beta$  which business model each two-sided platform chooses. For example, the profit of platform 1 is now given by  $\pi_1 = yp_1 + y\beta z_1$ , and if  $\beta > (<)1$ , platform 1 is better off by selling ads (charging a user price) because  $\partial \pi_1 / \partial p_1 < (>) \partial \pi_1 / \partial z_1$  for all  $p_1 = z_1$ . In general,

$$\beta > (<)1 \implies p_i = (>)<0, z_i > (=)0.$$

Our model is thus strategically equivalent to a model in which two-sided platforms sell ads to firms and offer their services for free to users.

These models and our model in the main body of the paper assume that both platforms are active irrespective of the CMO policy. If

$$A > \frac{4t_1 + 2t_2 - 3\mu}{2\theta},$$

platform 2 will leave the market in case of an exclusive deal of the CMO with platform 1 because it cannot even attract users if it charges a zero price (or, in case of a two-sided platform, does not sell ads). In this case, the optimal price is no longer given by (4) for platform 1. Platform 1 will set  $p_1$  such that platform 2 is kept out of the market, that is,  $y = 1$  holds for  $p_2 = 0$ , which implies

$$p_1^{**} = \pi_1^{**} = \theta A + \mu/2 - t_1.$$

We know from Proposition 2 that welfare decreases with an exclusive deal between the CMO and platform 1 for all  $A \leq (4t_1 + 2t_2 - 3\mu)/(2\theta)$ . Welfare will not change if  $A$  increases beyond  $(4t_1 + 2t_2 - 3\mu)/(2\theta)$ : all users will be served by platform 1, and the increase in the user price due to an increase in  $A$  is a redistribution from users to platform 1. Consequently, it should be clear that monopolization can never be welfare-improving.

The case of monopolization can be extended to allow for multi-homing. Suppose that some users are willing to pay (or accept ads) also for (from) the small platform 2 in addition to platform 1. In this case, the two platforms are not substitutes, but the small platform 2 complements platform 1 for some users. For this case, the network externality is already maximized by platform 1 so that a user of platform 1 only at location  $x$  realizes

$$u_1(x) = v + \theta A_1 - p_1 - t_1 x + \frac{\mu}{2}.$$

Platform 2's additional services have a value of  $\gamma v$ ,  $0 < \gamma < 1$ , as a similar service is already offered to all users by platform 1. Thus, a user who subscribes to both platforms and is located at  $x$  realizes a payoff

$$u_{12}(x) = (1 + \gamma)v + \theta A_1 - p_1 - p_2 - t_1 x - t_2(1 - x) + \frac{\mu}{2}.$$

Now the indifferent user is the one that is indifferent between using both platforms or only platform 1 and given by  $\tilde{y}$  such that

$$\gamma v - t_2(1 - \tilde{y}) - p_2 = 0 \Leftrightarrow 1 - \tilde{y} = \frac{\gamma v - p_2}{t_2}.$$

As well-known from the literature (Anderson *et al*, 2017, Foros *et al*, 2019), multi-homing implies that the small platform's demand depends only on its price  $p_2$  but not on  $p_1$ . The reason is that a user who considers using the complementary small platform 2 in addition to the large platform 2 will only consider the additional price  $p_2$  she has to pay. Thus, platform 2 maximizes  $(1 - \tilde{y})p_2$  w.r.t.  $p_2$  which implies  $p_2^{***} = \gamma v/2$ .

Multi-homing implies that the dominant platform 1 can even charge a higher price: it has to set  $p_1$  such that platform 2 does only complement platform 1, but does not substitute it. Setting  $p_1$  such that platform 2 does not replace platform 1, that is, that  $y = 1$  holds for  $p_2^{***} = \gamma v/2$ , implies

$$p_1^{***} = \pi_1^{***} = \theta A + \mu/2 - t_1 + \frac{\gamma v}{2} > p_1^{**} = \pi_1^{**}.$$

Consequently, multi-homing makes the incentive to monopolize the market through an exclusive deal with the CMO stronger.

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This paper scrutinizes the effects of the European Directive on Copyright in the Digital Single Market on platform competition in media markets. Platforms that are Online Content-Sharing Service Providers must have a license agreement with collective management organizations that control the content platform users may (or must not) upload to the platform. The paper explains the background and its implications, and it shows that the new directive may imply market concentration and an aggregate welfare loss. The reason is that only users of the large platform will be allowed to upload content if the content asset controlled by a collective management organization is sufficiently valuable and if network effects are strong.

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