Grand rights and opera reuse today

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1. Introduction

Opera is exceptional because it relies on a large body of popular public domain works, something that does not apply to many other fields of the creative economy. In the latter, more recent titles are often in the center of publishing activity and investment (see, for example, [1] on books, or [2] on music). In the case of opera, however, Velde [3] documents a strong increase in the share of works by dead composers and average age of staged works (some, but not all in the public domain) programed in Europe's main opera houses between 1750 to 1950. Substantial increases in performers' wages might have caused the canon to change, with more mobile superstars demanding higher wages due to greater competition among opera houses and improvements in transportation technologies across Europe. However, their research also argues for a potential role of copyright in (historic) programing choices and the evolution of what is known as the 'canon' of works as it is today.

Empirical studies of economic history evidence that the introduction of copyright with a term of up to 30 years successfully incentivized the creation of new, high-quality operas [4]. However, term extensions that followed in 19th century

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Italy did not further encourage opera production. In theory, copyright grants authors (in the case of opera, multiple authors including composers, librettist) with exclusive rights to exploit works and restrict certain uses, based on a temporary monopoly in markets. Monopoly rents allow authors to recoup their initial investment.

In the case of opera, however, this logic might not always hold. Too heavy competition on opera stages could limit the discovery of new works and collection of sufficient rents by authors, with copyright potentially limiting revenue expectations for some performances (i.e. costs for licensing rights). So, while previous research has focused on the incentives to create among composers, with only few exceptions in popular music reuse and reuse on Wikipedia [5] [6], this paper addresses the role of copyright in the incentives to stage and reuse works from the opera canon among opera houses. More specifically, although the literature has identified various other determinants of opera programing,[1] we empirically quantify the effect of copyright status changes on the reuse of works in today's global programing. Second, we investigate antecedents and historical effects - such as the emergence of international copyright systems and rights-based trade of works - as potential factors explaining the presence of public domain works in the opera canon.

We find that changes in copyright status significantly increase the number of total performances individual works receive on stage once copyright expires.

[1] Previous research shows that popular works known as reliable income-earners often cross-subsidize less known modern opera in houses' programs, as the latter, even at reduced ticket prices, might not break even revenues[7]. In a similar vein, Heilbrun [8] documents a variety decline in repertoires of US opera houses in the 1990s. The role of public subsidy and private funding in encouraging the production of a wider and more risky repertoire has been analysed for the USA [9]. Moreover, others have argued that programing choices of opera managers and artistic directors might (also) be subject to enhancing professional reputation in their own peer group, including the staging of less popular repertoire [10].

Moreover, copyright also taxes the diffusion of works when reused in new stage productions only: Arguably, production premieres are of particular importance for the discovery of new works as these works are not part of houses' standard production repertoires. And, based on historic data from opera revivals in the early 20th century, we also provide evidence that copyright status affects the staging of new opera from early on/shortly after premieres and has longer-term implications for the diffusion levels of works. In this way, in the case of opera, copyright might act as a barrier to entry and establishment of new and, arguably, more avantgarde works. This is also an interesting finding from industry and policy perspectives. For example, recent discussions focus on rights payments for streaming of opera online as well as streaming as a marketing tool and teaser for live performances, in particular for the dissemination of new works and their audiences. Moreover, industry stakeholders have proposed to continue collect licensing fees for works once copyright expires (such as Richard Strauss' Rosenkavalier in 2020) and re-invest these in funding of new works by living composers [11].

The paper structures as follows. Section two reviews the existing literature and provides background on the opera business and the potential economic role of copyright in opera (i.e. the licensing of so-called 'grand rights' of dramatic works). Sections three and four describe the data and introduce the empirical strategy aimed to identify copyright status effects. Sections five and six present main results and discuss limitations and extensions of the approach. Section seven concludes with policy implications.

2. Background on opera and the economic role of grand rights

Staging opera performances today requires high fixed investment and 'heavy' physical infrastructure and there is limit capacity to reuse and perform works from the canon as the number of available stages and houses does not vary substantially over time (one exception might be festivals). However, limit ca-

pacity has been a concern from early on, including among composers of new works in 19th century France [3]. And, revolutions of 1848 might have put to a sudden end to the construction of new opera houses spearheaded by the European nobility, while 'bourgeois' demand for opera increased around the time [12].

From an economic perspective, the fixed number of 'slots' increases competition among existing works,[2] in particular for new, incoming works who compete 'uphill', i.e. they are unknown and untested compared to the established body of popularized works. Moreover, these, arguably, more avantgarde works tend to decrease attendance, sell at lower ticket prices and hold lower revenue expectations for opera companies [13]. However, even though not all new works are of high quality, they will only be discovered and have a chance to gain popularity, once they are reused and staged in houses, and not incumbent works from the back catalogue. Mere copies of the underlying work (say, distributing prints of the composer's musical scores) might not 'do the job' and help the discovery of the work in heavily subsidized opera markets:[3] It is experimental

[2]Professional opera companies usually share the stage with a ballet company, and in smaller theatres (for example, German B houses) with spoken theatre productions as well. This limits the number of possible performances per year and usually the number of different works that can be put on.

[3]In general, professional opera companies are often subsidized and managed by the state authorities as part of their public service. How much finance they receive and what the objectives of the management are strongly influence the choice of repertoire. Those that receive less subsidies are required to raise a higher proportion of their income from ticket sales and private donations; they are likely to chose a more conservative repertoire, which means producing more standard operas and repeating the same *mise en scene* productions (i.e. the same direction, scenery/costumes etc.). In our research design, country-fixed effects are intended to capture and account for the variation coming from different degrees of subsidizing of opera production in the various countries. In addition, 'repertoire' and 'stagione' system differences from one country to the next should not matter as we observe and count the number of performances and runs within a single season. In repertoire systems, several operas are performed during the season alternately; in stagione systems, one work is performed over a period of several weeks and then another follows. In between, the opera has to be rehearsed

reuse and new opera production on stage that conditions the experience and ability of audiences and critics alike to reveal and judge on the true quality of new, incoming works. Moreover, these new productions, arguably, are more investment-heavy and risky to stage as compared to those from the standard production repertoires of houses. So, all in all, copyright might tax the diffusion of works as they are experience goods, in particular the diffusion of new works channeled via new productions.

But copyright might also tax a work differently, depending on its lifecycle and diffusion stages. From an evolutionary economics perspective, new works are randomly drawn from a distribution of talents, independent of their initial quality. Then, these superstar markets are predicted to lock-in on a few new works from early on [14]. In these highly uncertain markets, if copyright mainly taxes discovery and diffusion early on, it will substantially change market outcomes. Alternatively, copyright's effect might well expand throughout and beyond the life of the composer until terms of protection end and status changes. In the latter case, extensions of copyright terms would become more relevant [4], while in the former cases, competitive disadvantage and effects on cohorts of works exposed to the first introduction and implementation of copyright laws (when they included rights to performance) would be more pronounced.

The opera context and 'grand rights' (rights to performance) are of particular interest because they are commonly licensed on a case-by-case basis in many jurisdictions such as the U.S., and are often not collected by collective management organizations (CMOs) or governed by blanket licenses in these jurisdictions (an exception is the Société des Auteurs Compositeurs Dramatiques in France). From an economic viewpoint, this implicates higher transaction costs whenever works need to be licensed for reuse on opera stages, compared to more standard transactioning in systems where grand rights are licensed through CMOs.

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so the company is tied up with that and cannot perform.

Moreover, when works might be co-produced across countries and some of the production costs can be shared by several opera houses, houses are still required to transact, rent or purchase multi-territory licenses to performances when the work is under copyright in more than one jurisdiction.

Second, licensing costs for these type of rights are substantial and do matter for total performance (and new production) cost: For example, in the U.S., composers can typically ask for up to 6 to 9 per cent of the gross revenues of a performance (for example, see the guide of the British Academy of Songwriters, Composers and Authors [15]), next to singers, choreographers, costume designers and make-up artists, and various other costs involved in production. Moreover, next to licensing the rights to performance, it is possible that purchasing costs for copyright-protected music sheets (i.e. all parts of the opera and the full score for the conductor, for each individual musicians in the orchestra and for all singers) is another important factor when it comes to staging certain works or not. Copyright protection granted for these published scores in some cases exceeds terms granted to underlying original works, and publishing new 'critical editions' of the same work is often an important source of revenue for music publishers. The empirical approach makes an attempt to control for such countervailing costs factors in the analysis of opera programing.

Third, grand rights to opera composers and their collaborators historically predate so-called 'small rights' for non-dramatic works other than opera in many jurisdictions, often being introduced several decades later. One of the reasons why grand rights were introduced first was because operas were performed in a limited number of venues and were thus easier to monitor [16]. Moreover, France is an early mover in this respect with a system in place for the collection of composer fees for subsequent performances of their works, so-called royal 'privileges', well before copyright frameworks came into existence [17].

Finally, there might also be a systematic link between the historic diffusion and

presence of opera works in today's canon and the emergence of the international copyright system exemplified by the establishment of the Berne Convention and the rise of authorized international trade of opera in the mid 19th and early 20th century. The international legal regime only slowly and sequentially unfolded across European countries, with bilateral and multilateral agreements being signed one after the other. In turn, this might have given some cohorts of pre-Berne born operas greater chances than others to disseminate and popularize in foreign jurisdictions and manifest in the national canon of works. And, this also includes the unauthorized trading of works to foreign stages. A good example of the phenomena is the wide-spread adaptation and repeated performances of foreign opera pieces on stages in 19th century London well before U.K. copyright started granting protection to foreign works [18], i.e. foreign works by German, Italian and French composers such as von Weber's Freischuetz, Rossini's Barbiere di Siviglia and Boieldieu's Jean de Paris. At the time, unauthorized reuse of works from abroad generated a competitive cost advantage over alternative reuses of copyright-protected, 'native' works on stage that would require opera houses to license from domestic composers.

If copyright as a policy instrument is part of the explanation of today's manifestation of the opera canon on stage, it warrants cautious implementation as the standard underproduction-underutilization trade-off still seems to apply [19]: In the case of opera, copyright's potentially chilling effect on access to new works and their diffusion on national and international stages might have limited the full unfolding of the incentives to create as originally intended by those defining terms in the first place.

3. Data and descriptives

We build the empirical work on unique dataset of global opera performances from operabase.com. It records more than 33,000 performances (equating a total of more than 142,000 runs) and new productions of individual opera works

on city level for more than 200 countries over a period of six seasons, 2012-13 to 2017-18.[4] Furthermore, operabase data contains information on more than 1,400 individual composers and close to 3,000 unique opera works, at least run once across the six seasons. An individual work, on average, had 22 runs on stage in the 2017-18 season, while the median number of runs was 9 times. The top 50 most performed opera works accounted for more than half (55 per cent) of all runs in the same season, Verdi, Mozart and Puccini's works being among the most cited in this list. In general, more than 90 per cent of composers are male and around 40 per cent/most composers are born after 1950 in the database.[5] Accordingly, for more than 30 per cent of all composers that record birth dates there is no death date, either because the data is not available, or, composers are still alive.[6] Where data on composers' nationality is available,[7] most composers originate from Italy, Germany, the U.S., the U.K., Russia and France, together accounting for more than 50 per cent of all composers. The operabase data gives a comprehensive view on global opera performances and

[4]Performances are fairly equally distributed across seasons. New productions account for approximately 20 per cent of all performances recorded in the data. Around 5 per cent are semi-staged opera or concert performances which make limited use of props, costumes, etc. Moreover, the geography and coverage of performances is global, even though performances in European and US cities are the most frequent: More than 85 per cent of performances are staged in Europe and Central Asia, another 9 per cent is staged in North America. Countries in East Asia and the Pacific account for close to 3 per cent, countries in Latin America and the Caribbean account for more than 2 per cent. The Middle East and North Africa as well as South Asia and Sub-Saharan African countries account for close to 2 per cent.

[5]23 per cent are born from 1900 and until 1950, 12 per cent are born from 1850 and until 1900, close to 9 per cent are born between 1750 and 1850, and yet another 7 per cent are born before 1750.

[6]We do manual online searches for composers with missing data born between 1820 and 1920 - which we suspect might be changing copyright status in the period of observation - and find that works of more than 75 per cent of searched composers with missing data are still under copyright when we observe performances.

[7]Conceptually, operabase defines nationality via the country of birth of the composer, or as the modern country now covering the composer's birth city when the country ceased to exist.

only few caveats apply[8]. We complement data on performances with data on rental productions from operabase.[9] Data sharing and donation by operabase is gratefully acknowledged by the author.

Moreover, the data we deploy builds on previous data collection and extensive research efforts by others [4] that build on Loewenberg [20] as a 'reference catalogue' for operas created before 1940 including information on the location and date of premiers. Figure 1 in the Annex illustrates premier dates of opera works recorded in the Loewenberg data (the index of the book). Similar to operabase (see Figure 2 for their records on composer birth until 1940), the Loewenberg data seems to well reflect increases of opera production over time, in particular the increase in opera production between the 1850s and the 1950s. In addition, we exploit previous research by various other musicologists and opera experts.[10] For example, this includes research on opera revivals of works composed by Verdi, Handel and Rossini in the early 20th century [21] and research on unauthorized trade and adaptations of foreign works in London

[8]For example, the data does not allow to distinguish whether the work performed is an adaption or translation. However, the role of translations has been diminishing since the 1960s, with increasing desirability of fidelity among houses and audiences as well as original (language) works being performed using sur- or subtitle technologies on stage. Moreover, some operas are more expensive to stage than others because they demand more principal and specialized singers, larger chorus, complex sets, or a large orchestra such as Verdis opera Aida and Puccini's Turandot. Similarly, some voice types are in shorter supply than others and consequently might receive higher fees, depending on the overall supply of talent and skills in labor markets as well as the general alignment of opera training towards more standard repertoires [7]

[9]Operabase lists a total of 2,207 rental productions of opera, the earliest available production on these secondary markets for productions dating back to 1996. For each season in the six-year observation period, we calculate the stock of rental productions of an individual work produced in the same or in previous years.

[10]Where necessary and available, we complement these sources with information from wikipedia or operadata.stanford.edu. For example, there is a dedicated wikipedia site for all opera works and revivals written by Handel, see https://bit.ly/2J4g14I.

opera houses in the early 19th century [18]. And, we complement data from the International Music Score Library Project (IMSLP) and the Petrucci Music Library. This allows to gather opera and publication-level information on the availability, copyright status and estimated purchasing costs of music sheets for a composition/work. This approach is not without limitations.[11]

Finally, we also collect historic, legal information on the expansion of territorial copyright in the 19th century and the emergence of international copyright regimes until and beyond the Berne convention. For example, we gather data on past characteristics of copyright frameworks from Pinner's extensive Encyclopedia [22] and underpinnings on international copyright and the Berne convention from [23] and [24]. This allows us to identify and establish timelines when jurisdictions first introduce national copyright, when they begin granting copyright to foreign works and when bilateral or multilateral treaties enter into force as precursors of authorized, international trade of opera works.

We approximate copyright status of all works of a composer in a given year and jurisdiction of performance by calculating the respective copyright term

[11] First, Petrucci as a source of information might be biased towards more popular music works/sheets uploaded by users. Second, sheets available on Petrucci may be incomplete, e.g. they might not always include the full score or set of parts for individual singers and musical instruments in the orchestra. Third, and importantly, availability on Petrucci is not a perfect indication that the music sheet of underlying the work is out of copyright: New engravings or typographical arrangements by editors and publishers can give rise to separate copyright protection in certain jurisdictions even when the term protecting the original work of the composer has expired in the same jurisdiction. For more than half of the works changing copyright status in our dataset, music sheets are available on Petrucci, and for close to half of the latter there is also a publication date and publishers recorded for music sheets uploaded to Petrucci. When using UK copyright laws that grant 50 years from the end of the year in which the engraving was first published as an approximation of copyright status of music sheets across jurisdictions, only four per cent of titles/publications are still under copyright.

granted to the composers postmortem. Moreover, in order to validate this proxy across works and across all contributors to the work, for a subsample of individual opera works, we also search for and include available information on other authors involved in the creation of the work and potentially relevant to the assessment of copyright status of the work as the 'last living author' (say, the death of one or more librettists of an opera). In cases where the copyright status of the opera is changing in the observation period, we find that for 81 per cent of individual works and other contributors we can validate this proxy.

4. Empirical strategy

In an ideal research scenario, we would randomly assign copyright status to a reference catalogue of operatic works and, based on this sample, estimate unbiased status effects in a DiD research design on the diffusion and prominence of works on stages in different jurisdictions. As a next step, we might consider status effects on the 'intensive' and 'extensive' margins, i.e. study effects on baseline chances of works from a reference catalogue to be included in stage programing and we might investigate effects on additional performances and runs of a work.

However, there are various sources of potential bias we need to take into account in our actual research approach based on the total sample of works: Quality and popularity of individual works ('quality bias') are largely unobserved. So, for example, popularity of older, public domain works from the canon more than copyright status of operas might explain diffusion levels we observe on national stages. Furthermore, programing choices on national stages, arguably, might, or might not, favor works by native composers over foreign-born works ('home bias'). And, in composers' anniversary years (for example, the jubilee year of Richard Wagner in 2013 on the occasion of his 200th birthday) chances to see their works staged will systematically increase in the course of annual celebrations ('anniversary bias').

In a first series of regressions, we are interested in isolating the effect of copyright status from other confounding factors. We therefore focus on a subset of works that change copyright status over the observation period, an approach based on within-title variation similar to those previously used in copyright research [25].[12] In this way, we can implement individual-work fixed-effect (FE) models where, arguably, on the level of the individual work observed over time and in a specific jurisdiction, the only source of variation in reuses/performances is copyright status which rules out most of the biases described above. Moreover, we also rerun these work-level FE models for the subset of reuses/performances that are flagged as new productions in the operabase data which, arguably, also more tightly capture creative reuses rather than consequent uses/copies of the same work.

Variation in copyright status mainly comes from two sources

(1) status changes for individual works in a specific country during the oberva-
tion period; an example is the body of works by Pietro Mascagni (†1945), an Italian composer; many of whose works changed status in January 2016 in several 70-plus-life jurisdictions.

(2) differences in status due to differences in jurisdictions' terms of protection, while accounting for the international rule of the shorter term (which only
applies in some jurisdictions) [26]; more specifically, the latter rule permits to shorten the term of protection for incoming foreign works to the (presumably, shorter) term granted in the jurisdiction these originate from (but no less than the Berne minima of 50 years), i.e. while in one country the

[12] However, in her work, Reimers further accounts for inter-temporal substitution bias as she also uses the effect of copyright extension for her research design. Focusing within-title variation alone (as we do in our approach) can lead to biased estimates: On the supply side, opera houses might want to strategically wait to stage a work that is close to moving into the public domain to avoid the costs to license rights to performances in the near future, or, on the demand side, opera audiences might wait and postpone ticket purchases and attendances, expecting a decay of prices once the status changes.

work might still be protected, it is part of the public domain in another;

In a second series of regressions, we are also interested in the longer-term effects of copyright status on today's performances, in particular status effects on the diffusion and staging of new and incoming works. This is difficult as, typically, all new opera is 'treated' i.e. granted copyright, with very few exceptions.[13] We therefore use historical data on opera revivals at the beginning of the 20th century to capture new works out of copyright status for exceptional reasons, treating opera revivals *as if* novel and unknown to audiences and critics at the time of their revival. We define 'revivals' in the control group as those works that shortly after their initial premiers disappeared from stages and were not being performed for several decades, if not centuries, ahead. Even though we believe that the approach is able to deliver meaningful estimates, it is not without limitations.[14] We define all new works referenced in Loewenberg [20] premiering in the same period and same jurisdictions as revivals as treated observations. Moreover, we can also exploit variation in treatment measures as historic copyright terms [22] granted to the sample of copyright-protected, premiering works differs from one jurisdiction to the next.

In a third and final set of regressions, we are interested in the potential persistence of effects from the rise of international copyright on the diffusion and prominence of works in today's opera programing, step-by-step initiated by the

[13] Some modern composers such as Godfried-Willem Raes or Joachim Brackx publish most of their works under General Public Licenses (GPL) or Creative-Commons (CC) licenses which then can be performed and reused on stage without houses incurring licensing costs for rights to performances.

[14] More specifically, estimates may be biased because of the selection of specific works into revivals. On the one hand, chances of more or less popular composers and their works to be revived after their death or disappearance of the work might differ in the first place. On the other hand, arguably, it may be that revivals are of systematically lower quality compared to other works by the same composer and her (non-revival) works that continued to be performed on stages without interruptions. Yet in other instances, it seems revival opera was an outcome of works by the same composer cannibalizing each other at the time of (first) premiers.

emergence of bi- and multilateral agreements on copyright and the international copyright framework in the mid 19th and early 20th century. We therefore focus on all pre-Berne works referenced in Loewenberg [20], i.e. limiting the data to works that premiered before the establishment of the Berne Convention, first adopted in 1886. We define the time elapsed (years) from the premier date to the date Berne enters into force[15] in a jurisdiction of performance as an exposure measure for (foreign) works not being granted copyright protection, but with the potential upside of copyright status not taxing their diffusion and establishment in the canon for this period in these countries. Here, we also account for successive and expanding protection granted in bilateral and multilateral agreements that pre-dated the establishment of Berne in some jurisdictions and pairs of countries [23]. A limitation of our approach is that countries' decision to enter Berne (or similar agreements) is endogenously determined with existing trade structures: For example, countries with a large repertoire of operatic works many of which staged and exploited abroad and copyright not being granted to their composers might have greater incentives to adopt Berne early on than those countries that are net importers of works from abroad and see little need to protect other than native composers and works at the time.

5. Main findings

5.1. Short-term status effects on reuse: Status-changing opera at the end of the copyright term

Table 1 presents results for a first series of FE Poisson regressions where the dependent variable is the total number of runs of a work in a given year and country, if any. In column (1), estimates are shown for the baseline specification: This includes the main variable capturing copyright status of an individual work (see the data section for a description of how we approximate status) as

[15] Lists of countries'/contracting parties' accession dates to the Berne Convention and entering in force can be found https://bit.ly/2X0UoXH.

Table 1: Poisson regression table

DV: total performances of an individual work	(1)	(2)	(3)	(4)	(5)
copyright status	-0.234***	-0.0203	-0.0887		
	(-6.03)	(-0.38)	(-1.79)		
copyright status, changing sample (changing only within country of performance)				-0.201***	
				(-5.33)	
copyright status, not changing sample (changing only within country of performance)				-0.523***	
				(-11.54)	
copyright status, changing sample					-0.226***
					(-6.22)
copyright status, not changing sample					-0.504***
					(-11.12)
foreign work	-0.839***	-0.771***	-0.736***	-0.833***	-0.833***
	(-89.67)	(-23.30)	(-27.48)	(-90.25)	(-90.24)
anniversary	0.143***	0.0623	0.250***	0.145***	0.145***
	(9.69)	(1.35)	(6.97)	(9.85)	(9.85)
Constant				-1.475***	-1.494***
				(-14.48)	(-14.72)
/					
year FE	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes
work FE	yes	yes	yes	-	-
lnalpha				0.225***	0.227***
				(8.95)	(9.02)
Observations	50406	2958	5124	50406	50406
AIC	263643	16423	27204	286249	286255
BIC	264367	16861	27688	286999	287005

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

well as binary variables for foreign work status and works in their anniversary years. Moreover, we include individual-work, country-level and year FE in most models. The copyright status effect is negative and significant. However, it is possible that this merely captures popularity of the larger body of opera works already in the public domain that is more frequently staged when compared to fewer, less popular modern opera under copyright. Accordingly, in columns (2) and (3), models are based on two subsamples of the total data that (2) limit to individual works changing copyright status in a specific country during the observation period, or (3) allow for works to be included when changing status in their territory *and* for works staged abroad and exposed to a distinct legal regime (term length), thus changing status in that jurisdiction. Status estimates continue to be negative but render insignificant in these models. In order to make up for some of the variation lost due to smaller sample size in models, we rerun estimations in columns (4) and (5) now based on the total sample and segregate copyright status effects for these subsamples. For the changing sample, status effects are negative and significant, and they are smaller in effect size compared to popularity-biased estimates for their non-changing counterparts. More specifically, in these models copyright status decreases the total number of runs a work receives by around 20 to 23 per cent. Foreign work status where the country of performance differs from the nationality of the composer seems to decrease the number of runs a single work receives.[16] Furthermore, works are more often performed in anniversary years.

We do several tests to check robustness of results and account for potential confounding factors. First, rather than studying effects on the level of the individual work, in table 2, we rerun models on the level of the individual composer

[16]This might be due to various factors including 'home bias' in consumption and demand preferences for domestic/native composers' works, or because works in many instances diffuse domestically before they are shipped/exported to opera stages abroad. Even though interesting, this question is not the focus of our inquiry.

and the number of runs she receives across all her works. Results are largely confirmed in all models. Second, table 3 confirms the basic intuition of our results for a subset of performances classified as new productions in the data, productions that do not build on the standard repertoire and (past) productions in opera houses. As argued above, new stage productions may play an important role when it comes to the diffusion of new works unknown to audiences and critics and their process of gaining of popularity over time. In the case of new stage productions, status effects seem slightly more pronounced and visible. Third, we investigate status effects on the extensive margin of stage runs in table 4. Models are implemented as FE logit regressions. It seems that additional performances ('intensity') drive negative status effects on reuse of operas, rather than status would affect general entry of individual works to stages. For the changing status sample, status effects are small or even render insignificant.

Moreover, secondary markets for opera productions and the trading of stage productions could affect results. Rental productions generate higher returns when they are successful, and, in a similar vein, co-productions of several opera houses share total production costs from early on [27]. In this way, when a production is available for rent and staged in more than one house, it might also affect the presence of underlying works in domestic programing. For example, some works might be more likely to enter rental productions and trade than others. In table 9, we thus include accumulated rental productions (stocks) available over time which approximates well the level of trade an individual work receives on secondary markets for productions. While we find that total performances of a work weakly increase with more rental productions, copyright status effects also remain unchanged in these specifications.

Finally, estimates might not only reflect economic effects from grand right status but they might as well capture economic effects from other rights granted around opera works such as rights to reproduce works. For example, rental or purchasing conditions of music sheets under copyright from publishers might

affect overall costs of production houses face and so their programing choices might change accordingly. In table 6, models exploit variation in the availability of individual works on Petrucci (yes/no) and we thus further segregate status effects for changing samples.[17] It becomes clear that negative and significant status effects largely persist even when the individual work is available on the Petrucci repository. Put differently, if opera houses have, arguably, easier and less-costly access to musical scores of opera and there is no need to engage in licensing printed scores from publishers, they will still consider grand rights status when it comes to programing.

5.2. Longer-term status effects on reuse: (i) Revival of opera versus new and incoming opera & (ii) international diffusion of pre-Berne opera

In this section, we address longer-term effects of (historic) status in today's reuses on stage.

We begin by studying the effects of copyright status on incoming work, i.e. we exploit a sample of Handel and Rossini revivals of opera as instances of market entry of *new* public domain works unknown to the public, competing with new, incoming works under copyright from the same year cohorts (1916-38). Models (1) and (2) in table 7 present main results from Poisson models for the total number of runs of an individual work *across* all six seasons in the data. The two core variables in all specifications are (historic) copyright status and copyright terms at the date of revival/premier and the work's jurisdiction of origin (nationality of the composer). Moreover, if applicable to the work, we control for today's status change effect during the observation period (again, either (1) changing status in a single jurisdiction or (2) because of multiple reuses/performances in different jurisdictions). Models (3) and (4) are identical in structure but, in addition, investigate status effects at the extensive margin,

[17] These results continue to hold when we deploy tighter criteria on the copyright status of music sheets, i.e. we limit to publication titles/music sheets published before 1900 and their respective works (results not shown, available upon request from the author).

i.e. logit regressions are based on a binary DV whether or not the opera is still part of today's canon (staged once or more across the six seasons we observe). Please also note that the total sample accounts for all works premiering in the relevant period between 1916-38, even if they disappeared from today's stages, as we include all opera listed in the Loewenberg reference catalogue. All models include revival/premier year and country-level FE.

We find that negative and significant status effects persist across any specification, with effects slightly more pronounced at the extensive margin. If estimates do not suffer from severe selection bias (see empirical strategy section for more details), this suggests that copyright status taxes diffusion from early on, and, effects from historic status on today's reuse persist in the course of several decades, if not a century, after. However, differences in copyright terms across jurisdictions (which range from life of the author plus 15 to plus 80 years, with a median of plus 50 years) do not seem to generate similar longer-term effects but have small effects and render insignificant across models. Controls for foreign works status and status changes in the observation period show the expected signs.

As a final step in the analysis, we investigate historic effects of copyright status from the rise of the international copyright regime on the diffusion of pre-Berne works beyond domestic borders, as reflected in today's reuse of works in different countries. The basic argument we want to test is that while not granting rights to their incoming foreign works inevitably hurt many composers when works were traded without their consent and royalties were not paid, unauthorized trade could have helped their works' diffusion and popularity in these jurisdictions. Table 8 presents findings for four models. Our main independent variable are the years elapsed since the premier of a specific work to the year Berne enters into force in a specific jurisdiction of performance which approximates the period a work is exposed to potential unauthorized trading. Models (1) and (2) differ in as far as (2) also accounts for jurisdictions' bilat-

eral and multilateral agreements signed *before* the Berne convention came into being, if applicable, the Berne convention being the 'iconic' multilateral treaty first established in 1888 [28]. We do so by counting the years elapsed since the establishment of these agreements in a jurisdiction (of performance) to the year Berne enters into force in that specific jurisdiction (of performance). Models (3) and (4) have identical structures but, again, focus on extensive margins.

Estimates for core variables seem small in size and render insignificant in most specifications in table 8. We need to cautiously interpret this preliminary piece of evidence. Historic effects on the international diffusion of pre-Berne works seem neglectable, or, to be more precise, it is not reflected in today's reuse of works on stages. If anything, pre-Berne bilaterals/agreements, even though considered as largely ineffective by legal scholars for their poor standardization and heavy burden on rightholders due to complex formalities [24], might have been effective in hindering unauthorized diffusion. However, this area of investigation clearly deserves follow-up research.

6. Discussion and limitations of approaches

This research is not without limitations and several follow-up questions arise for future research in this area.

First, while the evidence we provide can indicate how far the exclusivity granted by copyright restricts follow-up reuse, it does not allow for an assessment of welfare effects. Put differently, results are not informative on whether or not changes in copyright and reuse levels constitute a welfare improvement and thus are limited in their ability to address the standard underproduction-underutilization trade-off [19]. It would require richer data on pricing and total revenues with regard to stage reuses as well as information on to what extent production of new works builds and borrows from existing (public domain) opera to allow for normative conclusions [29].

Second, even though meaningful, quantitative approximations we deploy in the analysis are often imperfect measure of the underlying phenomena. For example, in the analysis, copyright status effects around the publishing of musical scores builds on the availability of works on Petrucci. However, similar to the approach by Reimers [25], an alternative assessment would require monitoring commercial strategies of publishers in greater detail, i.e. the changes in pricing and (re-)editioning of works around the expiry of copyright. Furthermore, in an alternative setting and with additional data, we could monitor and analyse the more immediate effect from licensing expenditure levels in opera houses on their programing choices rather than limiting the analysis to legal status effects. This is also interesting because it would allow to account for differences in the ability of opera management when it comes to bargaining licensing deals.

Third, more research in economic history needs to be undertaken in the area of opera and copyright which may provide with lessons on the functioning of copyright and with new insights for today's policy reform. In our research, we have only began to fully understand the effects of emergence of national and international copyright regimes and the implications this holds for the diffusion and emerging trade of works created in these periods as well as the value that can be extracted from the harmonization of international laws. In addition, as illustrated in previous work [4] it is possible that establishing copyright also had an impact on artist migration and location choices, yet another interesting question to be addressed in future research.

Finally, one way to interpret our results is to understand copyright - while incentivizing the creativity of composers - also as a hindrance to follow-up creativity in reuse on stage. In this way, granting neigboring rights to performers or mechanical rights as it is common pratice in many legal frameworks might help reduce potential adverse effects and reintroduce incentives further downstream. However, granting more rights runs the risk of 'royality stacking' and fragmentation of rights and thus might or might not have negative economic effects, for

example, hold up problems [30]. Again, that is a question for future research to better understand complementarities or substitution of effects in these bundles of rights granted across the value chain.

7. Conclusion and implications for copyright

We find that works under copyright today are less often performed on global opera stages than works that are out of copyright. Based on within-title variation, copyright status reduces the average number of performances a work receives by around 20 per cent. Arguably, this is due to costs opera houses incur for licensing rights to performances (grand rights) for original works from composers or their heirs. So, while moderate copyright terms may induce the creation of additional opera when the composer is still alive [4], it also restricts reuse and follow-up creativity on stage.

Main results are robust against a number of confounding factors such as the economic effects from publishing activity around music sheets (as another source of potential production costs for opera houses) and the effects from secondary markets for opera productions. In addition, copyright status can act as a barrier to entry of new, incoming works, in particular when their reuse on stage as experience goods is restricted in new productions that are outside the standard production repertoires of houses.

Moreover, in the case of opera, there is preliminary evidence that (historical) copyright status has longer term implications on the diffusion levels and establishment of new, incoming works. These effects continue to be visible in the canon as it is today, several decades after premieres of works. Furthermore, we find that the historical footprint in the canon of works today correlates with the emergence and countries' adoption of the international copyright regime. However, it is likely limited to effects from pre-Berne periods. At the time, incomplete harmonization of laws on international levels and complex formalities

were the rule when first bilateral and multilateral treaties were established in the mid 19th century. But this area will require more research in the future.

From a dynamic persective, future revisions of copyright terms need to account for the incentives to create (new works) as well as the effects on (creative) reuse they impose on these works throughout their total lifecycle. This might help improve welfare and the efficiency of the instrument. In cases where there are high transaction costs, limit capacity for uses and taste for variety is a policy concern, we thus petition for a copyright framework (and, arguably, complementary cultural policies) that gives enough leeway to new, incoming works and finds ways to establish a level-playing field with the body of incumbent works.

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References

[1] P. J. Heald, The public domain, in: Handbook on the Economics of Copyright, Edward Elgar Publishing, 2014, Ch. 5, pp. 93–104.

[2] K. Garcia, J. McCrary, A reconsideration of copyright's term, Alabama Law Review, Forthcoming; U of Colorado Law Legal Studies Research Paper (19-11).

[3] F. R. Velde, Economic history of opera.

[4] M. Giorcelli, P. Moser, Copyright and creativity: Evidence from italian operas, SSRN Electronic Journal.

[5] M. MacGarvie, J. Watson, J. McKeon, It was fifty years ago today: Recording copyright term and the supply of music, NBER conference on the Economics of Digitization.

[6] A. Nagaraj, Does copyright affect reuse? evidence from google books and wikipedia, Management Science 64 (7) (2018) 3091–3107.

[7] R. Towse, Opera and ballet, in: Handbook of Cultural Economics, Edward Elgar Publishing, 2011, Ch. 43, p. 456.

[8] J. Heilbrun, Empirical evidence of a decline in repertory diversity among american opera companies 1991/92 to 1997/98, Journal of Cultural Economics 25 (1) (2001) 63–72.

[9] J. L. Pierce, Programmatic risk-taking by american opera companies, Journal of Cultural Economics 24 (1) (2000) 45–63.

[10] S. Krebs, W. Pommerehne, Politico-economic interactions of german public performing arts institutions, Journal of Cultural Economics 19 (1) (1995) 17–32.

[11] OperaEuropa, Spring conference: Creation, antwerp, 25-28 april.

[12] S. Albinsson, New bums on opera seats? the transition from feudalism to liberal society mirrored in european opera houses 17501824, 2018.

[13] W. J. Baumol, W. G. Bowen, Performing arts: the economic dilemma; a study of problems common to theater, opera, music, and dance, Twentieth Century Fund, New York, 1966.

[14] M. Caserta, T. Cuccia, The supply of arts labour: Towards a dynamic approach, Journal of Cultural Economics 25 (3) (2001) 185–201.

[15] B. A. of Songwriters Composers, Authors, A practical guide to collecting grand rights.
URL https://bit.ly/2CmygQi

[16] S. Albinsson, The advent of performing rights in europe, Music and Politics 6. doi:10.3998/mp.9460447.0006.204.

[17] F. M. Scberer, Quarter Notes and Bank Notes: The Economics of Music Composition in the Eighteenth and Nineteenth Centuries, Princeton University Press, 2004.

[18] C. Fuhrmann, Foreign Opera at the London Playhouses: From Mozart to Bellini, Cambridge Studies in Opera, Cambridge University Press, 2015. doi:10.1017/CBO9781139135511.

[19] I. E. Novos, M. Waldman, The effects of increased copyright protection: An analytic approach, Journal of Political Economy 92 (2) (1984) 236–46.

[20] A. Loewenberg, Annals of Opera, 1597-1940: Comp. from the Orig. Sources, Calder, 1978.

[21] G. Kreuzer, Verdi and the Germans: From Unification to the Third Reich, New Perspectives in Music History and Criticism, Cambridge University Press, 2010.
URL https://books.google.ch/books?id=BCCtVz4Go3gC

[22] H. L. Pinner, World copyright: An encyclopedia, Leyden: A.W. Sijthoff, 1953.

[23] S. Ricketson, J. Ginsburg, International copyright and neighbouring rights: The Berne Convention and beyond, Oxford: Oxford University Press, 2010.

[24] S. Gompel, Formalities in copyright law: An analysis of their history, rationales and possible future, Alphen aan den Rijn: Kluwer Law International, 2011.

[25] I. Reimers, Copyright and generic entry in book publishing, American Economic Journal, forthcoming.

[26] R. Spoo, The uncoordinated public domain, Cardozo Arts and Entertainment Law Journal 35 (2016) 107.

[27] Prospero, Opera co-productions: It's good to share (2015).
URL https://www.economist.com/prospero/2015/02/11/its-good-to-share

[28] M. Kretschmer, Copyright and its discontents, SSRN Electronic Journal.

[29] W. Landes, R. Posner, An economic analysis of copyright law, The Journal of Legal Studies 18 (2) (1989) 325–63.
URL https://EconPapers.repec.org/RePEc:ucp:jlstud:v:18:y:1989:i:2:p:325-63

[30] M. Lemley, C. Shapiro, Patent holdup and royalty stacking, Texas Law Review 85.

9. Annex

Figure 1: Premier dates (years) of (newly created) opera from Loewenstein[20]

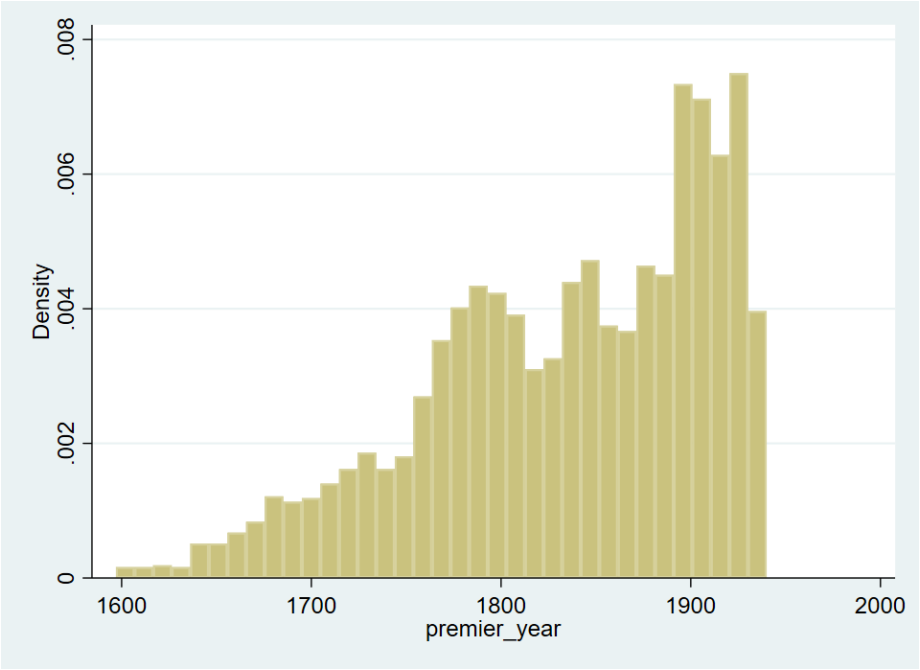

Table 2: Poisson regression table

DV: total performances of an individual composer	(1)	(2)	(3)
copyright status	-0.137***	-0.0703	
	(-3.70)	(-1.43)	
copyright status, changing sample			-0.129***
			(-3.53)
copyright status, not changing sample			-1.010***
			(-11.65)
foreign work	-1.084***	-0.916***	-1.084***
	(-121.59)	(-35.97)	(-122.09)
anniversary	0.143***	0.250***	0.143***
	(9.66)	(6.96)	(9.71)
Constant			-0.791***
			(-6.57)
/			
year FE	yes	yes	yes
country FE	yes	yes	yes
composer FE	yes	yes	-
lnalpha			0.549***
			(15.56)
Observations	24438	2574	24438

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Poisson regression table

DV: total new productions of an individual work	(1)	(2)	(3)
copyright status	-0.294***	-0.315***	
	(-4.32)	(-3.77)	
copyright status, changing sample			-0.259***
			(-4.26)
copyright status, not changing sample			-0.448***
			(-7.72)
foreign work	-0.472***	-0.508***	-0.474***
	(-27.71)	(-9.34)	(-28.71)
anniversary	0.303***	0.144*	0.304***
	(12.47)	(2.07)	(12.55)
Constant			-1.130***
			(-6.01)
/			
year FE	yes	yes	yes
country FE	yes	yes	yes
work FE	yes	yes	-
lnalpha			-0.132***
			(-3.33)
Observations	20382	1662	20382
AIC	118448	9152	128469
BIC	118986	9428	129031

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Logistic regression table

DV: performances (y/n) of an individual work	(1)	(2)	(3)
copyright status	-0.153		
	(-1.27)		
copyright status, changing sample (changing only within country of performance)		0.179*	
		(2.05)	
copyright status, not changing sample (changing only within country of performance)		-0.423***	
		(-11.85)	
copyright status, changing sample			-0.0249
			(-0.40)
copyright status, not changing sample			-0.439***
			(-11.94)
foreign work	-0.611***	-0.304***	-0.312***
	(-13.87)	(-9.63)	(-9.85)
anniversary	0.291***	0.339***	0.331***
	(4.80)	(5.72)	(5.59)
Constant		-2.287***	-2.286***
		(-10.40)	(-10.39)
/			
year FE	yes	yes	yes
country FE	yes	yes	yes
work FE	yes	-	-
lnalpha		-1.319***	-1.310***
		(-22.28)	(-22.24)
Observations	50340	50406	50406
AIC	47854	58348	58352
BIC	48578	59098	59102

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: Poisson regression table

DV: total performances of an individual work	(1)	(2)
copyright status, changing sample (changing only within country of performance)	-0.247*** (-5.84)	
copyright status, not changing sample (changing only within country of performance)	-0.745*** (-6.65)	
copyright status, changing sample		-0.255*** (-6.11)
copyright status, not changing sample		-0.770*** (-6.57)
rental productions, stock	0.0152*** (4.97)	0.0156*** (5.13)
foreign work	-0.774*** (-71.58)	-0.775*** (-71.59)
anniversary	0.137*** (8.55)	0.137*** (8.54)
Constant	-1.013*** (-8.28)	-1.033*** (-8.55)
/		
year FE	yes	yes
country FE	yes	yes
lnalpha	-0.0898 (-1.24)	-0.0925 (-1.27)
Observations	25926	25926
AIC	169755	169755
BIC	170457	170457

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Poisson regression table

DV: total performances of an individual work	(1)	(2)
copyright status, changing sample, Petrucci (changing only within country of performance)	-0.208*** (-5.23)	
copyright status, changing sample, not in Petrucci (changing only within country of performance)	-0.141 (-1.19)	
copyright status, not changing sample (changing only within country of performance)	-0.523*** (-11.54)	
copyright status, changing sample, Petrucci		-0.207*** (-5.22)
copyright status, changing sample, not in Petrucci		-0.324*** (-3.66)
copyright status, not changing sample		-0.510*** (-11.19)
foreign work	-0.833*** (-90.25)	-0.833*** (-90.23)
anniversary	0.145*** (9.86)	0.145*** (9.84)
Constant	-1.475*** (-14.48)	-1.488*** (-14.64)
/		
year FE	yes	yes
country FE	yes	yes
lnalpha	0.225*** (8.95)	0.225*** (8.96)
Observations	50406	50406
AIC	286250	286255
BIC	287010	287014

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7: Poisson & logistic regression, revival & premier of works first staged 1916-38

	(1)	(2)	(3)	(4)
DV:	total performances of selected works across seasons		performances (yes/no) of selected works across seasons	
copyright status, at revival/premier	-0.959*	-1.203**	-1.205*	-1.403**
(origin)	(-2.24)	(-2.66)	(-2.30)	(-2.59)
copyright term length, at revival/premier	-0.000841	0.00186	-0.00737	-0.00743
(origin)	(-0.05)	(0.11)	(-0.38)	(-0.39)
sample changing status, today	0.651		0.681	
(changing only within country of performance)	(1.24)		(1.04)	
sample changing status, today		0.679*		0.699
		(2.00)		(1.58)
foreign work	-1.133***	-1.132***	-2.226***	-2.225***
	(-28.97)	(-28.95)	(-7.00)	(-6.99)
Constant	-1.671	-1.719	-2.259	-2.314
	(-1.75)	(-1.85)	(-1.58)	(-1.64)
/				
cohort/year FE	yes	yes	yes	yes
country FE	yes	yes	yes	yes
lnalpha	0.146	0.125		
	(1.10)	(0.94)		
Observations	6900	6900	5704	5704
AIC	11847	11845	2027	2026
BIC	12538	12536	2612	2611

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: Poisson & logistic regression, pre-Berne works premiered before 1888

	(1)	(2)	(3)	(4)
DV:	total performances of selected works across seasons		performances (yes/no) of selected works across seasons	
years elapsed, premier to Berne	0.00283	0.00283	0.00262	0.00262
(work level)	(0.86)	(0.86)	(0.29)	(0.29)
years elapsed, bilaterals to Berne		-0.00589***		0.00985
(country level)		(-8.75)		(1.59)
foreign work	-1.073***	-1.017***	-2.515***	-2.602***
	(-69.11)	(-60.32)	(-15.27)	(-14.97)
/				
cohort/year FE	yes	yes	yes	yes
country FE	yes	yes	yes	yes
work FE	yes	yes	yes	yes
Observations	25718	25718	25718	25718
AIC	50852	50777	5699	5698
BIC	51463	51396	6310	6318

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 2: Births of composers recorded until 1940, data from Operabase.com