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In the Beginning Was the Word. Now is the Copyright

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Abstract

Since 2005, all the teachings of the Pope have been copyrighted. Given that it is a tenet of the church to spread the faith and teach all people, this would seem at odds with any restrictions on access. Yet the Catholic Church is by no means an exception, and other religions have likewise resorted to copyright. This paper presents a simple model to attempt to rationalize the exercise of copyright by a religious organization. The analysis also provides more general insights concerning the workings of copyright, which appears to function more like a right to levy a tax than like a right to set a monopoly price, as currently believed.

Keywords: copyright, religion, royalties, taxation

JEL codes: D23,.D43, D45

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1 Introduction

Since 2005, all of the teachings of the Roman Catholic Pope have been strictly copyrighted[1]. Moreover, in December 2009 the Vatican made a declaration about extending this protection to the name, image and any symbols of the Pope. In recent years, steps have also been taken to strengthen copyright and to collect royalties on the Pope's expressions of ideas. Taken together, this has stimulated intense debate among journalists, writers, publishers and public opinion.

The opportunity for profitable exploitation of papal messages and writings has received a further boost thanks to the popularity of pope Wojtyla, and to Ratzinger's prolific activity as a best-selling author. Since 2005, copyrights on papal writings have been administered by LEV (Libreria Editrice Vaticana, the official Vatican publishing house). According to a report by a well-known Italian financial newspaper, LEV signed only 9 international contracts in 2003, but after it began administering the rights on Ratzinger this increased to 289 contracts in 2007 and to 350 in 2008, particularly with the United States in the wake of the Pope's 2008 visit[2]. Proceeds from copyright royalties amounted to €2 million in 2008. The turnover of LEV (whose core business is publishing) was €10 million in 2008, with a profit of €1.6 million. The spreading of papal messages and the attendant economic activities sometimes take place through other secular channels supported by private donations: the free worldwide TV broadcast of the 2008 Christmas midnight mass from Rome was sponsored by the Knights of Columbus, who routinely finance the dissemination of many papal messages[3].

Yet in addition to increasing the royalties and revenues accruing from release of papal content to external distributors, the church is also looking to augment its direct production and distribution activities. LEV is expanding its direct publication of papal writings, which so far covers just 40% of the catalogue, but is projected to increase soon. In the meantime, it is currently extending its network of bookstores in Rome. The Vatican is also envisaging expanding its direct presence in the television industry, by seriously exploring the new possibilities offered by digital broadcasting through the CTV (Centro Televisivo Vaticano), which is expected to progressively become an autonomous content delivery channel, thereby achieving vertical integration between upstream content production and its downstream distribution market[4]. This step is part of a broader strategy aimed at expanding the Vatican's direct communication to audiences, which also includes the Internet, where in 2009 the Vatican opened a YouTube channel in four languages. A further advance supported by private donors has been the digitizing of the photo archives of the last seven popes, a process that is expected to take five years. The images will then be made available for download for a

[1] Since copyright does not require registration, it exists for any expression of ideas, including those of the Pope or any other religious representative. However, until to the mentioned date, it had never been exploited or enforced with respect to the Vatican's activities.

[2] The source of the reported data is the Italian newspaper Il Sole 24 Ore (Carlo Maroni, *I best seller firmati dal Papa*, October 23, 2008).

[3] Cardinal Foley told the attendees of the 125th Supreme Convention [of the Knights of Columbus]: "[Y]ou know that you have made and continue to make possible one of the most effective and popular forms of evangelization in existence today. You are truly bringing Christ to the world, and I thank you from the bottom of my heart." (quoted from the website of the Knights of Columbus).

[4] Il Sole 24 Ore, November 17, 2010, available at http://www.ilsole24ore.com/art/tecnologie/2010-11-17/anche-vaticano-approda-digitale-064059.shtml?uuid=AYS4zHkC.

small fee[5].

The resort to copyright by the Catholic Church is neither an isolated case nor an exception. There have been several legal cases decided by US Courts dealing with copyright on religious texts (e.g. Scientology, Arica Institute, and Star's Edge). What is more, the progressive contagion by intellectual property of the religious and mystical sphere extends in several directions. For example, most of the websites connected with spiritual authorities or containing religious writings now explicitly mention copyright (e.g. those of the Dalai Lama, Khamenei, etc.). In similar vein, representatives of religious or mystical practices are currently applying for patents on a variety of subject matters in the fields of information, communication, special foods, fitness aids, and so on. The trend is clearly distinct. In 2007, newspapers reported that US authorities had issued 150 yoga-related copyrights, 134 patents on yoga accessories, and 2315 yoga-related trademarks. This has elicited huge complaints from India's public opinion and authorities, who maintain that yoga has been in the public domain for thousands of years, and should not be copyrighted. As a countervailing move, the Indian government is currently promoting the collection of yoga practices into a digital library, which should prevent the patenting of content belonging to traditional Indian culture[6].

On the whole, the described trend appears puzzling, if we consider that religious and mystical organizations generally place great emphasis, at least instrumentally, on the wide accessibility and circulation of their messages. Indeed, the link between copyright–essentially rooted in the right to "exclude"–and religion–which generally seeks to "include" as many individuals as possible–is by no means obvious, and calls for a plausible explanation[7].

The reasons might of course be many. This article focuses on the specific possibility of copyright being exploited as a rent extraction device by a monopolistic upstream producer. In such a circumstance, it will be argued, stronger enforcement of copyright, rather than working against a pivotal precept of religions (i.e. to make their message widely available), under given conditions, that will be clarified in the following, provides a way to increase revenues by siphoning rents from downstream competitors. Such rents may then be used by the owner for financing different activities, such as charity, but also for reinforcing proprietary communicational channels. Overall, this new trend toward the exploitation of copyright by religious organizations also provides general insights into the shifting boundaries of copyright law, marking a substantive change in its role: from property right over a specific expression of ideas aimed at providing an incentive for creative activities, to a power of taxation granted to private owners in the knowledge domain.

The article is organized as follows: section 2 summarizes the relationship between copyright and religion, while section 3 specifically discusses the objective function of a hypothetical religious organization, and some possible forms of economic exploitation of copyright. Section 4 drafts a simple duopolistic model in which, alongside the religious organization, a competing for-profit publisher also contributes to spreading the religious message. Section 5

[5] Il Sole 24 Ore, December 8, 2010 available at http://www.ilsole24ore.com/art/tecnologie/2010-12-08/vaticano-entra-digitale-064142.shtml?uuid=AYVJMxpC.

[6] See Timesonline, 31 May 2007, available at:
http://www.timesonline.co.uk/tol/news/world/asia/article1862524.ece.

[7] It is worth noting that, for a long time, copyright was in fact not exploited by religions. This observation alone indicates that something has profoundly changed in the religious and spiritual sphere.

provides a critical discussion on interpreting copyright as a system of private taxation, thus offering general insights for the intellectual property industries. Section 6 then sets out the conclusions, while Appendix A provides a numerical example of the working of the model.

2 Copyright and religious messages

In the current scientific debate, copyright is defended on the grounds–among others–that it provides incentives for creative activities, since in its absence, given the public-good nature of intellectual products, free riding would be expected to occur, precipitating a market failure in the production of new copyrightable works. These basic justifications have, however, been disputed on theoretical grounds, and also challenged in practice by the existence of alternative knowledge production systems that rely on a collective and open architecture (Ramello, 2011).

Now, the specificity of the analyzed instance is that it is a tenet of many religions–including the Catholic Church–to spread the faith and teach people as widely as possible; a motivation that seems at odds with any restrictions on access to religious messages and texts. After all, the governance of many religions has long been guided by the precept of wide accessibility and dissemination of texts and commentaries, as expressed in Bertrand de Chartres' metaphor–endorsed at least by the Christian and Jewish religions–that believers and follow-on religious authors are "dwarfs standing on the shoulders of giants" (Leizman and Shnayer, 1993). To be sure, the exercise of exclusive copyright power, and the resultant rationing of demand, conflict with the aim of reaching as many individuals as possible. This makes the new, pervasive resort to copyright on the part of religions somewhat puzzling. It also marks a significant change from the previous custom of relying extensively on open-source style regulation, which was also extended without infringement, under the fair-use doctrine, to non-religious copyrighted works in the case of their use for religious activities[8]. Indeed, for much of the past, religious copyright might have been considered an oxymoron.

At first glance, a simple reason for religions resorting to copyright might have to do with the goal of preserving secrecy or restricting circulation of the texts to a select group of individuals, as happens in those sects that are by definition small and exclusive in membership (Iannaccone, 1998). This was the admitted aim in the previously mentioned US copyright cases brought before the courts. Sometimes even "open" religions may use copyright as a way to combat improper or heretical uses of their message. This rationale is likely to lead the author or the copyright holder to deny outsiders the right to make copies or quote excerpts. In either case, it has been pointed out in the literature that copyright protection might in those circumstances conflict with freedom of speech (Pallas Loren, 2008).

In contrast, the discussion surrounding the Catholic Church's decision is centered on the possibility of enforcing copyright to obtain royalties, which the owner can then use for its own purposes. The applicable rationale might in this case be that of rent-extraction from a downstream market by a monopolistic producer of an input. The described situation is consistent with what is currently happening in media markets, where copyrighted works

[8] The fair use doctrine provides scope for free access to copyrighted works without law infringement. For the economic rationale see Gordon, 1982.

often represent an essential input for the producers of final goods and services (e.g. music for radio), and where the main economic problem concerns the sharing of revenues between the input supplier and the downstream producer (Watt, 2010). The messages of the Pope and other spiritual authorities are inputs used by the media (magazine and book publishers, TV and radio channels, Internet websites). We shall argue here that, under certain conditions, as long as the downstream market is non-competitive, the royalties earned by religious authorities may reduce the rents of media producers without adversely impacting the quantity supplied to end users, and may contribute to financing the activities of religious organizations. Moreover, resort to copyright could be consistent with a situation of rigid demand served by the competitors, a fact that accords with the expanding political and social role of religion observed today in many countries. Religious organizations might also aim to strengthen and develop their own communication channels through subsidies financed by the proceeds of copyright. The demanded royalties might then be intended to reduce the market share left by the religious organization to competing publishers, and thereby alter the market equilibrium. This might also involve the direct entry of the religious organization into the modern media market and communication technologies. Within such a framework, a number of issues can be studied, with respect to the role of preferences (weight ascribed by religious organizations to various types of communication: more or less traditional, directly managed or not), and complementarity/substitutability of demand for dedicated or generalist communication channels[9]. However, whereas the underlying issue in media industries is profit maximization[10], in this case the question, connected with the idiosyncratic nature of religious organizations[11], is maximizing the dissemination of a religious message.

3 The goals of the church and copyright

As a shorthand, in the following discussion we shall refer to "the church"–i.e. an organization of whichever religion–that aims to spread its message. The message is produced costlessly (it is dictated by supernatural inspiration) and is non-rivalrous in consumption, but excludable via copyright. It can be disseminated at a cost, either directly or through mediation of a competing commercial provider. Let us assume that people demand the church's direct message m and/or another product n that conveys similar content but is differentiated in some respect (e.g. by also including other commentaries, or being crafted in a different format etc.). The latter product is delivered by a private competitor–or by a number of colluding competitors–who use the church's message as an input. The above situation thus describes a market in which a vertically integrated producer (i.e. the church, in this case) can either directly serve the market, or make its product available to a downstream firm that transforms it in some way and serves the final market. Customers can thus buy two differentiated products. Since the church is committed to spreading the message, it has an interest in boosting both forms of delivery (i.e. through the direct and indirect channels), though with the latter ascribed a lesser weight in the church's objective function, since it

[9] On preferences ref. to Iannaccone, 1998.

[10] Ref. to Watt, 2010.

[11] If churches are described as clubs (ref .to Iannaccone, 1998), they will be interested in spreading their message and in improving the instruction of believers and of potential believers.

might also include some irrelevant, trivial or confusing elements.

A problem that the church faces, if it decides to resort to copyright, is the choice of payment schedule for the content. The implications of different payment schemes for the exploitation of intellectual property rights have been studied by a large stream of literature, which has focused mainly on licensing contracts for patents and technology transfers[12]. An efficient arrangement for the church might be a fixed fee, which could in principle be set at a level designed to recover all the competitor's pure profit. Such a fixed fee would moreover not have any negative effect on the competitor's price or quantity. Since the proceeds of the fixed fee can be used either for subsidizing the church's direct production and/or the competitor's production, this approach is clearly efficient. It may, however, be difficult to implement in practice, because it requires information about the competitor's profit. Furthermore, in such a framework, all the risks pertaining to the initiative's success would fall to the buyer of the publishing rights. Variable fees based on sales instead link the payment to the observed benefits received by the competitor, thus making it easier to evaluate the competitor's willingness to pay. They also imply some sharing of risk between the parties. In fact, it seems that, in practice, fixed fees are little used in contracts for patents (Bousquet et al., 1998).

One could also design royalties in a manner aimed at encouraging increases in quantity, in order to countervail the exploitation of market power through quantity restrictions. Drawing an analogy between these types of royalties and indirect taxes, we can reference a classical stream of research in taxation theory, which stresses the possibility of efficiency-improving schemes, designed for non-competitive markets[13]. The basic idea here is that output and social surplus are positively influenced by schedules that suitably modify the after-tax demand, by increasing its elasticity[14]. Thus a degressive royalty/tax (which levies higher rates at higher market prices) would provide an incentive for increasing quantity. While the theoretical foundations of this approach are clear and compelling, as far as we know there has been no practical application. This is likely due to the difficulties of implementing schemes which involve complicated rate schedules.

Other possibilities are represented by per unit royalties or ad valorem royalties. The latter are the more widely used, and are in fact applied to the Papal writings[15]. They will be examined in detail in the following sections.

4 The model

Let us assume that the church aims to spread its message in either form, i.e. by delivering the message either directly, or indirectly through the competitor's product. Its utility

[12] Ref., among others, to Kamien and Tauman, 1986,Wang, 1998 and Sen, 2005.

[13] See, e.g., Tam, 1991.

[14] See, e.g., Myles, 1996 and Hamilton, 1999.

[15] The Director of LEV said, in an interview with the "Red" channel (on the Sky network) on December 9, 2009, that they apply rates of 3-5%, and that in setting them they take into account the commercial prospects of the publication.

maximization problem can then be described as follows:

$$\max_{p_m,t}\ m\left[p_m, p_n^*(p_m,t)\right] + \beta n\left[p_m, p_n^*(p_m,t)\right] \tag{1}$$

s.t

$$k + tR\left[p_m, p_n^*(p_m,t)\right] + (p_m - c_m)\, m\left[p_m, p_n^*(p_m,t)\right] \geqq 0 \tag{2}$$

where m is the amount of the church's direct message delivery[16], n is that of the competitor, $0 < \beta \leq 1$ is the weight ascribed by the church to mediated message delivery, p_m is the church's price, $p_n^*(p_m,t)$ is the competitor's price resulting from its optimization process, $0 < t < 1$ is the copyright royalty rate paid by the downstream competitor as a share of revenue, R is the competitor's revenue function, and c_m is the church's marginal cost for directly spreading the message, which for simplicity has been assumed to be constant and equal to the average cost. Note that p_m, the price of the message delivered directly by the church, need not always be a monetary payment (in fact, many religions prohibit the direct sale of religious services); it might represent the travel costs or the time opportunity costs incurred by believers for attending the services, for accessing the social activities organized by the church, or for obtaining information about them. Hence p_m can also be considered as an in-kind outlay on the part of believers, through which the church covers (totally or partially) the cost of directly spreading the message. By securing greater monetary proceeds from other sources, such as copyright, the church can lower p_m, e.g., by enrolling more clergymen, building more premises, etc., so that it becomes less costly in terms of time or transport to participate in the church's activities.

Equation (2) refers to the church's budget constraints, where k represents a given wealth endowment[17].

Let us assume that the church acts as a leader in setting its price p_m, and takes into account that the competitor chooses its price taking p_m as given, so that p_n^* is the arg max of the expression

$$\max_{p_n} \pi\left(p_m, p_n\right) = (1-t)p_n n(p_m,p_n) - c_n n(p_m,p_n) \tag{3}$$

where p_n is the competitor's price, and a constant marginal cost c_n equal to the average cost has again been assumed. Hence, $p_n^*\left(p_m,t\right)$ is determined by the FOC for the competitor's profit maximization.

Writing down the Lagrangian for the church's problem and deriving it with respect to

[16] The existing church members, i.e. the believers, are likely to be the main component of the audience directly reached.

[17] Note that $k = 0$ can be assumed without affecting the results. In a dynamic perspective (not modelled here) k can be represented, for example, by the yearly returns on the Church's assets.

[17] By default, the Church has an information advantage over competitors for what pertains to its message.

p_m we obtain the FOC[18] :

$$\frac{\partial m}{\partial p_m}+\beta\frac{\partial n}{\partial p_m}+\frac{\partial p_n}{\partial p_m}\left[\frac{\partial m}{\partial p_n}+\beta\frac{\partial n}{\partial p_n}\right]+ \qquad (4)$$
$$\lambda\left[t\frac{\partial R}{\partial p_m}+t\frac{\partial R}{\partial p_n}\frac{\partial p_n}{\partial p_m}+m+(p_m-c_m)\,(\frac{\partial m}{\partial p_m}+\frac{\partial m}{\partial p_n}\frac{\partial p_n}{\partial p_m})\right]=0$$

where the arguments have been suppressed for brevity, while $p_n = p_n^*$ is supposed to hold.

Depending on the characteristics of demand, the relationship between the competitor and the church can be characterized by four basic patterns, represented by either product substitutability or complementarity on the one hand, and either strategic substitutability or complementarity on the other. There are thus four possible downstream market structures. The signs in equation (4) depend on the downstream market structure considered. Only under product and strategic complementarity does a rise in p_m negatively affect the demand for both products (i.e. all the terms before the square bracket are negative): hence, for the FOC (4) to hold, $\lambda > 0$ must occur, and thus the budget constraint is surely binding. In all other cases, a price increase by the church (as opposed to a reduction thanks to the proceeds from copyright) might produce some beneficial side effects, such as boosting the competitor's demand (in the case of product substitutability) or prompting a price reduction on the part of the competitor (in the case of strategic substitutability). From this point of view, then, the case of product complementarity and strategic complementarity–though normally considered unlikely in oligopoly theory–seems the most compelling for providing conditions in which resort to copyright serves to enlarge both the church's and the competitor's demand.

By deriving the Lagrangian with respect to t we obtain the FOC:

$$R+t\frac{\partial R}{\partial p_n}\frac{\partial p_n}{\partial t}=-\frac{1}{\lambda}\left\{\frac{\partial p_n}{\partial t}\left[\beta\frac{\partial n}{\partial p_n}+\frac{\partial m}{\partial p_n}\right]\right\}-(p_m-c_m)\frac{\partial m}{\partial p_n}\frac{\partial p_n}{\partial t}=0 \qquad (5)$$

which can be rewritten as:

$$R+t\frac{\partial p_n}{\partial t}n\left[1-\epsilon_n\right]=-\frac{1}{\lambda}\left\{\frac{\partial p_n}{\partial t}\left[\beta\frac{\partial n}{\partial p_n}+\frac{\partial m}{\partial p_n}\right]\right\}-(p_m-c_m)\frac{\partial m}{\partial p_n}\frac{\partial p_n}{\partial t} \qquad (6)$$

where ϵ_n is the own-price elasticity of the competitor's demand (in absolute value). The LHS of (6) represents the marginal revenue from copyright royalties, which should equal zero if the proceeds are maximized. The RHS represents the marginal net cost of resorting to copyright. This cost arises because royalties impose negative externalities on the church, since they push up the price of the competitor, negatively affecting the dissemination of the mediated message and hence the church's welfare. Moreover, direct dissemination of the message is also affected. The term $\frac{\partial m}{\partial p_n}$ in the case of product complementarity contributes to raising the cost, since the increase in the competitor's price due to the royalty also negatively affects demand for the church, whereas it works in the opposite direction in the case of

[18] We will focus on the constrained internal solution and on the FOCs for this problem, assuming rather cavalierly that the second order conditions are satisfied. As usually happens in problems of optimal pricing or optimal indirect taxation à la Ramsey–to which the problem under consideration can be traced back–concavity of demands is not sufficient to assure a well-behaved problem, so that second order conditions must be checked case by case.

substitutability. When the negative externalities of copyright for the church are properly taken into account, the royalty is set at a level below the revenue maximizing level, and the maximum potential revenue from copyright is not achieved. The higher the church's evaluation β of the marginal benefit of spreading the message through the indirect channel, the greater will be the cost of resorting to copyright, and the lower the level of the royalty rate t. A similar role is played by ϵ_n, since a high own-price elasticity of the competitor's demand reduces the optimal royalty.

If the church resorts to a per unit royalty $\tau > 0$ instead of an *ad valorem* one, the competitor's problem becomes:

$$\max_{p_n} \pi\left(p_m, p_n\right) = \left\{p_n - \left[c_n + \tau\right]\right\} n(p_m, p_n). \tag{7}$$

For the sake of comparison with the *ad valorem* royalty approach, let us rewrite (3) in this way:

$$\max_{p_n} \pi\left(p_m, p_n\right) = (1-t)\left\{p_n - \frac{c_n}{1-t}\right\} n(p_m, p_n) \tag{8}$$

If $\tau = \frac{c_n t}{1-t}$, then the two profits in (7) and in (8) are equal except for the term $(1-t)$ premultiplying the curly bracket in (8): this term represents a tax on the pure profit[19]. Hence the ad valorem royalty t affects the quantity sold, just as the per unit royalty does, but also includes a profit taxation, which increases the church's revenue. The outperformance of the ad valorem royalty also clearly holds true with respect to the optimal per unit royalty, and thus resorting to the ad valorem royalty represents the best option.

Although we have focused on the case where $0 < t < 1$, in a more general perspective negative royalties, i.e. subsidies for the competitor, might also be considered. Subsidizing the competitor is preferable when the expansionary effects of cross-subsidization on demand are greater in this case than in the opposite case. Subsidization of the competitor will be more advantageous the larger the value of β (high value of the mediated message), the more reactive the competitor's quantity is to the subsidy, and the more rigid the demand for the direct message, so that believers can bear the burden of financing the subsidy[20]. The elasticity of believers' demand might, however, have historically increased, since attending church services implies devoting time[21], whose opportunity cost increases with wages (Azzi and

[19] For this approach see, e.g., Anderson et al., 2001.

[20] These consideration are based on condition (4), which can be rewritten in terms of elasticities. rewrite the two terms in the square parenthesis in (4) this way:

$$m + (p_m - c_m)\frac{\partial m}{\partial p_m} = m\left(1 + \frac{p_m - c_m}{p_m}\frac{\partial m}{\partial p_m}\frac{p_m}{m}\right) = \\ m\left(1 - \frac{p_m - c_m}{p_m}\epsilon_m\right) = m\left(1 - t_m \epsilon_m\right)$$

where ϵ_m represents the elasticity of demand for the direct message in absolute value. The smaller the elasticity, the higher the taxation t_m that believers might bear in order to finance a subsidy to the competitor.

[21] Demand becomes more elastic as the price increases when it is linear. Moreover, some people might discontinue their demand altogether when the price reaches some threshold. The church might correct such effects by resorting more to modern media, however moves in this direction might be constrained by the need to preserve services in the proper, traditional forms.

Ehrenberg, 1975). This might help explain why subsidizing believers through the proceeds of copyright has become more attractive now than in the past, particularly in developed countries, where the opportunity cost of time is high.

The model shows, among other things, that the cross-subsidization implied in copyright exploitation might in principle also work in the opposite direction, i.e. the believers might in theory contribute to favor indirect dissemination of the message through commercial channels. However, the resort to taxation of outsiders through copyright, which is instead observed in practice, indicates that, on the contrary, indirect demand for the religious message has become in many instances less elastic than the direct demand, a fact that might on the one hand reflect wider social interest in religion, but also a lower commitment on the part of insiders to carrying out the religious tenet of spreading the message.

5 Copyright as a private tax: further comments

When the copyright revenues gathered by religious organizations are used for financing the direct dissemination of their message at prices below the marginal cost, from a social welfare point of view such dissemination becomes inefficiently large[22]. To justify the subsidization received by religious organizations, one should assume that the direct message dissemination represents a merit good, whose consumption has positive social externalities and hence deserves subsidization. Yet, despite a widely held opinion that the social activities of many religious organizations contribute to building and maintaining social capital, with a possible positive impact on social welfare[23], opinions differ as to the benefits of subsidizing the spreading of religious messages per se.

Whereas in general the rationale for introducing intellectual property rights is grounded in their aim of providing incentives for the production of intellectual content, the example of copyright in religion shows this legal institution to be more far-reaching, since it is also applied to cases in which the content would have been produced in any case. Copyright can obviously make a difference in terms of resources available for distributing the copyrighted works; yet this relates to the income effect stemming from the copyright, rather than to the substitution effect which instead appears to be the main justification for copyright. In point of fact, according to its main justification, copyright is supposed to prevent the defection of would-be authors who, unable to extract benefit from their creative efforts, shift towards other more remunerative activities.

While religion provides a clear-cut framework in which new intellectual products are created and disseminated even in the absence of any monetary benefit, a similar arrangement can also exist in other creative milieus. An author might for example be motivated by the pleasure of acquiring fame or of participating in a social network, or by an expected increase in remuneration from related activities (e.g. she might signal her skills to the labor market), or by other reasons connected with the positive externalities produced by collective rather than individual creative efforts. Open Source or collective invention paradigms demonstrate

[22] On this topic ref. also to Pallas Loren, 2008. Moreover, inefficiency could also arise because of the restrictive effect of royalties on the competitor's demand, but this effect might in some cases be mitigated or even reversed by the cross price effects arising from the reduction of p_m.

[23] Ref. to Iannaccone, 1998.

that such motivations can fully support the production and dissemination of intellectual products, without the enforcement of any exclusive rights or direct pecuniary rewards[24]. Whenever creation is not conditional upon direct remuneration, the transfer nature of copyright royalties is fully apparent. Hence, likening copyright to a power of taxation granted to a private party appears a promising perspective, that can provide a useful alternative to the currently available narratives, which are unsatisfactory. In fact, the public-good nature of the knowledge items appropriated via copyright precludes its assimilation to a standard property right, whose entitlement is plainly aimed at supporting the emergence of a competitive market, featuring the usual alignment between price and marginal cost[25]. By contrast, the legal monopoly created by granting an exclusive right in the intellectual sphere can be leveraged, thus magnifying the possibilities for rent extraction in many directions[26]. Generally speaking, monopolists can only set a price for the demand that they are able to directly serve (even though this can of course be done by taking into account what is going on in upstream and downstream markets). Copyright holders are instead entitled to receive revenues also for indirect and remote uses of their intellectual production, making the royalties akin to indirect taxes that can impinge on various successive stages of production, and might in some forms even be characterized as double taxation or cascades in which the whole value of a product is taxed at each stage. This contingency may in itself be inefficient[27].

In addition, the boundaries between property and taxes in the copyright domain are further blurred by the proliferation in many countries of levies on digital media such as blank CDs, and even on digital equipment such as DVD recorders and hard disks, defended on the grounds of indirectly gathering revenues for privately reproduced copyrighted works[28]. In this case, alongside the granting of a taxation power to a private party, there is also a direct public exercise of the right on behalf of the private owners, and for their benefit.

All in all, an appropriately framed analogy with taxation seems to provide promising guidance for the design, amendment and enforcement of copyright to benefit the public interest, not only with respect to the narrow case of religious content. Though taxation policy remains a highly debated subject, a tradition dating back to Adam Smith identifies certain general principles for designing a good taxation system. Some of these provide at least a basis for furthering the discussion on copyright (and intellectual property in general).

[24] On Open Source and collective invention ref. von Hippel, 2005 and to Ramello, 2011. It is worth noting that even in productive milieus still characterized by exploitation of proprietary systems over knowledge resources, there are solutions which seek to preserve some space for openness, as in the case of patent pools (Lerner and Tirole, 2007).

[25] Several issues connected with the indivisibility of knowledge and the social nature of its production make it difficult to fully implement the market paradigm in this domain. For an in-depth discussion ref. Ramello, 2011.

[26] Boldrin and Levine, 2009, stress the far reaching role of intellectual property rights. Examples of the consequent over-appropriability are provided in Ramello, 2011.

[27] The belief that double taxation is harmful to economic systems is widely held, to the point that, for instance, there exist several international treaties devoted to avoiding double or multiple imposition of taxes on the same income, asset or transaction by different countries. Ref. for instance to the Council Directive 2003/48/EC of 3 June 2003 regulating taxation of savings income in the form of interest payments within the member states in order, among other things, to avoid double taxation.

[28] For a supporting discussion on levy systems ref. to Fisher, 2004 which, however, quite interestingly, assimilates it to an income tax. For a critical discussion on balancing private benefits and social cost ref. among others to Koelman, 2005.

They can be summarized as follows[29]:

(i) The power to tax in a democracy must be legally limited and subject to checks and balances.

(ii) Double taxation is potentially distorting and needs to be specifically justified.

(iii) The benefit principle may be troublesome when applied to the financing of public goods.

(iv) Transaction costs for administration, enforcement, etc. must be reduced as much as possible.

All the above principles, backed up by a consolidated body of public economics literature, seem to point in the direction of limiting the scope of copyright (and intellectual property rights), and instead using general taxation, where necessary, to support those intellectual endeavors most clearly categorizable as public goods. The latter recommendation is perfectly in line with the prescription concerning incentives for inventive activities of Arrow, 1962, seminal contribution.

6 Conclusion

This article discussed how the recent exploitation of copyright by religious organizations, whose traditional activity is centered on spreading their message, might have a rational foundation that is not merely limited to preserving secrecy or defending the "purity" of content against possible misrepresentations. Using a simple model, we have shown how resort to copyright might work as an instrument for boosting the spread of the message, by eliciting a cross-subsidization from indirect delivery channels toward the proprietary ones. Yet, since in most cases this cross-subsidization also entails negative feedbacks due to the cross-price effects, one would expect the church to adopt a less aggressive royalty setting policy than that of content producers in media markets. However, when both the "economic" and "purity" motivations come into play, a full exploitation of the mechanism may become justified. Such a combination of motivations seems to adequately explain the recent moves by the Catholic Church to strengthen and extend copyright enforcement, since we observe, on the one hand, a growing economic commitment to direct delivery of the message through vertical integration between content production and downstream distribution, and on the other hand the current Pope's great emphasis on safeguarding doctrinal and theological principles.

The model shows that the cross-subsidization involved in the exploitation of copyright might in principle also work in the opposite direction, i.e. with believers contributing revenue in order to favor the indirect delivery of the message. The resort to taxation of outsiders through copyright which is occurring today in practice may therefore signal that indirect demand for the message has become in many instances less elastic than the direct demand, a fact which might on the one hand reflect wider social interest in religion, but which may also indicate reduced commitment among insiders to implementing the religious tenet of spreading the message. Furthermore, the analogy between copyright royalties and taxes presented in this paper may provide useful guiding principles for enforcing and amending copyright (and intellectual property) law, going far beyond the narrow case of religion.

[29] For an in-depth discussion on taxation best practices among others ref. to Slemrod, 1990.

7 Appendix

In order to provide a numerical example in which copyright contributes to the spread of the message, we consider the case of product complementarity and strategic complementarity[30]. Let us assume that the demands for the church and for the competitor are respectively as follows[31]:

$$m = 420 - p_m$$
$$n = 40 - 4p_m - \frac{p_n}{p_m}$$

Fixed costs are sunk and marginal costs are constant and equal respectively to:

$$c_m = 4.8$$
$$c_n = 5$$

Note that the church's product is complementary to the competitor's (i.e. $\frac{\delta n}{\delta p_m} < 0$) as long as:

$$-4 + \frac{p_n}{p_m^2} < 0$$

or:

$$p_m > 0.5\sqrt{p_n}$$

Moreover, in order to assess if there is strategic complementarity, one must consider the price p_n that the competitor applies in order to maximize its profit:

$$p_n = \frac{1}{2}\left(40p_m - 4p_m^2 + \frac{5}{1-t}\right)$$

Strategic complementarity arises as long as

$$\frac{\delta p_n}{\delta p_m} > 0.$$

This occurs if:

$$p_m < 5$$

The aforementioned conditions also implicitly define an upper bound for p_n, since a necessary, even though not sufficient, condition for having both complementarity and strategic complementarity is that $p_n < 100$.

Let us consider the objective function of the church:

$$W(p_m, t) = (420 - p_m) + 0.9 * (40 - 4p_m - \frac{p_n}{p_m}) \tag{9}$$

[30] For the characteristics that the demands must possess see Amir et al., 1999.

[31] In this example the demands are not symmetrical, but this might easily be the case in practice as long as believers are likely to mainly demand the church's direct message, while outsiders mostly demand the competitor's product.

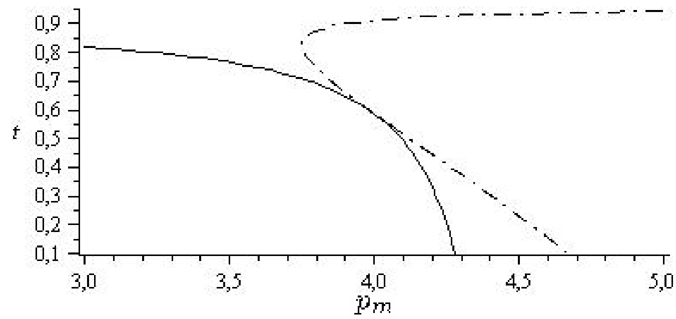

Figure 1: The Church's choice

which is a weighted sum of the quantities of the two products, where $\beta = 0.9$ has been assumed in this example. By assuming also, for the sake of simplicity, that no wealth endowment is possessed by the church, it will simply set $p_m = 4.8$ in order to cover the costs, while taking $p_n = 52.42$ as a given. Hence the church's utility would be $W = 424.0913$.

Let us now consider the budget constraint of the church $g(p_m, t)$ in case of application of copyright with a royalty rate of t:

$$g(p_m, t) = tp_n n + (p_m - c_m) m = 0 \tag{10}$$

We solve the problem using the Lagrange multipliers method, by considering (9) as the objective function and (10) as the constraint, while p_m and t are the instrumental variables. The determinant of the bordered Hessian of this problem is positive at the values satisfying the FOCs, and hence the second order conditions hold. Figure 1 shows that the problem is well behaved in the region $0 < t < 1$, $0 \leq p_m < 5$. The continuous line is the indifference curve (remember that utility is increasing if one moves towards the origin), the dashed line is the constraint.

The results are:

$$\begin{aligned} p_m &= 3.9925 \\ p_n &= 54.1049 \\ t &= 0.5925 \end{aligned}$$

These prices satisfy the conditions for both complementarity and strategic complementarity. As far as the church's utility is concerned, we obtain $W = 425.4379 > 424.0913$, where the latter is the value in absence of copyright. The competitor's profits, instead, shrink from 468.4701 without copyright to 178.6325. The quantity directly sold by the church is now 416.0075 (while it was 415.2 without the copyright) while the competitor's sales are $n = 10.4784$ instead of 9.8792. The proceeds from the copyright amount to 335.9066.

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