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► To cite this version:

Olivier Bomsel, Heritiana Ranaivoson. Decreasing Copyright Enforcement Costs: The Scope of a Gradual Response. Review of Economic Research on Copyright Issues, 2009, 6 (2), pp.13-29. hal-00446189v1

HAL Id: hal-00446189

<https://minesparis-psl.hal.science/hal-00446189v1>

Submitted on 12 Jan 2010 (v1), last revised 12 Jan 2010 (v2)

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Decreasing copyright enforcement costs: the scope of a graduated response.

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Abstract

The digitization of copyrighted goods and the dematerialization of their distribution over the Internet have weakened copyright, a key institution of the creative industries. One factor affecting the value of copyright stems from the broadband roll-out, wherein copyright enforcement costs have become higher than the estimated benefits of copyright. This paper analyzes the causes of this situation and suggests how a graduated response to infringers may durably decrease copyright enforcement costs.

Beginning with a review of the economic literature on copyright focusing on its industrial aspects, the study then analyzes how the consumers' impunity provides incentives to "free ride" on copyright all along the vertical distribution chain. This rapidly increases copyright enforcement costs. Next, the paper describes both the graduated response mechanism and the voluntary agreement which initiated this system in France. In conclusion, this study argues that increasing the cost of free-riding for the final consumer should lead to a decrease of copyright enforcement costs and, therefore, higher returns in the creative industries.

Key words:

Copyright – Creative industries – Regulation enforcement costs – Digitization – Graduated response.

1. Introduction

In all capitalist economies, the institution of copyright has become essential to the development of creative industries. Copyright consists of the granting of an exclusive right to the exploitation of reproductions (and representations) of an artistic or literary work. As such, it has contributed to the accumulation of large copyright portfolios which, in turn, enable the financing and marketing of new creations (Caves, 2000). From an economic point of view, copyright itself appears as an internalization means whose social benefits should remain superior to its social costs. Among these costs are the enforcement costs, which include the costs related to the exclusion of unauthorized users.

In the physical economy, enforcement costs are bundled with the packaging of the copyrighted information on a physical support, or with a specific decryption device in the broadcast distribution system. Here, the main copyright infringers are commercial intermediaries that produce and distribute counterfeited packaged goods (books, CDs, DVDs) or set-top-box decryption devices.

Therefore, in the physical world, the legal deterrence targeting those intermediaries constitutes basic copyright enforcement. For potential infringers, the threat of a strong penalty if caught and convicted serves to make the expected costs of infringing greater than the anticipated benefits, at least in most developed countries (which, from an economic point of view, represent the main markets). And the limited number of infringers keeps the variance of the penalty—in other words, the cost of being caught—socially acceptable. As a result, legislators largely integrated this philosophy into the digital copyright laws passed in the late 1990s and early 2000s, such as the Digital Millennium Copyright Act (DMCA) (1998) in the United States and the European Union Copyright Directive (EUCD) (2001) in the European Union.

Although the physical economy is far from having disappeared or even become negligible, the dematerialization of copyrighted goods deeply affects the creative industries. Notably, it enables the storage, circulation, and exchange of digitized content over the Internet. With the appearance of a new exchange technology (peer-to-peer for instance), any consumer can become an active counterfeiter without enduring much, if any, cost. Thus, as the nature of copyright infringement has changed, so has the structure of enforcement costs. In other words, heavy sanctions, although effective against a limited number of intermediaries, cannot deter copyright infringement executed on a massive scale by hundreds of thousands, if not millions, of consumers. As the number of infringers rises dramatically, not only does the expected value of the sanction diminish in concordance with the rising number of infringers, but also society comes to view the sanction of the infringer as unfair, in part because the infringer has no commercial intent and the variance of the sanction increases.

The digital industries—those that provide consumers with technologies which allow free access to content—have exploited this weakness in both the institution of copyright and the corresponding legal loopholes. As a result—in most countries—the number of copyright infringers has increased in recent years. At the same time, policymakers are debating copyright. In December 2005, the legal implementation of the EUCD in the French parliament brought an amendment proposing a levy system (*licence globale*)—a form of compulsory license applying to all audiovisual content exchanged over the Internet. While this amendment was ultimately rejected, the debate illustrates the weakness of exclusive intellectual property rights in the digital era.

This paper examines the extent to which the French scheme of a graduated response may restore incentives to enforce copyright. The next section provides a review of the literature on copyright focusing on its industrial aspects. Next, in Section 3, the paper examines how consumer impunity incentivizes consumers to “free ride” on copyright all along the vertical distribution chain, increasing the costs of copyright enforcement. Section 4 depicts the voluntary agreement that initiated the French graduated response system and shows how it attempts to decrease copyright enforcement costs. Section 5 draws some conclusions regarding the impact of the graduated response as a means to internalize copyright enforcement within both the content and network industries.

2. The costs and benefits of copyright: a review of the literature

Since the 1960s, and increasingly through the 1980s, the concept of intellectual property has gradually come to include such legal instruments as patents, trademarks, and copyright (Blaug, 2005). The economic analysis of the arguments in favor or against copyright (and

more generally, intellectual property) is now well-established. The analysis characterizes how this property should be designed, notably in relation to the expansion of the Internet and its new uses. To begin to understand the issues related to copyright, one should review the main arguments used to assess the economic effects of copyright.

In doing so, one must make an important distinction between two categories of rights holders: the creators and the intermediaries in production and distribution. Both creators and intermediaries may have different incentives to produce and distribute cultural goods (Plant, 1934). All creators do not necessarily work for money—some may work for recognition and may even be willing to pay to have their works published and distributed. Even when money stands as an incentive, it does not necessarily take the form of the granting of a copyright. On the other hand, the intermediaries in production and distribution have a clear and direct interest in having their contents protected by copyright since it can prevent these contents from being counterfeited by their rivals. As a result, economists have generally investigated the benefits of copyright in terms of incentives for these intermediaries (Benhamou and Farchy, 2007).

For similar reasons, this study focuses on the industrial organization of the creative industries, analyzing the intermediaries rather than the creators themselves and using the usual comparison between the costs and benefits of copyright.

From a normative point of view, the traditional analysis of the optimal copyright can be described as a balance between, on the one hand, its positive impact on production and distribution, and, on the other hand, its negative impact on utilization (Besen, 1987). As Landes and Posner state, “[c]opyright protection (...) trades off the costs of limiting access to a work against the benefits of providing incentives to create the work in the first place. Striking the correct balance between access and incentives is the central problem in copyright law.” (1989, p.326)

The main benefit of copyright is its capacity to favor the production and distribution of meaningful content. Creative goods (like information goods in general) are public goods, i.e. they share the properties of non-rivalry and non-excludability. However, creative goods have high fixed costs of production and marketing and low variable costs of reproduction and/or distribution (Arrow, 1962). However, being a legal monopoly on a work of art, copyright has an immediate downside on society as a whole because it restrains the diffusion of protected goods.

Beyond this well-known literature, our analysis focuses on the role of copyright at the industry level, relying mainly on the transaction costs analysis.¹ As a starting point for this analysis, one must first examine the so-called Coase theorem, which states that, when trade in an externality is possible and there are no transaction costs, bargaining will lead to an efficient outcome regardless of the initial allocation of property rights (Coase, 1960). One must note, however, that the Coase theorem assumes there is no transaction cost—which is never the case, and may be even less so in this study than in general. Moreover, the rights holder first endures costs since “*intellectual property is very easy to expropriate*” (Watt, 2000, p.1).

¹ Our approach is somewhat echoed by the current reinforcement of copyright legislation all over the world (e.g. the Sonny Bono Copyright Term Extension Act in 1998 in the United States), which illustrates that copyright increasingly is considered by governments as playing a role in global competition by allowing innovation in the creative industries. This trend may show that the welfare approach of copyright, based on the spreading out of useful information in a given community, is now challenged by the taking into account of copyright as an industrial asset.

Therefore, “*administrative and enforcement costs*” are important, which “*include the costs of setting up boundaries or erecting imaginary fences that separate protected and unprotected elements of a work. They also include the costs of excluding trespassers, proving infringement and sanctioning copyright violators.*” (Landes, 2003, p.134) Moreover, such costs depend on the technological context illustrated in the next section.

As a consequence of the economic function of copyright, cultural goods have the characteristics of private goods because copyright makes it possible for rights holders to exclude other users: both potential competitors as well as final consumers (Demsetz, 1970). In other words, copyright is, above all, a property right and, to be more precise, a form of private ownership. Therefore, “[p]rivate ownership implies that the community recognizes the right of the owner to exclude others from exercising the owner’s private rights” (Demsetz, 1967, p.354). As such, it allows the internalization of costs and benefits.

Demsetz (1967) argues that property rights develop when there is incentive to internalize effects that were, until then, mere externalities because “*the gains of internalization become larger than the cost of internalization.*” As a result, “*the emergence of new (...) property rights will be in response to changes in technology and relative prices.*” (p. 350). Although Demsetz considers property rights in general, this applies to copyright as well: with the development of printing, it (slowly) became more detrimental to have one’s creations copied by competitors. So publishers and, to a lesser extent, writers had a clear opportunity to secure exclusive rights over their written works.

As a consequence of copyrighting a cultural good, the rights holder may keep all benefits linked to the exploitation of the work, either directly or indirectly (e.g. through licenses). Moreover, the market power granted by copyright enables the implementation of a profitable price discrimination.

Finally, cultural goods are subject to strong market uncertainty, meaning that one cannot know in advance which goods will be successful in the marketplace. Therefore, if copyright did not exist, successful goods would likely be reproduced by competitors. Significantly, those competitors would avoid both betting on innovative—and thus risky—products and also enduring high fixed costs. Such a situation would all the more be penalising for investors.

“*Because copyright tends to be a costly system of property, economics predicts that property rights in copyrighted works will be more limited than for tangible or physical property.* (Landes, 2003, p. 135). As a consequence, “*various copyright doctrines that limit protection can be best explained as rough efforts to achieve the optimal balance between incentive benefits and access and other costs in order to promote economic efficiency.*” (Landes, 2003, p. 135) These limitations can take numerous forms in practice. First of all, supplementing the copyright through the implementation of specific levy systems has become a common way of counterbalancing excessively high copyright enforcement costs. Those levies are then collected and redistributed to rights holders by collecting societies. Fair use—or exceptions to the author’s right—is another common device; by allowing some uses for free in cases where the enforcement costs would be higher than the eventual related profit for the rights holder, fair use can be used as a way to reduce transaction costs (Gordon, 1982). Copyright’s limited duration generally balances the incentives for production and distribution with the granting of public access once the investment has been repaid.

In a nutshell, copyright is a legal institution that enables a partial internalization of the costs and benefits linked to the production and distribution of cultural goods. Our approach focuses on the industrial organization of copyright, *i.e.* the trade-off between the benefits and costs from the industry's point of view. We now turn to an analysis of the advent of the digital era to see its influence on these costs—notably the enforcement costs.

3. The Internet roll-out: new benefits and new costs

Digitization and the development of online piracy

One of the most visible effects of the digitization of copyrighted contents and of the advent of the Internet is the surge of massive infringement practices which rely on peer-to-peer software. Massive piracy has led to widespread questioning of the economic relevance of copyright in a digital environment (Varian, 2005). Digitization has introduced the first break in the traditional economic cost-benefit analysis of copyright piracy.

In the analogue environment, the benefits of the diffusion of an unauthorized copy corresponded to the limited release of a degraded version. Under such an approach, unauthorized copying was seen as a means of stimulating the network effects of the copyrighted good and enlarging its markets, with only a marginal negative impact on the right holders (Watt, 2000). Digitization, however, changes the scale of the phenomenon.

Using Demsetz's approach to property rights, one may analyze the current questioning of the economic relevance of copyright in a digital environment. As Demsetz describes, “[i]f the main allocative function of property rights is the internalization of beneficial and harmful effects, then the emergence of property rights can be understood best by their association with the emergence of new beneficial or harmful effects” (1967, p. 350). In the following, we analyze whether the massive infringement of property rights can be understood best through its association with the emergence of new harmful or beneficial effects.

Therefore, in this section we posit that the industry has garnered both new benefits and new costs linked to the digitization of copyrighted goods and the dematerialization of their distribution. We point out how these costs and benefits might have impacted the previous consensus on copyright.

The benefits are clearly associated with new versioning possibilities and better discrimination of the consumers' preferences through digital distribution. The major actors of the entertainment industry first viewed digitization as an opportunity. For example, the advent of the compact-disc put an end to the decrease in sales of the recording industry that began towards the end of the 70's and lasted until the mid 80's. This advent actually created a new prosperous era for the industry (Burnett, 1996). Afterwards the advent of the Internet was first considered as allowing the appearance of new ways to sell music (Ranaivoson, 2003). Moreover, digital distribution allows new modes of signaling and selecting contents, individualized access, and the possibility for each consumer to store large content libraries or play-lists on portable personal devices. It then enlarges the addressable markets of all copyrighted goods. However, these benefits can be obtained only once an extensive digital distribution system is rolled-out.

The costs of this systems are associated with copyright enforcement. While the material support provides rivalry and excludability, the full digitization of copyrighted goods requires technical means like specific software (e.g. DRM) to achieve exclusion. Such technical means are legally recognized and strongly protected by the digital copyright laws (Bomse and Geffroy, 2006). However, the key point regarding copyright enforcement concerns the ability of the final consumer to exchange unprotected files with other consumers—which has sometimes been considered part of *fair use*. This ability to exchange files has created a legal loophole favoring the roll-out of several generations of peer-to-peer software programs (Bomse, 2007). This loophole created a breach in copyright enforcement that allowed millions of Internet users around the world to free-ride on copyright. Such a situation was not anticipated by the digital copyright laws regulating a heavy sanction system that, in practice, targeted only a limited number of infringers. Ultimately, it took six years for the trial against the peer-to-peer network Grokster to reach the U. S. Supreme Court and to have the Court issuing a decision regarding the legality of peer-to-peer applications. Therefore, in spite of many attempts to sue infringers, right holders have proved quite inefficient in enforcing copyright through the legal sanction mechanism.

The Internet roll-out game and the role of network effects

The online piracy phenomenon is linked to the roll-out of the Internet, which, in turn, is characterized by the importance of network effects. When the number of other consumers influences the utility linked to one's consumption, this creates a network effect (Varian, 2000). In the case of digitized music, the network effects are positive: the more consumers use a network, the more every consumer gets satisfied. The effects may be direct or indirect (Katz and Shapiro, 1994). Direct network effects occur when the number of users has a direct impact on the utility derived from a product; indirect network effects occur when they are mediated by another market (Liebowitz and Margolis, 2002). An example of direct network effects is e-mail: the more people who have an e-mail address, the more useful e-mail itself becomes to each user. Indirect effects generally correspond to the development of complementary products. For example, DVD players become more useful as more movies and programs are released on DVDs.

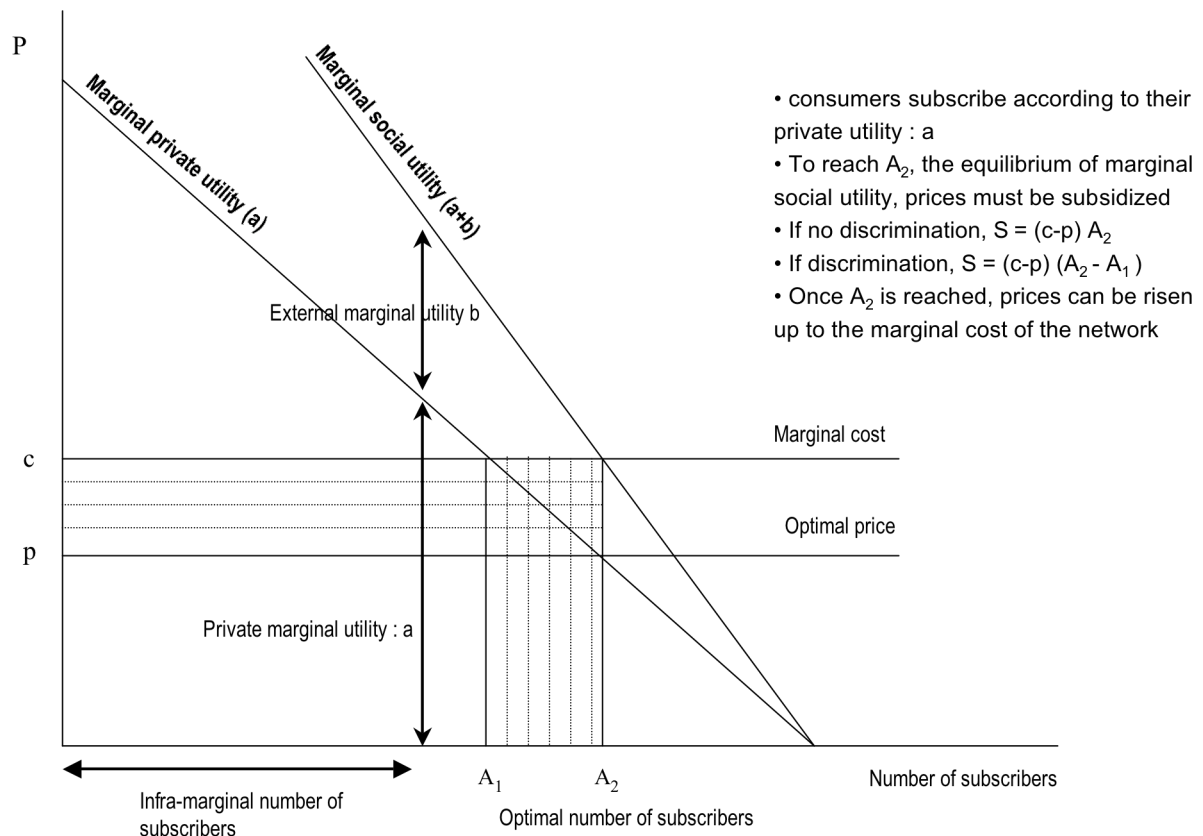
Since digitization allows packet-switching across communication networks, the Internet has been able to expand both as a one-to-one communication system and as a media, i.e. a means which allows information to flow from one source to many anonymous individuals. E-mail, Web browsing, and e-commerce services have allowed network effects to increase, thus making the roll-out of dial-up services easier and faster. However, the gain in utility associated with all of these specific uses and wider-band services might have been too small to justify the roll-out of the Internet infrastructure—and of broadband—as seen in most developed countries.

The possible access to free copyrighted content played the role of a subsidy to the roll-out of broadband networks. Actually the availability of such content on the Internet has allowed not only the ISPs, but also all the equipment contributing to access, to obtain a bigger share of what the consumers would have spent for content. The breach in copyright enforcement has helped the Internet industry roll-out broadband infrastructure and terminal equipment. Thanks to free content access, this roll-out occurred at nearly no cost to the consumer.

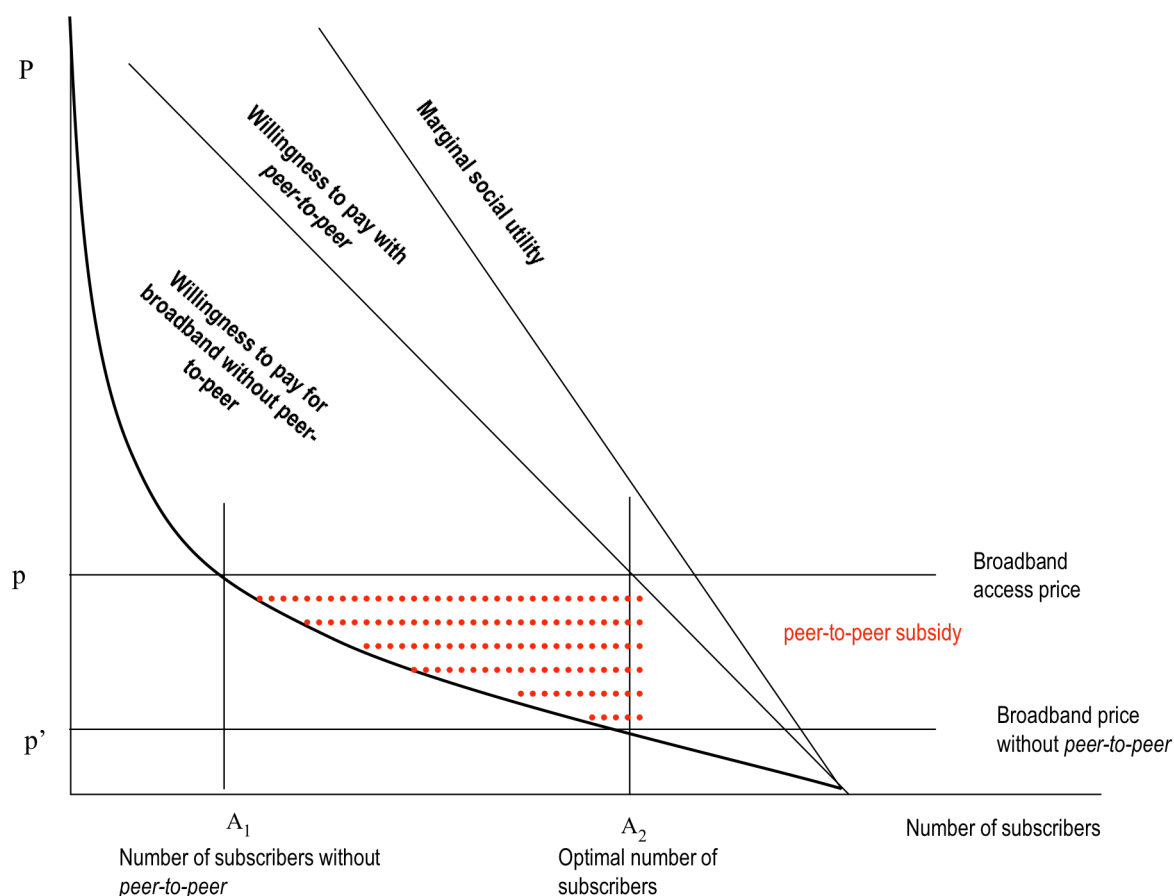
Figure 1 represents the impact of network effects. The network effects are represented by two demand curves, one corresponding to the marginal private utility of the service; the other to

the marginal social utility, including the external effects of other subscribers (i.e. any new subscription increases the utility of being a subscriber). The external effects are inversely proportional to the number of subscribers: the two demand curves meet when the market is saturated. The optimum coverage of the service can be obtained by subsidizing the first subscribers. The cost of the subsidy is then proportional to the number of subsidized subscribers. However, if it is possible to discriminate the subsidy, its total cost will be smaller than if all consumers are equally subsidized. The existence of peer-to-peer increases the willingness consumers as a whole to pay, but especially for those having the smaller willingness-to-pay for legal communication uses.²

² The access to content through the Internet was a commercial argument of the ISP even though there was almost no content legally available. In France, broadband services were sold at a double price of dial-up services. For most of the subscribers, this difference was justified by the access to free content (Bomse, 2007).

Figure 1: Subsidization of network effects

In Figure 2, the linear distribution of marginal private utility is obtained only if the broadband service includes P2P applications. If not, taking into account that broadband substitutes for dial-up services, the demand curve for the network decreases more rapidly. This means that the broadband access price and the number of subscribers is higher than it would be in the absence of peer-to-peer. The discriminated subsidy constituted by the availability of unauthorized content is represented by the colored area. It enables all the Internet industries—from the chip manufacturer to the Web search engine—to boost their roll-out. Not only is this subsidy discriminated, but it is borne by the content industry which sustains the negative externality of copyright infringement. As long as the benefits of the Internet roll-out overwhelm the negative externality of copyright infringement, there can be a social consensus on this means of subsidizing the roll-out. However, once the roll-out is over, the benefits of the subsidy saturate while the costs of infringement keep increasing.

Figure 2 : Peer-to-peer as a discriminated subsidy of Internet services*Moral hazard in the copyright vertical chain*

By allowing transactions between the owner and market intermediaries, copyrights shape the vertical relations linking the right holder to the final consumer. If the final consumer is allowed to free-ride on copyright, then all intermediaries providing access means will have incentives to help him do so. This situation amplifies the moral hazard arising in all the vertical relations downstream from the right holder.

In the music market, equipment manufacturers have offered products that allow the consumer to read circumvented files. Simultaneously, they have engaged in a standards war on encryption software or DRMs (Farchy and Ranaivoson, 2005). This war was made possible by the fact that the MP3 players provided a utility in storing and reading unencrypted files, many of which were accessible through file-sharing. Moral hazard has encouraged each equipment manufacturer to use the consumer's free-riding on copyright as a means to push his own encryption standard. This situation eventually resulted in the abandonment of the DRMs although they were the main tools designed to protect copyrights as envisaged by the digital copyright laws (Geffroy, 2009).

New copyright distribution systems are supposed to bring a better discrimination since they allow contents to reach consumers who were, until then, not interested—particularly true in the case of Internet because it brings new means of both selection and access. However, the use of digital devices to circumvent copyright also allows the final consumer to resell or share

the product at a low marginal cost in a non-degraded format. So while, on the one hand, digital distribution may facilitate versioning and price discrimination (Varian, 2000), on the other, the circumvention of copyright appears to be a major obstacle to this benefit.

Moreover, any new distribution system may also cannibalize existing markets: consumers can switch from one version to another. For example, the advent of television led to an irreversible reduction in theatrical revenues. For this reason, the level of competition changes—and generally increases—when a new distribution system appears. However, if the new entrants stimulate free-riding, the distributors that keep enforcing copyright become disadvantaged by this unfair competition. Not only do the right holders encompass a negative externality, but the distorted competition amongst content distribution systems generates wrong investment signals. It deters investment in loyal distribution systems and creates incentives to innovate in circumvention technologies.

This situation challenges the cost-benefit analysis of copyright. On the one hand, digitization allows the roll-out of a new system which brings substantial potential benefits; on the other, it raises sharply—and possibly durably—the enforcement cost of the copyright. During the roll-out phase, politicians are more sensitive to the positive externalities of the Internet than to the negative of massive copyright infringement. At the same time, to protect their copyright, right holders embark on lawsuits against infringers which may prove more symbolic than effective (because of their cost) to enforce the institution.

However, once the new system is rolled out, the industry enters another phase. The positive externalities of the new network tend to saturate. The negative externalities of massive infringement peak. The Internet access suppliers have a hard time attracting new subscribers and therefore try to raise their average revenue per user. Copyright enforcement, whose costs have strongly risen during the first phase, now becomes then one key condition to reap the benefits from the institution.

4. Copyright enforcement in a digital environment: the scope of a graduated response.

We assume in this section that the roll-out of broadband access has been completed. In such a context, right holders have stronger arguments to defend their views on copyright. However the Internet players are still not incited to prevent free-riding while right holders lack means to get copyright enforced.

A critical view on the existing legislation against online piracy

The adoption of a new set of laws shows that the environment for copyright has changed with the digitization and the spreading of the Internet. The Digital Millennium Copyright Act in the United States in 1998, and the European Union Copyright Directive in the European Union in 2001, have been both introduced in implementation of the 1996 World Intellectual Property Organization (WIPO) Copyright Treaty. Both laws notably led to higher sanctions for counterfeiters and prohibited circumvention of technological measures for the protection of works (Article 11 of the WIPO Treaty; Section 103 (17 U.S.C Sec. 1201(a) (1)) of the DMCA; European Directive 2001/29/EC). In 2006, France adopted the law on authors' rights

and related rights in the information society,³ which stands as the implementation of the EU Copyright Directive.

Although these laws are more repressive than were the existing ones, they have not succeeded in preventing piracy, mainly because the increase in sanctions is insufficient to deter Internet users from illegally downloading content. In fact, this increase did not raise the perceived cost of infringing for the user. This cost depends on the probability of getting caught and the sanction associated with being caught. The laws focused on the latter rather than the former. As a result, only a few cases (compared to the number of infringers) were brought to courts.⁴ Not only has this not been profitable for the claimants, but also, although the content industries wanted these few prosecuted cases to serve as a threat to the public, they appeared to be unfair and pointless instead. Thus, piracy in general did not decrease.

$\left. \begin{array}{c} \text{Perceived probability of being caught} \\ \times \\ \text{Amount of the sanction} \end{array} \right\} \Rightarrow \text{Behaviour of the Internet user}$
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In fact, such sanctions may prove to be a deterrent only if they apply in the last resort against a few habitual infringers. The more numerous the infringers are, the less efficient the sanction becomes. Therefore, to solve this dilemma, the right holders must find a way to threaten a greater number of people, ultimately deterring infringers before they are caught and sanctioned. This can be achieved through two means, either directly by the ISP or indirectly through the application of the law.

In the United States, the concentration of the studios and the dominance of the cable companies in supplying broadband services have allowed right holders to pressure their distributors to cooperate in tracking and annoying infringers (by sending warnings and suspending the service). This can be achieved through incentives written into private distribution contracts. Some loopholes still remain, like the coverage of University campuses where infringing students are difficult to track, or the competition with DSL providers who are less dependent than cable operators on distribution contracts. But by and large, the Coase theorem could apply, meaning that right holders and distributors might agree together on ways to master the piracy externalities.⁵ Or, that concentrated right holders can directly compromise with suspected infringers under the threat of applying the law in the last resort.

In countries like France (as in Canada, New Zealand, and in many European countries), the right holders are highly scattered and the telecom industry leads the broadband roll-out. As a result, the players of the Internet sector (notably the ISPs) cannot be forced to cooperate with right holders to fight against piracy. First, they do not want to annoy their customers—whom they have implicitly encouraged to free ride. Second, they do not want to lose markets to the benefit of their free riding competitors. And third, the law grants them safe harbors making

³ *Droit d'Auteur et Droits Voisins dans la Société d'Information*.

⁴ For example in the United States, 30,000 Internet users have been prosecuted. Most cases have led to out-of-court settlements for a few thousands dollars. One case ended in front of a jury for 220, 000 dollars penalty but the judgment is under appeal.

⁵ However, in a decision in August 2008, the FCC has prevented Comcast to spoil the service of customers suspected to be massive copyright infringers. This decision was justified by the wish to preserve the net neutrality, e.g. to prevent the content owners from interfering with the management of the network infrastructure (Sieradzki and Maxwell, 2008).

them not liable for how the consumer uses their service. While it may be that the major ISPs would be ready to operate in a piracy-free environment, they do not want to cooperate spontaneously with right holders. This paper shows how the French voluntary agreement attempts to gain their cooperation.

Analysis of the French voluntary agreement

We first briefly describe the agreement before analyzing its economic aspects. In the end, we show that the agreement targets enforcing intellectual property rights at the consumers' level while avoiding free-riding on the ISP market.

The French voluntary agreement attempts to enforce copyright law in the digital environment. The five major Internet access providers and thirty-five institutions representing the music and audiovisual industries signed it in November 2007, at the Elysée Palace. The agreement has two main aspects. First, it insists on the need to promote a legal offer (through a change of the regulated release windows for movies or a reduction of the value-added-tax for all cultural goods and services). The second aspect is a scheme of graduated response to piracy over the Internet. The economic goal of the agreement is explicitly to raise the cost of piracy for the Internet user.

According to that scheme, the infringers will be tracked by the rights holders over the Internet. Then a watchdog, named the High Authority for the Diffusion of Content and Protection of Rights over the Internet (HADOPI)⁶ and empowered by a law, will relay the rights holders' warnings via the ISPs to the suspected infringers. After two strikes, the watchdog will be requested by the ISPs to suspend and blacklist the detected infringers. An official indicator of piracy will be published every month to assess the efficiency of the scheme. In this framework the watchdog is needed to force ISPs to cooperate with right holders on the one hand, and, to avoid free riding on the ISP market on the other,.

The French Senate unanimously passed the law in November 2008; the National Assembly passed it in a more tumultuous context in April 2009. However, in June 2009, the Constitutional Court (the French Supreme Court) invalidated the sanction mechanism of the law by ruling that only a court decision could suspend the Internet access of a French citizen.⁷ The law was then changed in order to allow the suspected infringers to be sued in courts. It was passed again in September 2009, and will be examined again by the Constitutional Court. The new procedure, whose implementation will be more costly than the administrative suspension, keeps the principle of graduated sanctions—including access suspension and fines. In the end, however, it should be more repressive on the infringers. It is estimated that 10,000 warnings could be sent every day, while about 50,000 cases will be judged and sanctioned during the first year of enforcement.⁸

It is still too early to predict what the effects of this law will be. As far as costs are concerned, the law in the short run will obviously generate new enforcement expenditures. If the law is

⁶ *Haute autorité pour la diffusion des œuvres et la protection des droits sur Internet.*

⁷ The government has defended the law by putting forward the artists who are beneficiaries of the rights. By doing so, it has explicitly taken the defense of some notorious owners instead of defended the property institution. This might have influenced the Constitutional Court in its decision to protect the average citizen against the owners' greed.

⁸ *Projet de loi relatif à la protection pénale de la Propriété Littéraire et Artistique sur Internet. Etude d'Impact.* June 2009.

poorly applied or does not impact consumers' behavior, this money will have been spent for nothing. But if the law deters the consumer from free-riding, it will restore copyright proof investment signals both in the creative industries and in their distribution networks. In particular, the law will generate administrative costs for the ISPs by relaying warnings and the implementation of the eventual suspension. Those costs will create a market for technical solutions (such as watermarking, filtering or monitoring) to prevent the consumer from the disutility of being sued. As a consequence, the restoring of a credible cost of infringing for the consumer would pass the copyright enforcement costs onto the industry. The enforcement costs should then be progressively reduced thanks to piracy-proof incentives in the vertical chain. In other words, the graduated response mechanism operates like an internalization of the piracy externalities, in a way close to the "polluter pays" principle.

5. Conclusion

Copyright is a property right institution that shapes the organization of all creative industries. The digitization of copyrighted goods and their dematerialized distribution should bring new benefits thanks to a more efficient distribution, but also new costs in enforcing copyright laws. Both digitization and dematerialization have made it difficult to exclude consumers from the consumption of content. As such, they have led to the development of massive online piracy, so massive that the traditional means of heavily sanctioning copyright infringement appears insufficient: it is too costly and gradually seen as unfair by the society.

As we have shown, the behavior of the actors of the broadband industries makes this situation possible. On the one hand, piracy promotes the roll-out of infrastructure, equipment and services; on the other hand, every player of the chain fears losing market share by punishing its consumers when they are infringing. As a consequence, incentives arise all along the vertical chain to let the consumer free-ride on copyright. Innovation signals can be then distorted in the sense that copyright infringement may drive industrial research and development, with the consequence of increasing more and more copyright enforcement costs. In other words, as long as the consumer can free-ride on copyright at nearly no cost, the powerful incentives given to new infringing means threaten the whole copyright institution and the growing benefits it can bring to creative industries.

Graduated response mechanisms are designed to increase the expected value of the sanction while decreasing its standard deviation. Their objective is, therefore, to increase the expected cost of infringing for final users. Such mechanisms help internalize copyright enforcement within the Internet industry. The cost of piracy at the consumer level should create new signals for innovation within the network architecture. The Internet players in charge of implementing the graduated response will invest in such technical solutions as tracking, filtering, and monitoring copyrighted files in order to decrease their administrative costs. Such solutions will challenge the network neutrality doctrine which advocates innovation to be driven more by capacity increases than by usage valuation (Shelanski, 2007). Therefore, it is probable, as shown by the 2008 FCC decision against Comcast (Sieradzki and Maxwell, 2008), that copyright enforcement will be at stake in the net neutrality debate. However, it is not only copyright enforcement, but—more generally—the internalization of all the negative externalities created by the development of the digital networks which are now must be considered in this debate.

Graduated response can be implemented through private contracts when the market power of the right holders is strong enough to prevent all distributors from free-riding. When it is not possible, a voluntary agreement between major industrial players, possibly constrained by law, may stand as a solution. The French voluntary agreement on copyright will stand as an application of this approach—all the more interesting because it is now an object of research being examined by other European countries.

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