

PRINCIPLES FOR BENCHMARKING POTENTIALLY ALTERNATIVE
SYSTEMS OF PRIVATE COPY COMPENSATION

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Abstract

Private copying is one of the few exceptions to the exclusiveness on their works granted to creators by Intellectual Property Rights (IPR). Such an exception diminishes the value of IPR-protected works, so IPR regulations need to establish devices by virtue of which creators get compensated for the private copying of their works. The most common device –at least in the EU- consists of charges imposed upon the sale of devices and carriers that are used by consumers in their private copying activities (i.e. the so-called copyright levies). Such system has been strongly criticised, and some alternatives have been proposed and are strongly supported by some constituencies. Legislators seem to be open to amending or substituting the current system, but they face a lack of the analytical tools required to compare the potentially alternative systems.

Current theory provides no clear framework for the analysis of the current system and its potential modifications and/or alternatives. Building upon more general incentive economics theory and on general legal considerations, this paper attempts to build such analytical framework by proposing a set of principles for benchmarking potentially alternative systems of private copy compensation. The paper also offers a brief analysis of the main modifications and alternatives to the current system in light of the abovementioned principles. The main finding is that, according to the proposed principles, the current system “as is” gets the best appraisal.

Keywords Intellectual Property, Private Copy, Remuneration, Copyright Levies, Economic Principles

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INTRODUCTION

To understand the need for a private copy remuneration (PCR) system, one must comprehend the general economic foundations of the Intellectual Property Rights (IPR) system. IPR provide economic incentives to the creation of intellectual works, which have particular features that differentiate them from other types of goods or assets. From an economic point of view, intellectual works are public goods, because they can be simultaneously used by different consumers (non-rivalry in consumption) and the owner of the work cannot prevent use without his or her consent (non-excludability in consumption or free-riding). Therefore, without appropriate property rights on their works, authors could not charge users benefiting from their creation and could not possibly obtain an adequate remuneration for their creative and productive efforts. As a result, creative activities would decrease, reducing the production of intellectual works to the detriment of the society as a whole (LANDES & POSNER, 1989 & 2003).

IPR regulations are designed to correct this market failure and grant creators exclusive rights over their works (VAN DEN BERGH, 1998). By virtue of IPR, their holders can largely prevent free-riding by controlling the distribution, reproduction, broadcast, and use of their works and hence obtain a remuneration that renders their activity profitable. However, free-riding is not completely precluded. Most IPR regulations oblige rights holders to tolerate copying by consumers in their private sphere (private copying). That is, as a limit to the exclusivity of IPR, the law permits acts of copying that take place under the privacy protection of personal and familial environments. This private copying exception substantially increases consumers' freedom to use IPR-protected goods. Nonetheless, this non-consented use of IPR protected works cannot remain uncompensated. Most IPR regulations have established a clear and simple device that compensates the authors for this limitation of their rights: private copy remuneration (or PCR) (TOWSE, 2000 & 2004).

IPR and the incentives created by IPR regulations are of a capital importance to cultural and creative activities, both from a social and an economic point of view. Content is a key driver for the development of the Information Society and, particularly, a determinant of economic growth in more advanced economies (BRYNJOLFSSON, 1996; HECKER, 2002). Therefore, protection of IPR and the generation of the right economic incentives to the production of IPR protected goods is a regulatory must and its importance is out of question. Building on this principle, a more detailed IPR regulatory regime needs to be configured – IPR rules shall establish strong mechanisms that appropriately ensure their value. Private copying decreases the value of IPR and, consequently, a compensatory device is absolutely necessary. PCR is designed to re-establish the economic equilibrium between producers and consumers of IPR-protected goods and to distribute more fairly the costs and benefits of the IPR system. However, it may be impossible to create a system of private copy compensation that can simultaneously protect the incentives to cultural and creative activities and generate the minimum social cost.

WHAT IS THE OPTIMAL WAY TO COMPENSATE AUTHORS FOR PRIVATE COPYING OF THEIR WORKS?

All systems have their advantages and pitfalls. In theory the optimal system of determining the amount due to IPR holders by each particular user of IPR-protected goods would require a prohibitively expensive degree of monitoring and, consequently, it is economically unfeasible and undesirable. All the available systems of compensating authors for private copying are imperfect, and these second-best solutions need to be deeply scrutinised before being promoted, as their impact on economic growth will be hefty. Accordingly, we shall define the economic principles that can be derived from the theoretically perfect system of full-monitoring and use them as benchmarks to evaluate each of the alternative systems. Needless to say, the alternative system that gets a better global appraisal according to such principles shall be implemented, while the others shall be simply discarded.

This analysis will allow us to get a clear picture of the available mechanisms to protect IPR and incentives to cultural and creative activities. The advantage of this analytical framework will help us capture most of the economic implications of these systems, which are also freighted with subjective considerations that generally impede comparison and make the analyses fuzzy and inconclusive. Even if our analysis is based on some necessary simplifications and assumptions, it will provide us with comparable information about the alternative systems. And an objective comparison of their benefits and costs will help us determine which system is preferable from an economic perspective.

UNDESIRABILITY AND UNFEASIBILITY OF A SYSTEM BASED ON CONSUMERS' FULL-MONITORING

The theoretically perfect system to determine the amount of compensation for private copying activities due by consumers to IPR holders would require direct observation or full-monitoring of such activities. Such a system would be anti-economic, given its excessive costs. However, full-monitoring would establish a perfect direct relationship between consumption of IPR-protected goods and revenues collected by IPR holders. It would embody two basic economic principles: (1) remuneration of rights holders should be a function of the social value of their work (measured in terms of both use and copying), and (2) consumers who value the content more (i.e., those who do more private copying of the content) should pay a higher price. Any alternative system should comply with both principles to the maximum possible extent.

Also, given that implementation of the abovementioned system is unfeasible and undesirable, and in order to compare alternative systems with full-monitoring and among themselves, we have to search for economic criteria to appraise the alternatives. Any alternative system should minimise its own information, transaction, and enforcement costs, as well as its impact on the economy as a whole.

THE CURRENT SYSTEM: PRIVATE COPY COMPENSATION CHARGES (COPYRIGHT LEVIES); AND ITS POTENTIAL ALTERNATIVES

Currently, most EU countries have implemented a PCR system based on charges imposed on the acquisition of devices and carriers particularly apt to the making of private copies by consumers (such as blank optical disks, MP3 players, etc) –only the UK, Ireland and Malta lack PCR devices, although Luxembourg does not enforce the system legally established-. The system, most known as *copyright levies* (although it has remarkable differences with proper levies schemes), triggers payment by the consumer at the purchase of those devices or carriers, and does not imply any additional reporting or monitoring of the activities of the consumer. Therefore, it has been criticised by subjecting the use of those carriers and devices for purposes other than making private copies of IPR-protected works. It has also been criticised by its relative importance vis-à-vis the retail price of some of the products on which it is charged (and, particularly, as regards the price of relatively cheaper products).

Consequently, some modifications of the system (mainly capping the amount of the PCR charge to a given percentage, or establishing an exemption of payment for certain groups of users, such as public bodies, educative institutions, etc) and some alternatives (such as the implementation of digital rights management tools (DRM), the taxation of original IPR-protected works, the compensation of IPR holders via public funding, or the establishment of internet flat fees) have been proposed.

However, all these systems have remarkable differences and are difficult to compare without the adequate set of analytical tools. In the next section, we define such analytical framework, based on the four basic principles embedded in the full-monitoring system (i.e. the theoretically perfect alternative). We will later proceed to analysing the current system and its proposed alternatives and modifications according to those principles.

PRINCIPLES FOR BENCHMARKING POTENTIALLY ALTERNATIVE SYSTEMS OF PRIVATE COPY COMPENSATION***FAIRNESS OR EQUITY: REMUNERATION OF RIGHTS HOLDERS SHOULD BE A FUNCTION OF THE SOCIAL VALUE OF THEIR WORKS***

Rights holders' revenues are the price that consumers (in broader terms, society) pay for IPR-protected goods. As in any other market, goods should be priced according to the level of demand (or social value) attributed to them. Only with such a direct relationship between consumption and price will the optimal level of production be set. Should revenues be insufficient because of uncompensated private copying, production in the cultural and creative sectors would be suboptimal, and this reduced level of production would harm other sectors (such as Information and Communications Technology industry and the Consumer Electronics industry; i.e. the ICT and CE industries) and the growth of the economy as a whole. Should revenues be excessive, there would be resources devoted to IPR production that would render a higher social return if applied to alternative uses. Finally, should revenues be unrelated to the social valuation of creative work, the quality of IPR-protected goods would decrease, as

market mechanisms discipline producers who depart from social preferences. The only way to achieve the optimal level of production of IPR-protected goods that fit social needs is to comply with the basic principle that remuneration of right holders should be a function of the social value (use and copying) of their work.

PROPORTIONALITY: “WHO COPIES MORE SHOULD PAY MORE”

Private copying generates a negative externality, as the cost associated with the (over)use that consumers give to IPR-protected goods is not borne by them, but assumed by or imposed on IPR holders. It is a general economic principle that externalities lead to over-consumption, as consumers free-ride at the expense of other agents. And over-consumption is inefficient, as it keeps the levels of production abnormally high and therefore distorts the optimal allocation of productive resources. Moreover, over-consumption generates an expropriation of the agents assuming the costs of the externality, at the benefit of the agents generating such externality.

It follows that the system would be more efficient if consumers were forced to bear the cost of private copying, as it would drive consumption back to the optimal level and would minimise the expropriation of IPR holders, thus maintaining the right economic incentives to the development of cultural and creative activities.

Mechanisms of compensation of private copying impose a cost on consumers and, consequently, make them internalize the negative impact of such additional consumption on IPR-protected goods' value. Such mechanisms reveal themselves fit for the purpose of getting consumers to internalize the cost of their activities and, consequently, shall drive consumption of IPR protected goods to its optimal level. In short, the system should be based on the quite simple principle that who copies more should pay more.

EFFICIENCY: INFORMATION, TRANSACTION AND ENFORCEMENT COSTS OF THE SYSTEM SHALL BE MINIMISED

The costs associated to the compensatory devices of IPR loss of value due to private copying shall be taken into account when appraising them. All economic systems generate their own costs in terms of the information that is required to make decisions in the market, the costs imposed on each transaction, and the costs of implementing and enforcing the system. All these costs reduce the general efficiency of the economy. There is no way to generate an economic environment completely free of all these costs, but efficiency calls for reducing them to the optimal minimum (so that they are offset by the efficiencies generated by the system).

Costs imposed on private copying do not merely transfer rents between consumers, IPR holders, and collecting societies or PCR administrators, but generate social losses, no matter which agent assumes such costs. Minimising the costs of the compensatory system will benefit all stakeholders and, ultimately, promote social welfare. From this perspective, under an efficiency criterion, the system that keeps the level of social loss to the minimum optimal level is preferable. Therefore, information, transaction and enforcement costs of the system should be minimised.

AVOIDANCE OF EXTERNALITIES: DISTORTIONS AND SPILLOVERS ON THE ECONOMY SHOULD BE MINIMISED

Finally, IPR regulations and private copy compensation devices shall not be analysed in the vacuum. We have already mentioned the importance of IPR to global economic growth; consequently, any alterations of the current system should be analysed in relation to their impact on the economy as a whole.

Needless to say, those systems that generate lower negative effects on other sectors of the economy (such as the ICT and CE industries) and pose lower risks to economic growth and to the development of the Information Society will be clearly preferable to others giving rise to contrary effects. It is a general criterion of regulatory intervention that its distortions and spillovers on the economy should be minimised, if regulation is to foster economic development.

THE REQUIRED TRADE-OFF AMONGST THESE PRINCIPLES

Getting a system to absolutely comply with the abovementioned principles may be impossible. All systems bring about their own advantages and disadvantages and, as we have already emphasised, no theoretically perfect system is available. Some trade-offs between the above principles are required. It is virtually impossible to satisfy all of them fully, and even to rank them would, if possible at all, require further information and very detailed empirical data. Therefore, our analysis will be comparative and cumulative. Under a given criterion, one system will be preferable to another if it fits all the requirements of that criterion. Overall, a system will be preferable to another if it satisfies a larger number of criteria, and a system will be preferable to all the others if it satisfies the maximum number of criteria. This analysis may not be definitive, but it sheds significant light on the advantages and disadvantages of each of the systems and, globally, highlights their effects on the economy as a whole and on the interests of each of the stakeholders involved.

BENCHMARKING THE POTENTIALLY ALTERNATIVE SYSTEMS OF PRIVATE COPY COMPENSATION

Although it is not acknowledged by some groups of stakeholders, current remuneration schemes for private copy (i.e. PCR) balance the interests of IPR holders, manufacturers and importers of ICT and CE products and consumers. Some criticisms made against PCR have been restricted to highlighting its drawbacks and limitations. As we have already seen, PCR is not completely free of defects, but once the economic rationale of PCR is considered and its positive effects on the generation of incentives to cultural and creative activities are taken into account, it must be reckoned that its net effect may be positive.

Therefore, even counting for the existence of certain drawbacks and limitations of PCR; it still holds as a proper system of IPR protection and of economic promotion. Some critics have proposed variations of the PCR system, or alternative systems, that

are intended to reduce its negative effects and increase its contribution to the development of the Information Society and, ultimately, to economic growth. Other critics have simply suggested that IPR holders should modify their business models in order to adapt to a scenario in which IPR would no longer be enforceable.

In the present section we analyse those proposals that have been already implemented in certain countries, those that have been strongly defended, and those that seem economically most plausible (VAR IAN, 2005). We begin analysing the compliance of the current PCR system “as is” with the abovementioned economic principles and then turn to focus on the proposed modifications of the current PCR system, such as capping PCR collection and exempting certain groups of consumers from the payment of PCR. We then turn to alternative systems: DRM, taxation of IPR-protected goods and public subsidies. A graphic summary of this analysis is included in the Annex.

THE CURRENT SYSTEM

The PCR system “as is” fits the four principles indicated above. Even if its compliance with some of these principles might be considered partial, it does not run counter to any of them.

First, since (i) PCR revenues are distributed to authors as a function of the number of copies of their work, and (ii) PCR is charged on devices and carriers that consumers use to conduct private copying, the PCR system establishes an adequate relationship between the social value of IPR-protected goods and the remuneration received by rights holders. This relation is not direct and not perfectly adjusted, since some consumers do not use the PCR-charged devices to make private copies, but full monitoring is unworkable and excessively expensive. Therefore, the approximate or indirect aspects of the PCR current system constitute unavoidable imperfections of any PCR compensation system, and, as we show below, exempting groups of consumers less prone to private copying sacrifices the efficiencies of the current system without much effect on the intended beneficiaries. In any case, the fact that some “IPR-free” uses of the devices and equipment get charged PCR collections does not break the relationship between social value of the works and rights holders remuneration. The strong complementarity between IPR protected works and CE products configures consumption of the latter as good but not perfect proxy for private copying activities in any case.

Second, the current PCR system minimises collection costs. It is based on a simple rule: the purchase of the devices and/or carriers subject to PCR triggers the payment of a certain amount. This rule is easy to apply and generates few information and transaction costs. The enforcement costs of the system are also limited, and it might be fair to say that current enforcement costs are larger than expected because of strong social and industry resistance in certain countries. The practical implementation of the system can still be improved in order to drive enforcement costs down, particularly in the case of transnational intra-EU community sales (where some legal amendments may strengthen collective management societies’ position vis-à-vis PCR debtors). As we shall see, very few alternative systems would be able to reduce the enforcement costs

associated to the PCR system and, in any case, would be less desirable systems on other grounds.

The PCR system also complies with the principle that who copies more pays more. Given that each purchase of a device or carrier subject to PCR collection triggers an additional payment, consumers who do more intense private copying will likely pay larger PCR than those with more moderate uses of IPR-protected goods. This is particularly clear in the case of consumables, which get used up after the first use for private copying (for instance, in the case of burning a private copy of a music CD to a CD-R blank disc). But this proportional aspect of PCR still holds when the carriers or equipment allow for repeated private copying, as the amount of the PCR is raised in proportion to the storage capacities of the device. Therefore, the current PCR system distributes PCR charges amongst consumers according to the intensity of their private copying activities. Consequently, the system is preferable to those systems that disregard this criterion and charge all consumers equally (generating a cross subsidization problem).

Finally, the PCR system minimises potential negative effects on the economy as a whole. Given its compliance with the three previous principles, its neutrality as to any eventual competitive effects in the IPR or neighbouring or complementary markets (such as CE and ICT markets) and the fact that no particular spillover can be identified for the PCR system, it does not do much harm to the economy.

For all these reasons, the PCR system is the best or least bad available system to compensate and remunerate right holders for the private copying of their works.

CAPPING THE AMOUNT OF PCR COLLECTIONS

It has been suggested that PCR shall maintain certain proportionality with the prices of the ICT and CE products on which it is charged and should be capped at around 5% of the prices of the ICT and CE products on which it is charged. It has been recently reported that this is in fact the average current level of PCR calculated on total sales of digital equipment closely related to IPR protected content. Therefore, the limit to PCR collection to 5% of ICT and CE sales is, in itself, currently de facto in place. But PCR charges on different equipment and media are in some cases above 5% and in others below, and it is hard to envisage a reason why all equipment and media should be charged uniformly, as they are subject to different patterns of use and consumption, and as they allow consumers to make different types of private copies (permanent or temporary, shareable or not, etc).

In some cases, the setting of fixed amounts of PCR per unit sold and the evolution of prices of ICT and CE products have led to a situation where PCR represents a substantial part of the price paid by the consumer, or even the larger share of it (particularly in the case of lower-priced products such as blank optical discs). These situations have been considered unacceptable by consumer associations and also by ICT and CE industry representatives, as they are deemed to impede the sales or consumption of those goods.

As a result of those criticisms, it has been strongly argued for capping PCR collection, or setting the PCR rate as a function of the price paid by consumers (ad valorem, instead of fixed charges), as a means to “maintain the rationality of the system”. However, the establishment of such caps would run against the economic rationale of PCR. In fact, such proposals are at odds with basic economic principles and completely disregard the fact that IPR-protected goods and consumer electronics goods are not comparable, as they are subject to different production technologies and cost structures.

First of all, it must be taken into account that production of physical goods such as ICT and CE products, and production of IPR protected goods have very different production cost structures. ICT and CE products benefit from significant economies of scale (i.e., producing a larger number of units reduces the cost per unit) and from learning curves (producers become more and more efficient with experience). Therefore, the natural evolution of these industries drives production costs down and, insofar as they are relatively competitive, lowers consumer prices across time. However, the profitability of these activities is not harmed by this decrease in consumer prices, as the saving for the consumer stems from reduced production costs and not from reduced commercial margins. On the contrary, inasmuch as production savings are not fully passed through to consumers, the profitability of the industry may increase as consumer prices decrease.

On the other hand, cultural and creative goods production is not subject to the same technologies and structure of costs. The cost of creation of every IPR protected good is determined by a cost function that does not depend significantly on economies of scale, nor can be significantly affected by learning curves. The creative effort put into the production of a new work is completely unrelated to the number of copies that may be sold in the future. Moreover, the creator has a very specific learning curve that most probably gets exhausted (or nearly) with the creation of each IPR good. Once an author has created a song, the composition of the next one is not eased by that fact, and may even be harder, as the next song will have to be different. In effect, previous creations restrict the available alternatives and thus raise the hurdle that the author has to jump in his or her next one. Whereas in ICT and CE production, learning curves reduce the marginal requirements of every new unit, the author's marginal costs are constant or increasing. Therefore, no significant reductions of consumer prices can be expected, as there are no savings in production costs with which to subsidise them. Consequently, any reduction of revenues directly implies a loss of profitability of the cultural and creative industries.

It is therefore natural for PCR to grow vis-à-vis ICT and CE products' consumer prices, as the latter decrease while the former tend to remain constant. This progressive imbalance is not a problem in the design of the system; on the contrary, it is the only way to assure that the profitability of both activities is positive and consistent across time. In the absence of productive efficiencies, there is no reason to expect prices going down over time. Therefore, in the absence of scale or experience economies in the production of IPR protected goods, PCR shall not be expected to decrease across time, as should do prices of CE and ICT prices where strong scale and experience economies exist. It follows that the establishment of ad valorem PCR, or the establishment of caps on per unit PCR charges, can only run against the interests of IPR holders, to the detriment of cultural and creative activities.

ICT and CE producer revenues would be largely neutral to the establishment of caps, as the PCR charges are mainly (if not completely) borne by consumers. Consumers would be better off, but only in the short run, as PCR payments would decrease along with ICT and CE product prices. However, IPR holders would be worse off, and incentives to cultural and creative production would be greatly reduced.

The reductions in PCR collection would diminish the profitability of IPR-related activities and might render them unprofitable in absolute terms. Also, the value of IPR would be made dependent on the evolution of the production costs of other products, over which IPR holders have no influence. In fact, pricing decisions made by the ICT and CE industries would determine the volume of PCR collected by IPR holders, a situation that has no economic justification. Moreover, the consumption of complementary products would generate opposing trends in the producers' revenue streams, and this makes poor economic sense. Just as is currently the case, a decrease in ICT and CE products' prices would probably generate extra revenues to ICT and CE producers (given the increase in consumption) and would reduce IPR holders' PCR revenues (inasmuch as the reduction in PCR was not offset by the increase of units sold), further increasing the disproportion in profitability of these two industries so closely related in the economy of the Information Society.

In short, capping PCR collection would run against the principle that remuneration of authors should be a function of social value of their works. IPR holders would be expropriated to the benefit of consumers in the short run and at the expense of economic growth in the medium and long run. In the end, even consumers would be worse off, as the quantity and/or variety in offer of ICT, CE and IPR goods would be reduced in the medium and long term. Consequently, capping PCR collection cannot minimise the distortions and spillovers on the economy as a whole.

ESTABLISHING EXEMPTIONS TO PAYMENT OF PCR FOR CERTAIN GROUPS OF USERS

It has also been suggested that an exemption from PCR payment be granted for certain groups of users who are less likely to privately copy IPR-protected goods, such as public institutions, professional users, educational institutions, etc. Even if it is clear that private copying will be significantly less common among such users (although it cannot be completely ruled out), the logic of the PCR system makes exemptions less desirable than they may seem at first glance.

One of the main economic advantages of the PCR system are linked to its straightforwardness, general application and reduced information and enforcement costs. These advantages are based on the simple fact that the rule is clear, so information costs are low, it is automatically applied, so transaction costs are also low, and it is of general application, so the enforcement costs are relatively low. It might be said that the main advantage of the systems stems from its simplicity. An exemption system would necessitate mechanisms for categorizing purchasers and giving them different treatments – which would increase information and transaction costs, because the rule would be more complex, as well as enforcement costs, because diversity of cases would oblige enforcers to distinguish the monitoring and enforcement mechanisms applied in each of the different cases-. Also, the exemption of certain

groups of users would require an enlargement of the charges then applicable to the rest of consumers – in order to keep author's revenues unaffected-.

Given the difficulty of implementing such a solution automatically, most probably the beneficiaries of the exemption would need to make reports (either to the seller of the product, or to the PCR administrator) in order to get the PCR charges waived or, more probably, refunded. This red tape would increase the enforcement costs of the system. Also, the exempted consumers' information and transaction costs would be higher than those of non-exempted consumers, and therefore, the economic advantage of the exemption would not be the PCR amount in full, but the difference between that amount and the additional transaction costs. These increased transaction costs would generate a net loss in the system, as no stakeholder would be able to appropriate these rents.

Also, this system would generate incentives to defraud and misreport, in order to get personal, non-exempted consumption covered by the exemption. The potential for fraud would further increase the transaction, monitoring, and enforcement costs of the system, and this would further evaporate a significant part of the economic benefits of the current system.

Inasmuch as the decision of passing the PCR charge through to these users is for the ICT and CE sellers, the exemption of payment might not necessarily translate into an identical reduction on the ICT and CE prices paid by these consumers. ICT and CE sellers might argue that, since they were partially assuming the cost of the PCR, they deserved a portion of the exemption; and accordingly, they might offer only partial discounts to exempt consumers while appropriating a part of the exemption. Monitoring these cases and guaranteeing that the intended beneficiaries of exemptions get their full share would be costly and complicated.

To sum up, the benefits of the exemption would be largely absorbed by the increase in information, transaction, and enforcement costs to both the beneficiaries of the exemption and the PCR administrators, as well as the costs of the increased incentives to fraud and misreporting, and the appropriation of part of the PCR by ICT and CE sellers in certain circumstances. The net result would probably not be favourable, as the beneficiaries would not be much better off, and the system would be more costly and complicated. Therefore, the introduction of this exemption does not seem to be recommendable in strictly economic terms.

DIGITAL RIGHTS MANAGEMENT DEVICES (DRM)

Digital rights management systems (DRM) are technologies that describe and identify digital content protected by IPR, and enforce usage rules set by IPR holders or prescribed by law for digital content. Inasmuch as DRM may allow IPR holders to determine the use that consumers could make of the IPR-protected goods, DRM could theoretically preclude private copying and, therefore, make the whole PCR system unnecessary. However, it would be possible to eliminate the private copying exception and the corresponding PCR only if all IPR goods were covered by DRM systems. Should all IPR goods be protected by DRM, consumers would not be able to copy them

without compensating right holders (or not, at the right owners will) and, therefore, PCR would lack economic justification.

In practice DRM is far from assuring full coverage of all IPR-protected goods. Precise figures are hard to estimate, but only a minor fraction of music is distributed under DRM protection (although a relatively larger share is distributed with copy-control restrictions). The larger part of the offline music distribution is still not covered by DRM, and this situation is not expected to change in the near future. Currently, in the online environment, most of the music legally distributed is copy-control protected, and a share is also distributed with DRM devices embedded (mostly that distributed by Apple). However, this trend seems to be reversing, mostly because DRM faces significant consumer opposition – because of the limits they impose on consumers' freedom and, not least, because in certain instances DRM are acting as computer intruders regarding personal data (which can harm the protection of private life). A business strategy of using DRM has so far been implemented successfully only by a minority of companies (most remarkably, Apple – and recently even Apple, together with EMI and Universal, and other major companies such as Amazon have all moved towards distributing DRM-unprotected IPR content, which may be very significant evidence of the difficulties in pursuing a pure DRM-based business strategy in the digital environment). Therefore, it cannot be regarded as the preferable business strategy to be pursued in the sector in the years to come.

According to recent studies, only around 37% of music will be distributed under DRM protection in 2010. Therefore, DRM penetration will hardly exceed 40% of new releases in a relevant time frame. If we take into account the fact that there is already a very significant stock of unprotected music, the proportion of DRM-protected originals available for private copying is still lower (and may be well below 5%). Consequently, only a very minor proportion of music content susceptible of private copying is and will be protected by DRM, and private copying is and will still be largely available to consumers causing a disruption in the relationship between authors remuneration and the social valuation of their work (shall PCR be eliminated). It follows that substitutability of the private copying exception plus PCR system and DRM systems will remain very poor in the medium term, if it can ever reach the sufficient penetration to be a real alternative.

Moreover, the shift towards a DRM-oriented distribution of IPR protected goods might not result in a reduction of the prices paid by consumers. DRM technology is complex, and its development requires significant investment and effort (mainly by the ICT and CE industries). Therefore, its developers would legitimately expect to collect royalties on it (either from IPR holders, from consumers, or both). Consequently an economic substitution between PCR charges and DRM royalties would occur and, even though there are significant difficulties in estimating the net quantitative effect, there is no good reason to expect the prices of CE products on which PCR is currently collected to go down. Thus DRM would not necessarily generate savings to consumers and would mainly shift the current PCR revenue stream to the DRM industry, which would also negatively affect the long-term incentives to creative activities and generating a mixed effect on the development of the Information Society.

It must also be taken into account that DRM is still a very young technology and, consequently, its solutions are still not fully secure (often being “cracked”) and

generate problems of interoperability with certain consumer devices. Also, and this may be the strongest argument, DRM runs against consumers' interests, as it limits the uses that consumers can make of IPR-protected goods under the PCR system. These difficulties, together with the very limited rates of DRM penetration, confirm that DRM will remain a very poor substitute for the private copying exception plus PCR in the medium term, if it can ever be a real alternative.

A hybrid system combining DRM and PCR is also impractical. Theoretically, it is economically justifiable that PCR charges should take into account that a certain proportion of music is distributed in carriers that do not enable consumers to make private copies. Accordingly, ICT and CE products used with both DRM-protected and DRM-unprotected IPR-covered content (such as MP3 devices) should be subject to lower PCR charges, while other products that can be used only with DRM-unprotected content (such as optical discs, onto which DRM-protected content cannot be burnt insofar as DRM works properly) should continue to be subject to the same PCR charges. DRM generates the need to determine which products can be used with DRM-protected content, the extent to which they are effectively used by consumers, the relative importance of DRM-protected content vis-à-vis total distributed and stocked IPR-covered content, etc., which requires significant and costly market research. DRM increases the information and enforcement costs of the system. Consequently, a partial use of DRM technologies – the situation we currently have – both generates additional costs to the PCR system and extraordinarily limits consumer freedom. Only producers of DRM-related solutions (i.e., the ICT and CE industries) are better off, while all other stakeholders bear the costs of a more restrictive system of IPR protected goods distribution, as well as the increased costs of enforcement of the PCR system.

Also, DRM significantly fails to minimise the spillover effects on the economy as a whole. The decisions of regulatory agencies (and competition authorities, in particular) may jeopardise full adoption of DRM technologies (at least, in their current versions). This consideration needs to be taken into account in projections of DRM penetration and technical development, as the scenario is not absolutely clear in the medium and long term. As in other fields of IPR law, a neutral market approach to DRM would require the development of a common standard in order to foster interoperability (like the 3G technology in the telecommunications field). But in the current situation, the development of proprietary DRM technologies may segment the market and force both producers of content and users to choose among existing DRM technologies (as with the choice between operating systems in the PCs sector). Once consumers have chosen a given DRM, they are locked in with its producer, as switching costs are very significant in these markets (as in most of the technological sectors) owing to the existence of so-called network externalities. Therefore, allowing the development of proprietary DRM technologies restricts consumers' alternatives and limits their freedom to use the acquired content.

Given the nascent stage of DRM technologies, the importance of the lock-in factor is likely to generate a "war of standards" between producers of DRM technologies. Given that there is no commonly developed standard, all producers will try to have their own DRM adopted by as much creators of content and consumers as possible, so that it becomes the de facto standard – excluding all competitors from a substantial part of the market –. The first possible outcome of this war is a competitive landscape clearly dominated by a single provider (probably a situation close to

monopoly, as in the operating systems market), in which prices can be expected to be above the competitive level of a market with a commonly developed standard. The second plausible outcome is a fragmented competitive landscape in which consumers are locked in with DRM technologies used by relatively limited groups of users and producers of content. In this scenario, all significant network efficiencies (deriving from the use of a common technology) would be excluded and consumer utility would be significantly impaired. ICT and CE producers' position would also be second-best, as their revenue streams would be reduced to the limited number of consumers they were able to lock in.

Either way, in the default of full standardisation or interoperability of DRM technologies, the system decreases consumer choice and restricts competition both in the ICT and CE industries, and in the markets for IPR-protected goods. In this situation, prices paid by consumers are expected to be higher and PCR system costs will also increase (for the reasons given above).

Therefore, at their current level of development and in the current environment, DRM technologies cannot be considered a better solution than PCR, not only because of their limited penetration, technical flaws, and increased system costs, but also because of the competitive problems they generate – which are far from minimising the spillover effects on the economy as a whole.

UP-FRONT TAXATION OF PROTECTED WORKS

It has also been suggested that PCR could be charged on the original copies of IPR-protected goods, rather than on the sales of ICT and CE products. This system would be tantamount to eliminating PCR and requiring authors or PCR administrators to estimate, in advance, the number of copies consumers are expected to make, in order to include, in the price of the first copy sold, an amount equal to current PCR charges times the average number of copies expected to be made – which depends on a large number of factors, both related to the relative success of the IPR-protected good and to other exogenous criteria.

By charging the compensation on an item that is not a good proxy for private copying, the PCR system would depart from the very basic principle that who copies more should pay more. Under this regime, only the “average consumer” would be paying the same amount of PCR as under the current system. Consumers copying less than the average would be paying PCR in excess and cross-subsidizing consumers copying more than the average. As a result the principle “who copies more shall copy more” would not be satisfied. Therefore, this situation would reduce the economic rationality of the system, to the benefit of no group of stakeholders (except perhaps consumers with intense private copying habits).

Also, as the prices of original copies would be nominally increased (even if they would remain constant in purely economic terms), this model would indirectly encourage piracy. Fighting piracy is one of the major objectives and obligations of all stakeholders involved in the IPR-related industries. Consequently, any system that increases the risk of piracy must be particularly scrutinised. As this is an alternative

system that would purport no advantage and would generate incentives to piracy, it falls short from minimising the spillover effects on the economy as a whole.

This system would break the economic relationship between use of IPR-protected goods and payment of compensation, generating cross-subsidies, while increasing spillover effects on the economy as a whole. Therefore, taxation of IPR-protected goods or original copies is not preferable to the current PCR system.

PUBLIC SUBSIDIES

Another alternative to the current PCR system might be the remuneration of IPR holders via public subsidies, grants, or other State funds. This system represents the closest possible version to pure public provision of IPR-protected goods. Inasmuch as IPR goods are information goods or public goods, this option may seem reasonable and justified (just like public security and other public goods, IPR production would be financed and controlled by the State). However, from the perspective of the free market economy and of the generation of the proper incentives to economic growth, this alternative is not ideal.

First, it establishes a public intervention in the market when determining the aggregated value of IPR-protected goods. General theory has been clear enough in pointing out how much better markets price products than public authorities do. Second, establishing a fixed value for cultural and creative activities decreases the incentives to production, as remuneration of authors becomes unrelated (or mostly unrelated) to their success in the relevant market. This may generate underproduction by more successful authors and overproduction by less successful ones. Therefore, the volume of output may remain constant, but its quality will more than probably be reduced. In the aggregate, the system completely erases the relationship between IPR holders' remuneration and the social value of their work.

Also, the system imposes (indirect) costs on all consumers, regardless of their degree of private copying. Therefore, criticisms made against current PCR systems on the ground that certain groups (such as public bodies or professional users) deserve exemption from PCR payment similarly apply to State subsidies. In the end, the system departs from the principle that who copies more should pay more and thus loses economic rationality.

To sum up, public financing of the cultural and creative activities giving rise to the production of IPR-protected goods decreases incentives to creation inasmuch as remuneration is unrelated to the market value of creations and violates the principle that increased intensity of private copying should trigger larger compensation for IPR use. Consequently, it is not advisable on strict economic terms.

CONCLUSIONS

We have defined a set of economic principles that should be complied with by any system any system of private copying compensation, in order to keep intellectual property rights' holders incentives as unaffected as possible by this limit on the exclusiveness of their property rights. All compensation systems, including PCR, should be evaluated under objective criteria aiming at replicating the main advantages of a theoretical system of full-monitoring of private copying (which is impracticable due to its excessive costs and other legal and ethical considerations). It is our view that these principles are that: i) remuneration of Right holders should be a function of the social value of their work, ii) who copies more should pay more, iii) the information, transaction and enforcement costs of the system shall be minimized, and iv) distortions and spillovers on the economy should be minimised. In other words, the system should be fair, proportional, efficient, and aimed at avoiding externalities.

When analysed under these economic principles, all potential modifications and alternatives to the current PCR system –such as DRM-based systems, caps on PCR collection, or public funding- show some deficiencies of their own that make them inferior to the current system. The PCR system, on the contrary, satisfies all the abovementioned economic criteria and is thus the most efficient available option.

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ANNEX: Benchmark of the alternative systems of private copy compensation

	Remuneration should be a function of social value of works	Costs of the system should be minimised	Who copies more should pay more	Spillovers on the economy should be minimised
PCR “as is”	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PCR caps	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PCR exemptions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
DRM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Taxation of IPR-protected goods	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Public funding	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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