

EFFICIENCY CONSIDERATIONS IN COPYRIGHT PROTECTION

MARCEL BOYER

ABSTRACT. Many countries are revisiting their Copyright law in the light of new communication and information technologies, which make possible the generalized digitization of copyrighted material and in so doing challenge the protection and enforcement of copyrights. As the laws are modified to adapt to this new environment, the foundations of copyright have been questioned. I claim here that the affirmation and protection of a strong and transparent copyright framework is a second best efficient institutional arrangement to foster cultural development and diversity and promote the emergence of new market-like institutions reducing the costs of transactions between creators and users.

1. INTRODUCTION

Copyrights provide protection to creators and other rights holders, such as performers and makers, in the form of more or less exclusive rights over the communication, reproduction, and other uses of their works. Governments are or should be committed to ensuring that copyright laws promote both the creation and dissemination of works and that appropriate access is available for all to works that enhance the cultural experience and enrich the social fabric.

Two new copyright-related international treaties were adopted by the Geneva diplomatic conference on the World Intellectual Property Organization (WIPO)¹ in December 1996, the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT). These were the first intellectual property treaties to address the digital network environment. They set out provisions to:

- Create a new exclusive right in favour of copyright owners, including sound recording producers and performers, to make their works available on-line to the public;
- Prohibit the circumvention of copyright protection and prohibit tampering with digital rights management information.

According to WIPO, the objective of the WCT treaty is to protect authors, composers and other creators of literature, art, music, films, software, and other such creative works, while the objective of the WPPT treaty is to protect the producers of ‘phonograms’ including music CDs, cassettes and other recordings produced by entities such as the members of International Federation of the Phonographic Industry,² as well as performers, such as singers and musicians. According to WIPO,

¹As stated on its website, the World Intellectual Property Organization (WIPO, <http://www.wipo.org>) is an international organization dedicated to promoting the use and protection of works of the human spirit.

²The International Federation of the Phonographic Industry (IFPI, <http://www.ifpi.org>) is an organisation representing the international recording industry.

the two new treaties reflect the international consensus as to how copyright needs to adapt in the new millennium. The treaties provide incentives and protection for creative individuals and companies, both to reward and promote national culture and creativity and to pave the way for electronic commerce in copyrighted works and products.

It is clear that the producers of copyrighted material, whatever the form of the material, are in overwhelming majority in favour of well defined and well enforced laws and regulations, including in particular the new WIPO treaties. The position of the Periodical Writers Association of Canada (PWAC) is very clear to that effect and quite representative of the positions of other groups of creators and producers of copyrighted material: “Our members make an important contribution to Canada’s periodical industry. They add diversity to the voices in Canadian newspapers and play a central role in telling Canadian stories to Canadians and to the world. Our ability to assert our copyright is essential to enable us to earn our living. Since all PWAC members frequently refer to copyright material and the public domain to create their stories, however, our concern for protecting copyright is balanced by an equal concern for protecting access [to copyrighted material]” PWAC (2001). Hence, their support for well defined and well enforced laws and regulations regarding copyrights comes with an equally strong support for simple, efficient and user friendly access to copyrighted works.

The general literature on copyright is rather voluminous but the specific literature trying to measure *the economic impact of copyright regimes* on producers and consumers/customers is rather sparse.³ Moreover, those studies make use of very fragmentary and sometimes dubious data. The recent studies of Rappaport (1998) and Rushton (2002) for instance use very scant data and are simply providing some weak and unsupported indications as to the real impact some changes in copyright laws could have. In general, the available data are at best fragmentary, partial and most of the time very incomplete and unreliable. Notwithstanding the existence of data at the industry or macro levels (see below), the microeconomic data necessary to answer the complex questions raised by the new treaties and the amendments of copyright laws are for all practical purposes inexistent. Most empirical studies have until now produced “accounting” data from which the authors have tried to make extrapolations. But in spite of significant efforts, the end result is little more than a collection of numbers, some quite scant and unreliable, cleverly arranged in some reasonable order to appear as saying something useful. Most if not all of the time, one’s demand for adequate data for the purpose of measuring the economic impact of copyright regimes on producers and consumers is left unanswered.

2. THE SOCIO-ECONOMIC IMPORTANCE OF THE INDUSTRY: OECD, US AND CANADA

The reason why copyright is becoming a significant topic at international trade talks is that the industry has become a major engine of growth. The increasing importance of knowledge based industries in modern economies and the rapid development of new communication and information technologies has shed a new light on information good and services of which copyrighted material represents a significant share. These new technologies make copying and electronic exchange of copyrighted

³See however Baker and Cunningham (2004) for an indirect measure of the effect of copyright changes on producers’ value.

material and information goods in general much easier and user friendly than before. Unless new business models can be developed to account for such secondary use and trade of copyrighted material, one may expect that industries, traditionally relying on the respect and enforcement of copyrights, will be detrimentally affected. The potential social efficiency losses due to large scale infringement of copyrights is a major concern behind the new WIPO treaties and the revision of copyright laws.

If we are to spend significant resources in enforcing copyrights, it is useful to determine the size of the activities and industries at stake. Such is the subject of this section. Rather than drawing a complete portrait of the copyright sectors and industries worldwide, this section concentrates on the U.S. and Canada together with a glimpse at OECD data.

It is difficult to get a complete and transparent picture of the copyright-based industries as a whole. But in today's knowledge-based economy, it is known to be huge and growing at a fast pace. The size and growth of the copyright-based industries as a whole can be illustrated from a set of studies conducted by Economists Incorporated in part for the International Intellectual Property Alliance,⁴ a study by Industry Canada, and the OECD Statistics on International Trade in Services (SITS).⁵ These are typical of the status of the industry in many countries.⁶

The latest report of the OECD on SITS insists on the significant challenges posed by the measurement of international trade in services, in particular the data on royalties, licenses and copyrights. Nevertheless, the data on international trade in services indicate that:⁷

- International trade in royalties and licenses accounted in 2002 for US\$80.5 billion compared with US\$42.2 billion for computer and information services and US\$81.3 billion for trade in financial services;
- Within the G-7 countries, international trade in royalties and licenses accounted in 2002 for US\$72.4 billion compared with US\$21.2 billion for computer and information services and US\$50.3 billion for trade in financial services.

The data for the U.S. as collected and published by Siwek (2002) suggest the following for the "core" copyright industries, which encompass those industries that create copyrighted material as their primary product and includes the motion picture industry (television, theatrical, and home video), the recording industry (records, tapes and CDs), the music publishing industry, the book, journal and newspaper publishing industry, the computer software industry (including data processing, business applications, and interactive entertainment software on all platforms), legitimate theatre, advertising, and the radio, television and cable broadcasting industries. Those "core" industries exclude portions of many other industries which either create, distribute or depend upon copyrighted material, such as retail trade sales of video, audio, software, and books, the doll and toy industry, and computer manufacturing. The U.S. core copyright industries

⁴The International Intellectual Property Alliance (IIPA, <http://www.iipa.org>) is a private sector coalition formed in 1984 to represent the U.S. copyright-based industries in bilateral and multilateral efforts to improve international protection of copyrighted material.

⁵The OECD statistics on international trade in services (SITS) is a joint effort by the United Nations, the European Community, the International Monetary Fund, and the World Trade Organization to collect such data on a systematic and comparable basis.

⁶See the symposium in *Review of Economic Research on Copyright Issues* 1(1).

⁷OECD (2004), page 37.

- Accounted in 2001 for 5.24% of U.S. GDP, that is, \$535.1 billion;
- Saw their share of GDP grow, over the period 1977-2001, more than twice as fast as the remainder of the economy (7.0% vs. 3.0% for the entire period; 7.0% vs. 3.2% for the period 1987-2001; and 9.4% vs. 3.0% for the more recent period 1997-2001);
- Have more than doubled their employment between 1977 and 2001 to 4.7 million workers for a growth rate of 5.0% vs. 1.5% for the rest of the economy, and now represents 3.7% of total U.S. employment;
- Achieved in 2001 foreign sales and exports of \$88.97 billion, leading all major industry sectors (such as chemical and allied products; motor vehicles; equipment and parts; aircraft and aircraft parts; and the agricultural sector).

Overall, the U.S. copyright industries accounted for 7.75% of GDP, or 791.2 billion dollars, in 2001.

It is difficult to assess the size of the Canadian “core” copyright industries. It would comprise most but not all industries in the Information and Cultural Industries sector⁸ plus possibly some other industries not included in that sector. A reasonable rule-of-thumb estimate would put it at 10% of the comparable U.S. industries. The following indicators suggest that the U.S. and Canadian copyright industries may be following a similar development path.

- The U.S. copyright industries value added share of GDP (as defined by Siwek 2002) increased from 3.92% in 1995 to 5.24% in 2001, an increase of 132 basis points.
- The Canadian Information and Cultural Industries (Industry Sector 51)’s share of GDP increased from 3.1% in 1995 to 4.6% in 2001, an increase of 150 basis points.

In Canada, the study by Charles et al. (2001) is the most reliable source of empirical data on the copyright sector. It indicates very clearly that the copyright sector is a very significant source of growth, employment and trade. It is likely to keep on growing for the foreseeable future at a faster pace than the rest of the economy. The study indicates that the Canadian global copyright sector

- Accounted in 2000 for 7.4% of Canadian GDP, or C\$65.9 billion, which is more than industries such as retail trade (C\$53.8 billion), wholesale trade (C\$56.1 billion), and health and social services (C\$52.3 billion);
- Represented some 925,000 jobs in 1999, or 6.5% of total employment in Canada, with an annual growth rate of 4.5% since 1992;
- Accounted for close to C\$9 billion of exports in 1999 with an annual growth rate of 16% since 1992.

Hence, one may safely conclude from this brief review of data on copyright industries that those industries are a significant part of modern economies and that the proper definition, protection and enforcement of copyrights are or should be an important public policy endeavour.

⁸In the new code system of NAICS, the North American Industrial Classification System, copyrights would fall mainly within Industry Sector 51: Information and Cultural Industries.

3. THE ECONOMIC ANALYSIS: METHODOLOGY AND DATA (NUMBERS AND PROCESSES)

It is extremely difficult to assess the so-called economic impact of different changes in copyright laws on different relevant groups of stakeholders given the relative scarcity of reliable consistent data.⁹ It is therefore important and somewhat urgent that the different stakeholders embark on a significant endeavour of building a concerted and integrated database on all aspects of Intellectual Property, Patents and Copyrights: people, contracts, payments levels over time, distribution, sharing, related production and distribution industries, etc. It is necessary to start with the current state of the available data and then move on to the design of an integrated database using all relevant reporting methodologies. The effort is significant, will require important resources, and must rely on the collaborative involvement of many different people (statisticians, economists, experimentalists, pooling/survey specialists, psychologists, and lawyers) aiming collectively at better understanding the intricate determinants not only of creating but also of pirating and (illegal) copying, and at better measuring those determinants as well as the end results themselves.

3.1. Data on processes. Rather than keeping ‘beating up a dead horse’ or ‘drawing lines in the sand’, it seems more useful to look for another kind of data, namely what we could call data on processes, that is, the processes by which, on the one hand, creators and inventors are encouraged to use efficiently their capacities and, on the other hand, the public is adequately served in such a way that, conditional on the level of incentives being adequate to encourage a proper level of creativity, the creations so produced are distributed as widely as possible and as efficiently as possible. Hence, rather than trying in vain to ‘quantify the impact’ of different changes in copyright protection on different groups of stakeholders including the general public, it appears more useful at this time to ascertain if the changes in question allow, or at least favour, a betterment of the processes that govern the production and dissemination of copyrighted works. If the answer were yes, then the changes would be deemed to be warranted. If not, then the changes should be reconsidered or simply dropped.

The distribution of creative abilities over individuals is of course very difficult if not impossible to characterize. It seems that our efforts would be better spent if instead of trying to characterize this distribution, we were to assume and use as a postulate that the distribution of creative abilities over individuals is uniform over all population groups (countries) and all periods of time. It is how these individuals are induced to become creators and develop their abilities, whether innate or learned, that differs or may differ between groups and countries as well as between time periods.¹⁰

Creators exist everywhere. Sometimes, creators’ talents and skills (like entrepreneurs’) are used for the betterment of society at large and sometimes they are not. Even when creators’ talents and skills are systematically used for the betterment of society at large, the level at which they are so used may differ based

⁹For one particularly illuminating glimpse at the complexity of these issues, see the history of copyright reform in the European Community from Commission of the European Communities (2003) and European Union (2001) as well as the critique of the process by Hugenholtz (2000).

¹⁰Baumol (1993) argues for such an approach for understanding the emergence of entrepreneurs in society.

on the system of incentives at work. Those incentives must aim at properly encouraging the creators and entrepreneurs without giving them an unduly control of, or market power over, the “information and cultural goods” that they may have created. Hence, the notion of “proper encouragement” must rest on a proper balance between the *interests of society* in fostering high quality creativity in the information and cultural industrial sector, sometimes referred to as the interests of the creators, and the *interests of society* in fostering the consumption and use of the goods and services produced by the information and cultural industrial sector, sometimes referred to as the interests of the public at large. It is important to stress that in both cases, the interests of society represent the reference point.¹¹ Hence, we take a slightly different point of view from the more usual one, which is presented in terms of balancing private interests and public ones.¹² To achieve such a balance is both a condition of social efficiency and a moral obligation to respect the reputation of the creators, the integrity of their creations, as well as the rights and needs of the public.¹³

3.2. The efficiency requirement and conditions. How to determine if the levels of production and/or consumption of a good or service are adequate? Although the goods under consideration in Copyright Laws correspond in general to non-rival goods, that is goods which, once created or produced, can be consumed in total by everyone without additional production costs (but possibly not without additional distribution costs), it may be useful to consider under what conditions the production and/or consumption of ordinary rival goods can be considered to be adequate. For illustration purposes, let us consider the case of tomatoes, a clear case of rival good given that once a tomato has been consumed by someone, the same tomato cannot be consumed by someone else: consumption completely destroys the good.

One way to proceed is first to evaluate the technologies used in growing and distributing tomatoes to obtain some estimate of the cost function (and the marginal or incremental cost function), and second to evaluate the consumers’ willingness to pay (and their marginal willingness to pay) for tomatoes. The cost functions will depend on all production activities being undertaken in the economy insofar as the prices of all factors of production and distribution in the tomato industry are influenced by, and must compete with, all the alternative uses to which these factors can be put to. Similarly, the consumers’ willingness to pay will depend on all the goods and services insofar as those consumers will choose among the different goods and services on the basis of their own preferences, the characteristics of the goods and services, and the relative prices they are facing. In that sense, the characterization of the amount of tomatoes as being adequate or not requires the

¹¹Hence, we are not considering here as relevant the view, as developed in Murray (2004), that copyright laws affirmation and enforcement are basically promoted by “the interests of American and international capital” against the interests of the public at large. On the contrary, we develop here a strict social efficiency analysis.

¹²As stated by Musick (2004, page vii) for instance: “copyright law has sought to balance private incentives to engage in creative activity with the social benefits that arise from the widespread use of creative works.”

¹³As early as 1984, the issue of the proper balance between those different interests and how more extensive copyright protection may affect that balance were discussed by Novos and Waldman (1984) among others. See also Hirshleifer and Riley (1979), Arrow (1962), Ploman and Hamilton (1980), and more recently Silva and Ramello (2000) and Musick (2004).

solution of a general equilibrium problem, where in a sense everything depends on everything.

To maximize the total value or surplus generated by the exchange of tomatoes between growers and consumers, one must find the level of exchange where two conditions are met: first, the marginal cost must be equal to the marginal willingness to pay and second, the total cost must be lower than the total willingness to pay. This is clearly a titanic task, a quasi-impossible one.

An alternate way to proceed is to analyse how transactions are made on the market of tomatoes between growers and consumers. If tomatoes, as well as all other goods, are exchanged freely between willing buyers and willing sellers and if markets are reasonably transparent and competitive, one can infer that the level of transactions is most likely efficient in the sense that all possible valuable trades are executed, all gains from trade are fully realized, and total surplus is maximized.

This analysis applies also to creative activity, copyrighted works and more generally information goods. Except for one very important aspect: the marginal cost of *reproducing* an information good (a musical work, a sculpture, a computer program, etc.), which is already created and therefore available for consumption, is zero or very close to zero. However, the marginal cost of *creating* such information goods remains significantly above zero. Which marginal cost to use?

The cost of creation is quite similar to an investment cost or a fixed cost. Information goods have a relatively high fixed cost and a relatively low variable (reproduction) cost, the latter being in some cases very close to zero. The first best social efficiency rule calls in such a case for selling the good at its marginal cost and covering the deficit through a government subsidy financed by non-distortionary taxation. In so doing, creation is properly financed, creators are properly remunerated, and their works can be made available to all at the low reproduction cost. In the limit, all creators should be publicly funded, that is, should in some way be social, public, or government employees!

This is likely to be less efficient than suggested because of the social cost of public funds (from distortionary taxation)¹⁴ and because of the possibilities for collusion and corruption, leading to too many creators and too much creative activity. Some creators, hopefully the less productive ones quality-wise, should rather be induced to enter the ordinary labour force and produce other goods. At the same time, the remaining creators should be induced to avoid overproduction of works or the production of works of low or insufficient quality. Again, determining the proper number of creators and their proper level of production, in quantity and quality, is a resource allocation problem requiring the determination of a general equilibrium as the solution to a general resource allocation problem, clearly a titanic and impossible task.

It may then be useful to relax the unrealistic if not impossible first best efficiency objective in favour of a more reasonable second best one. Indeed, the *relevant* social efficiency conditions are not the full information first best conditions, which

¹⁴Jones et al. (1990) estimate that this cost is of the order of 30% of the funds collected through taxation in developed countries: each dollar collected generates \$0.30 in deadweight loss to the economy.

economists are accustomed to work with and that are often referred to in discussions, but rather the private-market-like budget constrained efficiency conditions.¹⁵ Imposing a self financing constraint (alternatively, not fully financing the creators from public money, or not employing them as public employees) on the creation sector is a significant institutional constraint which prevents the full information first best conditions to be met.

One way to go is to consider the Ramsey-Boiteux pricing rule: allowing prices of copyrighted material, goods and services, to differ from marginal reproduction costs in order to satisfy a budget balance condition in the ‘creation sector’ of the economy. This budget balance condition requires that the price premium over marginal reproduction cost be sufficient to cover the (fixed) cost of creating the works in the first place. The second best efficiency objective would be met if the prices of copyrighted works were set above their marginal reproduction cost (zero) in such a way that the resulting consumption levels of those copyrighted works would come as close as possible to the full information first best ones (obtained under zero prices).

To achieve such a task, the Ramsey-Boiteux pricing rule requires that the margin between price and marginal cost as a percentage of the price be inversely proportional to the price elasticity of demand for the different copyrighted works. Hence, if the demand for some copyrighted work is relatively price inelastic, then the price premium charged for its use or consumption should be relatively high compared with those of other copyrighted works whose demand is rather elastic at relevant prices.

The relevant and difficult question is then: Is that what the pricing of copyrighted works is likely to achieve in well functioning markets for copyrights, at least from a global industry-wide viewpoint or in ex-ante expected terms, once the markets for copyrighted works become effective, that is, once copyrights are clearly defined, affirmed and enforced? At first glance, the answer to that question is yes. It is potentially and most likely one of the most important theoretical justifications of the recent efforts to reaffirm and enforce copyrights, in particular the recent WCT treaty and WPPT treaty.

3.3. The Copyright balancing act: static vs. dynamic efficiency under institutional constraints. How to achieve a proper balance between the different interests of society, that is, the interests of creators and the interests of the public at large, between sellers and buyers, now and in the future? The fundamental dilemma one must address as far as efficiency of copyright rules is concerned is the balance between static efficiency and dynamic efficiency under institutional constraints.

Static efficiency calls for the maximization of the use of copyrighted material whose reproduction can be done at zero marginal cost. Dynamic efficiency calls for ensuring the optimal production of new works, that is, the production level that equalizes the respective marginal cost of creating new works to the respective marginal social value. More precisely, a second best optimum will be achieved in the production of works if and only if the creator can obtain, capture or appropriate the budget constrained marginal social value (the ‘relevant social price’) of his/her

¹⁵More generally and more realistically, one would like to aim to meet the imperfect and incomplete information (under moral hazard and adverse selection), budget constrained, and institutionally restricted efficiency conditions. See Boyer and Laffont (1997), Boyer and Laffont (1999), and Boyer and Porrini (2004) for discussions of those issues in other contexts.

work. Comparing this (expected) marginal value or benefit to his/her marginal cost of creating the additional work, a rational creator will be expected to produce the proper quantity and quality of created work, thereby contributing to a socially efficient allocation of resources.

3.4. Specific measures to create and maintain copyrighted works. There are two relevant aspects to consider here, one being the incentive for the creator (photographer, audio-visual producer, multimedia and movie maker, software producer, author, composer, artist) to create and produce innovative high quality works, the other being the incentive to maintain the availability of the created works and to protect them from decaying. Indeed, this is the expressed objective behind the Sono Bono Copyright Term Extension Act of 1998 in the U.S.

3.4.1. Copyright term extensions. Let us consider for instance the impact of extending the term of protection of copyrights. On the one hand, there is clearly not much to gain from extending the term of copyright in terms of incentive for creation and production. As rightly stressed by Akerlof et al. (2002), the net present value of the creative work at the time of creation is very little affected by the royalties which may be paid after a term of 50 years.¹⁶

However, an increase in the copyright term may be justified by the fact that life expectancy has increased significantly. If it was reasonable to have a 50-year term in the past when life expectancy was 50 years, it may be justifiable for the same implicit reasons to have a longer copyright term as life expectancy increases. More importantly, the incentives to *maintain* the availability of the valuable copyrighted works and to protect them from decaying is a dynamic incentive which may be considered relatively constant over time and little affected by discounting. Hence, extending the term of protection may be a significant incentive for those copyright holding individuals or organizations to maintain over time the availability and quality of the copyrighted works produced in the distant past. One may also claim not without reasons that the proliferation of publications of all kinds and sorts has made the maintenance of the valuable works even more important than before and certainly an important reason for extending the term of copyright. Hence, extending the term of protection of copyrights seems to generate relatively small benefits for the creators themselves but significant social benefits in terms of maintaining the stock of old photographs over time. Although these may represent additional costs (payments for copyrights) for publishers, archivists, and the general public, it seems that on balance, they themselves may benefit from a better stock of available works.

The January 2003 decision of the Supreme Court of the U.S. in the related case *E. Eldred et al. vs. Ashcroft*¹⁷ goes in the above direction in spite of a strong Brief in favour of the petitioners by a highly regarded group of economists, acting as *amici curiae*.¹⁸ The case involved an Internet publisher (E. Eldred) of public domain literary works; he claimed that the U.S. Copyright Term Extension Act (CTEA) of 1998, which postponed the time at which some works would fall into the public domain, was unconstitutional on two grounds. Eldred claimed that the CTEA

¹⁶The mathematics of discounting gives very little weight and value to the payments to be received after 50 years. The present value of a royalty payment of \$100 to be received 50 years from now is less than \$8.75 at a 5% interest rate and less than \$0.86 at a 10% rate.

¹⁷U.S. Supreme Court (2003).

¹⁸For a criticism of this Brief, see Liebowitz and Margolis (2004).

not only restricted free speech but also violated the clause that allows patent and copyright protection for a limited time only in order to promote the development of arts and science. The Supreme Court affirmed a decision by lower Courts that the CTEA, extending copyright from “the life of the author plus 50 years” to “the life of the author plus 70 years”, was not only constitutional (that is compatible with the constitutional provision that copyright was granted for a limited time) but also in the best interest of the promotion of science and useful arts.

The discussion here deals very clearly with the fine balance between copyright (and all the virtues coming with it) and free expression and wide distribution (and all the virtues coming with it). Almost every participant in this debate recognizes the benefits of copyright laws in terms of inducing creation, in terms of allowing the maintenance of copyrighted works, and more generally in terms of favouring the advancement of arts, culture, and science. And many examples can be given to support every aspect of this view. On the other hand, almost every participant in this debate recognizes the impediments that ‘extended’ or arbitrarily long term copyright protection may create for artistic and cultural development as well as for scientific activities, in particular for teaching and research. Again, many examples can be given to support every aspect of this alternative view.

In fact, the main battleground is that of the ‘optimal’ term of copyright. In the U.S., the copyright term was originally set at 14 years (plus a possibility of extension for another 14 years) in 1790; then it went successively to 28 years (plus a possibility of extension for another 14 years) in 1831, to 28 years (plus a possibility of extension for another 28 years) in 1909, to “life of the author plus 50 years” for individuals and their estates and to the minimum between “75 years from publication” and “100 years from creation” for corporations which holds the copyrights on works created by their employees, to “life of the author plus 70 years” for individuals and their estates and to 95 years for corporations (Heins 2002). As long as some copyrights remain commercially attractive after such terms, one may expect that the U.S. Congress will be under pressure to extend copyright terms again.

For many observers, the term extensions are untenable because they add little if any incentive for creation and, although they may favour maintenance by copyright owners (some individuals, but mainly organizations and corporations), such maintenance could be better achieved at lower costs (especially the cost of identifying and finding the copyright owner or owners in many cases) by letting the works in question fall into the public domain and letting artistic and cultural associations as well as public library archivists take care of them. For the opponents to extending copyright term protection, the beneficiaries of such extensions are not the artists or creators themselves but rather corporations, which by the time the copyright term expires are in fact the copyright owners on most of the works which would otherwise have fallen in the public domain.¹⁹

Therefore, the two main issues being raised seem to be first the proper compensation for creators and second the efficient way to ensure the maintenance of artistic and cultural works over long periods of time. Clearly, a copyright term somewhere

¹⁹There is a fallacy in this argument. Corporations obtain copyrights from the creators through a willing buyer willing seller relationship. Therefore, the fact that copyrights are protected for corporations allow the individual creators to received better payment for their works. Similarly for trademarks: when corporations are protected against the improper use of their trademarks, the ultimate benefactors are their employees and other stakeholders as well as the general public.

between 25 years and 50 years would appear acceptable by most of the objectors/petitioners in the *Eldred vs. Ashcroft* supreme court case, in terms of ensuring proper compensation for artistic and cultural works. Similarly, a legally enforced requirement that some Public Arts and Cultural Maintenance and Enhancement Office be responsible for maintaining and enhancing works whose copyright term has expired would probably convince most of the general public that the copyright owners should be forced to let their works fall in the public domain possibly under the assurance that the integrity of the original works will be preserved. But as long as a satisfactory solution to these two issues, proper compensation for creation *and* maintenance, is lacking, debate will remain active.

Alternatively, a procedure could be defined in such a way that works whose copyright have not been explicitly maintained and properly filed with some Copyright Clearance Authority, say every 15 years from the time of creation, thereby indicating a loss in perceived commercial value, would be considered to have fallen irreversibly in the public domain. This would reduce significantly the cost of identifying the copyrights owner or owners. Similarly, copyright payments for works created more than 50 years ago could be shared between the copyright owners and the general public in a way that preserves the commercial value of the copyrighted works. For instance, an individual or corporation receiving copyright payments could be asked to give away to public institutions (libraries, schools, amateur orchestras for instance) an equivalent value in free use of the copyrighted works.

3.4.2. *Legal Protection for TPM and DRM.* If there is some discussion regarding the value of extending the copyright term, the discussion is shorter regarding the following two changes, namely the introduction of legal protection for technological protection measures (TPM) such as encryption, and the introduction of legal protection for digital rights management information (DRM) used to identify works and other subject matters.²⁰ We consider both measures together because they serve related goals although in a slightly different way; in many cases, DRM rely on and include some form of TPM.

Here the rather clear-cut argument is that if rights are not well defined and well enforced, there can be no viable or at least reasonably efficient markets on which they can be transacted. The role of copyrights is not only to protect the creators but also to allow the emergence of markets on which willing sellers (creators) can interact with willing buyers. The emergence of those markets is an important factor in making the works of creators available to the general public. In the absence of well functioning markets, there is no guarantee that creations of all sorts and forms will be made available to the public except in a rather chaotic way. Even if the price may be very close to zero in the latter case, there is no reason to expect that this would make the interested public more adequately served. Indeed, the efficient functioning of markets requires adequate resources in order to make the transaction costs as small as possible. Unless the property rights are well defined and enforced, efficient markets are most likely not going to emerge, whether we are dealing with physical goods or information goods.

²⁰DRM is a system for protecting the copyright of data circulated via the Internet and other digital media by enabling secure distribution and/or disabling illegal distribution of the data. Typically, a DRM system protects intellectual property by either encrypting the data so that it can only be accessed by authorized users or marking the content with a digital watermark or similar method so that the content can not be freely distributed. See Kerr et al. (2002) for a discussion of DRM and TPM as well as circumvention technologies.

TPM and DRM are essential to the efficient functioning of markets (some yet to emerge) because, firstly, they allow the proper protection of copyrights and, secondly, because they make sure that the proper information is available at low cost to prospective buyers. In addition to institutions, rules and procedures surrounding TPM and DRM, we need market makers who will ensure that transactions can be done at low costs. These are the main ingredients necessary for the creation and development of efficient markets in copyrights. Who can play the role of those market makers?

One example is *Access Copyright*, a Canadian Copyright Licensing Agency, which is a not-for-profit agency established in 1988 by publishers and creators to license public access to copyrighted works. Its stated objective is to make the transactions on copyrights as easy as possible and to make dealings with copyright owners as user friendly as possible. Other institutions could play such a role also, such as WIPO, but there is clearly an advantage to specialize in a way to capture economies of scale and scope in copyright management. Similarly, different groups of creators and users support the Electronic Copyright Fund and call the support of the Fund in favour of the International Standard Audio-Visual Number (ISAN). As stated in Sandra Macdonald & Associates (2002): "The stated goal of the Fund is to develop tools which will permit prospective users of cultural works to obtain the necessary permissions from copyright owners in a user-friendly way; preferably through on-line interaction with a single information source, or at least, a single source for the genre in question. There is a desire to support initiatives which can deliver results in the relatively short term, and there is a premium placed on the interoperability of the system, both to ensure compatibility with other 'on-line' initiatives and with international standards." In the same vein, there is also value in simplifying the copyright rules by treating similarly all types of copyrighted works and by harmonizing the national rules under WIPO. First, it makes the application of the copyright laws easier without creating countervailing difficulties for the users. Second, it makes sure that national copyright holders will benefit from the overall use of their works.

The main arguments for better defined and designed copyright laws and procedures (through the new WIPO treaties) stem from three different considerations and objectives: first, to ensure a proper incentive compatible system to promote creation and innovation; second, to protect the works so created from decaying; and third, to favour the emergence of efficient competitive markets on which all surplus generating trades can be realized, including trades on the copyrights themselves. It is difficult to see how these objectives can be achieved unless tampering or altering DRM for the purpose of furthering or concealing infringement is prohibited. The case is much less clear when we consider the possibility of extending the prohibition to terms and conditions. Doing so would make the trades on copyrighted works more difficult and could prevent the emergence of efficient markets. The stakeholders, and the creators in particular, would not be served by such an extension. Insofar as the information that identifies the work, the owner of any right in the work, or information about the terms and conditions of use of the work and any numbers or codes that represent such information is protected, it is in the best interest of creators that their works be available without further complications. And similarly for the extension to the integrity of a rights management system.

One can express fears here that the useful consumption (understood in the most general way) of copyrighted works would be significantly diminished if rights holders

were allowed to track unduly the use of their copyrighted material. Insofar as DRM is appropriately protected against tampering or altering, there is no benefit in terms of incentives, protection against decay and/or emergence of efficient markets, in making the legal and appropriate use of the copyrighted material tractable by the rights holders.

Again, let us recall that the main arguments behind the new WIPO treaties is to contribute to the development of copyright industries by allowing the emergence of institutions which would make possible the open and legal trading of copyrighted works in an efficient way. In so doing, those institutions would contribute to the well being of all. Efficient trading of copyrighted works implies proper incentives for creation and dissemination and proper maintenance of created works. Technologies and activities, which allow a larger diffusion and consumption of copyrighted works, should be encouraged as long as copyright owners are adequately protected.

However, given that the markets for copyright works can be made viable and sustainable through TPM and DRM, it is desirable first to make sure that TPM and DRM are adequate safeguards against piracy and *illegal* copying and second, to make sure that the markets be made as efficient as possible through reductions in transaction costs. In that respect, it seems preferable to allow *private* copying in the spirit of the legal reform of 1996-97 in Canada. The private copying provision of the Canadian Copyright Act was enacted to make the best of a difficult situation: the level of private copying was increasing at an alarming rate and to protect the rights of creators, the Government allowed properly limited private copying in exchange for a levy on blank media to be determined by the Copyright Board. At this time, the authors/composers, performers and makers of pre-recorded music works can get compensation through different collectives as allowed by the Copyright Board. This system, which is just beginning to function in a somewhat efficient manner, should be kept in place. Therefore circumvention for the purposes of private copying should not be prevented.²¹

The new technological devices by which copies can be made should not be made illegal because they can be very important in the development of new markets for copyrighted works and therefore in the development of proper incentives for creators. The important point here is that those new technologies, if they can be properly used and regulated, could be a significant source of value for copyrighted works and therefore a significant source of revenue for creators. Rather than making the new technologies illegal, it seems much better to design a proper set of laws and regulations to make sure that they do contribute to the development of markets rather than prevent that development. What is at stake here is not the protection of past technologies but the protection of copyright owners. Technologies will keep on competing with each other for the betterment of all. Let the best technologies win. It is quite possible that these new technologies will allow new forms of market trading by which consumers deal directly with copyright owners one way or another. This should be encouraged but properly “regulated” to make sure that they are indeed factors of growth through new forms of production and distribution rather than factors of stagnation through the prevention of innovations.

As argued before in the case of DRM, TPM should be such that the works or means of access to the works should be made available to users who benefit from

²¹There is potentially a conflict of incentives here. If legal protection is made stronger by outlawing tampering, wouldn't producers then have a lower incentive to invest in DRM technology in the first place?

specific exceptions (in particular education institutions) or where the work is in the public domain. Moreover, it is important to allow, within the above protections, for an exception from liability that would apply in respect of bona fide activities, which affect TPM and/or DRM, carried out for the purposes of ensuring interoperability, reverse engineering and security testing. Again, this would potentially generate important benefits for stakeholders and rights holders in particular by making the markets more efficient and serving the consumers in a better and more efficient way.

4. OTHER REQUIREMENTS FOR EFFICIENT COPYRIGHT MARKETS

One additional requirement for the emergence of efficient markets in copyrights is the competitive nature of the markets. Although the goal of the two new WIPO treaties, the WCT and WPPT treaties, is to better protect the rights of stakeholders, namely creators (composers, writers, artists), performers and interpreters, makers and producers, and distributors of copyrighted works, one must recognize that in the information and cultural industries (industry sector 51 of NAICS), the level of competition is rather high. Not only there are in each field an intense competition between national and international creators, performers, makers and producers of copyright works, but there is also free entry and exit at a level that is quite significant.

Hence, one expects that well-defined and properly enforced copyrights will contribute to an even higher level of competition and therefore proper prices for the use of copyrighted works. One can expect that entry in the relevant industries will be characterized by aggressive pricing, with some new creations being distributed freely (given the highly price-elastic demand for new works), in order to develop the new creators' reputation. Once the creators become well known and more popular (leading to a relatively price-inelastic demand), one expects that copyright use will be priced much higher, thereby implementing a desired quasi-Ramsey-Boiteux pricing structure in the industry.

A well functioning market for copyrights requires that those copyrights be clearly defined, affirmed and enforced. It is difficult to imagine a well functioning market for copyrights if tampering or altering DRM for the purpose of furthering or concealing infringement is not prohibited. It is therefore desirable to amend copyright laws to prohibit the act of circumvention of TPM done for the purpose of infringing copyright. Given that such a prohibition of circumvention of TPM done for the purpose of infringing copyright is properly enforced, they every effort should be made to allow the emergence of sophisticated efficient markets. This efficiency objective would be better served if private copying is allowed as under the current Canadian law and if works or means to access or use the works are made available to users who benefit from specific exceptions or where the work is in the public domain.

5. SUMMARY AND CONCLUSIONS

It is important and somewhat urgent that governments embark on a significant endeavour, hopefully throughout all countries that represent a measurable pool of creators, of building a concerted and integrated microeconomic database on all aspects of Intellectual Property, Patents and Copyrights: people, contracts,

payments levels over time, distribution, sharing, related production and distribution industries, etc.

Stronger and more transparent copyright laws will generate lots of activities on the market emergence front. Most if not all copyright owners are interested in selling access to their copyrighted works. A better protection can only make clearer the transactions between creators and users, between the artists and the public.²² Many observers fear that the current proposals for copyright reform will make access to a significant number of ‘old’ works very difficult. But the contrary may be closer to the truth. Insofar as the copyright owners are interested parties in making their works accessible to a large public in order to derive revenues from them, one may expect that different arrangements will emerge so that as many users as possible and profitable can have access to a larger number of high quality copies of ‘old’ copyrighted works than it is the case now.

As a general conclusion, it seems that many arguments against extending and reinforcing the copyright laws are similar to the arguments against instituting stronger and more transparent property laws in regions where or in time periods when the protection of property is or was deficient. The importance of a strong legal property framework in fostering economic development and social welfare enhancement is well known and well documented. One should expect that a strong and transparent copyright framework would likewise foster cultural development and diversity as well as contributing to the social well being of all. It is also important to remember that a strong and transparent copyright framework remains a second best alternative. Unfortunately, the first best alternative is not feasible. One may hope that it will be feasible in a not so distant future given the amazing and still barely exploited capabilities of new information and communication technologies, those of the present and those yet to be created, thanks to a strong and transparent copyright framework. Copyright reform is a continuing scenario, which will be with us for many years to come, as information and communication technologies keep challenging the creation industries.²³

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²²A few explicit exceptions should be introduced. Among the most important ones, it should be clear that if someone owns a copy of a copyrighted work, then that person should have the right to make it available freely to family and friends on a network (digital or otherwise) accessible to family and friends but not to the general public.

²³For a look at the future of copyright policies, see Reinbothe (2002).

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MARCEL BOYER, BELL CANADA PROFESSOR OF ECONOMICS, DEPARTMENT OF ECONOMICS AND CIRANO, UNIVERSITÉ DE MONTRÉAL. I WOULD LIKE TO THANK GARY LAZARUS, RICHARD WATT AS WELL AS THE PARTICIPANTS IN THE SOCIETY FOR ECONOMIC RESEARCH ON COPYRIGHT ISSUES CONFERENCE IN TURIN, ITALY (JULY 2004) FOR THEIR HELPFUL COMMENTS ON A PREVIOUS VERSION OF THIS PAPER. FINANCIAL SUPPORT FROM INDUSTRY CANADA IS GRATEFULLY ACKNOWLEDGED. I REMAIN NEVERTHELESS SOLELY RESPONSIBLE FOR THE CONTENT OF THIS PAPER, IN PARTICULAR OF ITS SHORTCOMINGS.