

SOME CHALLENGES FOR COPYRIGHT-RELATED QUANTIFICATION

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ABSTRACT. Drawing on personal experience, this note outlines a number of the methodological challenges that exist when trying to provide some quantification of the economic impacts and contributions related to copyright law and policy (See The Allen Consulting Group, 2003a, The Allen Consulting Group, 2001, and The Allen Consulting Group, 2003b).

1. INTRODUCTION

In any area of intellectual endeavour, and particularly one where there is a clear public policy implications, it is inevitable that there will be an evolution from theoretical analysis to quantitative analysis. The quantitative analysis reflects a need to both define the scale of the issues under consideration, and to test (and possibly revise) the underpinnings of the theoretical work undertaken to date. Copyright law and policy is a clear case at hand.

2. PROGRESSION FROM THE 'GRAND QUESTION' TO QUANTITATIVE ANALYSIS

It is fair to say that the usefulness of economics in analysing intellectual property has been questioned by more than one commentator. For example, Priest (1986, pg. 24) notes that while some areas of law are simply accepted as a legitimate field of inquiry, the economic analysis of intellectual property has tended to be self-reference as to whether such analysis is even appropriate:

Of course, economic analysis is no more likely to resolve the question of the appropriate scope of substantive criminal law. But the difference between these fields is that there is much greater social consensus ... There is no literature ... addressing whether the prohibition of murder or rape is likely to enhance or diminish the social welfare. There is disagreement, of course, over the details of criminal punishment – the capital punishment debate is an example. But neither those opposing nor, certainly, those favoring capital punishment question whether the prohibition of murder itself is worth the effort. Yet, the analogous question is the principal focus of the debate ... over intellectual property. Personally, I believe there is little hope that economic analysis can resolve the question of the appropriate scope of the protection of intellectual property ... the influence of the economist on the law of intellectual property will always be limited. The lawyer must look for other sources of guidance.

However, the economic analysis of intellectual property has evolved in recent years and is increasingly sophisticated and practical. For example, in a 1995 overview of the economics of intellectual property, Merges (1995, pg. 104) argued that:

In many ways there has been a revolution in the treatment of these issues by economists. The older literature was concerned primarily with what I call the ‘Grand Question’, viz., whether patent or copyright should exist at all in light of economic theory. Recently, I have discerned the beginnings of a rigorous *empirical* branch of the Grand Question literature, whose main findings are that IP rights (IPRs) do have a positive, if modest, economic impact. But by and large the Grand Question literature has been not so much extended as superseded. Apart from large empirical studies, the contemporary literature has shown much greater interest in details and specifics: it is focused much more on individual doctrines and practices, as opposed to the Grand Question. The contemporary literature is also much more savvy about placing IPRs in their economic, and even cultural, context ... The upshot is that, in my view, we have moved from a fascination with market failure to market details.

There is a great deal to support the view that the Grand Question has been superseded as the increased global standardisation of copyright renders any discussion of unwinding copyright superfluous. Indeed, even the Australian Productivity Commission – a body that has often been critical of the scale and scope of intellectual property protection¹ – appears to accept that the Grand Question is now answered:

Evidently, copyright is an indispensable tool in modern societies to maintain proper business practices in areas where some intellectual effort is involved, even if the output is more for entertainment than for a better understanding of the world. In fact, copyright protection has a more important role in preventing market disorganisation than patents, given the vulnerability of most copyright material to easy duplication.²

However, there are still those who are critical of the application of economics to copyright law and policy. For example, under the heading ‘The limitations of economic analysis’, McKeough and Stewart (1997, pg. 20) note that “It is easy enough to identify the fundamental policy issue as being whether the conferral of property rights will work as an incentive or disincentive to appropriate forms of investment in creativity. It is quite another matter to answer that question with any confidence.”

Maybe this criticism expects too much of economics. For example, Koboldt (1995, pg. 149) argues that:

¹Gruen et al. (1996), Office of Regulation Review (1995). The Productivity Commission includes within it the Office of Regulation Review, and it was formerly known as the Industry Commission.

²Revesz (1999).

Of course, economic analysis cannot claim to give clear cut prescriptions for how a copyright system should look. However, economic analysis can show that there is something like an optimal, i.e., welfare maximising intensity of copyright protection. It can also indicate on which factors this optimal intensity depends.

Even Merges' view of a revolution is overly optimistic as to the use of economic analysis in terms of:

- doctrinal analysis – economic analysis appears to have taken root in the consideration of some doctrines in particular countries (particularly fair use and resale royalty rights) but to date there has been little substantive doctrinally based economic analysis of copyright law across the broad swathe of copyright law doctrines; and
- industry focused analysis – as noted by the US Committee on Intellectual Property Rights and the Emerging Information Infrastructure, in comparison to the economic analysis of patents, this is the area most lacking in policy formation in the US, and is arguably more so in other countries:

The work of Griliches, Mansfield, Scherer, Schmookler, and Williamson was especially notable in establishing the role of patents in fostering innovation and economic development. Their work also examined how various institutional arrangements and industrial structures affected the rates of innovation and patenting ... No comparable body of work exists with respect to the importance of copyright in fostering information creation and use.³

To a significant degree, economic analysis of copyright law has suffered in comparison to patent law because of the wealth of information provided as a result of the patent registration and renewals data.⁴

Quoting and commenting upon Crick's discussion of the importance of experimental evidence (see Crick, 1988, pg. 150), Coase (1999) noted that:

The basic trouble is that nature is so complex that many quite different theories can go some way to explaining the results. ... [W]hat constraints can be used as a guide through the jungle of possible theories? It seems to me that the only useful constraints are contained in the experimental evidence. What this comes down to in economics is that our choice of theories will only be fruitful if guided by empirical work.

This lament regarding the lack of empirical copyright data is far from new. Indeed, the Office of Technology Assessment's 1986 observations in respect of copyright appear equally valid today:

³Committee on Intellectual Property Rights and the Emerging Information Infrastructure (2000). For a number of studies that have sought to provide cross-country analyses of intellectual property (i.e. patent) protection see Ostergard (2000) and Revesz (1999). It is arguable that even this analysis is declining in usefulness as standards for intellectual property protection have been standardised as a result of the TRIPS Agreement.

⁴A notable exception is the study of the economic impact of copyright term extension using copyright renewal data from the United States copyright registration system – see Rappaport (1998).

Policymakers currently have little objective, quantitative data with which to make policy judgements about information markets. The data problem stems, in part, from the rapid changes in information markets attributable to technological change. As well, data collection in this area of the economy is not yet institutionalised in government. Often, the available data are fragmentary and are supplied by stakeholders in policy debates. As a result, policymakers face a high level of uncertainty about the impact of decisions on the cost and availability of specific varieties of information.⁵

3. SOME CHALLENGES FOR COPYRIGHT QUANTIFICATION

While there are increasing efforts to provide quantification to test views about the economic consequences associated with changing copyright law, two particular fields of quantified inquiry have been most commonly adopted: studies that have sought to value the economic contribution of the copyright industries; and studies that have sought to estimate the impact of unauthorised copying of copyright material (i.e. piracy). Some methodological challenges associated with these two study forms are identified in the following sub-sections.

3.1. Valuing the economic contribution of copyright industries. Driven by the desire to demonstrate their worth, there is a distinguished history in studies that have sought to assess the importance of industries reliant on copyright.⁶

The challenge to date has been to agree on which industries or which portion of industries, should be considered as ‘copyright industries’. In practice this has been a function of:

- perceptions as to what activities should be considered to have a sufficiently strong reliance on copyright to be called a copyright industry. For example, while some studies included the production of equipment used to broadcast copyrighted material,⁷ others did not consider such industries to be a copyright industry;⁸
- the boundaries of the law in individual countries. For example, comparing values in Australia and New Zealand needs to make allowance for the fact that the distinction between copyright law and design law is somewhat different in New Zealand and Australia;⁹ and
- the availability of relevant statistical data.

Drawing together the experience from previous studies, the World Intellectual Property Organization (WIPO) has made this series of judgements more transparent, and hopefully more consistent, through its recent publication of a guide to undertaking such economic contribution studies (see World Intellectual Property Organisation, 2003).

Even with greater cross-country consistency in the undertaking of such studies, there are a number of caveats that need to be made clear.

⁵See Office of Technology Assessment (1986), pg. 157.

⁶For an overview of such studies see World Intellectual Property Organisation (2003). Also, see Correa (2000).

⁷See Siwek (2000).

⁸See The Allen Consulting Group (2001).

⁹See Harris and Stroombergen (1997) and The Allen Consulting Group (2001).

Firstly, economic contribution studies are generous in their ascribing economic contribution solely to copyright.¹⁰ For example, the standardised WIPO classification system includes traditional video recorders and newer personal video recorders.¹¹ While video recorders are jointly consumed with products from core copyright industries, any change in the value of video recorders sold does not *per se* increase or decrease the economic contribution of the copyright. Rather, it is merely a change in the manner that copyright is consumed. That is, an increase in sales might reflect better usability (i.e. principally a function of both patent and design law) rather than any greater demand for the underlying copyright material.

Secondly, the studies do not capture the broader cultural contributions made by copyright works. For example, Towse (2000, pg. 115) notes that:

Like the studies of the economic importance of the arts, the true cultural value of copyright cannot be fully captured by measuring value-added in the cultural industries however accurate those measures are because there are external benefits that are not priced through the marketplace; the national culture, a creative environment and freedom of expression are examples of non-appropriable benefits.

However, while it is true that there are externalities (which have public good characteristics in that they are non-rivalrous and non-excludable) associated with copyright, externalities are ubiquitous and any attempt to incorporate these externalities should acknowledge that there are likely to be unpriced externalities associated with other industry sectors, which may or may not be larger than the copyright industries' externalities. Hence, the relative value of the copyright industries may be understated or overstated from this broader conception of value.¹²

3.2. Valuing the cost of unauthorised use. If the first strand of analysis focused on the value of those industries reliant on copyright, then it is not surprising that the other major strand of quantitative copyright analysis has focused on the costs to those industries as a result of unauthorised use of their copyrights.¹³

While the economic contribution studies generally were undertaken in an environment with access to reasonably reliable official statistics, there are no official statistics on unauthorised use (i.e. piracy):

There is no single or official body that compiles statistics on copyright infringement in Australia. In this regard Australian practice is not unusual; AGD (the Attorney General's Department) stated that it knew of no government anywhere in the world which has independent statistics or analysis of the level of copyright piracy.¹⁴

As a result, the collation of reliable data is inherently problematic:

A serious problem with studying the infringement of IPR (Intellectual Property Rights) is the almost total lack of reliable data. This

¹⁰This is not a problem unique to economic contribution studies of copyright. If all the economic contribution studies carried out across various sectors of the economy were summed it is clear that the total economic contribution would be larger than the size of the economy.

¹¹See World Intellectual Property Organisation (2003), pg. 33.

¹²See Thorpe (2002).

¹³See, for example, IDC (2003) and International Planning and Research Corporation (2003).

¹⁴House of Representatives Standing Committee on Legal and Constitutional Affairs (2000), pg. 12.

is a particularly important problem with trademarked and copyrighted goods. This unsurprising fact arises essentially from the clandestine conditions under which counterfeits of copyrighted and trademarked goods are produced and distributed. Manufacturers of counterfeit goods almost never record their activities or register with the authorities for tax purposes Indeed, organised crime units are believed to be responsible for much counterfeit activity. Such goods are often sold on “grey markets” alongside genuine products, over-runs, recycled goods, copies and stolen products. Moreover, even the genuine manufacturers of such products often do not have specific enforcement departments within their organisations, meaning that efforts to curtail infringement are often dispersed across finance, marketing and legal divisions with no easily measurable or identifiable budget attributable directly to enforcement. Because of these features of counterfeit products, there are no comprehensive or reliable statistics available.¹⁵

Given the lack of reliable data, most studies have relied upon surveys – of actual consumers, potential consumers and/or copyright owners – to provide a suitable statistical foundation.¹⁶ In doing so, there are a number of pitfalls that are often observed.

Firstly, great care needs to be taken in designing a survey that seeks to identify people’s propensity to undertake potentially illegal activity. Such surveys are likely to provide a systematically biased result in favour of under-reporting due to the desire to avoid to be seen to be doing the ‘wrong thing’ (at least in the general population, although there may be different norms within countries on the basis of geography or age). The key is to design a survey which reduces any stigma attached with actual behaviour. Thus, rather than asking what potentially illegal activity a person has done, a more accurate response can be obtained by asking survey respondents what activity they might be willing to undertake in the future given certain circumstances; potential future illegal activity is less problematic than actual illegal behaviour.

Secondly, the standard industry-sponsored claim has been that every counterfeited product represents an equivalent lost sale. For example, IDC’s study of global software piracy noted that:

While not every piece of formerly pirated software will be purchased if piracy rates go down – some will be substituted, some not used – at the same time lower piracy rates yield more economic activity that stimulates more software production and purchase. The two countervailing forces seem to cancel each other out. *This is the conventional assumption for most previously published piracy studies.*¹⁷

While this may be a conventional assumption, it has no empirical foundation. To be valid, such an assumption would require that all people who copy would have purchased an original copy if required to do so:

¹⁵Dixon and Greenhalgh (2002), pg. 27.

¹⁶For a discussion of survey techniques for particular industries see Centre for Economics and Business Research (2002)

¹⁷IDC (2003), pg. 22. Emphasis in original.

The basic methodological shortcoming of the previous studies of the extent of harm is that the studies do not clearly describe either the behaviours of consumers or producers in the absence of copying. Although some surveys ask consumers whether they would have purchased the original if they could not copy, the answer to this question is of limited usefulness if consumers do not know what the price of originals would have been if copying were not possible.¹⁸

Addressing this shortcoming is a challenge. What is required is a survey that seeks to identify the elasticity of demand and therefore the willingness of consumers to pay for the copyright goods at various price points.¹⁹ Such a requirement increases both the complexity and cost of the survey.

Thirdly, there is a tendency to focus on lost sales in terms of revenue. A reduction in legitimate sales reduces the copyright owner's revenues, but in most cases it also will reduce his or her operating costs. As a result, simply focusing on revenues will tend to overstate the costs to the copyright owner. Of course, to be able to accurately report on lost profits requires access to highly confidential commercial data. Even if such information is available it is often difficult to distil what precisely is the profit on a particular product or product line because of transfer pricing of products across borders. For example:

- while some distributors of copyright products in Australia know the actual cost of their products, and so meaningful profit loss estimates can be derived locally; but
- in some other cases the transfer prices provided to Australian distributors bear little resemblance to actual costs and are merely an accounting base from which the Australian subsidiary operates. Thus, deriving a meaningful profit loss estimate is not possible without access to parent company data.

Fourthly, there is a challenge to identify and then quantify a broader range of possible costs associated with piracy. That is, in addition to the potential for reduced profits, there is a range of more subtle costs that are borne by those firms which find themselves competing against unauthorised copies – copyright owners can:

- incur significant expense protecting their intellectual property by conducting investigations and litigating;
- incur developmental costs associated with designing products that may be more difficult to counterfeit (e.g. digital rights management technologies);
- face a reduction in the value of their intangible assets and market valuation if their brand image is undermined by piracy.²⁰ To that extent it can compound the effects of lost sales and profits and further compromise its ability to access new capital, either equity or debt – and to increase the cost of that capital;
- find that in markets dominated by counterfeiters, this may create a barrier to entry for their own legitimate products;²¹ and

¹⁸Besen (1987), pg. 56.

¹⁹See The Allen Consulting Group (2003a). Another approach that could be considered, but which I have not employed, would be to undertake a contingent valuation study of copyright owners to see how much they would be willing to pay to reduce unauthorised copying. For a discussion of contingent valuation as a technique see Cultural Policy Centre (2002).

²⁰Organisation for Economic Co-operation and Development (1998), pg. 22.

²¹Ibid.

- in extreme circumstances, also be forced to withdraw from particular markets and/or territories if piracy is perceived as being especially acute.²²

Finally, there is also a challenge in how to address the potential benefits associated with the unauthorised copying of the copyright material:

- for the copyright owner – in some cases unauthorised use may increase demand for the original product, resulting in overall higher demand and sales than would otherwise occur. This is most likely where there are significant network externalities for the product.²³ It may also occur where it has what Liebowitz has called an ‘exposure effect’ – a form of advertising or sampling that might lead to larger sales of the legitimate version.²⁴ However, recent empirical and theoretical work casts doubt on the validity of the view that externalities from counterfeiting will necessarily lead to a net increase in demand for original products.²⁵ For example, King and Lampe (2003) have shown that the concept of ‘profitable piracy’ depends critically on certain assumptions, and that unauthorised copying is at best an inferior alternative to price discrimination. Furthermore, unless there is reason to believe that potential pirates will systematically value a product less than other buyers and that there are relatively few pirates, then allowing intellectual property rights to be degraded will not be in the copyright owner’s interests; and
- for consumers – those consumers unable to buy the genuine goods at the full price may gain utility from buying unauthorised copies at a lower cost.

The incorporation of benefits into any estimate of the economic impact of unauthorised copying remains a challenge that needs to be addressed on a case-by-case basis.

4. CONCLUSION

The economic analysis of copyright law has always suffered, at least in comparison to the economic analysis of patent law, from a deficit of quantitative analysis.

While economic studies estimating the cost of piracy and the economic contribution of the copyright industries have been around since at least the late 1970s,²⁶ it is clear that there remain a number of methodological and interpretive issues that need to be considered when undertaking or reviewing such studies. In this light, WIPO’s intervention to seek to harmonise the methodology for reviewing the economic contribution of the copyright industries is timely and will undoubtedly aid the development of a consistent series of cross-country data that will provide a launching-pad for a new series of cross-country economic studies. Similarly, some WIPO guidance to harmonise around best practice piracy quantification methodologies may now also be a useful addition to the field of study.

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²²See Voorhaar (2003).

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²⁵See King and Lampe (2003) and Hui and Png (2003).

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