

## INTRODUCTION: COPYRIGHT AND THE PUBLISHING OF SCIENTIFIC WORKS

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The issue of exactly how copyright affects the output of scientific works has been of interest for some time (see, for example, Gienas 2008, and Bachrach et al. (no date), but very recently there has been a revived interest in this topic. An important catalyst for the revival was the circulation, in late 2009, of a working paper by Prof. Steven Shavell (see Shavell, 2009), in which it is argued that copyright in scientific works should be abolished. Because of the radical thesis that is so blatantly put forward in Shavell's paper, it has generated quite some controversy among economists (and, most likely, further afield also).

The present issue of *RERCI* is a response to this controversy. In this issue we present a symposium of papers on the topic of the journal publishing market, and in particular on the role played by copyright in that market. The symposium is offered to our readers, not as a critique or rebuttal to the ideas of Prof. Shavell, but rather because the thesis that social welfare might be advanced should copyright in scientific works be abolished should certainly not be scoffed at or taken lightly – it is an idea that warrants careful analysis. I hope that the three papers in the symposium add valuable insights to this young but vibrant literature, and perhaps might also cast some light upon the appropriate way forward on this most interesting debate.

### 1. SCIENTIFIC PUBLISHING

The markets in which scientific works are currently dealt with are quite different from other markets, even other markets for creative outputs. The very motives for the production of, and the consumption of, scientific papers are themselves rather special. It is well known that it is likely that the primary motive of academic authors is not direct financial gain from sales of their works, but rather the secondary or indirect gains that accrue through reputation and CV effects. Similarly, one of the primary reasons that academics consume papers is to gain inputs to their own future writings. Thus the scientific writing market is highly sequential, and consumption is not an end-point, but rather simply another step along the process of evolvment of a particular theory or general area of research.

What is more, most academics live in a “publish or perish” environment, and so are willing to exert significant efforts in writing scientific works with the sole

motivation of enhancing their hiring and promotions options, or perhaps not to see their options hampered relative to other academics. The companies that gather, revise, and publish this scientific output earn (in some cases) significant profits by providing the service upon which the academic community rides. However, as Shavell correctly notes, the publishers are a kind of middle-man, sandwiched between academics that write and those that read (and of course, these two groups are to a large degree, formed by exactly the same individuals),<sup>1</sup> and that perhaps the digital era that is now available may significantly reduce the value that these middle-men actually provide. According to Shavell's thesis, the abolishment of copyright would be sufficient to eliminate the major academic publishers altogether.

Perhaps one of the most interesting aspects of a scenario of scientific output in a system without copyright is that we are unlikely to ever see it happening, at least in the near future and on a total international scale. Elimination of copyright in any arena of creative production looks like such a political hot-potato that it would be a rather bold administrator who would actually go ahead and remove copyright for scientific works. The reason of course is that, while we can *hypothesize* what the end result would be, there is really no way to know for sure until the measure is actually carried out. While this is true of any legal alteration, most changes are at the margin, for example with copyright the change might be an increase in duration of a decade or two. The complete removal of copyright protection for a specific area of creative output can only be compared to a significant structural change. The uncertainty of how this would affect the nature of the business, the quality and quantity of scientific output, the systems that would spring up in lieu of the copyright based model, make it a very costly move for any political group to support. Thus we can only argue the pros and cons of what might happen, with more or less authority and conviction, using more or less formal models of analysis, and in the end, being more or less convincing.

## 2. PROBLEMS UNSOLVED

**2.1. Quality and quantity.** As a very summarized explanation of the problem, consider the space of scientific works in terms of two variables – the average quality of works ( $q$ ) and the total quantity of works ( $x$ ), where both variables are understood in terms of general availability to the academics that participate in the market in some way. For example, the quantity of works should be understood as the quantity that is actually made available in published form, not the quantity that is produced, and likewise the average quality refers to the quality of what is published.

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<sup>1</sup>Indeed, not only is the primary input to the journal market (academic papers) supplied free of charge to publishers, so is the very important labour input that screens papers and evaluates their quality, and in the end selects those papers that will be published and those that will not. It is hard to think of any other market that has such privileged access to primary inputs and labour.

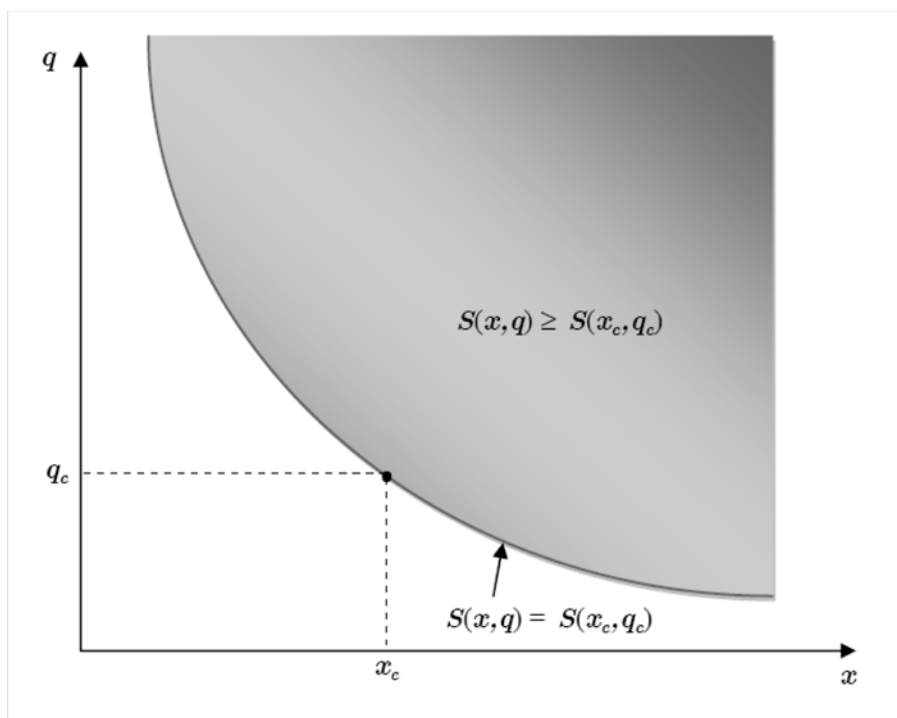


FIGURE 1. Social Indifference Curve

In principle, it is preferable to have more rather than less works, so there is a social preference for  $x$ . In the same way, the same is true for quality  $q$ . Thus, assuming a social preference relationship exists,  $S(x, q)$ , we can consider the trade-offs between the two variables along social indifference curves. If, for example,  $S(x, q)$  is quasi-convex, and if the current copyright based point is given by  $(x_c, q_c)$ , then we would have a scenario like that in Figure 1. The objective then is to wonder if abolishment of copyright would end up moving us into the more preferred region, indicated as  $S \geq S(x_c, q_c)$ , or if on the other hand, abolishment of copyright would move us to a point below the indicated indifference curve. If the first were to come to pass, then abolishment of copyright is a good idea, if not, copyright should be retained as the publication model.

There are several problems that need to be analyzed if we are to be able to make an informed decision regarding abolishment or not of copyright. In essence, the problems all revolve around the feasible set in the space  $(x, q)$ , and how the incentives offered by the regime that is in place affect the movements within that set. For example, if the feasible set were strictly convex (say, a typical looking triangle), and if  $(x_c, q_c)$  were a tangency point with the indifference curve upon the frontier of the set, then no regime change would ever be socially valuable. Moving to a better

point necessarily means that we consider that  $(x_c, q_c)$  is either an interior point within the feasible set, or at least is not a tangency point with the indifference curve. Thinking about exactly how the feasible set looks is an important problem, but one that does not yet seem to have been satisfactorily tackled.

Perhaps the easiest variable to wonder about is the quantity variable,  $x$ . It is almost universally agreed that copyright does restrict quantity. If the alternative were to be open access, then it might reasonably be expected that more output will be made publicly available. Such a conclusion relies upon the idea that, because publishing a paper under open access as opposed to under a copyright system is cheaper (after all, the author not the publisher pays for the costs of publishing), we might expect more papers to be published.<sup>2</sup>

In reality, the consideration of a copyright (and subscriptions based) regime as opposed to, say, an open access model (in which authors are charged for publication space) is a consideration of dynamic effects. A journal's choice of whether or not a particular paper should be published can be viewed as a trade-off between a current gain which is the price charged to the author (positive under open access, zero under copyright), against the future gains (subscription revenues under copyright, author fees under open access). In both regimes the future gains depend upon the quality of current publications, but under copyright we wonder what subscribers are prepared to pay to read the journal, while under open access we wonder what authors are prepared to pay to publish in the journal. If we were to imagine that these two future revenue effects were more or less equal, then under open access we should get more publications as there is a current gain which is not present under the copyright regime.

And certainly, since the access price to consume a published paper goes down (to zero), we should also expect more published papers to be consumed. Thus we should expect that removal of copyright in favour of open access will result in an increase in  $x$  to a value greater than  $x_c$ . This is one positive social aspect of Shavell's thesis.

However, the fact that quantity will increase is neither sufficient nor necessary for the removal of copyright to be socially beneficial. It is critically important what happens to average quality. For example, if we take the stance for a moment that the overall set of papers that is written (as opposed to published) stays the same under both copyright and open access, and if we also assume that the current journal model succeeds in publishing only the top part, over a specific cut-off, of a rank-ordering of the papers that are written,<sup>3</sup> then the very fact that quantity

<sup>2</sup>Of course, even if the current journals were to remain but all go open access, and even if those journals were to continue only publishing what they would have under the copyright regime, it might be expected that new journals would spring up to publish further papers.

<sup>3</sup>Of course, both of these assumptions are debateable at best!

published increases must imply a lower average quality, as the only source of further papers is from the set that would have been rejected under the copyright regime. However the analysis is more complex than that. We need to wonder if the proposed regime change will actually affect the set of papers that is written. If, for example, the most successful authors (i.e. those that write the most high quality papers) find that under open access they can publish less (due, perhaps, to a budget constraint on publishing costs by their university or research funds), then it is likely that the average quality of published papers is again diminished. Indeed, it is hard to find convincing arguments for an abolishment of copyright increasing the average quality of the scientific papers that are published.

### 3. THE SYMPOSIUM PAPERS

The present symposium begins with a paper that provides some details of the way in which copyright is used in the current market in which scientific papers are published. Giovanni Ramello discusses in his paper how the current copyright regime works within the journals market, shaping the competitive environment, posing barriers to entry and allowing strategic interactions to take place. Ultimately, the way in which copyrights are used in this market leads to winners and losers, at least in terms of differential market shares arising, or in to use Ramello's own words, "... copyright is much more than a neutral feature of the market: it is a tool that endogenously shapes the market structure, with consequences that in most cases foster rent-seeking behaviors and a gradual shift away from competition." Perhaps it is just these kinds of rent-seeking effects that Shavell hopes to elude by eliminating copyright in this market completely.

After the paper by Ramello which shows how copyright is currently used in the journals market, the symposium then turns to look at what might the situation be should copyright be abolished in this market. Here we have two papers, one by legal scholar Hossien Nabilou, and the other by economists Frank Muller-Langer and Richard Watt. In essence, these two papers both reconsider some of the arguments of Professor Shavell concerning the possible removal of copyright from the journals market. The argument put forward by Shavell is complex, and has quite a few underpinning assumptions and different lines of interconnected thought. The analysis of several of these aspects is the general topic of these two papers. In particular, Nabilou looks closely at the incentives to produce scientific papers under a system without copyright, as well as the issue of the effects of the change in financing from reader based subscriptions to author based fees. Muller-Langer and Watt wonder if open access and pure online publishing is really what might occur should copyright be abandoned. They also take a close look at the effects of the financing alterations

that would be needed should open access replace copyright, and argue that a possible way forward that seems to achieve the best of both worlds is a system based upon research institutions forming an insurance mutual.

As always, I hope that this symposium provides food for thought, and hopefully food for future research as well.

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