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The publishing delay in scholarly peer-reviewed journals

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ABSTRACT

Publishing in scholarly peer reviewed journals usually entails long delays from submission to publication. In part this is due to the length of the peer review process and in part because of the dominating tradition of publication in issues, earlier a necessity of paper-based publishing, which creates backlogs of manuscripts waiting in line. The delays slow the dissemination of scholarship and can provide a significant burden on the academic careers of authors.

Using a stratified random sample we studied average publishing delays in 2700 papers published in 135 journals sampled from the Scopus citation index. The shortest overall delays occur in science technology and medical (STM) fields and the longest in social science, arts/humanities and business/economics. Business/economics with a delay of 18 months took twice as long as chemistry with a 9 month average delay. Analysis of the variance indicated that by far the largest amount of variance in the time between submission and acceptance was among articles within a journal as compared with journals, disciplines or the size of the journal. For the time between acceptance and publication most of the variation in delay can be accounted for by differences between specific journals.

1. Introduction

Scholarly journal publishing has a long history going back to Henry Oldenburg's *Philosophical Transaction of the Royal Society* founded in 1665. For the past two centuries the volume of peer reviewed articles published per year has increased by a relative steady 3.5% per year, with a current number of articles of around 1.8–1.9 million, published in an estimated 28,000 journals (Ware & Mabe, 2012). Over the years the scientific journal as an institution has evolved in many ways and after the second world war and the ensuing rapid growth in science commercial publishers have increasingly entered this market, which earlier was dominated by scientific societies.

The dissemination medium has very rapidly changed from printed issues to predominantly digitally distributed publishing (VanOrsdel & Born, 2002). At the same time this has triggered the emergence of new business models for digital publishing, including bundled e-licenses, pay-per-view and open access publishing. Scholarly journal publishing in its current form has been the object of increased critique since the advent of the World Wide Web and the opportunities it offers for process innovation, The debate has in particular concerned three aspects. Firstly that the reach of the dissemination that the traditional subscription model achieves is suboptimal. Secondly that the peer review process is flawed and frequently leads to arbitrary decisions. Thirdly that there are significant delays in publishing articles. Traditional paper publishing in particular creates significant delays both due to the need to bundle articles into issues and backlogs created by page limits resulting from the high per page cost of this type of publishing.

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The solution proposed to the limited dissemination is Open Access (OA), which can be achieved either through publishing in open access journals ("gold OA") or through author's uploading manuscript versions of their articles ("green OA") to subject or institutional repositories (Suber, 2012). OA journals have increased their output by 20–30% per year for over a decade and now publish around 12% of all peer reviewed articles (Laakso & Björk, 2012). The open accessibility can be achieved via a number of business models of which the publishing fee variant is rapidly increasing its market share.

The critique of the peer review process has led to a number of experiments with alternative models. The web medium lends itself to different forms of open review, where manuscripts can be "published" prior to review or with minimal review and subsequently evaluated by reader comments and elevated to full article status via post publication feedback (Björk, 2011). Open review was tried and deemed a failure in a well-known experiment by Nature (2006). More successful than open review experiments is an alternative peer review model practiced by an increasing number of OA "megajournals" in the wake of PLoS ONE, which currently publishes around 20,000 articles per year. In this form of peer review only the scientific validity of the results is checked, the decision concerning the potential contribution is left for the readers to decide.

An important reason for the success of PLoS ONE is also that is offers a very attractive alternative to authors who are tired of the long delays involved in publishing in traditional journals and rejection on what are felt to be arbitrary and or biased opinions of reviewers and/or editor. The delay was a necessary facet of the publishing process prior to the turn of the millennium, when journals were almost exclusively published in paper form, and where journal page limits were an economic necessity. Since then electronic only journals have shown that the delay can be considerably shortened. Also the traditional journals have acknowledged the existence of the problem by starting to post "in press" or completely copy edited and formatted "ahead of print" versions of accepted manuscripts even before they become part of an issue and receive page numbers. A recent survey with authors showed that the speed of publication was the third most important factor affecting authors' choice of journal, after topical fit and the quality of the journal (Solomon & Björk, 2012).

In some fields of science authors have tried to partly bypass the system by publishing their manuscripts in open web repositories prior to submission as working papers (economics) or preprints (physics), in order to speed up the dissemination of the results. In other cases experiments have been made with new types of peer review journals, in which only lightly screened manuscripts have been openly published on the journal web sites, and the better ones have later been elevated to full journal article status (Björk, 2011), proving the seal of quality.

It is our belief that the length of the delay is not constant across different fields of science, but depends on the review and publishing cultures that have evolved in different sciences. For example a delay of two years, common in economics and management, would be difficult to accept for academics in the biomedical sciences.

1.1. The life-cycle stages of a peer-reviewed article

During its life-cycle a scholarly article undergoes a number of stages, some of which are in focus in this study. During the writing and finalizing of a manuscript most authors tend to show it to a few trusted colleagues, from whom they receive feedback and suggestions for improvement. In many disciplines it is also common to publish versions as conference papers and in a few disciplines, in particular physics and economics, a tradition of publishing working papers has evolved. At some stage the author (or authors) formally submits the manuscript to a particular journal. Most journals require that a manuscript has not been published elsewhere and that is not under consideration for publishing by another journal. In medicine this rule can be even stricter in that authors are also restricted from discussing the results with the popular media, the so-called Inglefinger rule. From the viewpoint of the whole scholarly community the rule excluding parallel submission is understandable in terms of avoiding unnecessary replication of the unpaid referee work done by the editor and other scholars. On the other hand this causes publishing delays for authors whose work is rejected in the first and even second journal to which they submit.

The quality and extent of the peer review that a manuscript undergoes varies considerably across journals and disciplines. The editors of many journals screen submissions and quickly reject manuscripts that are clearly unsuitable without sending them out for external peer review. The review process can also involve several cycles of review and revision, a practice common in more selective journals particularly in specific disciplines such as business and management.

Manuscripts at some point are accepted, rejected or in some cases withdrawn by the author who may find the requested revisions or the revision process unacceptable. If accepted manuscripts are generally copy edited and typeset by the publisher or contractor, after which the author is usually asked to check the final version. In traditional print publishing the finalized manuscript is then put in the queue for publishing, awaiting its turn, usually though not always according to its position in the queue. Articles submitted to a special issue are treated a bit differently. The queuing can take as long as a year or more if the journal has a significant back-log. If the journal also publishes an electronic version manuscripts are often published earlier on the journal website under headings like "in-press" usually without exact page numbers and assignment of issue. Most electronic open access journals publish articles directly when they are ready rather than in issues, thus speeding up the process.

If we would take a manuscript and not journal-centric view the total delay would often be even longer since many manuscripts are rejected, and in some cases several times before publication. This time from submission to rejection, in some cases from multiple journals, needs to be added to the delay of the journal that finally publishes the article. Azar (2004) discusses this for the case of economics journals and points out the importance of first-response delays, since it is often at this stage that authors need to find alternative journals for submitting their manuscripts.