

## **Moving Digits in Serials Life**

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### **Introduction**

Publishing electronically allows fast, easy, and widespread dissemination of information, it lowers the cost of editing, and it allows content to be stored in a way that complements and rivals the traditional paper format. The World Wide Web has created expectations for free, instant and unmediated communication between writers and readers. It led journal editors, librarians, and readers to believe that scholarly journals, in the sciences and other areas, would become cheaper through widespread digitization. A brief reality check paints a different picture, with serial price inflation approaching 10% per year (almost five times the US Consumer Price Index) as reported by EBSCO<sup>1</sup>, and by *Library Journal*<sup>2</sup>.

Naively, one may ask,

What are the reasons for such galloping costs?

Is it sustainable?

Is it brought by online access versus the traditional print serials?

What are the economic factors contributing to this phenomenon?

How is it shaping scholarly publication and information dissemination?

This article looks at those questions and some possible answers.

### **Serial Pricing**

Prices are generally much higher in the sciences than in social science, arts and humanities, and so the question of how to control prices and to create some viable alternatives has mostly focused on science journals. The average cost per title for 2003 of \$ 2,403 for a chemistry journal marks a 42.79% price increase from 1999 to 2003. This

compares to an average cost of only \$305.73 in the field of education, although prices in that area increased 47.13% during the same period<sup>2</sup>.

## **Scholarly Publishing**

The scholarly community has noted that electronic publishing has not come with a lower price for academic institutions. In the migration from print to electronic resources, libraries have tried to maintain both formats. And rightly so, since many scholars directly involved in e-publishing see the current situation as transitional, with the necessity for developing multiple options for publishing. In this transition, e-publishing may have the salutary effect of making readers and writers revisit some of the assumptions and workings of scholarly communication.

Even in the world of print, the issues of price, reliability, access, and long term dissemination of knowledge were not just a matter of creating the physical periodicals, but also of establishing credibility for them. JSTOR ([www.jstor.org/](http://www.jstor.org/)), Ohio State University's OSU Knowledge Bank ([www.lib.ohio-state.edu/KBinfo/](http://www.lib.ohio-state.edu/KBinfo/)), ISI Web of Knowledge ([www.isiwebofknowledge.com/](http://www.isiwebofknowledge.com/)), the Association of Learned and Professional Society Publishers ([www.alpsp.org/default.htm](http://www.alpsp.org/default.htm)), Budapest Open Access Initiative ([www.soros.org/openaccess/](http://www.soros.org/openaccess/)), Public Library of Science (PLoS) ([www.publiclibraryofscience.org/](http://www.publiclibraryofscience.org/)), Project MUSE ([muse.jhu.edu/](http://muse.jhu.edu/)), and even key players in commercial publishing such as Elsevier, Wolter-Kluwer, and Wiley show some major convergence in trying to make information available to the scholarly community. Access costs, fees charged to information providers, and long-term retrieval are some of the key issues.

Electronic publication does not really revolutionize scholarly publication but accentuates some of the existing tensions in terms of fluctuating prices, durability, duplication of information, innovation and obsolescence related to the transient life of serials. Publications in electronic format continue to grow on the traditions of higher education institutions and scholarly communities with their various societies and initiatives both in the private and public sectors. Sally Morris, Secretary-General of Association of Learned and Professional Society Publishers (ALPSP) reflects on the current trend: "What is lacking at the moment, however, is a coordinated way of representing the distinctive views of not-for-profit publishers worldwide."<sup>3</sup>

An attractive aspect of e-publishing has been the possibility for academic publishers to reduce the time and cost associated with selecting, editing, and laying out articles for their journals and to incorporate interactive displays integrating sounds and images. Such change offers the possibility to scholarly societies of do-it-yourself archiving and diffusion of published materials that is unprecedented.

Although the structure of scholarly communication that gives authority and validity to published materials remains largely the same due to the essential sense of continuity that scholarly communities try to foster, two major changes have emerged with e-publishing. One change concerns the economics of e-publishing and is often expressed

through the frustrations of college and research library administrators. While the overhead cost of journals is high for their institutions and scholarly efforts are largely supported through moneys funneled through public institutions, the access to the published scholarship becomes available only for a large fee. The other change is at the level of journals themselves, and comes through the decentralization of activities associated with running a publication. As the director of California Institute of Technology says of Caltech's repository, "[t]he print journals bundle together [several activities]—refereeing, editorial standards, dissemination, and marketing. What the technology starts to let you do is to unbundle those. You could have dissemination done by one organization or mechanism, but peer review done by another one."<sup>4</sup>

Along those same lines, the decision by PLoS ([www.publiclibraryofscience.org/](http://www.publiclibraryofscience.org/)) to boycott publishers who did not make published research papers freely available six months after publication has encouraged institutions producing journals to become open-access repositories. The self-archiving initiative has had some success, and even commercial publishers such as Elsevier see it as trying to achieve a similar end through different means with a different financial modality. Elsevier Science Chairman Derk Haank acknowledges that, "the end result is that all libraries have access to the whole database or the relevant parts. All the people at that institute have free access to all relevant material, which is the same as a Public Library of Science initiative. The only thing different at the end of the day is the financing: Who is going to finance it? And the fact that in our case users have immediate access, and not after a 6- or 12-month delay as in PLoS."<sup>5</sup>

## **Role of Libraries**

Libraries are no longer the information providers they used to be. They have moved from providing physical place to providing access and archival information and to outsourcing services. Due to the economy of scale that e-publishing can allow, it is not surprising that libraries have moved from acquiring products and managing them in-house to contracting this out. In a seminal colloquy with Ken Frazier, former president of ARL, participants in the debate on "'Bundled' E-Journal Subscriptions and Academic Libraries" voiced frustrations and surprises about what outsourcing entails. A respondent stated the that, "[w]hat this [access vs. ownership] means, of course, is that universities are only renting this information, not buying it."<sup>6</sup>

## **Commercial Publishers vs. Scholarly Publishers**

Economics and the institutional workings of scholarly publishing are at the core of the debate and as a publishing analyst, Andrew Gordon-Brown, asks, "[w]here does the value lie in the journal publishing process? The commercial publishers would have you believe it's in the peer review process and in the value added web-based services. Is this true?"<sup>6</sup>

The relation between price and cost is a complex question. The traditional notion that price will equal the incremental cost does not truly apply to publishing, where huge

economies of scales are made in which it costs less per unit to produce more than to produce less—the brunt of the cost being in production implementation.

For scholarly publications, one has also to think of the huge transfer of money through grants, public moneys that subsidize scholarly activities, to realize that the overhead cost of journal publishing cannot be precisely assessed. Lesk computed that of the 3% of their budgets US universities spend on the average on libraries, one third of this amount will go to purchasing books and periodicals with only 10% of this expenditure going to back to authors through publishers<sup>7</sup>.

Scholarly publication is by and large circular; published by peers and read by peers. For this reason, cost and value are difficult to estimate in purely economic terms. Equity researchers foresee some change with cost saving related to electronic publishing: “Libraries spend \$1.50 on staff costs and other operating expenses for every \$1 they spend on materials, and, likewise, scientific publishers spend significant amounts on printing, binding and distribution. Consequently, moving from the current situation where by most libraries get both the print and on-line access, to just on-line access represents a win/win opportunity for both publishers and libraries.”<sup>8</sup>

The idea that lowered costs translate into lower subscription prices has been long in materializing. With the reluctance of scholarly publications to organize new methods of access, the movement has been relatively slow because it is not just a matter of logistics but also of quality control, which remains a major issue in e-publications. Also, it is widely admitted that for scholarly journals, and in particular scientific journals, the demand is relatively inelastic.

For commercial scientific publishers much pricing is also based on the notion that in the dissemination of academic knowledge the barriers enjoyed by the incumbent journals (prestige, peer review, loyal readership, recognition, etc.) are just too high for not-for-profit new initiatives to have a strong impact. It is also known that no quality journal can be substituted for another, and the non-fungible character of academic publishing has established niches that for-profit-publishers control. For the Institute for Scientific Information, ISI Inc., the top six publishers are commercial publishers encompassing 37% of rated journals and 44% of articles<sup>8</sup>. This fragmentation of the market contributes to the resistance of prices to go down though ultimately bundling of titles and stronger consciousness of price inflation when libraries negotiate contracts should reduce nominal subscription fees.

Commercial publishers rely on keeping the strongest titles in every major scientific field under their control. The market and the readership of journals are in fact very limited and can be narrowed down around a cluster of publications that are cross-cited among the major titles. The phenomenon is not new and was noticed in the mid-1930s and termed Bradford’s laws, for a scientist who established that among the core publications of a given scientific discipline only a small number of titles that show strong relevance to the discipline are referred within their field while the others have only a tangential interest with relevance to other topics. The ISI Database

([www.isiwebofknowledge.com/](http://www.isiwebofknowledge.com/)) in explaining its selection process estimates that “recent citation analyses have shown that as few as 150 journals account for half of what is cited and one quarter of what is published. It has also been shown that a core of approximately 2,000 journals now accounts for about 85% of published articles and 95% of cited articles. But this core is not static. Its basic composition changes constantly.”<sup>9</sup>

## **Economic Issues**

In such a market, which is not truly a typical market in capitalistic terms, the communication is largely circular and publishing is rarely a commercial act for the authors. Financial advantages for authors do not come from publications themselves but through tenure system, recognition, rewards by institutions. Authors aspire to a broad diffusion of their research within a system that allows for control of sources, serious scholarly contents, and selectivity in relevance to ongoing research—all qualities that scholars have to rely on for their own work and expect to find in the works of their peers, which mostly boils down to peer review. The communication in many sciences is truly esoteric, in the sense that the field is composed of a small number of authors who seek to reach others to have an impact.

Harnad describes this “no-market” communication characteristic of scholarly publication: “The scholarly author wants only to PUBLISH them, that is, to reach the eyes and minds of peers, fellow esoteric scientists and scholars the world over, so that they can build on one another’s contributions in that cumulative, collaborative enterprise called learned inquiry.”<sup>10</sup>

In this system of communication, it is difficult not to see why many of the possibilities for self-archiving, pre-publication notices, selective posting of articles that electronic publishing allows may not come about. They become even more feasible with better retrieval once common protocols for metadata tagging standards are established and adopted, which would foster a reliable, freely accessible system for scholarly communities.

One of the characteristics of the commercial publishers, the reason for their success, is that they offer services, establish contracts between scholars and information providers, while they create portals that combine different journals under a same site that has search capabilities and can follow references from articles to articles with hyperlinks. In brief, they create what makes publication a public act: exposure and outreach. Their services cannot be underestimated. One major criticism of information on the web focuses on its unorganized structure and lack of a sense of origin and serious authorship in the articles posted. On the other hand, it is difficult to see how commercial publishers such as Elsevier, Wiley, Blackwell, and others would be the sole guarantors of the validity of the information that transits through their servers while the true institutions bringing legitimacy are the scientific societies, peer reviewers, and published authors who embody the imprimatur validating the research. At the same time, it cannot be denied that commercial publishers have brought information efficiently to users. Often the frustration that librarians and members of the scholarly community have experienced

with commercial publishers has had a tendency to demonize the for-profit sector as existing in a purely exploitative manner towards users and particularly toward libraries. It obscures the great role they have played in lifting up the traditional print serials to an online service, and that for-profit and not-for-profit publishers co-exist in the information business.

What distinguishes not-for-profit publishers is that they can redistribute financial benefits to the institutions that generate research, a possibility that seemed rather dim in the in-print format, and that they can play a major role in creating archival systems that secure long term access with efficient retrieval tools that maintain links between older research and newly published articles. As the ARL statistics on serial pricing show for 2001, for the first time since 1986 a decline in the median serial cost unit has been registered. It may indicate that the shift to electronic journals is starting to have a sobering effect on prices. At the same time, even at an anecdotal level, it appears that the system is already in place to offer different layers of information services in which profit and not-for-profit complement each other. [Resh](#) points out in that reading and access in an electronic database is no longer based on a volume but at an already selective level of interest that only takes into account articles: “a consequence is that when they [younger students] have adopted a discipline based journal they usually are only interested in one article in a volume. Why buy wine by the bottle if all you want is a glass, or even a sip?”<sup>11</sup>

### **Volume vs. Article**

This change at the level of access is also difficult to negotiate with commercial publishers and the bundling policy now largely resented by library administrators is often perceived like an all-or-nothing non-choice. The practice of bundling titles has caused dissatisfaction with library administrators. It leaves little room for negotiation, and gives no guarantee that what has been licensed at one time will be still available in the future time. A recent debate on bundled subscription organized by the *Chronicle of Higher Education*<sup>12</sup> voiced this concern about continuity of access. There is an inherent contradiction that electronic publishing has brought in unbinding the traditional volume format. While librarians still cling to an ideal of a complete subscription to a title, and are charged for it, many users and publishers act at the disembodied level of their focus of interest—which may indeed lead to a pay-per-view article access system rather than volume access.

There has always been a tension between publishing and archiving—making immediately available what is in demand while also giving access to what may be useful. In this transition from paper to electronic publishing, the change is not merely a question of format, as we all know, but neither is it so revolutionary a change as to transform entirely the established commerce of scholarly communication. What may emerge through the efforts of scholarly, non-profit publishers is an infrastructure with multiple levels of entry that maintains quality and allows for long term accessibility.

### **Conclusion**

The different price tags assigned to information from for-profit and not-for-profit publishers may not be related to intrinsic quality but to the urgent need for the information, the premium for exposure, and the exclusive niches different players still hold. On the surface it looks like the bill for this transition has been paid twice by institutions of higher learning, who pay for the overhead cost of technological change and then pay again for the access to the final product.

The greater part of the blame for inflation in periodical subscriptions has been put on the middlemen that for-profit publishers represent. The huge financial gains for Elsevier and other science publishers is a price paid for innovation, and restructuring. With electronic media gaining recognition and becoming more stable and predictable, we will likely see a leveling of subscription costs with scholarly societies not just alternatives but players on the same footing with commercial interests. The change for libraries may likely be that judging an institution by the number of titles available will no longer be very meaningful; instead, the use and quality and continuity of what is accessed may be the more relevant criteria.

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