

FUTURE CHALLENGES AND OPPORTUNITIES IN ACADEMIC PUBLISHING¹

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Abstract. Digitization and the rise of Open Access publishing is an important recent development in academic communication. The current publishing system involves challenges with cost, where many universities are forced to cancel journal subscriptions for economic reasons, as well as access, as scholars and the public alike often lack access to research published in paywalled subscription journals. Open Access publishing solves access problems, but not necessarily cost problems. Universities and researchers are currently in a challenging, interstitial stage of scholarly publishing. Subscription journals still dominate scholarly communication, but a growing imperative to fund and support Open Access alternatives has recently emerged. Stakeholders including faculty, university administrators, publishers, students, scientific funding institutions and librarians and governments alike currently strategize and compete for their professional and economic interests in the broader publishing system. Four main trends are proffered that will characterize the future of scholarly publishing: 1) antagonism with professional scholarly associations; 2) changes and innovations to peer review; 3) Scientific/Intellectual Movements around Open Access publishing and 4) new professional niches in the publishing landscape. This article suggests potential trajectories and outcomes for these various conflicts over the costs and benefits of academic publishing

Keywords: Publishing, Sociology of Science, Economic Sociology, Libraries

Résumé. L'informatisation et l'essor de la publication en accès libre constituent un développement important dans la communication universitaire. Le système d'édition actuel présente des défis coûteux, où de nombreuses universités sont contraintes d'annuler des abonnements à des revues pour des raisons économiques, ainsi que l'accès, car les chercheurs et le public n'ont souvent pas accès à la recherche publiée dans les revues payrollées. La publication Open Access résout les problèmes d'accès, mais pas nécessairement les problèmes de coûts. Les universités et les chercheurs se trouvent actuellement dans un stade difficile et interstitiel de l'édition savante. Les revues d'abonnement dominent toujours la communication savante, mais un impératif croissant de financer et de soutenir

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les alternatives d'accès ouvert a récemment émergé. Les intervenants, notamment les professeurs, les administrateurs universitaires, les éditeurs, les institutions de financement scientifique, les bibliothécaires et les gouvernements, élaborent actuellement des stratégies et concourent pour leurs intérêts professionnels et économiques dans le système d'édition. Quatre tendances principales sont proposées qui caractériseront l'avenir de l'édition savante: 1) l'antagonisme avec les associations professionnelles d'érudits; 2) changements et innovations à l'examen par les pairs; 3) Mouvements scientifiques / intellectuels autour de la publication en Open Access et 4) nouvelles niches professionnelles dans le paysage de l'édition. Cet article propose des trajectoires potentielles et des résultats pour ces différents conflits sur les coûts et les avantages de l'édition universitaire.

Mots clés: Édition, Sociologie des sciences, Sociologie économique, Bibliothèques

INTRODUCTION

Digitization and the Internet are changing how scientific research is published and disseminated. Throughout most of scientific history, printing presses were necessary for typesetting, bookbinding and managing the logistics of transporting reams of paper to universities across the world. Digitization and modern computer software have made writing and disseminating the written word relatively easy, calling the purpose and value of for-profit publishers into question. This is especially true since for-profit – and some not-for-profit – publishers derive economic rents from the research of scholars and the largely unpaid efforts of peer reviewers, by selling the products of that labor back to universities. Disruptive technologies alter markets and incentives, creating challenges for people and institutions accustomed to the status quo (Christensen 1997).

Technological changes have turned scientific knowledge into a non-rivalrous good, in that one person having possession of an article does not preclude others from also possessing. Marginal costs of dissemination of digital knowledge are essentially nil; printing additional copies of online articles is essentially costless.² In the current predominant sub-

2. Kent Anderson, a prominent Open Access critic and publisher advocate, posted a blog (2016) entitled "96 things publishers do." Whether publishers actually do all ninety-six of those things, if all things are of value, or if they require paying for-profit publishers to perform those tasks are open questions. Likewise, the value added from for-profit publishers should be considered relative to costs or forgone revenues. Regardless, the fact that quality scholarly publishing is a skilled – if not also complex – process is worth emphasizing.

scription-based business model, publishers prefer a ‘club’ membership for this non-rivalrous good where individuals and/or institutions pay for access. In contrast, a modern digital publishing landscape without paywalls is increasingly reminiscent of a fireworks show, where it is difficult or impossible to exclude anyone from access.³ The ease of online access to digital knowledge poses an obvious threat to the traditional use of paywalls and print subscriptions as a means of funding scholarly publishing.

Academic publishing is an industry currently worth \$10 USD billion annually (Ware and Mabe 2015). In the social sciences, the top five publishers account for 70% of published articles (Larivière et al. 2015). For-profit publishers derive substantial monopoly or oligopoly power over prestigious academic journals. This leverage results in substantial profits for publishers and high costs for universities. For-profit publishers currently enjoy profit margins that are higher than most other industries. For example, in 2014, Elsevier made a profit margin of 34% from £2 billion of revenues (Cookson 2015). This profit margin is four times higher than the average margin of FTSE 100 companies on the London Stock Exchange. For-profit publishers are thriving in the digital world, leading Cookson (2015) to dub academic publishing as “the business the internet could not kill.” These profits raise the question of whether scientific stakeholders (academics, students, research funders, the general public) are receiving good value for these publishing expenditures. Universities – including wealthy institutions such as Harvard University – are expressing concerns that budgets cannot keep up with escalating costs for journal subscriptions (Sample 2012). Annual percentage increases of costs in “big deal” bundles of academic journals with for-profit publishers outpace inflation, making cuts inevitable for institutions without proportionally rising budgets (Nabe and Fowler 2012). In Canada, a declining dollar has exacerbated these financial pressures on university libraries (Scott and Eva 2016). Significant – often contentious – cuts to

3. In response to the proliferation of online file sharing websites for scholarly articles, Elsevier employee Alicia Wise declared, “It’s as if somehow stealing content is justifiable if it’s seen as expensive, and I find that surprising... It’s not as if you’d walk into a grocery store and feel vindicated about stealing an organic chocolate bar as long as you left the Kit Kat bar on the shelf.” (Murphy 2016) Wise’s analogy falls short in part because chocolate bars are rivalrous goods. Eating or taking a chocolate bar means that others cannot also consume it; this is not true for digital articles. Given that the traditional for-profit publishing model is based on deriving revenue from subscriptions, a better analogy might be sneaking into an empty movie theatre or golf course. Wise’s analogy is also based on the controversial – and self-interested – premise and business model that scholarly articles should be property of the publisher.

journal subscriptions are occurring or are being discussed at numerous universities (Siler 2016).

Due to the economic pressures of contemporary publishers, in addition to the often cumbersome and exclusionary consequences of paywalls, current business models for curating and publishing scholarly work are being questioned. Given the relative ease of storing and disseminating articles digitally, Open Access publishing is proffered by many as the obvious answer. Open Access journals publish scholarly research online, enabling free access for anyone with an internet connection (Suber 2012). Open Access also entails a change in the funding structure of publishing, moving from a traditional-subscription based model to one based on Article Processing Charges (APCs). *PLOS One*, a pioneering Open Access journal, recently received criticism for arguably excessive article processing charges (APCs) of between \$1495-\$2250 (USD). PLOS co-founder Michael Eisen (2016) defended those price points, arguing that such costs were necessary for producing a high-quality journal, also suggesting that overall PLOS costs are only about one-third of the \$6000 a typical subscription-based journal takes in for every published paper.⁴

'Hybrid' subscription journals offer to make articles in subscription journals Open Access for a fee, but as Brembs (2016a) noted, this entails paying for a service (making an article universally accessible) that does not cost the publisher anything. In turn, high APCs at these hybrid journals allow publishers to double-dip; deriving revenue from those who can afford Open Access publishing while also maintaining subscription revenues. The fact that not all published authors can afford to purchase Open Access for their articles enables this double-dipping, since not all published articles will be Open Access, thus necessitating subscriptions. Further, this dual-publishing model makes setting APC price points to maximize APC and subscription revenue streams a strategic matter for publishers. Unsurprisingly, APCs for hybrid journals are substantially higher than those for entirely Open Access journals (Solomon and Björk 2016; Jahn and Tullney 2016; Haustein et al. 2016).

Even if APCs at a given journal are a good value at a reasonable price point, they still represent a challenge for publishing research, given that university and other science-funding budgets are already stretched by subscription-based journals. Meanwhile, scientific funding agencies do not always include additional funds to cover APCs in Open Access Journals. *We are currently in a challenging, interstitial stage of scholarly*

4. As a comparison, a Canadian Open Access journal, *FACETS* debuted in 2016 with APCs of \$1350 (CAD) plus taxes.

publishing.⁵ Most universities are still paying for subscription journals – with escalating annual cost increases that outpace inflation (Association of Research Libraries 2011) – while also being asked to pay APCs for Open Access alternatives; sometimes within the same journals. This “double dip” further exacerbates funding pressures. Challenges with Open Access funding are particularly acute for smaller and less wealthy institutions, as well as for more marginal academics with less slack money to subsidize OA publishing. Even for-profit publishers may eventually prefer to move to Open Access; Kelty (2016) argued in regards to Elsevier’s acquisition of the Social Science Research Network (SSRN), “[T]heir bigger plan is to get out of subscription-based publication models all together.” Moving between these two business models represents a challenge for universities and funding agencies on the one hand, and publishers on the other.

For universities, moving to Open Access publishing would improve the ease of dissemination of scientific work to academics and the public alike. Recognizing this, the European Union has endorsed a widespread transition to Open Access by 2020 (Enserink 2016). However, Open Access does not necessarily represent cost or efficiency gains. As Brems (2016a) suggests, Open Access can entail even greater profits for journals owned by for-profit publishers, and by extension, increased costs absorbed by universities and institutions which fund scientific research. Further, publishing Open Access research with some journals can still require researchers to cede commercial rights of their work to the publisher. Supporting Open Access publishing improves access issues but

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5. Eisen (2013) offers an interesting perspective on the challenges of moving to an APC model in the context of inertial institutions such as universities and science, still rooted in traditional funding mechanisms and institutions:

“The APC model has serious problems for researchers without grant funding or from poor institutions, and it’s unreasonable to, in the long run, subsidize the publishing costs for these authors by essentially taxing the fees paid by other authors. It would indeed be a nightmare to have committees set up to decide who will get institutional fees, if that’s the model we ultimately use. I also think the APC model keeps prices artificially high (although far lower than the per article costs paid today).

There is, of course, tons of money available to support publishing, as the research community spends \$10 [Billion] dollars per year on publishing. If we could magically redirect these costs to support OA publishing we’d be set. But we can’t. There has to be a mechanism by which research funders (most granting agencies and universities) pay into the system in rough proportion to their usage of it. APCs accomplish this, but I think direct subsidy of publishers by funding agencies makes more sense (although this too has its problems).”

does not necessarily alleviate the cost challenges faced by today's universities.

The APC publishing model may have the potential to escalate costs and exacerbate funding shortfalls at universities. Shulenburg (2016) cautions that APC levels are determined by the market power of publishers and have little relation to actual publishing costs:

The likely result of flipping the market to APCs is that the collective cost of scholarly communications would rise above the level that would prevail under the subscription regime. By dealing with individual authors rather than large, sophisticated buyers, the increased market power advantage of for-profit publishers and non-profit scholarly societies would allow them to obtain higher prices and profits than they now enjoy. Certainly some publishers, like PLOS, would continue to responsibly set APCs, but their behavior would not be the dominant industry behavior.

In turn, while the APC publishing model solves accessibility issues, the business model may further tilt market power in favor of publishers. Well-meaning Open Access mandates enforced by funding institutions may inadvertently bolster the market power of publishers and by extension, publishing costs. By mandating Open Access publishing, demand for such services becomes inelastic, making it possible for publishers to further raise prices since faculty have no choice but to pay such costs. Further, the APC model may merely shift accessibility problems. Subscription-based journals may exclude those without subscriptions from reading, but an APC model has the potential of excluding those who cannot afford to pay fees, such as precariously employed academics or those from developing countries or small universities.

Green Open Access is another alternative for the economical dissemination of scholarly work. In contrast to Gold Open Access, which involves free sharing of typeset published articles, Green Open Access involves the online publication of an article in its pre-formatted form; usually from the author's word processor. In the natural sciences, the arXiv online repository was founded in 1991 and plays a central role in publishing scientific research in many fields. Green Open Access is prominent and well-developed in the scientific and professional cultures in physics. For example, SCOAP³ (Sponsoring Consortium for Open Access Publishing in Particle Physics) converts articles published in High-Energy Physics journals to Open Access at no cost to authors. SCOAP³ then centrally pays publishers, allowing for cost-savings that enable its funding. Given the fast-moving nature of many natural sciences and the potential of being 'scooped', posting articles prior to peer review is a considerable asset. In the social sciences, the Social Science Research

Network (SSRN) and Research Papers in Economics (RepEc) played analogous roles. In May 2016, Elsevier purchased the SSRN, sparking worries that even Green Open Access could be co-opted by corporate interests. Access to usage data, which may be sold back to academics in the future (Kelty 2016) and “getting closer and more intimately connected to researchers and academics” (Poynder 2016) have been cited as benefits of Elsevier’s strategic acquisition. The success of arXiv in physics in part led to the creation of a biology repository (BioRxiv) in 2013. In 2016, similar initiatives emerged in the social sciences (SocArXiv), engineering (engrXiv), psychology (PsyArXiv), chemistry (ChemRXiv) and Humanities (Humanities Commons) (Cressey 2016).

Green Open Access is also a potential compromise to the accessibility problem in publishing, where online repositories like arXiv host unformatted versions of published research, while subscription-based journals still publish the typeset ‘official’ article. Some universities and funding agencies have tried to mandate that authors make their work immediately accessible through Green Open Access. However, such policies are often rendered toothless by embargo periods enforced by leading journals and/or researcher non-participation. In one case, only 25% of eligible papers were posted to the University of California repository, despite legislation requiring free public access within 12 months to any publication stemming from research financed by the California Department of Public Health (Basken 2016). In Canada, the Tri-Council (2016) adopted a similar Open Access policy, mandating some sort of public access within twelve months of publication. The official policy states:

It is the responsibility of the grant recipient to determine which publishers allow authors to retain copyright and/or allow authors to archive journal publications in accordance with funding agency policies.

While ambitious and well-meaning, if strongly enforced, such a policy would be problematic. First, such dictums would run afoul of academic freedom. Second, such policies are also at odds with current tenure/promotion standards for faculty, which often are based in publication in journals that do not allow for Green Open Access, or conformity to the new Tri-Council standards. These tenure/promotion standards are often what give publishers leverage to charge high fees for subscriptions and/or APCs. Green Open Access may be the easiest short-term route to improving the accessibility of scholarly publishing. However, substantial progress still needs to be made in regards to adoption and enforcement.

Regardless of the mechanisms that fund scholarly publishing, publishing and curating quality work is costly. Organizing and curating knowledge and metadata are already of paramount importance in a digital world. Abbott (2016) argued that online search has supplanted reading as the primary means by which scholars acquire information. In turn, making published work easily and conspicuously accessible online will be vital for propagating knowledge. Journal revenues – whether derived from APCs or subscriptions – fund search-engine optimization, metadata curation and indexing, as well as typesetting and promotional functions. There may be niches for less expensive journals with lower APCs, but such journals will be disadvantaged vis-à-vis behind better-resourced competitors in regards to the digital curation of information.⁶ Further, economies of scale may advantage large publishing institutions – oligopolistic legacy publishers including Elsevier, Sage and Wiley-Blackwell – who can devise large-scale systems to curate, organize and promote digital metadata for thousands of journals. These economies of scale could be particularly attractive to smaller journals who lack the resources and know-how to compete in this new digital era of scholarly communication. Differences in the quality, organization and promotion of digital data could be a major factor that stratifies journals and scholars in the future. These publishing inequalities may be intertwined with other stratification orders in academia. For example, scholars from smaller and less-wealthy institutions may be more prone to choose journals with lower APCs.

Library paywalls – which theoretically protect and enable the subscription business model – are becoming increasingly ineffective. In 2013, Elsevier sent takedown notices to the University of Calgary, University of California-Irvine and Harvard University, as faculty were sharing published manuscripts via university webpages (Peterson 2013). However, this business and legal strategy seems ineffectual in the grand scheme of things, as these legal actions foment further antagonism with universities and faculty, and no publisher is capable of constantly policing the entire Internet. Further, there are often multiple ways to acquire a published manuscript without a library subscription or paying a publisher a fee to download an article. Copies of published manuscripts are often available online, even though such dissemination is prohibited.

6. A prominent mathematician, Timothy Gowers, is challenging the notion that quality scholarly publishing is necessarily expensive. Gowers founded a new Open Access journal, *Discrete Analysis* to test if a quality, sustainable academic-run journal can be produced costlessly (Belluz 2016). Whether such a journal would be able to compete with better resourced publications is an open question.

Further, many unformatted preprint .pdf files of published articles are legally posted online through Green Open Access ordinances and repositories. Otherwise, it is relatively easy to email an academic and ask for a copy of an article. Additionally, a twitter hashtag #icanhazpdf encourages and facilitates the online sharing of published manuscripts.

Sci-Hub is currently the most prominent manuscript sharing website and represents a substantial threat to the paywall/subscription business model for scientific publishing. Sci-Hub was founded in 2011 by Alexandra Elbakyan, a then 22-year-old Kazakhstani graduate student in neuroscience.⁷ Elbakyan is regarded as a heroic modern-day Robin Hood by some and a villainous pirate by others. According to Elsevier, Sci-Hub is “an international network of piracy and copyright infringement by circumventing legal and authorized means of access” (Rosenwald 2016). In contrast, Brembs (2016b) lauded Sci-Hub, arguing that it represents “necessary civil disobedience” against publisher avarice and exploitation. Elbakyan justifies her endeavors in part by citing the United Nations Declaration of Human Rights, which states that all have the right to share in scientific advancement and its benefits. Bohannon (2016) chronicled that Sci-Hub currently hosts 50 million manuscripts and dispensed 28 million articles over a six-month period. Sci-Hub is popular across scientific disciplines and around the world; even at wealthy universities and for scholars who find Sci-Hub more convenient than legally circumventing the often cumbersome paywalls of their university libraries from home or at the office (Bohannon 2016).

Regardless of whether Sci-Hub survives or is eventually shut down via corporate and/or government intervention⁸, the current state of Sci-Hub generates opportunities to challenge the current publication system.

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7. Elbakyan’s status as a young student in a developing country may be relevant details. Millennials grew up with the internet and the abundance of free information. Further, younger scholars have had less time to be exposed and socialized into traditional business models and conventions in science. In turn, it may not be surprising that younger scholars are more likely to fight for Open Access publishing. Elbakyan also added, “Realistically only scientists at really big, well-funded universities in the developed world have full access to published research.” (Murphy 2016) Elbakyan currently faces legal action from Elsevier, but lives in quasi-hiding somewhere in Europe and has avoided extradition thus far. Of note is that a predecessor to Elbakyan was Aaron Swartz, a young American activist who committed suicide in 2013 while controversially facing federal prosecution for numerous felonies related to downloading a large number of scientific articles from the Massachusetts Institute of Technology library.
 8. The free music-sharing site Napster, which was eventually shut down after a brief heyday in the early 2000’s, is often invoked as a possible analogue and/or precedent for Sci-Hub.

Sci-Hub is subversive to the dominant subscription-based business model in scientific publishing. If paywalls are rendered toothless and journal articles are rendered easily accessible, this pressures the publication system – whether with large for-profit publishers and/or independent institutions – to move to an APC format to ensure revenue is collected. Sci-Hub may also provide a window for diminished faculty dissent in the face of journal subscription cancellations. Universities – or any legitimate institution – cannot formally endorse copyright infringement as an official policy, even if existing laws and contracts are deemed unfair or disadvantageous. However, a possible accord may occur through organizational loose coupling (Weick 1976), where faculty will gravitate towards Sci-Hub, or use similar means to attain articles from canceled journals, instead of going through slower or less-convenient official channels endorsed by institutional administrators, such as inter-library loans.

FUTURE TRENDS

In the changing digital landscape, I suggest four main trends that will characterize the future of scholarly publishing: antagonism with scholarly professional associations, changes and innovations to peer review, Scientific/Intellectual Movements and new professional niches in the publishing landscape. All of these trends will influence the future of scholarly publishing and science policy, although what those outcomes will be is uncertain.

Antagonism With Scholarly Associations

Scholarly professional associations derive substantial revenues by licensing official association journals to major publishers. For example, the American Sociological Association (ASA) publishes a number of journals with Sage, and the Canadian Sociological Association presently publishes the *Canadian Review of Sociology* with Wiley-Blackwell. In 2014, the American Sociological Association (2015: 6) derived \$2.74 million (USD) from publication revenue, against \$1.45 million of publication and editorial office costs for an apparent profit of \$1.29 million. Unsurprisingly, most scholarly associations have a vested interest in maintaining journal revenues, even if they are tied to the current subscription model. For example, in a self-interested – if not also asinine – 2012 letter former American Sociological Association President Sally Hillsman wrote the United States Office of Science and

Technology Policy office warning that any changes that endangered subscription income would “hurt scientific communication in sociology and the social sciences.” Ironically, two years later, the ASA established an official Open Access journal in partnership with Sage Publishing, *Socius*, realizing that rents can also be derived in Open Access publishing via APCs. The ASA remains protective of its economic rents from publishing whether through APCs or subscription fees. A recent ASA blog post characterized Sci-Hub as “not just stealing from the rich”, suggesting that the ASA’s fiduciary interests are threatened by Sci-Hub⁹ (Edwards 2016). For-profit publishers are currently working on two fronts; protecting paywalls of existing lucrative journals while breaking into markets with OA alternatives, such as *Socius*. Professional societies directly asking undergraduates, taxpayers and other university stakeholders to directly subsidize them would be politically awkward. By acting as middlemen, publishers help obfuscate this monetary relationship.

As journal costs continue to rise – particularly in Canada with a flagging dollar – universities are increasingly cutting subscriptions. This is problematic for professional societies when cancellation of journal bundles means that their flagship journals might be unavailable in universities. For example, recent journal cuts at the Université de Montréal and Memorial University threatened immediate access to the most recent issues of the *Canadian Review of Sociology*, published with Wiley-Blackwell. These cuts present academic professional societies (in this case, the Canadian Sociological Association) with a dilemma. While journal subscriptions are a key source of revenue to sustain such associations, promoting and disseminating research is also a paramount function of scientific societies. With increasing journal costs and subsequent cuts, the revenue-generating function of journal subscriptions is undermining accessibility. Further, if a large portion of these publishing rents go to corporate profits, this also means that this revenue-generation function is inefficient for the professional association.

Accessibility problems with research are even more acute for scholarship with relevance or interest outside of the ivory tower. In sociology, publicly inaccessible research also undermines the “public sociology”

9. Implicitly, this means that the ASA is partnering with “the rich” to publish association journals. If one member of the partnership is ‘rich’, but the other is not, this also suggests that profits are not shared equally between partners in this relationship.

movement (Burawoy 2004) in the discipline.¹⁰ Moving to Open Access solves accessibility problems with both academics and the publics, but does not necessarily reduce financial strains that high publishing costs impose on libraries and other academic stakeholders. Small regional journals – such as the Canadian Sociological Association – may be particularly vulnerable to losing subscription revenue streams. The American Sociological Association has recently garnered criticism from some (e.g., Freese 2011) for high membership dues and contentious expenses. Regardless if such criticisms are justified, downsizing for a large scholarly association like the ASA is a possibility. In contrast, revenue cuts may render smaller scholarly associations no longer viable.

Changes and Innovations To Peer Review

Open Access and journals also have the potential to create niches for new peer review models and evaluative philosophies. Without print space constraints, online OA journals like *PLOS One* and *Sociological Science* use technical competency as the main criterion for publishing, as opposed to also gauging theoretical significance and novelty. Online publication also enables the inclusion of downloadable raw data from studies, so others can examine and explore the data underpinning a given article.¹¹ This creates niches for types of science (e.g., replicative work, purely empirical reports) that have historically been crowded out of high-status print journals. As Lamont (2016) argued,

“The annual financial cost of entry has been lowered, which may have a direct effect in democratizing evaluation as well as access to such venues. With the proliferation may emerge a broader diversity of criteria of evaluation and a greater diversity of intellectual output, a heterarchy of sort.”

10. James Moody (2005), the current *Socius* co-editor, emphasized the importance of publicly sharing research, while expressing concerns that “public sociology” is often used to justify polemical scholarship (usually with left-wing slants) with limited public appeal, at the expense of scientific focus (also see Davies 2009). As an additional irony, *Contexts*, the American Sociological Association journal which publishes articles written in a publicly accessible style, is paywalled. *Contexts* has a circulation of 4,879 (including a mere 83 non-ASA members), which is about half of the *American Sociological Review* and is comparable to other academically-oriented specialist ASA journals (ASA 2014: 19). See Puddephatt and Price (forthcoming) for a discussion of the relationship between open-access publishing and public sociology in the case of symbolic interactionism.

11. In a strong endorsement of Merton’s (1968) thesis that reward structures underpin scientific behaviors, Kidwell et al. (2016) found that the introduction of data sharing ‘badges’ adorning article webpages substantially increased data sharing at *Psychological Science*.

Since print journals generally receive more technically competent manuscripts than they have space, other criteria are needed to winnow out excess manuscripts. This is a particularly pertinent issue for highly competitive journals with acceptance rates below 10%. For example, in organization science, the paramount importance of theoretical significance for publications leads gatekeepers and authors to exert disproportionate effort and scrutiny on the theoretical framing of articles, as opposed to methods or results (Strang and Siler 2015; Siler and Strang 2017). This disproportionate focus on theoretical and disciplinary significance in high-rejection journals can constrain creativity, creating bottlenecks where a few editors and reviewers gauge and shape theoretical significance via gatekeeping and gestational functions of peer review. Conventional peer review can also be problematic because creators are often better arbiters of innovations than judges (Berg 2016), while competition and high rejection rates diminish agreement between reviewers (Balietti et al. 2016). While imperfect, conventional peer review generally adds value (Siler et al. 2015). As Lamont (2016) suggested, Open Access publishing offers complementary opportunities and imperfections in more established journals, in part by diversifying intellectual portfolios in disciplines via founding journals with different peer review and publishing philosophies regarding academic creativity, gestation and gatekeeping.

Online-only journals operate with different incentives than print-based counterparts. Scarcity (rejection rates) are strategic, as opposed to constrained by page restrictions and costs. Further, if APCs are used, this means that accepted papers are the main source of revenue for journals, which raises the opportunity cost of rejections. This also means that online-only journals have economic incentives to publish more articles (Jeon and Rochet 2010). However, diluting an online journal with mediocre articles also would undermine the reputation of the journal, and its ability to attract submissions and APCs in the future.¹² Accordingly, each online journal has the challenge of figuring out its niche and ideal rejection rate, although they also have some freedom to determine that rate based on the quality of

12. Jeffrey Beall, a University of Colorado-Denver librarian, maintained a controversial list of predatory journals. Beall suddenly removed the list in January 2017 amidst rumors of escalating harassment and threats (Straumsheim 2017). Establishing boundaries to demarcate science from non-science is a central challenge in academia (Gieryn 1983). While many took issue with Beall's criteria for inclusion on his list, some online journals have shown a willingness to publish anything that an author will pay for. For example, the *International Journal of Advanced Computer Technology* accepted a sardonic hoax article comprised solely of the repeated sentence, "Get me off your fucking mailing list." Inexperienced scholars from developing countries are most vulnerable to publishing in low-quality – if not also fraudulent – online journals (Xia et al. 2015).

submissions. In some cases, popular Open Access journals have evolved very selective gatekeeping. For example, *eLife* receives 550 manuscripts monthly and has an acceptance rate of 15% (Kaiser 2015). In theory, it seems preferable that scientists and gatekeepers make publishing decisions without influence from page restrictions often imposed by publishers. High rejection journals are costly in terms of resources (time and labor of editors, reviewers) consumed, as well as the delay of published science. This is especially the case when authors sequentially submit articles further down the journal hierarchy – often multiple times – after rejection (Calcagno et al. 2012). These repeated submissions delay the publication and dissemination of science, while taxing the peer review system as a whole, as new reviews usually accompany each subsequent submission. This is not to imply that high rejection rates are not defensible at some journals, just that the full costs should be weighed vis-à-vis the benefits.¹³

The Role of Faculty: Publishing as a Social/Intellectual Movement

Eisen (2013) defined Open Access publishing as both a social movement and a business model. For many faculty, whether publishing in or reading Open Access journal, or established ‘legacy’ journal, as per McLuhan’s (1964) famous dictum, the medium is the message. Faculty will play an important role in shaping the political economy of scientific publishing. In particular, faculty set tenure and promotion criteria (usually linked to publication in traditionally prominent journals) in addition to influencing the funding mechanisms by which professional societies and publishers conduct business, unwittingly driving the “serials crisis.” In 2016, the Canadian Association of Research Libraries argued that the serials crisis is particularly acute in Canada, warning, “[r]esearch libraries in universities across the country are experiencing severe budget pressures owing to the weakening Canadian dollar combined with the extraordinarily high costs of international scholarly journals.” (CARL 2016)

The reality or spectre of journal cuts is a key issue at many universities. Numerous Canadian universities have enacted or are currently considering cuts to journal collections (Collins 2016). Understandably, some faculty are perturbed over these developments, as access to current journals is vital for conducting research. In response to proposed cuts to the library journal collection, the Brock University Faculty Association filed a grievance against the university, contending that the cuts impeded the faculty from

13. For example, assuming submissions are of reasonable mean quality, high-rejection journals will privilege avoiding errors of commission over errors of omission. How to manage the risks of Type I and Type II errors, and whether and how scientific gatekeeping should be risk-averse or risk-seeking are issues worth discussing, but beyond the scope of this manuscript.

performing their jobs properly. This resistance was eventually quelled when Brock cancelled the cuts (Schmidt 2016), presumably transferring funds from another function or interest group in the university budget. This raises the question of if the faculty were merely placated via the reinstatement of the status quo, or if the conflict raised awareness and sparked a willingness to work towards reducing budgetary pressures imposed on the university via publishing costs. Regardless, if journal costs continue to rise faster than inflation and university funding rates, this conflict will likely be reprised in future years. Finding short-term ways to fund inefficient and/or overpriced journal collections does little to solve the fundamental problems underpinning journal proposed or extant journal cancellations in universities.

In late 2015, there were similar tensions at Memorial University when cuts were announced to 2,500 journals (out of a collection of 80,000) due to rising costs and declining revenues. Like at Brock, many faculty raised objections to the cuts. Eventually, subscriptions to about 1,700 journals were cut (Howells 2016). In response to the initial announcement, Memorial political scientist J. Scott Matthews was quick to catastrophize the situation, declaring to the CBC that, “[the journal cuts] will be very, very bad for our reputation” and that the faculty was in “panic mode” (Howells 2015). Another faculty member posted a similarly querulous reaction on Twitter, “Time to get riled up, folks. This is completely unacceptable. Budget crunch, to be sure, but cutting THE LIBRARY??!! [sic]” (amandabittner 2015). Likewise, the Memorial Graduate Students Association suggested the university cut “administrative excess” instead of journals (CBC News, 2015). Regardless if budgetary excesses exist outside of the library, I have argued elsewhere (Siler 2016) that citing other university costs in response to escalating journal prices is a red herring. Even if excesses elsewhere exist in university budgets, this still leaves the issue of escalating journal costs unresolved.¹⁴

14. The economic situation in Newfoundland and Labrador is pertinent. Suffering from plummeting oil prices, the province is currently running one of the worst per-capita provincial deficits of *any* province in decades and is imposing harsh austerity budgets (Simpson 2016; McLeod, 2016). Pertinent to this article, as a result of budget cuts, 54 public libraries – over half of the province’s branches – were closed (CBC News 2016). In a sparsely populated province with many remote outposts, local libraries are the only link to knowledge and the arts for many. In my opinion, this puts immediate access to the *British Journal of Political Science* for tenured professors unwilling to work around paywalls (or at worst, wait a few days for an inter-library loan) into perspective. Given the severity of the economic situation in the province, it is remarkable that Matthews gave a nation-wide interview to Carol Off on CBC Radio’s *As It Happens* expressing “shock” that the university cut journal subscriptions. The notion that a few conveniences of a privileged upper-class job should be completely inured from severe economic shortfalls felt throughout the province is particularly entitled, if not also galling.

In late 2016, a change.org petition protesting journal cuts at the University of Ottawa garnered over 4,000 signatures. Spearheaded by biologist Jules Blais, who is also the founding Editor-in-Chief of the new *FACETS* Open Access journal, the petition echoes the alarmist tones expressed by some at Brock and Memorial. In regards to the proposed journal cuts, the petition argued “[t]he total savings of \$1.527M...are not worth the cost to the university’s reputation as an academic institution and will severely incapacitate its education, training and research programs, its students, and its staff.”¹⁵ Like at Brock, the faculty association unequivocally expressed opposition to the cuts; representatives from CAUT and Wilfrid Laurier University also expressed concerns that the cuts at Ottawa were a bad omen for other universities (Mas 2016).

The conflicts over journal subscriptions at Brock, Memorial and Ottawa suggest that fights over the funding of scientific publishing often pit faculty against librarians and/or administrators. Journal pricing is often opaque, as for-profit publishers amalgamate bulk purchases in “big deals”, which obfuscates prices of individual journals. For-profit publishers also often demand non-disclosure agreements, where universities are not allowed to publicize costs. Some enterprising scientists (Bergstrom et al. 2014) filed Freedom of Information requests to reveal how much money universities were paying publishers. Data exposed that there was considerable heterogeneity – even among similar institutions – in costs paid to publishers for journal subscriptions. Schools that engaged in militant negotiations with publishers ended up receiving better deals with for-profit publishers. For example, after sixty German universities chose not to renew Elsevier journal packages at the end of 2016, citing excessive costs, Elsevier voluntarily restored access roughly forty days later as a sign of goodwill as negotiations continued (Schiermeier 2017). The negotiating leverage of publishers may be lower than often assumed, as the German faculty reported that the cuts had minimal impact on their work, since they were able to find other means of acquiring articles. Faculty like those mentioned at Brock, Memorial and Ottawa may have been acting in their self-interest by opposing journal cuts, but only their myopic self-interest. Even if journal cuts are inconvenient in the short-term, the potential to negotiate future cost-savings or establish better publishing models is a better strategy and outcome for university research over the medium to long-term.

15. A potential irony of Blais’ activism is that if the university would spend that \$1.5 million on journals, those funds could be siphoned away from investments in Gold Open Access APCs to support publishing in journals like *FACETS*.

Without support from faculty and administrators, it is difficult to engage in militant negotiations with publishers. Journal cuts are professionally and politically sensitive; libraries may be able to reduce hostility – if not garner cooperation – from faculty with tact and appropriate consultation (Hardy et al. 2016). Regardless, rising costs and economic exigencies may make inconvenient or painful cuts inevitable. Responses to cuts from faculty like those at Brock, Memorial and Ottawa undermine the negotiating leverage of universities.¹⁶ While the faculty are well-meaning (if not also self-interested), they are responding *exactly* how for-profit publishers want faculty to react in response to potential journal cuts. Not only are faculty agitating against a reduction in publisher business, they are also implicitly endorsing continued patronization at price points and bundle structures that are clearly financially uncomfortable for their universities. Without a willingness to walk away – even if only as a bluff – in negotiations, journal prices will continue to rise. A common criticism of the business models of for-profit publishers is that they profit from the unpaid labor of academics, who research, write and review scholarly manuscripts without compensation (e.g., Bergstrom 2001). Responses like those by some faculty at Brock, Memorial and Ottawa go even further. With catastrophizing responses to the mere discussion of journal cuts, those faculty are unwittingly performing free inbound marketing for the likes of for-profit publishers like Elsevier and Sage.

People tend to be more profligate spenders with money that is not theirs. For the most part, the financial and professional interests of faculty are inured to increases in publishing costs. Perhaps if those incentives were slightly altered, faculty would view the costs and benefits of various business models for scholarly publishing differently. In turn, I suggest that universities consider linking faculty benefits such as internal research grants and travel funds to increases in journal costs relative to the general university budget. This proposal is not intended to be punitive in nature. Hypothetically, savings and efficiency gains would result in more resources allocated to faculty. All university stakeholders benefit from well-stocked libraries and a vibrant publication system. I am suggesting that costs should also be absorbed by all stakeholders; financial responsibility should not be confined to the library alone. As the primary

16. While this section focuses on the situations at Brock, Memorial and Ottawa as exemplars of faculty opposition to journal cuts, this is not to imply that those are the only three universities where such arguments and sentiments are held. Further, even though faculty resistance to journal cuts was prominent at those three institutions – as opposed to other universities undergoing or considering journal cuts – this is not to imply that the faculty necessarily have homogenous opinions on these matters.

consumer of scientific journals, faculty should have “skin in the game” as well.

In summary, faculty will play a substantial role in shaping the future of academic publishing. Faculty have the potential to challenge prevailing business models, publication infrastructure, scientific evaluation and professional promotion criteria, or they can reinforce the status quo. Frickel and Gross (2005) coined the term Scientific/Intellectual Movements to describe “collective efforts to pursue research programs or projects for thought in the face of resistance from others in the scientific or intellectual community.” Open Access publishing may prove to be a new type of infrastructural SIM in the 21st Century, as faculty debate publishing in a digital world, funding mechanisms and evaluation philosophies against proponents of the status quo, both within the faculty and major publishers outside of the university. The Open Access movement is unique as a SIM, in that it is not entirely based on scientific issues or content. Further, the Open Access movement distinctive in that it is relevant to all academic fields. Open Access has political implications both within universities – as the benefits and burdens of publishing are fought over by various stakeholders – and beyond, as governments and research funders devise science policy to support or encourage different ideas of scholarly publishing.

New Professional Niches and Hierarchies in Publishing

Academia tends to be an inertial and conservative institution. Hiring, promotion and tenure are linked to publication in long-entrenched high-impact journals. However, the digital age has induced many academics to found Open Access journals as a complement and/or direct competitor to traditional print journals in their fields. In the past decade, *PLOS One*, *eLife*, *PeerJ* and *Sociological Science* are prominent examples of new Open Access journals. The ‘flipping’ of the *Canadian Journal of Sociology* to an online-only Gold Open Access journal is another example. By relying on SSHRC and university funds, *CJS* bypasses the library and professional association middlemen, which may be an efficient and preferable organizational model for funding research.

Some journal editorial boards have ‘flipped’ their journals from print-based to Open Access. The evidence is mixed whether this change increases citations (Eysenbach 2006; Gargouri et al. 2010), or only increases downloads and readership (Davis et al. 2008).¹⁷ At the

17. For a good overview of recent studies showing varying effects of Open Access on citations and visibility in different journals, see Gans (2017, ch. 6).

very least, moving to Open Access certainly can only help the visibility and dissemination of an article relative to a paywalled counterfactual. Recently, the editorial board of *Lingua* – a linguistics journal – revolted and founded an Open Access journal, *Glossa*, when Elsevier did not respond favorably to concerns about journal costs and governance. In 2016, Timothy Gowers founded *Discrete Analysis*, a mathematics journal hosted by the arXiv repository (normally used to store working papers and pre-prints). APCs for *Discrete Analysis* are only \$10, compared to the roughly \$1500 charges for print-based counterparts, and many Open Access journals like *PLOS One*.¹⁸ Legitimate Open Access alternatives are proliferating; often successfully establishing niches in the publishing ecology. This raises the question of what niches such journals will occupy in the professional and intellectual hierarchies of academia.

The speed and visibility of Open Access publishing are obvious benefits and enticements for authors to choose to publish in such journals. Academia is an often status-conscious and inertial institution; hiring, promotion and tenure are generally linked to publication in high-impact journals. These tend to be costly, high rejection rate journals owned by for-profit publishers and/or professional associations. The prestige and indispensability of such journals gives publishers considerable leverage over academics. Thus, publishers can derive rents either through high subscription costs, or by linking “must have” journals to numerous middle-to-low status journals in big deal subscription bundles to libraries. Large publishers may also have economies of scale with systems for typesetting, search engine optimization and other value-added aspects of publishing. This raises the question of whether the billions of dollars of profits and overhead costs absorbed by large for-profit publishers are a necessary inducement for market innovation. Or, are profits deadweight losses absorbed by avaricious publishing monopolists? In academia, competitive pressures to publish the highest-quality, most visible research may be sufficient to incentivize socially beneficial competition. Further, intrinsic motivation – as opposed to monetary incentives – is often a necessary condition for creative behavior (Amabile 1998). In turn, using the profit motive to spur competition with scientific innovation may be superfluous, if not also pernicious.

18. In response to criticisms of high APCs at *PLOS One*, founder Michael Eisen (2016) responded with a revealing blog post about the economics of *PLOS One*, offering justifications for why the charges were set at the given price point.

The speed, accessibility and alternate peer review models of Open Access journals are potential competitive advantages to disrupt the status quo and to at the very least succeed alongside established prestigious journals. Mid-status and regional journals may be most vulnerable to being crowded out, as they are likely to be pruned out of big deals, or at least the first to be dropped with declining purchasing power. As a sign of the insecurity and compromising of autonomy of non-elite journals with legacy publishers, Cohen (2015) found that obligatory – if not coercive – journal self-citation is more likely to occur in lower-status sociology journals.¹⁹ Even though numerous flaws have been found with journal impact factors (e.g., Baum 2014; Martin, 2016), quantitative citation metrics are still used to justify the pricing and prestige of journals. Legacy publishers accrue numerous low to middle-status journals which they add to big deal bundles, but they do not necessarily invest in such journals. As one former editor lamented, “It is very clear that Elsevier doesn’t care about small journals like *Explorations [in Economic History]* or the academics that run them, and only treats them as cash cows without investing a penny in them. The publisher has no willingness to improve the journal, and seeing an issue through to production is harder than looking for hen’s teeth.” (Voth 2016) Low-status journals are the mortar that holds the bricks of publisher “big deals” together. In the midst of contentious negotiations with Elsevier, the University of Kansas (2016) publicly stated, “[d]uring our negotiations with Springer so far, we have found them unwilling to offer us a smaller package of the journals that are actually used by KU students and faculty.” Examining library usage in Canadian universities, Vincent Larivière found roughly half of the journals in big deals are not used at all and that in one case, 80 percent of a university’s downloads came from 10 percent of its journals (Strasser 2016). Breaking apart these big deals and removing obligations to subsidize low-usage/low-impact journals seems like an obvious negotiating strategy for universities, although this may militate against the interests of some faculty who use or publish in these low-impact “long tail” journals.

Experiences like Voth’s with Elsevier may be an incentive for smaller and more peripheral journals to follow *Glossa*’s lead and seek

19. Self-citations are a means of boosting impact factors, thus giving editors an incentive to encourage authors to cite articles from the publishing journal. In response to Cohen (2015), former *Canadian Review of Sociology* editor Rima Wilkes defended self-citation practices at *CRS* responding, “Journals exist within a larger institutional structure that has certain demands.” This raises questions of whose and which demands Wilkes and the *CRS* were apparently beholden to.

autonomy, since such journals could charge their own APCs and not be exploited by a corporate master. However, whether smaller journals can efficiently curate and develop quality publishing in a digital world is an open question (see Price and Puddephatt forthcoming).

OPEN ACCESS, UNDERGRADUATE TEACHING, AND PEDAGOGICAL OPPORTUNITIES

The potential for Open Access publishing to improve the educational experiences of undergraduates is an often overlooked stakeholder in higher education. University students bear financial burdens from for-profit publishers directly via textbook sales, and indirectly from university funds being redirected to maintain library subscriptions to paywalled journals. Textbooks are a tangible increase in the cost of attending university. Increases in journal costs are a similar, but less tangible burden, since students are negatively affected when university funds are siphoned away to cover rising library costs. Tuition increases are disproportionately felt by students from less-wealthy backgrounds (Quirke and Davies 2002). Small sums of money can make a large difference in the lives of some students (Cottom 2016), as many undergraduates divert substantial time and energy away from studies to paid employment in an effort to offset education costs and loans (Williams 2016). Faced with the burdens of increasing tuition and debt loads, some undergraduates endure poverty, skipping meals and even homelessness during their studies (Saul 2015; Carapezza 2017). A recent study found that thirty-nine percent of Canadian undergraduates reported food insecurity (Silverthorn 2016). As one student explained to the *Toronto Star*, “I would say it’s not so much the cost of food but the cost of everything else. Students prioritize (tuition, rent and textbooks) before self care.” (Beeston 2016) Decreasing textbook costs is a means of reducing student poverty and improving the well-being of all students, which should be both a pedagogical and moral concern for faculty and universities.

Open Access textbooks are emerging as an alternative to textbooks published through commercial publishers. For example, backed by the Bill & Melinda Gates foundation, OpenStax offers an Introduction to Sociology textbook that is free to download, and costs roughly \$27 (CAD) to order a hard copy through amazon.ca. In contrast, current editions of popular introductory sociology textbooks on amazon.ca

generally range from \$122-155 (CAD).²⁰ Over the course of a bachelor's degree, these cost differences can accumulate into thousands of dollars. This entails millions of dollars of collective student savings when a large proportion of the student body is able to participate in classes with Open Access textbooks (BCCampus 2016). Universities are starting to recognize the cost and pedagogical benefits of OA textbooks and are supporting initiatives to reduce textbook costs for students. For example, the University of Toronto has developed a Zero-to-Low Cost Course Project, leveraging existing university digital collections. In British Columbia, an Open Textbook Project has been funded by the BC Ministry of Advanced Education, which provides resources and incentives for faculty to develop, adopt and refine Open Access course materials. Student savings are included as part of the Return on Investment for both of these initiatives. While such programs require expertise and coordination with various scientists and lawyers, they also reveal how universities can use their extensive intellectual and professional resources to innovate and improve the educational experiences of students. Monetary interests and benefits for students and universities are not necessarily zero-sum and can be aligned.

There may also be pedagogical benefits to adopting Open Access textbooks for undergraduates. Feldstein et al. (2012) found that OA textbooks were used more often and resulted in better learning outcomes. Students are apparently price sensitive when choosing whether to purchase textbooks. Another advantage of OA textbooks is that less-restrictive copyrights enable greater ease in the sharing, collaboration and refining of texts. Needless to say, pedagogical autonomy and academic quality should be the paramount consideration for choosing textbooks – or any materials – in class. However, relative to previous generations, undergraduates pay higher tuition for larger class sizes, often studying in cities with high costs of living (especially Vancouver and Toronto) with precarious job markets for millennials. By choosing – if not also contributing to – quality affordable OA textbook alternatives, professors and universities can positively impact the educational experiences and lives of students.

20. Some example prices for popular Introductory Sociology textbooks on amazon.ca: *Sociology, Eighth Canadian Edition* (Macionis and Gerber), \$154.95; *Sociology: A Canadian Perspective* (Tepperman and Albanese), \$122.93; *Sociology: A Down-to-Earth Approach, Sixth Canadian Edition* (Henslin and Glenday) \$137.80 and *Exploring Sociology: A Canadian Perspective* (Ravelli and Webber), \$139.95. Prices are current as of February 21, 2017.

SUMMARY

The traditional academic publishing business model is anachronistic in today's digital, connected world. Continually increasing publishing costs coupled with continued lack of access to published science for academics and non-academics alike provide strong incentives for change. As Cohen (2016) provocatively argued, "academic publishing is laboring under the burden of supporting its usurious middlemen." However, academia is an inertial institution. Existing business models are deeply ingrained in the funding mechanisms and professional hierarchies of science. Shifting funding models from paywalled subscriptions to APCs is only one challenge. Moving to Open Access improves accessibility, but not necessarily the fairness or efficiency of scholarly publishing. The broader challenge is making the publishing system more efficient – in terms of time and money expended – while enabling broader ease-of-access.

The current prevalent subscription-based business model – as well as the high profit rates of major publishers – has been remarkably resilient. Despite the theoretically disruptive nature of digital knowledge and increasing resistance to current funding and business models in the industry, EBSCO (2016) projects a 5-6% increase in publisher costs in 2017. These continued price increases in excess of inflation will continue to escalate difficulties in funding full journal collections at university libraries. This raises the obvious question of whether and how academics and universities will fight this trend.

Many scientific societies and professional associations have strong vested interests in the status quo, as revenues from association journal paywalls are a major funding mechanism for such institutions. This raises a number of questions. Are these funds for scholarly associations necessary as a worthy investment, or a necessary evil? Are profits a deadweight loss, or a source of innovation/competitiveness, and do oligopolistic for-profit publishers have economies of scale that justifies these rents? Have scholarly associations become bloated due to the increasing costs paid by university libraries for journal subscriptions? Are there other means to fund professional association, or are academics willing to subsidize current funding levels for professional associations in lieu of revenues accrued from partnerships with for-profit publishers? Will these profit margins be negotiated downward and/or replaced with Open Access alternatives? Does the professoriate have the collective motivation, knowledge, social skill and gumption to either negotiate with for-profit publishers militantly and/or flip jour-

nals to Open Access? After all, while for-profit publishers are focused on corporate strategy, stock prices, and quarterly earnings reports. In contrast, Scott and Eva (2016: 14) lamented that until library collections are threatened at their universities, most tenured faculty seldom think about the political economy of academic publishing. Given those economic incentives, it might not be surprising that publishers frequently outwork and outflank their academic counterparts in negotiations and business strategy.

On the whole, the scientific publishing system would be well-served to either negotiate profit margins down with large publishers and/or flip journals to Open Access and away from corporate control. Increasing publishing efficiency, affordability and accessibility are all desirable possibilities in the future. Pursuing these ends will require political knowledge, savvy coordination and will among librarians, scholars, funders, university administrators and national governments. For-profit publishers will fight to protect their economic rents and to prevent their creative destruction; they are currently abetted by many scholarly associations, and even by some unwitting faculty. Scholarly publishing could be on the precipice of substantial change; the outcomes of these struggles by conflicting and overlapping interests will determine the future distribution of costs and benefits in academic publishing. Which stakeholders benefit most and absorb the greatest burdens will be determined by the savvy, choices and actions of those interest groups.

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