

Open Access, Megajournals, and MOOCs: On the Political Economy of Academic Unbundling

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Abstract

The development of “open” academic content has been strongly embraced and promoted by many advocates, analysts, stakeholders, and reformers in the sector of higher education and academic publishing. The two most well-known developments are open access scholarly publishing and Massive Online Open Courses (MOOCs), each of which are connected to disruptive innovations enabled by new technologies. Support for these new modes of exchanging knowledge is linked to the expectation that they will promote a number of public interest benefits, including widening the impact, productivity, and format of academic work; reforming higher education and scholarly publishing markets; and relieving some of the cost pressures in academia. This article examines the rapid emergence of policy initiatives in the United Kingdom and the United States to promote open content and to bring about a new relationship between the market and the academic commons. In doing so, I examine controversial forms of academic unbundling such as open access megajournals and MOOCs and place each in the context of the heightened emphasis on productivity and impact in new regulatory regimes in the area of higher education.

Keywords

open access, MOOCs, megajournals, academic productivity, scholarly publishing

Introduction

In the last two decades, the viability and justifiability of the traditional model of scholarly publishing has been called into question by advocates of open access scholarship. Under the traditional model publicly funded researchers submit their articles and research reports for free to journals, and the institutions which have paid for the research in the first place, and employ the researchers, must purchase it back from commercial publishers at lofty prices. Members of the public and other potential users who are often meant to benefit from this research are rarely able to afford access despite the fact that the research itself has been largely subsidized by the state and the costs of dissemination have been reduced to zero by the new technologies. Hence, the scholarly publishing system itself has become a source of financial pressure as well as normative tensions (Willinsky, 2006). In 2012, these issues came to the fore with the emergence of the so-called “Academic Spring” featuring boycotts of journals published the leading science publisher, Elsevier, after the company had supported legislative efforts in the United States to ban open access mandates.

Policymakers and even major commercial publishers have announced their readiness to embrace some form of transition to open access. National governments in the United Kingdom and the United States have announced or established regulatory regimes requiring researchers with public support to

make their peer reviewed articles available for free online. One option is the so-called “Gold” route to open access (Gold OA), which involves the publication of journals providing immediate free content on line. In this case, the costs of publication are either subsidized by third parties, or covered by author publication charges (APCs) levied on researchers or their funding institutions. Another approach is the “Green” route (Green OA) in which authors deposit preprint versions of their articles into freely accessible digital archives after they have been published in traditional subscription-funded journals. Both varieties of OA have steadily grown over the last decade. In fact, it is estimated that nearly 17% of articles indexed in ISI’s Web of Knowledge index are now published in Gold OA journals (Laakso & Bjork, 2012). The Directory of Open Access Journals (DOAJ) lists almost 7,000 journals that are now published for free online. The worldwide proportion of peer reviewed research available through Green OA—deposited by authors in open archives—is already estimated at 25% and is likely to grow stronger as self-archiving mandates become more prevalent (Gargouri et al., 2012).

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This article examines the often ambiguous prospects and implications of open access alternatives, not only in academic publishing but also in the more controversial case of massive open online courses known as Massive Open Online Courses (MOOCs). My goal is to examine the logic and consequences of recent support for open content by governments and policy communities and to connect this to the unbundling of academic functions that the new digital academic commons allows. Unbundling is central to new open content formats because, as information becomes more portable and easier to copy and share, new, potentially “disruptive” ways are created for discovering, managing, using, and aggregating academic material and educational resources. According to the theory of disruptive innovation, these new kinds of services can bring about structural changes to markets and industries by initially serving a previously underrecognized or unconventional user need before scaling up to competing with mainstream providers (Christensen & Raynor, 2003). A frequently cited example is the demise of *Encyclopedia Britannica* by the rise of Internet-enabled editing used by *Wikipedia*. Often disruption is driven by technologies that allow important parts of a task to be modularized and performed more efficiently or conveniently by new agents or intermediaries empowered by that technology (Christensen & Eyring, 2011). One question that emerges in our context is whether open access megajournals and MOOCs can be categorized as disruptive innovations.¹ For example, as access to scholarly content becomes less restricted and more modularized, responsibility for filtering that content can be assigned to any number of agents, or even crowdsourced by informally organized groups of peers after publication. After surveying the political economy of open access I examine how the rise of post-publication reviewing and academic social networking may challenge traditional roles and functions performed by publishers, libraries, and other information intermediaries. MOOCs are an equally disruptive case of unbundling. In one sense, online courses simply allow higher education institutions to save money by outsourcing teaching work through the use of technologies that make teaching content portable. More importantly, however, MOOCs are part of a larger socioeconomic shift that would diversify the supply chain of higher education, transferring more academic functions to independent educational services that are offered on a freelancing basis.

It can be argued that both open access scholarship and MOOCs offer the laudable goal of realizing the full social, economic, and scientific potential of free sharing among potential users of knowledge in a digital age. But in what follows, I argue that while these forms of open content liberalize the exchange and circulation of knowledge they also create a new research and education architecture designed to privatize the means of academic production (Marginson, 2009; Neary & Winn, 2013). Indeed, open access and academic unbundling signal the introduction of new forms of academic stratification and competition as

well as controversial new political and economic instruments for the external governance of the academic sphere.

The Journal, the Market, and the Academic Commons

It is often acknowledged that the value of knowledge and ideas is best realized when they are shared (Hess & Ostrom, 2007). In this connection, knowledge is commonly called a public good, which refers to its qualities of being nonrivalrous and nonexcludable (Tilak, 2008). Knowledge is nonrivalrous in the sense that one person’s use of it does not diminish the amount available for others to use. In fact, sharing ideas actually tends to improve them by promoting criticism and revision as well as allowing them to circulate among complementary users. Ideas are also nonexcludable in the sense that at least some of their value is lost by limiting their supply through rationing or by setting restrictions on someone else’s use of them. Any measure that makes an idea harder to reuse destroys some of its potential value. Due to these public good characteristics of knowledge, it is efficient for society to create and mandate a sphere—which we can call an academic commons—within which knowledge is available for collective consumption and reciprocal use among competent users. Indeed, providing subsidies and market protection for basic research is important for social and economic well-being. As a result, even neoliberal governments fiercely committed to the use of market mechanisms typically ensure that the sphere of curiosity-based knowledge creation is largely structured as a commons where the creation and use of ideas is not constrained by barriers of price and permission.

The exchange of ideas through scholarly journals is an important practice sustaining such a commons. Authors willingly forego royalties for their contributions to the commons because they receive compensation in the form of recognition for the impact they have made. This eventually yields tangible benefits by helping academics get hired by an institution dedicated to knowledge creation and dissemination. Of course, journals themselves have long been provided through market-based production rather than through exchanges in the gift economy. That is because print journals themselves, unlike the ideas they contain, require the expenditure of scarce resources for each unit produced and distributed. The incentive for providers to produce those texts and to invest in rigorous quality control would be removed if access to them was not rationed by price and if intellectual property rights could not be used to make those texts artificially scarce (Courant, 2008). So while ideas are public goods, scholarly journals are not. In this case, the tension between the market and the academic commons is resolved by research libraries which have been established with public support to ensure that research texts can be purchased by academic institutions and then shared among members of those institutions. Therefore, while the production and distribution of research

texts is in large measure a commercial enterprise, the fact that the research library serves as a market proxy for academic communities means that those texts need not be rationed by price among those end users (Lyman, 1999).

Of course, this harmonious relationship between the commons and the market is not perfect. The system of market provision means that many other potential end users of those texts are excluded and many institutions cannot afford to buy those texts, or must sacrifice other important goals to do so. What is compelling about the digital environment is that it removes important obstacles for the free sharing and open access provision of scholarly texts by eliminating the marginal costs of publishing. Open access advocates therefore argue that the scope of the text sharing activities in the academic commons no longer needs to be limited by barriers of price and permission (Suber, 2012). Of course, open access does not eliminate the costs of publishing activities such as managing peer review and marketing which, in the absence of artificial scarcity, must be supported by other potentially controversial means such as subsidy, author-side payments or even volunteer effort. The research community and its stakeholders may also believe that open content implies less effective quality filtering.

Indeed, academics are accustomed to dissemination lying within the control of a journal which has proven itself to the community as a credible filter of content and certifier of academic achievement. It is perhaps not surprising that recent surveys show that members of the academic community embrace open access and the demise of artificial scarcity as an ideal, but are concerned that such developments might jeopardize the system of peer review (Taylor and Francis Group, 2013).

Thus, the subscription business model that remains dominant today rests upon a highly valued partnership of publishers with the academic commons (Wellen, 2004). Moreover, at the heart of the current scholarly communications system is a business model that has evolved over many decades in response to the idiosyncratic nature of the academic publishing market. Academic journals typically have small audiences and a weak capacity to attract advertising, which makes them quite different from other types of commercial information products like trade books and magazines. But this disadvantage is offset by the fact that journal publishers do not have to support academic authors and reviewers who, instead, are paid by higher education institutions (HEIs)—and ultimately the public purse—to participate in an intellectual commons in which they are expected to contribute out of professional duty. Furthermore, academic readers have a strong preference to have their libraries provide access to everything in their fields of inquiry. In this sense, the demand for scholarly journals tends to be highly inelastic as each title cannot be easily substituted for another. Moreover, because many academic readers have unpriced access through their research libraries, they have little reason to concern themselves with whether the price of a given journal

reflects its value (Bergstrom, 2001). In effect, the end user (the academic researcher) is relatively insulated from the market. In addition, the value of scholarly journals is hard to observe except by small groups of experts working within narrow specialties. For all these reasons, market forces arguably cannot exert a very strong downward pressure on prices.

It is not surprising, then, that major academic journal publishers today such as Elsevier, Springer, and Wiley & Sons manage to obtain extremely high profit margins of between 32% and 45% (Morrison, 2012) by selling expensive institutional subscriptions to research libraries. Some have suggested that market forces might bring prices down if academic readers were to buy access to articles on a pay-per-view basis (Bergstrom, 2010), but such a model would conflict with the collegial ethos and the logic of collective provision which is a hallmark of the academic commons. If faculty members and students were expected to apply for journal or article vouchers on an individual basis this would result in administrative inefficiencies, managerial interference with academic decision making and possible competition among academic disciplines.

The commercial publishing industry owes its strength and resilience to the strategies developed in response to the massive expansion in the rate of research output since the late 1950s. During most of this period, academic journal output has tracked the massive growth in national research budgets and has expanded at 3% to 4% per year (Elsevier, 2011; Mabe, 2003). Despite this growing market, publishers have had to focus their business strategies around product differentiation rather than market expansion for individual titles. This is partly due to the fact that research expansion has taken place through the specialization of academic subfields, each requiring its own journals. The recognized journals in each field acquire the status of “must have” titles, thereby creating inelastic demand that augments the market power of the publisher (McGuigan & Russell, 2008). Another equally important type of product differentiation is that between high and low prestige journals. To understand this, we have to recall that the journal market is a unique kind of “two-sided” market (McCabe & Snyder, 2007) in which prestige is the key currency. In any two-sided market, the commercial fortunes and opportunities for platform providers (publishers) depend upon finding strategies for serving the needs of interdependent users. The job of the academic journal platform is to create “network effects,” connecting readers who demand trusted quality filters with authors who demand impact or attention (Edlin & Rubinfeld, 2004; Franck, 2012). Because the quality indicator of a journal is its prestige, which is acquired through selectivity and exclusion, each journal tries to boost or retain its market power by attracting more submissions from impact-hungry authors while limiting the final volume of published content (Edlin & Rubinfeld, 2004). One strategy that publishers have adopted in response to the inherent limits of title-specific content expansion is the acquisition of established independent journals (McGuigan & Russell, 2008).

Industry-wide profitability and concentration has perhaps been boosted most by tying the marketing of new journals to the network effects already enjoyed by clusters of established journals. To accomplish this, the major academic publishers have developed multiyear licensing arrangements called “Big Deals” that bundle together high and low impact journals into single packages which are sold in bulk form to research libraries (Frazier, 2001). Bundling of this type makes it easier for publishers to create a captive market for newer (lower tier) journals that otherwise would have to compete on an even playing field with new journals offered by smaller publishers. To achieve this, established commercial publishers can leverage their “reputational capital” that is already attached to their established journals (McCabe & Snyder, 2007, p. 24). They can also spread their fixed investments in scalable value-added services such as article retrieval systems across their different tiers of journals (McCabe & Snyder, 2005). Following these strategies creates significant entry barriers for would-be publishers lacking either established relationships with libraries or preexisting distribution arrangements (Edlin & Rubinfeld, 2004).

The concentration of market power in the academic journal industry is almost certainly due to the Big Deal model. Bundle pricing virtually guarantees that library acquisitions budgets are tied up by established publishers whose new titles always have an advantage over those offered by smaller publishers who cannot discount individual titles through aggregate pricing (Bergstrom 2010; Edlin & Rubinfeld, 2004). This advantage is further reinforced by the fact that so many of the journals published by the large firms have a highly valued digitized back catalogue to which institutions can gain access only by continuing to subscribe. Moreover, these bundles are negotiated under nondisclosure agreements, which reinforces the tendency to oligopolistic pricing (Van Noorden, 2013). Of course, the economics of zero marginal cost dissemination also allows publishers to add new journals to the bulk electronic collections sold to each additional customer, ensuring that small and large research libraries alike can subscribe to virtually all of the titles provided in a publisher’s portfolio (Best, 2009; Odlyzko, 2013). Big Deal packages are typically priced according to a usage based formula scaled to each institution (Walkiers, 2008). The effect of this arrangement is to spread the burden of paying for a system-wide standard of access among all institutions. This is how publishers have been able to adopt an access-friendly approach without embracing open access itself (Morrison, 2013; Odlyzko, 2013; Poynder, 2011b).

The dominant academic publishing model described above is hardly a print-era relic; rather, it is strongly supported by the very economics of digital information that is used to justify open access. For example, the contemporary publishing infrastructure is built around an array of digitally enabled services such as indexing, retrieval, and reference management, which are complements to the core business of content provision. Libraries in particular are being disrupted

by these technologies (Lewis, 2004). Indeed, the fact that publishers now provide much of the software, technology, research tools, and metadata services shows that they are taking over many of the functions of libraries themselves, bringing economies of scale by avoiding duplication of services among institutions (Odlyzko, 2013; Pinfield, 2008). It can be assumed that the Big Deal is at least partly responsible for the fact that academic researchers increased the number of articles they read by 87% between 1977 and 2005 (King & Tenopir, 2009).² This coincides with the period of the growth of the commercial publishing sector and can be taken to indicate the synergy between digital content delivery and Big Deal packages. Moreover, efficiencies related to digitization are evident in the vast productivity differences between the market for journals—which are predominantly digital—and books, which are still mostly printed. In the 25 years ending in 2011, member institutions of the Association of Research Libraries (ARL) paid 402% more for 333% more journals. By comparison, the same libraries paid 90% more for only 10% more monographs (ARL, 2012). In effect, the Big Deal and the Internet have turned the scholarly journal industry into what Anderson (2006) has termed a “long tail” market whereby scalable distribution systems have supported the massive expansion in the number of small, specialized outlets for scholarship.

Defining and Contesting the Open Access Alternative

Commercial publishers have become the favored intermediaries in scholarly communication on the strength of a dissemination model that has made them successful partners to the academic commons. Nevertheless, pressure to promote open access alternatives has never been stronger (*The Economist*, 2013). For the past decade, the demand for change has come from advocates within the academic community, as well as activists and innovators within the scholarly communication profession (Wellen, 2004). While many advocates have emphasized openness as a principle implied by the vocation of science and scholarship, it is evident that real change is being driven by a consensus about the importance of openness for the productivity and progress of science. There is now near unanimity among national research granting councils—and the politicians that oversee them—that OA can help ensure the maximum economic and social impact for publicly funded scientific research. As of April 2013, all publicly funded research output published in scholarly journals by U.K. authors came to be covered by enforceable open access mandates. This policy was inspired by the government-commissioned Finch report which concluded that open access will bring “social and economic benefits” by improving the flow of knowledge not only within but also beyond the research community (Finch, 2012, p. 28). Science Europe has declared that open access would “have huge value for the research community and will offer significant

social and economic benefits to potential users in industry, charitable and public sectors, to individual professionals, and to the general public” (Science Europe, 2013, p. 3). Finally, in early 2013, the U.S. White House Office of Science and Technology Policy (OSTP; 2013) issued a memo directing agencies to ensure open access to publications resulting from federal funds.

Notably, the Finch report and the Obama administration’s OSTP memo emphasized the importance of ensuring that content is not only free but also available for reuse with minimal restriction. The idea is that if articles are published under open licenses this would further contribute to research productivity by facilitating text-mining and better research discovery methods. The Finch report took special pains to emphasize the advantages of Gold OA publishing, including its cost advantages over subscription publishing. Indeed, it has been estimated that the average cost of a peer reviewed article in open access journals could be as low as \$400 to \$2,500, well below the \$5,000 in sales revenue that publishers earn under the current subscription model (Finch, 2012; Houghton et al., 2009; Morrison, 2013). Faced with the apparent momentum of open access policy even the leading commercial publishers have begun to include open access as a core part of their strategic vision. Nearly all of the major academic publishers have also converted many of their toll access titles to “hybrid” journals allowing authors to elect to pay an optional publication fee—often over \$3,000—to enable free online access to those without a subscription.

The U.K. OA strategy ultimately implemented by the Research Councils UK (RCUK) places a significant emphasis on both Gold and Green OA, despite the initial controversial priority given to Gold. Block funding has been allocated to a special fund at each institution which can be used to pay APC’s for Gold OA. Authors also have the option to publish in a subscription-funded journal so long as the journal allows Green OA, in which case authors would be required to deposit a refereed preprint version of their article in an open access repository typically with an embargo period of 6 to 24 months after publication. Tension between the two models of OA dominated the policy formulation process in the United Kingdom, especially in parliamentary hearings where the recommendations of the Finch commission were met with great scrutiny. This tension illustrates the possible clash among the disparate stakeholder interests that will likely shape the future of open access. The Minister of Business, Innovation and Skills (BIS) argued that Gold OA is superior because it allows immediate access and typically unrestricted reuse, thereby maximizing research impact (Willett, 2013). Criticisms of Gold OA were voiced by a range of stakeholders from OA advocates and activists to the influential Russell Group of research intensive universities. These groups argued that if the United Kingdom unilaterally becomes an early adopter of mandatory OA publishing (rather than Green self-archiving) then it runs the risk of having to pay APC’s for the research output of U.K. authors while still paying for

journal subscriptions to gain access to the output from the rest of the world (The Russell Group, 2013). Many publishers demand higher APCs before they will grant liberal reuse rights (under Creative Commons cc-by licenses, for example) and this, too, would lead to the United Kingdom paying individually for benefits that are enjoyed by all. Some critics of the policy argued that it would be best to allow Gold OA to evolve after Green OA becomes widespread so that publishers would be constrained to adopt a more affordable version of “author-pays” publishing (Houghton, Rasmussen, & Swan, 2013). The strongest opponents of Gold OA worry that any approach to allocating publication support may introduce rationing of funds and controversial and non-collegial determinations about which scholarly contributions and disciplines would or should be eligible for support.

Green OA has its shortcomings as well, primarily because it is parasitical upon the subscription model rather than an alternative to it. For this reason, publishers often claim they need an embargo period of up to 36 months after publication to guard against subscription cancellations. Moreover, such publishers are usually not prepared to allow authors to deposit the final copy of record. The policymaking process of 2012-2013 demonstrated that publishers will engage in active lobbying to ensure that embargo periods are set long enough to protect their highly profitable subscription model. In the case of the RCUK policy, the preferred embargo for science, technical, engineering, and medicine (STEM) material was been set at 6 months and 12 months for social science and humanities (SSH) research, but where money to pay APCs is not available publishers are permitted to double the embargo period. Both the Association of American Publishers and Elsevier supported the Obama administration’s open access memo of early 2013 but only, it seems, after the government promised that it would allow publishers to apply for lengthened embargo periods for certain disciplines (Association of American Publishers, 2013; Wise, 2013). In the United Kingdom, some publishers have actually lengthened their embargo periods since the new RCUK policy came into effect (Poynder, 2013). There is a growing fear that the new policy will encourage hybrid publishing so that journals can offer immediate open access options to authors for a fee while still maintaining regular subscription revenue streams. To avoid accusations of “double dipping,” some publishers have agreed to waive APCs for researchers who work for institutions that subscribe to their journals (Gibney, 2013; Science Europe, 2013). OA-only publishers like Public Library of Science (PLOS) have warned that by making subscriptions and APCs interchangeable in this way the dominant publishers can perpetuate non-transparent bundle pricing which is the hallmark of their business model (Neylon, 2013, p. 21). In its written testimony to the U.K. parliamentary hearings, PLOS complained that established subscription based publishers were given greater influence over the hearings than firms and organizations already specializing in open access (Neylon, 2013).

Finally, it is important to recognize that support for open access often breaks down along disciplinary lines. In STEM fields, communication of research findings is much more time-sensitive than in SSH fields which means that even short Green OA embargo periods may not prompt subscription cancellations. By contrast, articles in SSH journals have a longer half-life, so that delayed access may be a tolerable trade-off for canceling subscriptions. Gold OA has received an especially cool reception in SSH fields as it requires payments made from research grants which are less common among SSH researchers. It is therefore no surprise that so many of the flagship Gold OA publishers are concentrated in the STEM fields, while many publishers and scholarly associations in the SSH fields view both forms of OA as a potential threat. In the 2013 U.K. parliamentary hearings, some publishers urged caution about adopting open access for SSH fields, citing not only the lower funding available for APCs in such disciplines but also their limited economic impact (SAGE Publications, 2013). Some SSH academic associations see open access as a threat to academic freedom in view of the fact that authors in heterodox fields or niche areas may be less able to pay for publication (Political Studies Association of the UK, 2013). The SSH community is less concerned about boosting research productivity than it is about avoiding a pattern of publishing reform in which the market would dictate scholarly priorities and resources would be managed in a way that upsets the level playing field between more and less affluent disciplines. In this sense, the reform of research communication has become closely tied to familiar contests around the role of markets and impact agendas in academic governance.

Consequences of Unbundling and “Disruption” in the Open Access Ecosystem

In spite of the contested nature of open access, there are good reasons to concede its “inevitability” (Lewis, 2012), and it is therefore important to anticipate changes to the role of journals in a transformed scholarly communications system. Two questions emerge in particular. First, will OA publishing achieve cost savings or otherwise bring a disruptive challenge to the market power of publishers, and, if so, how? Secondly, will free access accelerate the “disruption” of the journal itself which will now have to compete with new platforms such as academic social networks and other intermediaries that can perform quality control, filtering, and content discovery (Pickard, 2012)?

In terms of the first question of market power, we have seen that governments in both the United Kingdom and United States have been responsive to many of the concerns of academic publishers regarding the impact of the new regulatory regime. Indeed, even if Gold OA were to become more prevalent publishers may try to retain the lucrative system of

fixed pricing arrangements with institutions. Of course, many observers have argued that open access publishing would bring more transparent pricing and competition as this system allows authors to be more discriminating about where to publish than libraries can be in their decisions of which journals to purchase (Bergstrom & Bergstrom, 2004; Carroll, 2011; McCabe & Snyder, 2005). But there are some reasons to doubt whether Gold OA would bring down costs as expected. Clearly, Gold OA would not by itself diminish the mutually reinforcing incentives of both publishers and authors to engage in the prestige-driven publishing behavior that currently drives prices and profit margins up (Brembs & Munafò, 2013). To address this problem, the RCUK has issued policy guidance asking institutions to ensure that decisions about where their authors publish are price sensitive (RCUK, 2013). On the other hand, a recent industry study argues that:

Moving to OA does not change the chief motivation of the author, i.e., to be published in the highest status journal possible. Researchers rely on journal titles to provide an external measure of the quality of their research. Established journals provide prestige and validation for a researcher and both are key to furthering career prospects and securing funding. (HSBC, 2013)

Hence, authors and HEIs remain involved in a deeply rooted competition for impact and prestige which may cause price inelasticity to be carried over into the author-pays market (Bergstrom, 2010). Moreover, it has been argued that many of the structures of academic life encourage a research productivity arms race which has resulted in opportunistic publishing behavior and an expensive increase in the ratio of published articles (and filtering activities) to ideas or findings (Baveye, 2010). The fact that review and promotion committees include members from different specialties—or from management—may encourage an emphasis on counting publications rather than evaluating their quality. Furthermore, increasingly intense competition for good academic employment means that fledgling researchers need to score as many publication points as possible. The Finch (2012) report candidly anticipates that while attempts to ration APC funds might constrain publication overkill, they also would be controversial.

The question of OA’s possibly disruptive impact on the form of academic publishing cannot be separated from the question of cost and efficiency. Some have suggested that the combination of free content and ubiquitous networking means that the functions associated with research sharing no longer need to be tightly coupled. Earl (2008) argues that information abundance could allow research filtering and dissemination to be produced and paid for separately, and such unbundling might improve both the efficiency and quality of each (Earl, 2008). In a similar vein, Harnad (2010) suggests that OA journals could contribute to beneficial publishing reform by charging fees at the point of submission

rather than upon the final publication of accepted articles. His reasoning is that publication costs are based on the number of submissions and if each instance of peer review was priced, independent of whether it led to acceptance or rejection, it would remove the subsidy that some authors effectively pay to others who make “unrealistic submissions.” Priem and Hemminger (2012) argue that the Internet allows editing, peer review, and dissemination to be unbundled so these functions can be delivered by different providers and priced separately. They argue that peer review services—and peer reviewers themselves—could compete for monetary rewards or social/professional recognition by selling ratings or “stamps.” Such competition would create a self-regulating market so that the price at which outsourced review services would be able to sell stamps would be dependent directly on their trusted track record.

There are already a number of examples of independent commercial providers of unbundled publishing services. For example, a new company called Rubriq currently offers a standalone peer review service which it sells to authors for \$500 to \$700. Reviewers are paid a fee and authors receive very quick review and a standardized numerical scorecard for their submitted work. The resulting “R-score” can be used to provide advice on publication venues and can provide subscribing journals with an “initial filter” that can help economize on downstream editorial and reviewing costs (Collier, 2013). This model of unbundled prepublication filtering may limit the duplication of filtering instances by providing “portable” reviews that can accompany subsequent submissions (Collier, 2013). As a referral service between authors and journals Rubriq carries with it a strong incentive for disclosure and sharing of information, overcoming some of the nontransparency of traditional peer review. Outsourced peer review—or the commodification of peer review—would not necessarily add another layer of cost to the publishing process if it offset the price journals currently charged for some of its services. Like a journal, a peer review service is a multisided market (or networking platform), which has to satisfy the interdependent needs of complementary groups of users. In this case, however, the user pairs are not authors/readers, as is the case with journals, but rather authors/journals. Rubriq’s advantage is that it will pay reviewers and provide article recommendations to journals for free, and therefore has the potential to link authors to a very large number of publishing opportunities. However, the model could mean that authors pay twice: once for review and a second time to publish. This is unlikely to attract authors seeking to publish in top tier journals as the latter would not accept outsourced reviews nor offer discounted services for pre-reviewed submissions. The prospect for outsourced peer review to become a full-fledged disruptive innovation faces some obvious limits. For example, Rubriq’s services would likely be concentrated in the middle and lower tiers of the journal market where the probability of article acceptance is higher and APC’s are lower or discounted. Of course if peer

review is commodified there might be unintended consequences flowing from the fact that authors or their funders would have to pay for failure. This could encourage tighter rationing of APC funding and discouraging risk-averse authors from submitting to the best journals.

We do not yet know whether unbundled peer review platforms will succeed as a business model. But it is clear that a certain kind of unbundling of peer review already lies at the heart of the publishing strategy and practices of megajournals. Open access megajournals, such as *PLoS One*, *Scientific Reports*, *Springer Plus*, and *SAGE Open* have begun to create an alternative market segment to both high prestige OA journals and high priced subscription journals (Van Noorden, 2013). Megajournals accept articles for publication based on a simplified threshold while the peer review process is accelerated, screening only for accuracy, validity and scientific soundness rather than novelty or importance. Accordingly, megajournals typically eschew traditional prestige competition characteristic of traditional journals. Indeed, most of these titles maintain an extremely wide transdisciplinary scope across the sciences, the life sciences, or even humanities and social sciences. *PLoS One* publishes thousands of articles per year and therefore positions itself somewhere between an archive and a traditional journal. Its publishers assume that relevance and importance can best be judged after publication, especially since reliable methods for aggregating informal assessment are already flourishing in an environment which includes academic networking services. When peer review is crowdsourced (or outsourced) articles can more easily be judged on their own merits rather than by the prestige of the journal in which they are published. Indeed, one of the key strategies of reform-minded OA publishers like PLoS is to introduce “article level” metrics to replace journal ranking metrics such as impact factors (PLoS, 2013). In short, megajournals’ selling point is that new network-enabled tools for aggregating the decentralized judgments of peers (Mounce, 2013) can justify the use of a low-cost streamlined review process, which also provides the service advantage of rapid turnover time from submission to publication.

Of course, full acceptance of megajournals may depend on the legitimacy of informal review in the community using web 2.0 communication including crowdsourcing among peers as well as nonstandard metrics now known as “altmetrics” (Priem, Taraborelli, Groth, & Neylon, 2010). The current academic reward system continues to give authors many professional and self-interested reasons to send their work to the prestigious journals in their fields. Likewise, there are still pressures on academic adjudicators to use journal prestige as a convenient proxy for quality (Suber, 2008). On the other hand, megajournal supporters can point to the fact that prestige-driven behavior is a major factor in driving up the cost of academic publishing, and that prestige itself is not always a reliable signaler of quality. It is well known, for example, that the journal hierarchy contributes to the costly

cycle of duplicate peer review whereby an author whose paper is rejected by a relatively higher ranked journal will make a follow up submission to a lower tier journal. This process can repeat itself until the article finds its accepted position in the journal hierarchy. The problem with this pattern stems from the fact that prestige is a positional good. Hence, when journals compete for prestige, that competition does not increase the total amount of good papers published but merely changes which rung of the ladder each paper comes to occupy. In fact, journal impact factors and the competition for journal prestige can actually cause quality to diminish. For example, it has been widely acknowledged that journals competing for rank may be tempted to publish “hot papers” at the expense of quality or reliability (House of Commons Science and Technology Committee, 2011). There is growing evidence that prestige-driven competition creates a publication bias that favors positive results, encourages reporting of statistical anomalies and devalues heterodox perspectives (Brembs & Munafò, 2013; Kapellar, 2010; Rice, 2013).³ Finally, many good papers are rejected merely because they fall outside of a given journal’s relevance criteria. If many of those articles are eventually published after successive rounds of peer review, then it can be argued that the high acceptance rate of megajournals should not be disparaged as weak filtering but rather praised as cost-efficient compression of the prepublication review phase. Wardle (2012) has shown, for example, that ecology papers published in *PLoS One* are of comparable quality (as measured by citations) to those published in many far more selective specialist ecology journals.

Megajournals, then, represent a potentially innovative way for addressing costly review cycles and streamlining multitiered publishing strategies. In particular, they can bring in author fees from thousands of papers per year, and therefore may allow publishers to monetize the same volume of research output as the traditional publishing model but potentially at a lower cost (Van Noorden, 2013). Indeed, it has been argued that *PLoS One* generates revenues to cross-subsidize affiliated flagship publications such as *PLoS Biology* that would not otherwise be sustainable on a stand-alone basis (Poynder, 2011a). *PLoS One*’s high volume model of publication combined with an APC of \$1,350 per article can be more profitable than the \$2,900 charged by its flagship sibling. For its part, Springer is candid about its plan to use its megajournal *Springer Plus* to economize on reviewing costs by “cascading” rejected articles from its flagship journals (Ishii, 2012). In view of their potential to become high volume operations megajournals are likely to seek first mover advantage. This appears to be the case with *SAGE Open*, a multidisciplinary journal in SSH which in early 2013 reduced its APC to \$99 so as to position itself for the long term ascendancy of OA in the less affluent SSH fields (Howard, 2013; Robinson, 2013).

One challenge megajournals face if they are expected to redefine the market is that their defection from prestige

competition leaves them with a business model that may be poorly aligned with reviewer and editor motivations. In the academic “gift economy,” reviewers must sacrifice time that could be devoted to their own research, and in exchange, they must be given some opportunity to influence their field, gain exposure to the most current cutting edge research or list their service to a prestigious journal on their CVs. But if reviewing is reduced to a mere technical judgment of accuracy or if reviewer efforts are spread over too many submissions a “tragedy of the reviewer commons” may result (Hochberg, Chase, Gotelli, Hastings, & Naeem, 2009). One attempt to address this problem might be the conversion of megajournals to a cooperative-style membership model. This is the inspiration behind the new OA megajournal *PeerJ*, which covers biological and medical science. *PeerJ*’s revenue stream derives from lifetime membership fees (starting at \$99) providing for the continuing right to publish a set number of articles per year, rather than from article processing charges levied for each individual article accepted. Contributors pay a modest fee for the right to submit, or a higher fee if one elects to wait until acceptance. Each contributor remains in good standing only if he or she participates in reviewing or post-publication commentary, which ensures that all contributors to the journal are rewarded for their commitment to the reviewer commons. This system of commitment credits incentivizes researchers to volunteer for reviewing and academic editing, which presumably helps provide a level of administrative cost savings not available to most competing journals.

Commercializing the Networked Academic Commons

One must be careful not to exaggerate the importance of megajournals. On one hand, they may play an important role in overcoming the discontents of a research dissemination model founded on artificial scarcity. On the other hand, they are not likely to fully replace upper tier journals so long as academic communities expect prepublication filtering to signal pathbreaking research. Nevertheless, crowdsourcing technologies are becoming important complements to conventional academic gatekeepers and there is every probability new post-publication filters and metrics will allow innovations like megajournals to “disrupt” important sectors of the journal market (Mounce, 2013). Perhaps the most important technological factor in the post-scarcity world of scholarly communication is the role of software in analyzing research impact at the level of the article and author rather than the journal. Web 2.0 tools that monitor scholarly reputation and analyze usage and reading behavior can reduce the amount of expensive human input that journals currently use for relevance sorting (Nentwich & König, 2012). In the words of disruptive innovation theory, this allows megajournals and academic networks to “scale upward” (Christensen, Horn, Caldera, & Soares, 2011, p. 23) so that they can rival

traditional intermediaries (journals and libraries) rather than simply become low-cost alternatives with a limited market. Eventually, according to Priem (2013, p. 438), “editors and reviewers [once] employed as proxy community assessors will be replaced by the aggregated, collective judgments of communities themselves.”

Mendeley is probably one of the most exemplary services for blending the functions of peer to peer academic networking and dissemination in this way. It is a freely accessible cloud-based research article manager and bibliographic database that gives users convenient access to a personalized library of articles from any workstation and also provides annotation and bookmarking, as well as the capacity to share one’s library with collaborators. While Mendeley is an organizing tool available for free to researchers, it is also a potent platform for aggregating data about the behaviors and interests of those researchers. It can generate recommendations for articles based on comparisons with the reading interests of similar users in its database and can also be used to analyze resource usage and measure the research impact and productivity of scholars. Due to the power of its new crowdsourcing tools Mendeley was acquired by Elsevier in early 2013. Elsevier thereby acquired Mendeley’s rich pool of user generated data which can be used to help it improve and enhance its larger array of scholarly information products services and infrastructure (Henning, 2013). Therefore, while Elsevier faces a decline in its ability to profit from artificially scarce information, the new tools for making researcher behavior more transparent may help it develop profitable services for managing and integrating all aspects of the research process.

But these innovations may come at the price of creating tensions between the market and the academic commons. For example, as academic social networks make researcher behavior far more transparent to publishers it may also encourage the proliferation of greater performance monitoring in a community that prizes its autonomy. As a result, the new system of research communication could involve controversial changes such as increased academic self-promotion and more quantitative approaches to assessment (Nentwich & König, 2012). On the other hand, given the role that academics play as self-governing producers, publishing giants like Elsevier may be constrained to “play nice” in order to keep the trust of the researcher community (Dobbs, 2013).

Lessons From Another Form of Unbundling: MOOCs and Online Education

The recent emergence of Massive Open Online Courses or MOOCs has introduced another version of “disruptive” unbundling connected with the academic open content movement. New start-up companies such as Udacity, EDx, and Coursera have begun to provide free online access to mass-produced courses taught by leading faculty members at the

world’s most prestigious universities. In the case of MOOCs, students do not pay fees to the content provider for basic enrolment in the course, nor do they receive credit from the content-providing institution. Social networking, interactive services, and automated grading or peer assessment are provided by the platform provider, as is a nominal certificate for the completion of assignments. MOOCs have become attractive because their technology brings modularity to several components of higher education content such as lectures and recordable demonstrations to reach mass audiences in a flexible and accessible on-demand format. In the meantime, the brand and market power of the elite institutions which typically provide the content is strengthened by unbundling content from its local institutional context and making it available through mass, zero marginal cost distribution. The elite institutions do not award credit for students completing these courses and therefore can retain their exclusive status even as they disseminate part of their product for mass consumption. Although MOOCs may be considered open in the sense of “free to try,” they are not offered under an open license. Any use of the content or services for academic credit-bearing purpose is restricted and requires payment to the MOOC provider (Coursera, 2013).

In most cases, MOOCs are used as a flexible educational resource by nontraditional learners or individuals satisfying their personal interest or their need for continuing education or skills upgrading. But many theorists and observers of the knowledge and information economy have long seen online education as part of an austerity and productivity agenda in the neoliberal reform of higher education (Jessop, 2012; Noble, 1998). Sebastian Thrun, one of the leading MOOC entrepreneurs, has offered the dramatic prediction that within 50 years the online transformation of higher education could reduce the number of higher education institutions to 10. Many lawmakers and political leaders have portrayed MOOCs—or online education more generally—as one possible way to respond to growing concerns about the so-called “higher education bubble” within their key middle class constituencies (Cronin & Horton, 2009). The “bubble” is characterized by the spiraling public and private costs of enrolments, increased student debt, and anxiety over the value of credentials.

Major reports by governments and consultants across North America and major initiatives by private foundations such as the Bill and Melinda Gates Foundation have strongly promoted the use of learning technologies and online education to increase the rates of degree completion and educational productivity (Walters, 2012). Meanwhile, proponents of the theory of disruptive innovation have helped to convince policymakers and higher education elites that HEIs will be revolutionized by new online technologies that spread instruction over large numbers of potential learners. This fits the definition of a disruptive technology that would allow new entrants to start at the low end of the higher education market and scale their business model upward (Christenson

et al., 2011). In this case, the result would be to liberate students and taxpayers from the unitary model of vertically integrated HEIs that hire expensive professors whose work combines teaching with research and which assumes that all students need education to be accompanied by a distinctive physical, in-person environment for self-cultivation. As Christensen and Eyring (2011) observed, under this dominant model, the vast majority of HEIs have inherited the DNA of the elite institutions in the sector, locking in the high overhead costs of integrating the different higher education functions. This has meant that the price of the package that many HEIs provide has increased far more than its value for society and most students. By contrast, a disrupted higher education system would enable new education providers to serve students who would be willing to pay less for the “good enough” education that most students want, one that would be convenient, useful and often available on demand from anywhere (Christenson et al., 2011).

By distributing more teaching resources as globalized commodities, or as pooled resources among partner institutions, a disrupted higher education system would feature a new teaching-only mission for many middle and lower tier institutions. These institutions would place a more direct emphasis on vocational relevance as well as access to on-site mentoring in a blended teaching model. Unbundling higher education would also make it possible to eliminate the hitherto unavoidable cross-subsidies that support the kind of “unmarketable” research that disruption theorists say many professors pursue (Horn & Christensen, 2013; *The Economist*, 2012).⁴ The new market for academic talent would lower the salary and status of many faculty and give them less autonomy over academic content creation and institutional governance. Such an outcome was anticipated in the dystopian study by David Noble (1998) who argued that online education would commodify higher education and lead to the creation of “digital diploma mills.” Of course, many students would continue to pay a premium for a fully bundled, high status education offering a selective admission process, direct contact with reputable academic researchers and an opportunity to link learning with personal and civic development. In this sense the prestige economy of higher education would place a natural limit to disruption as an elite sector would persist alongside of academic streamlining, just as flagship scholarly journals likely would not be eliminated by megajournals.

MOOCs’ key market strategy is to exploit their modularity and mass scale, which allows sufficient revenue generation even if only a relatively small percentage of students buy premium services, or pay to use the courses for degree credit. With its promise to expand the reach of the best professors, the MOOC industry creates “winner take all” markets that may reinforce homogeneity of content rather than long tail markets supporting niche curriculum areas (Rivard, 2013; Tabarrok, 2012). Because portable content must be designed for cross-contextual application some have argued

that the format itself is optimized for material that is standardized, popular, trendy, uncontroversial, and safe (Delbanco, 2013). Indeed, it has been acknowledged by MOOC advocates that teaching resources that are designed to be reusable across contexts can be very expensive to customize for the curriculum of a given institution or academic department (Bowen, 2013). For similar reasons, MOOCs are far less able to bring their productivity advantage to more “discursive” fields of knowledge and to courses where student assessment cannot be automated (Bowen, 2013). In light of these problems, it is not certain that academic quality can be scaled up in the way that disruptive innovation theorists expect, unless quality is redefined around what MOOCs do well.

According to disruptive innovation theory, one of the great benefits of academic unbundling is the unleashing of market forces in the sphere of higher education. Of course many have argued that some of the most important qualities of higher education are threatened when it is treated as a market commodity (Tilak, 2008). For example, higher education resembles what economists call an experience good, since it possess qualities that are hard for would-be consumers to observe prior to consumption, which means that the information requirements for efficient market provision cannot normally met. Markets also fail to recognize and reward those (often intangible) benefits of higher education that cannot be priced. Clearly many qualities of higher education would be lost if we eliminated the subsidies and cross-subsidies that support the many positive externalities that result from its consumption (Tilak, 2008). For example, if market competition concentrates research in fewer flagship universities then this could diminish the contributions that non-elite institutions make to their regional networks and local communities (Benkler, 2008). Others have remarked that higher education markets encourage an academic “star system,” which can put strains on the cohesiveness of the academic community and undermine the collective purpose needed for good governance within HEIs (Bousquet, 2008; Delbanco, 2013). It is not surprising that MOOCs have become highly controversial symbols of commodified education, educational stratification, deprofessionalized academic work, and threats to academic autonomy. Faculty groups and committees at some elite institutions have voted to refuse to participate in the development of MOOCs (Kolowich, 2013b) and some faculty members at would-be host institutions have resisted administrators’ demands that MOOCs be adopted in the curriculum (Kolowich, 2013a).

MOOCs and Higher Education Regulation

Finally, MOOCs are connected to a shifting, albeit contested, regulatory environment for higher education systems. Bill SB520 making its way through the California state legislature, strongly opposed by faculty groups, would require

public HEIs to accept approved MOOCs for credit in cases where there are insufficient resources to provide campus-based courses. Educational outsourcing and unbundling have already prompted the U.S. Education Department to allow student aid to be approved for competency-based education so that institutions can more easily award degree credits based on prior learning (formal and informal) and nontraditional courses rather than credit hours completed (Field, 2013). Support among politicians at the national level is extraordinarily strong and has included presidential advocacy for incentives that would encourage the adoption of competency-based education and MOOCs as low-cost higher education alternatives. The U.S. Education Secretary sees MOOCs as meeting the need for “disruptive innovation in higher education” (Marklein, 2013). Along the same lines, the U.K. minister of Business Innovation and Skills has emphasized his government’s preference for separating “degree awarding powers from teaching” so that alternative private educators can provide content that can be used at traditional HEIs for degree credits (Baker, 2011). Many see MOOCs as increasing the demand for—and credibility of—alternative credentials, such as online educational “badges” awarded for informal experience, that may one day gain some acceptance alongside of conventional degrees in sectors of the labor market (Lewin, 2012). Disruptive innovation theory argues that as more content and academic services can be assembled from different sources regulators and others should adopt more flexible rules for defining the creditworthiness of different skills and learning experiences. One prominent think tank proposes that students should be able to use financial aid from non-accredited providers so that a truly level playing field can be open to freelancing educators and learning assessment services (Kelly & Hess, 2013). Of course, as theorists of higher education have shown, increasing the competition for subsidized students introduces incentives to cut corners on quality and therefore creates pressure for new types of regulation (Jongbloed, 2004).⁵

Along these lines, it is clear that MOOCs, unbundling and outsourced content raise questions for accreditation systems. One of the major purposes of accreditation is to provide system-wide assurance regarding the value of degrees and courses by certifying the institutions that develop them. Thus, once an institution or program is accredited its academic governance system is deemed to be competent to decide on the creditworthiness of courses. But it is not clear what kind of accreditation model should apply to outsourced or on-demand education or even the growing number of institutions that utilize content from private educational service firms (Eaton, 2012). A market for independent learning assessment services—which includes companies such as Degreed and learningcounts.org—has emerged to meet this need in a way that parallels the new unbundled peer review services we have seen in the case of scholarship. The American Council of Education, has offered course-level credit recommendations for five MOOCs offered by

Coursera, creating a model for the independent assessment of creditworthiness of such courses (Lederman, 2013). Bill SB520 in California would go a step beyond credit recommendations by designating a state-wide pool of preapproved online offerings. Elsewhere, governments are promoting the creation of pan-university consortia that may create similar pools of online offerings.⁶ Such examples show that the prospect of academic unbundling has already begun to bring changes to state or system-wide governance of HEIs in order to accommodate the independent provision of more portable academic content across institutions.

More than anything, MOOCs have sharpened existing political battle lines. On one side, there are those who portray traditional higher education models as enjoying too much immunity from market forces and public demands for greater academic efficiency and productivity. On the other side are faculty groups and others who are struggling against a narrative of disruption that sees higher education as a business while discounting issues of academic quality, freedom, and governance.

Conclusion

Policies promoting open content and disruptive forms of academic unbundling are likely to transform the economics and social structure of higher education and research communication. Examples such as megajournals, academic networking services, and MOOCs are all connected to a market-oriented reform of academic governance encouraged and managed by policymakers, key academic stakeholders and the for-profit and nonprofit educational industry. Echoing developments that have been observed in other areas of the modern information economy (Fuchs, 2009; Kostakis, 2012), the emerging gift economy in academic content is closely coupled with new ways of commodifying academic services.

In the case of research communication, we have seen that governments and stakeholders have been prepared to embrace open access scholarly publishing as a solution to a dysfunctional journals market and as a way of realizing the potential of the Internet to enhance the impact and productivity of research. At the same time, the various stakeholders appear to have interests and incentives that may conflict with some of these goals. For example, academics concerned about openness is compatible with quality do not seem to be prepared to fully repudiate the gatekeeping function of academic journals and publishers. Indeed, researchers place a high value on journal prestige due to the norms and incentives of the academic commons, and this reinforces the market power of publishers in a way that can undermine some of the goals of open access policies. Furthermore, university elites and researchers fear that open access mandates may threaten academic freedom and institutional autonomy, and therefore prefer to see slower and more nuanced changes.

On the other hand, we have also seen how online digital access and networking will continue to transfer many of the functions of research communication and content management away from libraries to independent services operating at the trans-institutional level. In such a context, the expanded role of commercial providers will perhaps allow them to regain some of the ground they will lose as they relinquish artificial scarcity in favor of more open content. But the interests of the academic commons may enjoy some built-in protection from disruptive market forces. This is because the academic self-governance of research communities is valued by many stakeholders, and therefore does scale well beyond the institutional level. Likewise, the new web 2.0 networking platforms depend upon the “trust of user communities” (Kostakis, 2012), which means that research service providers will experience some pressure to be good partners with the academic commons. Of course, there are some fears that “pay to publish” could create a more uneven playing field among academic disciplines and researchers and also increase external academic auditing beyond an optimal level. Reliance on centralized funding set aside for publishing means more control of academic work by managers or even the state (Sabaratnam, 2012). At present, however, the transition to open access publishing is seen as an extension of the state’s long-standing support for knowledge creation as a public good. In this respect, policymakers appear to be interested in reforming the traditional publishing model without necessarily disrupting the academic commons which that model is meant to serve.

In the case of MOOCs, we have observed a greater tension between the market and the academic commons largely due to a more deliberate policy of unbundling and disruption. Unlike in the case of research communication, the policy discourse of reform has increasingly defined higher education as a private good and the academic gatekeeping function of traditional HEIs is portrayed as a barrier to improved productivity. Despite the “openness” associated with their online accessibility, MOOCs are meant to earn revenue within the formal higher education system as content licensed for use by institutions awarding degrees. Open educational resources have become “try before you buy” marketing tools that provide a way of leveraging scale in a new, potentially highly profitable educational industry. Moreover, the industry is being aggressively enlisted by politicians keen to privatize the delivery of educational services in the expectation that this will help address the perceived higher education crises of cost, access, completion and productivity. In the process, the proliferation of portable and reusable educational resources—as well as policies and technologies that encourage academic freelancing—will likely expand the relative size of the teaching-only sector in higher education and challenge traditional practices of academic governance. One of the key goals is to streamline academic work and loosen the tight coupling of teaching with the expensive pursuit of research and institutional rank (Christensen et al., 2011). If the productivity

agenda of disruptive innovation succeeds on the scale imagined by its proponents, the academic autonomy of institutions and academic professionals will likely be curtailed as curriculum is shaped and defined by forces outside of the collegial process. On the other hand, the same kind of reputational economy that continues to support the market power of scholarly publishers may also limit the market fortunes of “digital diploma mills” and therefore afford some protection to the traditional model of higher education.

Despite their differences, each of the cases of academic unbundling discussed above raises important and instructive challenges for governance of the academic commons at a time when its social functions and economic foundations are more subject to political contestation and market-based reform than ever before. Indeed, it is clear that the nature of this contestation has not only invited new kinds of intervention by policymakers and regulators but also new opportunities to boost the role of commercial provision and marketization in the academic sphere.

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Notes

1. From a different angle, Kennan and Cole (2008) characterize open access institutional repositories as disruptive innovations.
2. The sheer increase in article usage may not be a case of “more is better.” Indeed, it has been found that some researchers associate volume increases as adding to the burden of filtering and a tendency to read more superficially (Borrego, Anglada, Barrios, & Garcia, 2012).
3. In particular, Kapeller (2010) has found that orthodox economics journals tend to cite other orthodox journals almost exclusively, while heterodox journals cite orthodox and heterodox journals almost in equal measure. This is due to the fact that impact factors and citation indexes create an incentive to cite the most influential or mainstream authors. Another well-known problem is that challenges to orthodoxy are not properly captured by citation measures as all citations, even those that are critical, count as votes in favor of the article or author being cited.
4. Indeed, one study of disruption predicts that unbundling will mean that increasing amounts of research will be conducted by private think tanks (Barber, Donnelly, & Rizvi, 2013).
5. The 2012 Harkin commission report in the U.S. congress found that these kinds of pressures have already had an impact

on the for-profit higher education sector and may be responsible for quality deficits and a lax accreditation system.

6. The terms of participation and the locus of authority over curriculum has not yet been outlined.

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