

To read and be read: When monopolists control access to academic prestige

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Introduction

Large commercial journal publishers take advantage of the unpaid labor of scholarly authors and referees who give publishers monopoly rights to control access to their work. These publishers report profits of 35 to 40 percent of their revenue from sales. The reason that authors and referees continue to donate their work to these publishers' journals is that these journals have earned prestige from a long history of publishing high quality work. Publication in prestigious journals is crucial to a successful career in the academic world. Since these journals attract some of the best papers in their disciplines, scholars demand access to these journals and universities are willing to pay large sums for subscriptions.

There has been much discussion of an alternative "open access" model of scholarly publishing, in which published articles are made freely available on the web and where authors or their universities pay a fee to the publisher for handling their articles. Large commercial publishers offer a few purely open access journals. They also offer a "hybrid" option, in which authors can opt to pay an author fee to make their own articles open access, while papers in

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the same journal by those who do not pay the author fee are accessible only by subscription.

Several funding agencies encourage, subsidize, or mandate authors to published their funded work in open access form, either in hybrid or purely open access journals. Some university consortia are attempting to negotiate “offsetting arrangements”, also known as “Read and Publish” agreements, in which the consortium would purchase subscription access to all journals supplied by a commercial publisher, but would require that papers by its own authors be published in open access form, either in open access journals or using the hybrid option. These universities would pay the author fees for their authors’ works, while their subscription fee would be reduced by some fraction of the author fees paid.

A consortium of German universities and research institutions known as Projekt Deal has proposed terms to Elsevier under which all of their research output in Elsevier journals would appear as open access either in journals that are purely open access or in “hybrid journals” which also include articles that are accessible only with a paid subscription. The Swedish university consortium, Bibsam, has proposed similar terms to Elsevier. At the time of this writing, Elsevier has rejected the terms proposed by the German and Swedish universities and has suspended their Elsevier subscriptions [3].

The national science agencies from 13 countries, including France, Great Britain, Italy, and the Netherlands, as well as private funding agencies, the Wellcome Trust and the Bill and Melinda Gates Foundation have recently announced plans to adopt “Plan S,” which will require all publications based on research that they fund to be published in purely open access journals, while explicitly excluding hybrid journals.[4] These agencies would pay author charges to publishers, but only up to some limit, which is yet to be determined.

In a blog posting, Richard Poynder [6] argues that by subsidizing author publishing charges in established hybrid subscription journals, Publish and Read Big Deals would “lock in” large legacy publishers, to their advantage and to the disadvantage of pure open access publishers and smaller companies. In this paper I present a view similar to that of Poynder. We argue that the source of the high profits of commercial publishers is monopoly power conferred by copyright and the prestige of established journals of high quality. This power may be reduced, but not eliminated by a transition to open access publication. Agreements that subsidize open access publication in legacy hybrid journals will attract high quality articles to these journal

and enhance their monopoly power.

1 A much-simplified model

Let us begin with a very simple game-theoretic model that illustrates some of the main forces at work in this market. These forces will persist in more complex and realistic models of academic publishing that are discussed later in this paper.

The language and tools of game theory are helpful for understanding the forces at play in the academic journal market and for predicting the effects of some of the interventions that have been considered.

A profit-maximizing publisher controls access to a prestigious journal, which is operated as “hybrid open access.” If an article is accepted, the author has the option of paying an “author processing charge” (APC) to make this article openly accessible to all readers. If the author does not choose this option, the article will be published, but will only be accessible to those who have subscriptions to the journal.

Assume that there is a large number of identical universities, each of which is home to many scholars. In this simplified model, all possible readers of the scholars’ papers are located at one of these universities. Scholars want to read the papers published in this journal. They also want their own papers to be published there and made available to as many readers as possible. In return for the prestige gained by publishing in a high-profile journal, scholars willingly grant the publisher copyright to their papers.

Assume that each university acts as the agent for its resident scholars. Universities act independently, and in equilibrium each university takes its own best action, given the actions of other universities, and given the pricing policy of the publisher. We assume that marginal costs of allowing an additional subscription or of making an article open access are small enough to be neglected. Let us also assume that the publisher can offer an all-or-nothing bargain to each university at a price named by the publisher. (For simplicity, we also assume that if a university is indifferent between accepting and rejecting an article it will accept.)

Let R be the total value to the university’s scholars of access to the articles in the journal. Let V be the value to a university of the prestige gained from having one of its articles published in this journal and made accessible to all potential readers. Let p_S be the price that the publisher charges a university

for a subscription and p_A the APC for making a single article open access.

If the publisher sets prices $0 < p_S \leq R$ and $0 < p_A \leq V$, there are two possible equilibria for universities. In one equilibrium, all universities subscribe to the journal and nobody pays to make their articles open access. This is an equilibrium, since if everyone subscribes, there is nothing gained from making articles open access. If nothing is available open access, each university is willing to pay up to R for a subscription. Therefore at any subscription price $p_S \leq R$, every university would subscribe.

There is another equilibrium, in which no universities subscribe and all universities pay to make their researchers' output open access. If all articles are made open access, there is no reason to pay a positive subscription price, so no university would subscribe. If no university subscribes, the only way to make their research available to readers is to pay author fees for making it open access. The university is willing to pay up to V to make each article published by its faculty accessible. Therefore in this equilibrium, at author fees $p_A \leq V$, all articles would be made open access.

Both equilibria are locally stable in the sense that no university, acting alone, can move the outcome from a subscription equilibrium to an open access equilibrium or *vice versa*. It is tempting, therefore, to search for possible interventions that might "flip" the equilibrium from a subscriptions-only to an open-access equilibrium. So far, we have not considered the actions available other player in this game, the publisher. In the simple model presented here, the publisher can determine whether the outcome is a subscriptions only equilibrium or a fully open access equilibrium by setting the subscription price p_S and the author fee p_A . If the publisher sets the author fee p_A so that $p_A > V$, then no university would ever pay to make their articles open access. In this case, all universities would buy subscriptions so long as $p_S \leq R$. The publisher could maximize subscription revenue by choosing $p_S = R$ and thus enjoy profits of R per university.

Alternatively, the publisher could set $p_S > R$. In this case, no university would subscribe to the journal. If no universities subscribe, the only way to give readers at other universities access to papers in this journal is to pay to make them open access. If the author fee is $p_A \leq V$, then all universities would pay author fees for all of papers written by their faculty. In this regime, the author could maximize revenue by setting an author fee of $p_A = V$ for each published article. In this case, the publishers' revenue per university would be VN where N is the number of papers written by its faculty.

Thus the publisher's profits per university are R in a subscription equi-

librium and VN in an open access equilibrium. It follows that the publisher will prefer the subscription equilibrium if $R > VN$, and will prefer the open access equilibrium if $VN > R$. Stated in words rather than symbols, the publisher will prefer the subscription equilibrium if its scholars are willing to pay more to read the work of others than they are willing to pay to have their own work read by others. If this inequality is reversed, publishers will prefer the open access equilibrium.

Since, traditionally, commercial publishers have chosen to set prices that result in outcomes where most universities subscribe to their journals and few articles are published as open access, it appears that they believe that $VN < R$ —the willingness to pay to read exceeds willingness to pay to be read.

We find more direct evidence that overall willingness to pay to read is greater than that to be read. According to its annual report, the largest commercial publisher, Elsevier published about 470,000 articles in 2018. About 34,000 of these were published as open access.¹ Total revenue of its Science Technology and Medicine branch was about 3.35 billion dollars, of which 74% is subscription revenue and 24% is reported as transactional sales. Thus Elsevier’s reported subscription revenue is about 2.48 billion dollars and Elsevier’s subscription revenue per subscription-based article in 2018 was about \$5,500.

Forty-two Elsevier journals have APC’s of \$5,000 or higher.
APC for Cell is \$5900.

Funder-required open access

Let us add a funding agency to this simple model. The funding agency supports a fraction α of the research at each university. The agency insists that all research that it funds be published as open access and negotiates an author fee p_A^* that it will pay the publisher for each supported article that it publishes in open access form. We assume that all supported researchers follow the mandate of the funding agency and publish their papers in this journal as open access.

Without the funding agency, in a stable equilibrium, either all or none of the journal’s articles would appear as open access. In the presence of

¹The website <https://www.elsevier.com/about/policies/pricing> reports that Elsevier published 27,000 open access articles in 2017. The website <https://www.elsevier.com/about/open-science/open-access/supporting-open-access> reports a 26% increase in the number of open access articles from 2017 to 2018.

the funding agency, the publisher can choose prices to induce either of two possible equilibria. In one equilibrium, all funded research is published open access form and all non-funded research is available only to those with subscriptions. In this equilibrium, all universities subscribe to the journal. In the other equilibrium, all published research is made open access and no universities have subscriptions.

Suppose that the funder supports the fraction α of all papers and that these are available in open access form. Then the value to a university of a subscription is $(1 - \alpha)R$. The publisher can insure that all universities subscribe to the journal by setting a subscription price of $(1 - \alpha)R$ and setting author fees $p_A > V$ for all non-funded research. In this case, the only Nash equilibrium will be one in which all universities subscribe and none pay author fees for non-funded research. The publisher's revenue per university will then be $\alpha p_A^* N + (1 - \alpha)R$.

Alternatively, the publisher could set a subscription price $p_S > (1 - \alpha)R$ an author fee of $p_A = V$ for all nonfunded research. In this case, no university will subscribe to the journal. Given that no university subscribes, all universities are willing to pay any author fee $p_A \leq V$. In this equilibrium, the publisher's revenue is $\alpha p_A^* N + (1 - \alpha)VN$.

It follows that

We have seen that in the absence of funded research, publishers will prefer the subscription equilibrium to the open access equilibrium if and only if $R > VN$.

It is interesting to explore the effect of the funding agency's activity on the publisher's profits. Suppose that the agency funds the fraction α of all published papers, and pays the publisher p_A^* in author fees for each funded paper that is made open access. In this case, all universities will subscribe to the journal, so long as the subscription price is no larger than $p_S(\alpha) = (1 - \alpha)R$. Then the publisher's total revenue for each university is $\alpha p_A^* N + (1 - \alpha)R = R + \alpha(p_A^* N - R)$. It follows that publisher profits will decrease with the amount of funded research if $p_A^* N < R$ and increase if $p_A^* N > R$. We have argued previously that in the absence of the funding agency, the publisher will choose the subscription model rather than the open access model if $VN < R$. If we assume that the funding agency sets $p_A^* \leq V$, then $p_A^* N \leq VN < R$ and hence the publisher's profits are reduced as the fraction of research that is funded is increased.

The question arises of whether an agency that does not fund all research can "flip" the equilibrium from one in which all universities subscribe and

the only agency-funded articles are made open access to one in which no universities subscribe and all pay to have their papers made open access. This would seem possible if publishers could not adjust their subscription prices in response to the funding agency's actions. But the publisher can always choose a subscription $p_S(\alpha)$ and author fees $p_A(\alpha)$ such that it will be in the interest of each university to subscribe and not pay author fees for open access. The question thus becomes, if $\alpha < 1$, can it be more profitable for the publisher to set subscription prices and author fees that result in all universities funding open access rather than subscribing.

Where the fraction α of research is funded and mandated to be open access, the publisher could maintain an equilibrium in which all universities subscribe by setting the open access fee $p_A > V$ and subscription price $p_S(\alpha) = (1 - \alpha)R$. In this case the publisher's profits per university are $\alpha N p_A^* + p_S(\alpha)R = \alpha N p_A^* + (1 - \alpha)R$. Alternatively, the publisher could set the subscription price $p_S > (1 - \alpha)R$ and set an open access fee for unfunded research at $p_A = V$. In this case, the publisher's profits per university would be $\alpha N p_A^* + (1 - \alpha)VN$. It follows that the open access equilibrium would be more profitable for the publisher than the subscription equilibrium only if $(1 - \alpha)VN > (1 - \alpha)R$, which will be the case only if $VN > R$. This inequality will be satisfied only if in the absence of a funding agency, the publisher chooses to make all of its articles open access rather than subscription-based. Thus, so long as publishers can choose both subscription prices and author charges, it appears that without funding all research, funding agencies will be not be able to induce publishers to flip from a subscription equilibrium to a fully open access equilibrium.

We have so far not imposed any conditions on the author fee p_A^* that the funding agency negotiates with the publisher or on the terms of such an agreement. Suppose that the funding agency agrees to pay no more than p_A^* as a publication fee, but allows the publisher to charge a higher price with the balance made up by the author. In our model, authors are willing to pay V to have their work published. This suggests that if $p_A^* < V$, the publisher could charge an author fee of V and expect that authors would be willing to top up the agency's payment from their own funds. A recent study by Hilmer et al [5] estimates that an article published in an elite journal increases an economics professor's annual salary by more than 1% more than an equally well-cited article in a less elite journal. Bratsberg et al [2] estimate that a 10-page article in one of the top ten economics journals increases a professor's annual salary by about 3%, while a 10-page article in the journals ranked

10-45 increases salary by about 1%. From these estimates, it appears that for an economics professor with salary \$100,000, publishing an article of given quality in a more prestigious journal rather will add \$1,000-\$2,000 per year. Thus, for most economists, the present value of getting one's paper into an elite journal probably exceeds \$10,000.

It follows that if funding agencies wish to prevent publishers from charging author fees that exceed $p_a^* < V$, it is not sufficient to limit the agency's contribution to p_A^* , since publishers could charge a higher fee and expect authors or their universities to "top up" the funder's contribution.

2 Added realism

Variation among universities and readers without subscribed access

Our simple model assumed that universities were identical and that the publisher knows the willingness to pay for access and for publication of each university. Of course real universities differ drastically in size and in research emphasis. Commercial publishers respond to these differences by price discriminating. They offer "Big Deal" bundled packages in which they offer access to essentially all journals that they publish for a negotiated lump sum. For example, the University of Michigan with 52,000 students paid \$2.5 million for access to the entire bundle of Elsevier journals published in 2015. Much lower prices are offered to smaller and to less research-intensive institutions. For example, Kent State, which has about 35,000 students and offers masters' degrees but not doctorates, paid \$630,000 for access to this bundle, while Oberlin, a prestigious undergraduate institution with about 3,000 students paid \$220,000. The same bundle is sold to community colleges with relatively small enrollments for prices between \$1,000 and \$2,000.

Publishers use available information, including histories of subscriptions to paper editions in the days before journals were published online, to estimate their willingness to pay for access to their journal portfolio. These estimates are not always accurate. This means that sometimes the publisher will underestimate and sometimes overestimate a university's willingness to pay. Since prices differ between universities and the marginal cost to the publisher of allowing access to any university is negligible, there is room for a university to bargain over the price it pays. Universities that are relatively

successful in bargaining will be able to obtain subscription access at somewhat less than their full willingness to pay.² Sometimes the publisher will overestimate university's willingness to pay and no agreement is reached. In this case, the university will not have access to at least some of the publisher's journals.

]In the real world, there are potential readers with no university affiliation. Scholars employed in the private sector or in government agencies, as well as scientists in third world countries often lack access to university-supplied subscriptions. Recent articles in subjects such as medicine, engineering, biology, and economics are likely to be of interest to many workers outside of universities. Private citizens may be intensely interested in recent medical information that relates to their own conditions or those of loved ones.

In our simple model, where publishers know each university's willingness to pay and can set prices so all universities subscribe, both the subscription equilibrium and the open access equilibrium are fully efficient. While universities have every reason to object to the monopoly profits that are extracted from their budgets, the model shows no waste of resources.

In a more realistic model, where most, but not all, universities subscribe, and where there are potential readers who are not at universities, the open access equilibrium is clearly more efficient than the subscription equilibrium, since in the subscription equilibrium, some potential readers are excluded, although the marginal cost of allowing them access is essentially zero.³

It is in the interest of commercial publishers, who set the author fees for open access to set these fees high enough to cover the reduction in subscription value that would result from making the papers open access. This amount is likely to be much higher than the value to an author of extending access to a minority of readers who lack subscription access. Thus our model suggests that publishers will set author fees high enough so that the only research that is made open access is that which is mandated to be so by funding agencies.

²Bergstrom, McAfee, and Williams [1] show that there are large differences in the prices paid by different universities for Big Deal bundles that can not be explained by differences in the size or research emphasis of these universities.

³The costs of providing a purely open access journal are also likely to be smaller than those for a subscription journal, since although the online platforms are much the same in either case, an open access journal avoids the costs of subscription management, which are likely to be significantly higher than the cost of collecting author fees.

Bundles of journals

In our simple model, a publisher marketed a single journal. In reality, large commercial publishers sell bundled subscriptions to their full portfolio of journals. The bundles sold by Elsevier, Springer-Nature, and Taylor-Francis, each consist of more than 2,000 journals, while that sold by Wiley has more than 1600 journals. The journals included in these bundles range across disciplines in science, social science, and humanities. These bundles include prestigious journals that are frequently cited and downloaded as well as some journals from which articles are almost never downloaded or cited.

Selling journal subscriptions in bundled form allows publishers to estimate a university's willingness to pay more accurately than it could with journal-by-journal subscriptions. Because universities differ in their research emphasis and faculty interests, it is easier to estimate total willingness to pay for an entire suite of journals than to estimate willingness to pay for each journal separately.

The journal bundles sold by large publishers include many journals that are rarely if ever cited or downloaded. These add little to the value of a subscription to the entire bundle. Publication in these journals also adds little prestige for the author or for the author's university. These quality differences are partially reflected in differences in hybrid author payment fees. Elsevier offers hybrid open access in 2,005 journals. The author payment fees range from \$500 to \$5,200 per article, with a median price of \$2,900.⁴

“Offsets” of author fees against subscription fees on Big Deal contracts

Some university consortia have reached agreements with some publishers in which author payments for hybrid open access are partially or fully offset by discounts in total subscription prices [7]. The largest publisher, Elsevier, has so far resisted such arrangements. Some simple accounting of costs and benefits suggests that universities or consortia will be unlikely to be able to negotiate negotiate such contracts at terms that are beneficial to themselves.

It is in the interest of the publisher to set the subscription price to each university as close as possible to that university's willingness to pay. If the

⁴Elsevier also publishes about 200 journals, sponsored by government agencies and professional societies, that have zero author fees. In these cases, Elsevier collects directly from the sponsoring agency.

only readers of articles written by scholars in the consortium were at universities in that consortium, publishers would happily accept an agreement in which consortium members subsidize hybrid open access author fees and the consortium's subscription price is reduced by the amount of author fees paid. The publisher's revenue would be the same as without offsets, and the subsidy would encourage submissions of high quality articles to their journals. The university's total expenditure would be unchanged and the work of its scholars would gain some readers who are not at universities with subscriptions.

But even large university consortia such as the German university system or the University of California control only relatively small proportions of the readership of academic journal articles. Allowing open access to articles written by consortium authors will reduce every subscribing university's willingness to pay for subscriptions. Unless publishers are able to conceal the availability of hybrid open access articles, an offsetting agreement in which the consortium's total payments remained constant would result in a significant reduction of publisher revenue.

Suppose that authors located at universities belonging to a consortium write the fraction θ of all articles in a publisher's journals and that subscription revenue from universities in this consortium constitute the same fraction θ of total subscription revenue. In the initial equilibrium the consortium subscribes to the publisher's journals and none of its papers are available in open access form. Let R_s be the subscription price paid by the consortium and let R_T be the publisher's total subscription revenue. If the consortium were to reach an offsetting agreement in which all of its articles were to appear in hybrid open access, then the fraction θ of all articles appearing in the publisher's journals would be available at no cost, and the total value of a subscription would be reduced by the fraction θ at all universities outside of the consortium. In the original equilibrium, total subscription revenue from universities outside the consortium was $(1 - \theta)R_T$. In the equilibrium with the offsetting agreement, revenue from each of these universities decreases by the fraction θ . Therefore total revenue of the publisher from subscriptions at other universities would decrease by

$$\Delta R_T = \theta(1 - \theta)R_T.$$

Since, by assumption, $R_s = \theta R_T$, it follows that with an offsetting agreement that left the consortium's payments constant, the publisher's total revenue

would decrease by

$$\Delta R_T = (1 - \theta)R_s.$$

If, for example a consortium supplied 10% of published articles and subscription revenue from this consortium were 10% of total subscription revenue, it would be in the interest of the publisher to accept an agreement in which it made the consortium's own publications open access, only if the university consortium would increase its total payment to the publisher by 90%.

In this example, the consortium can reach a bargain with the publisher in which its articles are published as open access, while it maintains its subscription to the publisher's other journals only if it increases its payments to the publisher by about 90%. Moving to this arrangement leaves the publisher's monopoly profits intact, as the consortium compensates the publisher for reducing subscription costs of other universities. A likely additional effect of such an offsetting plan is to reinforce the prestige of the publisher's journals and hence its monopoly power by subsidizing publication in the publisher's journals more heavily than publication in cheaper non-profit journals. As we have suggested in earlier discussion, there is no reason to expect that these efforts will bring the market to a tipping point in which the subscription equilibrium is replaced by a full open access equilibrium.

Recent reports [7] indicate that the publishers, Springer and Wiley, but not Elsevier have agreed "in principle" with the German University Consortium on an offsetting payments plan. Options can bring about significantly better terms for universities. It is not clear, however, that it is in the interests of consortia or of the university community at large for universities to seek contracts that amount to subsidization of publication in commercial publishers' hybrid journals. As institutional repositories have grown and interlibrary loan has become more rapid and efficient, and with the availability of "illegal" sources of access such as SciHub, it is likely that the bargaining power of universities and consortia have improved in recent years. Therefore it is quite likely that hard bargaining along with a credible threat of cancelling subscriptions can lead to substantial price reductions for Big Deal contracts. SPARC now maintains a list of recent cancellations of Big Deal contracts.

3 Breaking the monopolist's grip

The model of the previous section indicates that prestigious established journals have monopoly power, both in the subscription market and in the open access publication market. While it may be that the monopoly profits that can be collected from open access publication fees are less than the profits available in a pure subscription market, they remain substantial. This is evidenced by the fact that Elsevier has 27 hybrid journals with author publication fees of \$5,000 or more. All of these journals are in biomedical fields where publication is subsidized by government funding agencies.

We have argued that contracts with commercial publishers that implicitly subsidize publication as open access in hybrid journals are likely to be counterproductive, since if offered at terms acceptable to the publisher, they will bolster the prestige of commercial legacy journals and allow them to continue to extract monopoly profits from authors as well as readers.

In contrast, the national funding agencies that have endorsed Plan S, intend to require that funded research appear only in pure open access journals and not in hybrid journals.[4] There is no reason to expect that any of the current high prestige commercial journals will switch to open access in order to retain articles funded by participants in Plan S. But the open access requirement of Plan S will imply that a significant number of high quality articles will become available to competing fully open access journals, which because they have shorter histories are currently less prestigious than the legacy journals.

Funders can make funding depend on where scholars publish. Universities lack the market power of funders. Prestigious scholars who are unhappy with university mandates can move to another university with less onerous requirements. So what can universities do? Our model suggests that acting separately in their own self-interest, there is no incentive for universities to deviate from paying subscriptions and not paying for open access publication. Our model suggests that even if large university consortia such as the German Projekt Deal or the University of California system were to negotiate an arrangement to have their own authors' papers published open access in hybrid journals, this would not be likely to trigger a "flip" from a subscription equilibrium to a purely open access equilibrium. It is true that if these consortia were able to publish their articles in open access form, the value to other universities of journal subscriptions would decline and the publisher would have to reduce subscription prices. But the publisher is unlikely to

agree to such a bargain unless the consortia make up the revenue difference either by subsidizing high publication fees or by paying a high price for their own subscription access. This process would only strengthen the monopoly power of prestigious established journals.

There are policies that a university or consortium of universities can pursue that are more likely to further open access and promote the public good. An important step is to strongly encourage their faculty to post copies of final drafts of all their scholarly work in publicly accessible repositories. If they choose to subsidize open access publication in journals, it would be reasonable to restrict these subsidies to fully open access journals that offer author fees that are close to average cost rather than inflated to what the market will bear.

There are indications that Big Deal packages are becoming less attractive to universities. Major publishers have continued to increase their prices much more rapidly than the rate of inflation. At the same time, it has become easier to do without journal subscriptions. With the internet, access to journal articles by interlibrary loan has become much cheaper and faster. A growing proportion of articles in many disciplines have become freely available at authors' websites and institutional archives. Almost all journal articles can be accessed at the anti-establishment website, SCIHUB.

Recently several universities and consortia have cancelled their Big Deals [?]. These include Florida State University, University of North Carolina, Kansas State University, and the University of Montreal, as well as the Swedish and German national consortia of universities. A webpage maintained by SPARC (Scholarly Publishing and Academic Resources Coalition) records 27 universities and consortia who have cancelled Big Deals since 2016.

All universities should consider the possibility of cancelling their bundled subscriptions and subscribing only to those individual journals that are cost-effective. Doing so may not only save money for the canceling university, but it would also promote competition in the publishing industry, as overpriced mediocre journals published by major publishers would no longer be protected by being included in the publisher's subscription bundle.

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