June, 2005

The Bundling of Academic Journals

Aaron S. Edlin
Daniel L. Rubinfeld

The Bundling of Academic Journals

By AARON S. EDLIN AND DANIEL L. RUBINFELD*

Academic journal publishing has evolved rapidly in the past two decades. Prices, ownership concentration, the number of journals, and the means of distribution have all changed dramatically. Substantial price increases have been the norm. Average prices have risen severalfold over this period, with prices climbing the most at for-profit journals, where these prices are now as much as 500 percent higher than nonprofits (Gail Yokote, 2003). The price difference between for-profit and nonprofit academic journals is particularly striking, given that these journals are generally similar in format and editorial processes, and that for-profit journals do not appear to be of higher quality (Theodore C. Bergstrom, 2001 p. 183).

Increased concentration provides one possible explanation for why prices of for-profit journals are so high. To take one example, measured by revenue, in 2001 Elsevier Science had a 22.9-percent share of the Science, Technology, and Medicine (STM) industry, with Kluwer at 11.7 percent, and Thomson at 10.7 percent.[1] But concentration offers at best only a partial answer. Bundling offers another, potentially more significant explanation, particularly for recent increases.

The prices of for-profit journals could not be high and increasing without significant structural barriers to entry. Recently, however, a new strategic barrier has emerged. Major publishers have been offering libraries packages of journals that are bundled across journals and across print and electronic versions. The exact terms have varied from publisher to publisher, but a contract (sometimes called a "Big Deal" by librarians) typically involves a library entering into a long-term arrangement to get access to a large electronic library of journals at a substantial discount, in exchange for a promise not to cut print subscriptions (whose prices will increase over time); in this sense print and electronic are bundled. Since the electronic library becomes much less expensive when ordered in quantity, there is likewise bundling across electronic journals.

Bundling can be seen as a device that erects a strategic barrier to entry. At a simple level of analysis, the Big Deal contracts leave libraries few budgetary dollars with which to purchase journals from new entrants. Looking one level deeper, we see that bundling entails average prices that exceed marginal prices, and this creates a barrier to entry if entrants compete with the marginal journal. Other things equal, bundling practices are likely to be anticompetitive to the extent that they allow for the maintenance of supracompetitive average prices that limit usage of academic journals by scholars and/or distort library choices between journals and monographs and books. There are, however, pro-competitive benefits associated with bundling. Recent deals have provided scholars with extra access to journals; moreover, when electronic databases contain journals not included in the libraries' print collections, the collections expand.

Finding an economic approach that analyzes a range of bundling practices and evaluates them by appropriately balancing benefits and costs

† *Discussants:* V. Kerry Smith, North Carolina State University; Robert Hall, Stanford University.

* School of Law and Department of Economics, University of California, Berkeley, CA 94720. This research is supported by a grant from the Andrew Mellon Foundation. The authors thank Catherine Candee, Mary Case, Beverly French, Michael Keller, Mark McCabe, Ann Okerson, Asunta Pisani, and Milt Ternberg for their helpful advice.

[1] Figures are based on data from Outsell: 70 percent of worldwide STM revenue accrues to commercial publishers.

offers a challenge to industrial-organization economists.[2] Our goal is to provide some initial perspectives and to provoke further commentary.

I. Structural Barriers to Entry

The largest structural barrier to competing with an established journal is that journal's reputation. An established journal is a "coordination equilibrium." What makes a journal valuable is the simultaneous consensus of authors, reviewers, editors, libraries, readers, tenure committees, and indexing services that the journal is of high quality. If all the actors were to simultaneously conclude that an established journal was low in quality and that a new journal was of higher quality, the quality ordering of the journals would be reversed, and with it their values. Because of the variety of actors that are required to reach a new equilibrium, the likelihood that such a reversal will occur and that a new entrant will supplant an existing journal is very small.

Another barrier to entry is the libraries' relatively high switching costs and associated inertia. A library that has 40 years of back issues of a journal and is considering whether to buy another year or to subscribe to a new or different journal, faces a different decision than if it were choosing between the two journals de novo. Unless the library's journal is clearly dominated by a replacement journal, the library will not shift its holdings for fear of devaluing the existing collection.

The inability to effectively monitor faculty use is another problem. If monitoring were effective and libraries could both respond more accurately to faculty demands and more expeditiously inform faculty about pricing issues and the university's need for faculty not to give their copyrights to journal publishers, it is quite possible that libraries' demands for journals would become more elastic and that barriers to entry would be reduced. Unfortunately, librarians currently have limited information about the usage of print journals. The stickiness of the status quo and the value of retaining existing investments help to explain the relatively inelastic nature of libraries' demands for journals.

A final barrier to entry is the substantial share of a journal's costs that are first-copy costs. The cost of recruiting, judging, reviewing, editing, copyediting, and typesetting articles is essentially independent of the number of copies that will be circulated. Because journals can take years to mature, the problem of achieving minimal viable scale, let alone minimum efficient scale, is substantial. Electronic publishing can change this landscape significantly, but the structural costs of entry remain substantial. It is not surprising therefore that there are few entrants, most of which fill narrow niches, and most of which are subsidized by one means or another.

II. Bundling as a Strategic Barrier to Entry

A. *The Big Deal: Profiting from Price Discrimination while Creating an Entry Barrier*

While specifics of the "Big Deal" vary, a typical offer would involve a multiyear contract in which the library agrees to keep its existing base of print subscriptions (with the base price increasing annually).[3] The library pays a surcharge for access to an electronic journal database. A major sticking point for libraries has been their inability to glean substantial savings by canceling print titles once they sign up for the Big Deal. Libraries may get no savings from a cancellation, or they may get limited savings that fall far short of the individual list prices the library originally paid for the print journals.

The bundling of print and digital representations of journals involves price discrimination. In other markets, bundling often takes the form of second-degree discrimination, in which case buyers are offered the same pricing schedule but choose (often based upon unobservable demand characteristics) what to buy. Because some bundles have higher implicit per-unit prices or higher profit margins, this is viewed as a form

[2] In Edlin and Rubinfeld (2004), we sought to identify and then provide an evaluation of the antitrust issues that might be raised either in private antitrust actions or in U.S. government non-merger investigations. The paper also provides detailed descriptions of Big Deal contracts.

[3] Elsevier offers several Big Deal options (see Edlin and Rubinfeld, 2004).

of indirect discrimination. The Big Deal bundling options are somewhat different, however; the discrimination is direct and is most appropriately viewed as an approximation of third-degree price discrimination. The price that a buyer is quoted depends upon that buyer's observable characteristics (i.e., on the subscription base prior to the introduction of Big Deal bundling). Moreover, the price of the Big Deal is often individually negotiated with a given library or with groups of libraries, which offers further opportunities for publishers to price based on individual characteristics. The result is that the bundled price reveals both a lower bound and a reasonable approximation to each library's willingness to pay for the bundle of journals as a whole.

A publisher could not do nearly as well at discerning a library's willingness to pay for a given journal, as it does for the bundle of journals. The value of an individual journal to a given school is highly ideosynchratic and can depend upon the preferences of a single vocal faculty member. Whenever an incumbent publisher misprices and loses a sale by pricing too high for a school to buy, an opportunity is created for entrants. Bundling takes advantage of the law of large numbers to limit such pricing "inaccuracies" and with them the opportunities for entrants.

This pattern of third-degree price discrimination is widespread. A survey of fellow librarians several years ago by Kenneth Frazier (2001) found that 66 percent had licensed Big Deals from the Academic Press and 60 percent from Elsevier (this was prior to Elsevier's acquisition of Academic Press). However, some schools such as Stanford, Harvard, and Cornell have shunned the Big Deal and have chosen to buy electronic subscriptions à la carte at dramatically higher prices than print.

The immediate effect of the introduction of Big Deal arrangements has been to move competition from individual journals to large bundles of journals. This move has created a very substantial strategic barrier to entry into markets for journals. Apart from the necessity of achieving viable scale in an industry where founding even a single journal requires the daunting task of creating a new coordination equilibrium, a new entrant needs to compete for library subscriptions in an industry where a substantial share of library budgets is committed in long-term contracts with existing publishers. There are indications that the Big Deal is hindering entry. Librarians who have signed up for the Big Deal say that they would spend more money for journals from smaller and alternative publishers if they could achieve proportionate savings from reductions at large publishers.

B. *Bundling and Price Discrimination: Where Do We Go from Here?*

Bundling practices raise important questions for industrial-organization economists. How are these practices likely to evolve over time as publishers learn more about libraries' demands? What is the best way to characterize the particular form of price discrimination at issue here? How are publishers' pricing strategies likely to change as libraries change their acquisition strategies?

The bundling of academic journals has continually evolved. As this paper is being written, it is probably accurate to characterize most "Big Deals" as having flipped from being print bundled with electronic to electronic bundled with print. Under the "electronic-bundled-with-print" scenario, the bulk of payments are for electronic access, and these payments are required to buy "cheap" print journals. The decision of a number of major university libraries to opt not to enter into a Big Deal arrangement has encouraged publishers to put forward an even wider variety of bundling arrangements to achieve their goals. Library consortia have also become more creative in their thinking about how to respond to publishers' bundling arrangements.[4]

As negotiations continue from year to year, it is quite possible that publishers will be convinced to break the link between print and electronic journals. There is no reason to expect, however, that bundling itself will disappear. It is crucial therefore to thoroughly understand the nature of the price discrimination that underlies various types of bundling.

[4] See Jeffrey N. Gatten (2004), who proposes that consortia monitor joint usage and utilize the information to negotiate reductions in Big Deal fees as members discontinue low-use titles.

An important aspect of bundling is the effort by a firm with market power to charge higher prices by bundling substitutes. Consider a world where a representative library purchases one copy of journal(s) A from firm 1 and one copy of journal(s) B from firm 2 and the journals or sets of journals A and B are substitutes so that the value of adding B to the collection falls if A is already held and vice versa. Even after a merger, if the merged firm is restricted to sell A and B separately (as Time-Warner and Turner were required to do with cable packages), and if it desires to sell both, then the merged firm will not be able to raise price. Bundling, however, allows it to raise price. By bundling A and B, the merged firm can effectively stop A and B from competing with each other, which substitutes will otherwise do even when sold by the same firm.

Our initial analysis suggests that, in this special case where libraries are homogeneous, bundling does not serve as a barrier to entry. Although it allows firms to charge higher prices, access is not restricted, and competition appears to be on the merits. Consider a new journal which is a perfect substitute for journal A, but can be produced at lower cost. In this special world, this journal will in fact successfully compete with journal A, and the merged firm will cease to produce journal A. Our hypothesis is that if one considers a world where schools vary in demand (recalling the price-discrimination discussion above), then both efficiency-oriented and anticompetitive motivations for bundling will be important.

III. Is Bundling Harmful to Competition?

A. *Exclusionary Behavior*

The Big Deal and other forms of bundling appear to be exclusionary in that they unnecessarily impair the ability of entrants to compete. Because new entrants must compete at the margin in the beginning, and because the bundle entails a low marginal price, an independent publisher might gain few subscriptions even if it creates a new journal with better articles than an Elsevier journal that has a higher list (and average) price. With bundling, cutting the Elsevier journal garners little savings that could be used to buy the entrant's journal, and if the library buys Elsevier's whole bundle, it may not have sufficient resources left to subscribe to the new journal.

The situation is similar for libraries that come up for renewal of the Big Deal. A library subscribing to the complete Elsevier package can cancel all 1,800 Elsevier titles and buy à la carte. If the alternative publisher is only offering a single new journal, it is unlikely the library would cancel the Elsevier titles to get the new journal. Entry is certainly more difficult, but should the publishers' behavior be deemed to be exclusionary, or should the publisher be seen as competing on the merits?

We believe that bundling is a good candidate to be judged exclusionary and anticompetitive. Excluding entrants by charging low prices is generally considered competition on the merits: it is favored from a public-policy vantage because customers gain from the low prices. On the other hand, because the total bundle price is so much higher than the sum of the marginal prices, Big Deal bundling excludes entrants without providing this kind of benefit to buyers. A complete answer to the question of whether Big Deal bundling is exclusionary rests in part on whether entry of new journals would be substantially easier if publishers did not bundle and only sold journals on an individual basis. The answer presumably depends in part on the decisions of librarians as to whether and to what extent they would allocate more funds toward new and alternative publications if they could achieve proportionate savings from cancelled subscriptions.

We suggest that the bundling of a journal publisher with monopoly power is exclusionary and anticompetitive if there exists a set of hypothetical new journals such that: (a) if each journal competes alone in the current marketplace, it will likely gain limited acceptance and subscriptions and not thrive; (b) each journal could gain substantial market penetration and thrive if the monopolist did not bundle; (c) together, all of the journals could compete effectively as a bundle against the monopolist's Big Deal bundle; and (d) it is substantially less likely that these new journals will be founded and thrive if the monopoly sells its Big Deal bundle.

If these conditions are satisfied, then what prevents entry of superior journals is not the monopolist's high quality or low-cost service, but instead the strategies it chooses to sell them. Hence, the publisher is not competing on the merits. Condition (d) prevents the test from being over-inclusive: if the preexisting entry barriers were sufficient even without the Big Deal bundle to preclude entry, then condition (d) is not satisfied.

B. *Pro-Competitive Benefits*

Recent bundling practices have allowed many universities desktop access to journals that otherwise could only be accessed by someone going to the library stacks. Some universities have also been able to expand their access to journals that they could not previously afford. What is the value of this potential efficiency benefit? Does it outweigh the possible costs of exclusion? Is there a substantially less exclusionary way to achieve it? These questions do not have easy answers, in part because the issues raise inherent conflicts between the static efficiency gains associated with bundling and the dynamic efficiency losses associated with a lack of additional entry. Bundling might also promote large publishers to introduce more journals over time to the extent that the price discrimination in bundling allows these publishers to capture more of the incremental surplus from extra journals (Doh-Shin Jeon and Djomenico Menicucci, 2003).

For-profit journal publishers can point to the likelihood of expanded use of existing journals under the Big Deal, both because electronic articles are easier to access than their print counterparts and because the library subscribes to more journals than it otherwise would. With greater accessibility and lower search costs, this usage could be substantial. The value of this usage is very hard to know, however. These electronic views and downloads of journals that would not be subscribed to with à la carte pricing may substitute for time spent reading articles that would be subscribed to with à la carte pricing. Additionally, the value of this extra use may accrue to the publishers in the form of higher prices, so this "efficiency" may not benefit users.

One might attempt to gauge this usage substitution by comparing usage patterns at institutions that choose à la carte pricing with those that have the comprehensive Big Deal, but interpreting this comparison is complicated by selection effects. Even if one could accurately determine how much extra research is made possible by the Big Deal, putting a dollar value on reading journals that are not worth subscribing to on an à la carte basis is inherently difficult. Likewise, it is difficult to gauge the extra benefit that desktop access provides to journals that would be on library shelves, but would not have electronic desktop access absent bundling. Moreover, if one is to attribute pro-competitive benefits to the bundling associated with the Big Deal, it is important to evaluate the extent to which those benefits would be achieved without the Big Deal. If the non-Big Deal world were one in which Elsevier and other publishers offered more competitively priced access to electronic subscriptions, many of the apparent pro-competitive benefits might disappear.

IV. Concluding Remarks

To summarize briefly, journal prices have increased enormously as publishers have recognized the market power they derive from having succeeded in a grand reputational game—a monster coordination equilibrium of authors, editors, reviewers, librarians, and indexers.

Electronic publishing brought with it somewhat lower incremental costs (a small reduction in one barrier to entry) but also a bundled pricing strategy that creates a substantial barrier to entry. New journals must to some extent compete with the bundle rather than with individual journals within the bundle. At the same time, the bundling has benefits as it can increase access.

REFERENCES

Bergstrom, Theodore C. "Free Labor for Costly Journals?" *Journal of Economic Perspectives*, 2001, *15*(4), pp. 183–98.

Edlin, Aaron S. and Rubinfeld, Daniel L. "Exclusion or Efficient Pricing? The 'Big-Deal' Bundling of Academic Journals." *Antitrust Law Journal*, 2004, *72*(1), pp. 119–57.

Frazier, Kenneth. "The Librarians' Dilemma: Contemplating the Costs of the 'Big Deal' ", *D-Lib Magazine*, 2001, *7*(3) [online: ⟨http://dx.doi.org/10.1045/march2001-frazier⟩].

Gatten, Jeffrey N. "An Orderly Retreat from the Big Deal: Is it Possible for Consortia?" *D-Lib Magazine*, 2004, *10*(10) [Available online: ⟨http://www.dlib.org/dlib/october04/gatten/10gatten.html⟩].

Jeon, Doh-Shin and Menicucci, Djomenico. "Bundling Electronic Journals and Competition Among Publishers." Unpublished manuscript, Universitat Pompeu Fabra, 21 April 2003 [Available online: ⟨http://www.ios.neu.edu/papers/s3i3.pdf⟩].

Yokote, Gail. "Faculty and the Scholarly Journal Publication Crisis." Unpublished manuscript, University of California–Davis, 4 December 2003.