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I. INTRODUCTION

The business of academic journal publishing has evolved rapidly in the past two decades. Prices, ownership concentration, and the number of journals have all increased dramatically. A fourth major change in the journal industry has occurred much more recently: the Internet distribution of journals. In only a few years, a very substantial number of journals have gone online. So vast is this shift that Elsevier, the largest journal publisher, now claims to have the third largest Internet revenues, behind only AOL-Time Warner and Amazon.

Concentration of ownership has increased substantially, in part because the large publishers have founded a disproportionate share of the new journals, and in part because the publishers have grown through many acquisitions.[1] Tracking the acquisitions and increased concentration have been very substantial price increases. For example, the price of library subscriptions to periodicals in law, medicine, and physics and chemistry rose by 205 percent, 479 percent, and 615 percent between

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[1] The largest commercial journal publishers, Elsevier, Candover and Cinven (which recently purchased Wolters Kluwer and Bertlesmann-Springer), Thompson, and Wiley have all grown through a long list of acquisitions. To name a few, Kluwer merged with Wolters-Samson in 1987 to become Wolters Kluwer. Its acquisitions included Wiley's law unit (1998) and Waverly (1998). Elsevier merged with Reed International to become Reed Elsevier in 1993. Reed-Elsevier's acquisitions included Mead Data (now Lexis-Nexis) (1994) and Academic Press, as part of the Harcourt General acquisition (2001). An excellent history of acquisitions and mergers, with citations to the above acquisitions, has been compiled by Mary Munroe. *See* Mary Munroe, The Academic Publishing Industry: A Story of Merger and Acquisition, (unpublished manuscript), *available at* http://www.niulib.niu.edu/publishers (last updated June 17, 2004).

1984 and 2001, a period when overall price increases as reflected by the CPI was 70 percent.[2] The combination of price increases and an increased number of titles has put pressure on libraries, which complain of a crisis in scholarly communication.[3]

At this point, subscription prices are much higher at for-profit journals than non-profit journals, as much as 500 percent higher.[4] This difference is particularly striking, given that for-profit and non-profit academic journals are generally similar in format and editorial processes, and that for-profit journals do not appear to be of higher quality. In fact, for-profit journals have much lower citation counts on average than do non-profit journals.[5]

Why are prices of for-profit journals high and increasing? [6] Mergers may be part of the explanation, but that is not our focus here.[7] Up to this point, the U.S. competition authorities have not been particularly aggressive in blocking mergers and acquisitions (or in requiring significant divestitures), and we see no likelihood of a significant policy shift in the immediate future. In any case, mergers alone could not explain such sustained price increases without entry barriers, and these barriers are a focus of this article. We will explain that the structural barriers to new entry to the journal industry have always been very high. And although Internet technology has reduced some entry costs, the most substantial barriers remain.

Moreover, with the availability of Internet technology, a new strategic barrier has emerged. Major publishers have begun offering libraries bundled packages that librarians have dubbed the "Big Deal." The bundles are across journals and across print and electronic versions. The exact terms vary, but in a typical Big Deal contract a library enters into

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[2] *See* Barbara Albee and Brenda Dingley, *U.S. Periodical Prices—2001*, American Libraries 2, (May 2001) (unpublished manuscript), *available at* http://www.ala.org/al_onlineTemplate.cfm?Section=selectedarticles&Template=/ContentManagement/ContentDisplay.cfm&ContentID=7282

[3] *See, e.g.*, Gail Yokote, UC Davis General Library Associate University Librarian for Research Services & Collections, Faculty and the Scholarly Journal Publication Crisis (unpublished manuscript) (Dec. 4, 2003), *available at* http://www.lib.ucdavis.edu/info/jrnltrans/pubcrisis.html, The University of California Libraries, Reshaping Scholarly Communication (unpublished manuscript), *available at* http://libraries.universityofcalifornia.edu/scholarly/.

[4] Theodore C. Bergstrom, *Free Labor for Costly Journals?* 15 J. Econ. Persp., Fall 2001, at 183, 183 [hereinafter *Free Labor*] (finding that the average price per page of elite commercial journals is about 9 times as high as for non-profit journals). Bergstrom finds similar results when considering the whole journal portfolios of publishers: overall prices at large commercial publishers range from 2 to 9 times higher than professional societies and university presses, with the exact figure varying among commercial publishers. *See* Ted Bergstrom, Publishers' Average Library Prices Per Page for Economics Journals in 1999 (unpublished manuscript), *available at* http://www.econ.ucsb.edu/~tedb/pubprice.htm (last updated Feb. 27, 2000).

[5] *See infra* Table 1, (noting that citations per page–the ratio of price per page and price per citation–is consistently higher for non-profits); *see also* Institute for Scientific Information, Journal Citation Reports, *available at* http://www.isinet.com.

[6] Journals are highly differentiated products; the price differentials may be due in part to the fact that some commercial journals serve rather specialized, niche audiences. *See infra* Part IIIA(1).

[7] *See* Mark J. McCabe, *Journal Pricing and Mergers: A Portfolio Approach*, 92 Am. Econ. Rev. 259 (2002) [hereinafter *Journal Pricing and Mergers*]; Mark J. McCabe, A Portfolio Model of Journal Pricing: Print v. Digital (unpublished manuscript), (revised June, 2003), *available at* http://www.prism.gatech.edu/_m284/PD.pdf. According to The University of California Libraries, *supra* note 3, mergers cause journal prices to increase 20–30%.

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 (the prices of which will increase over time). In this sense print and electronic are bundled. Because the electronic library becomes much cheaper when ordered in quantity (such as "all remaining math journals"), there is likewise bundling across electronic journals.

On the one hand, the Big Deal locks in libraries and leaves few dollars in budgets to purchase journals from entrants to the journal industry. In this way, it creates a strategic barrier to entry. Viewed from a long-run perspective, erecting a strategic barrier to entry by bundling can be seen as a device that allows publishers to either maintain or increase their existing market power. Other things equal, such practices are likely to be anticompetitive (and may violate Sections 1 and 2 of the Sherman Act) to the extent they allow for the maintenance of supracompetitive prices that distort library choices away from monographs and books and/or limit usage of academic journals by scholars.

On the other hand, these deals have provided scholars with extra access to journals in many cases. Desktop electronic access to journals the print version of which is sitting on a library shelf can expand usage. Additionally, when the electronic databases contain journals not included in the libraries' print collections, the libraries' collections are expanded. These benefits could be substantial and could provide a defense against allegations of antitrust violations that are judged under the rule of reason.

Finding an appropriate legal and economic approach that appropriately balances benefits and costs offers a challenge to the current competition policy system. Our purpose here is not to provide a final balancing of the procompetitive aspects and the longer-run exclusionary consequences of Big Deal bundling. Instead, we seek 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.

In Part II, we offer a brief overview of the economics of journal competition, survey the current landscape in academic journal publishing, and discuss market definition and barriers to entry. In Part III, we outline the possible antitrust implications of the for-profit journal bundling practices. We begin with monopoly maintenance under the Sherman Act Section 2, including an examination of whether the major commercial publishers currently exercise monopoly power and a discussion of how bundling through the Big Deal may constitute exclusionary behavior. The antitrust analysis here is particularly complex in light of the changing character of the journal industry in response to new technologies. The strategic business practices at issue here are of special interest because they parallel to some extent the issues that were raised in *U.S. v. Microsoft* and are likely to continue to arise in the new economy. We then discuss the antitrust implications of tying under the Sherman Act Section 1.

II. THE ECONOMICS OF JOURNAL COMPETITION

A. The Landscape: For-profits, Non-profits, Costs, Prices, and Service

As the Introduction emphasized, over the past twenty years library subscription prices have grown substantially. For example, between 1984 and 2002, the price of legal serial publications increased by 224 percent[8] and the price of science journals increased by nearly 600 percent.[9] The prices for serials taken as a whole increased by 226 percent between 1986 and 2000, according to the Association of Research Libraries, and library expenditures increased by 192 percent.[10] Subscription prices for both non-profit and for-profit publishers have increased, but for-profit publishers have posted substantially greater increases than their non-profit counterparts.[11] These increases were substantially greater than the industry-wide average of 226 percent, which takes into account the prices of non-profit and for-profit journals. Indeed, according to one estimate, Elsevier's prices may currently be 642 percent higher than the industry-wide average.[12] Given these price differences, it is not surprising that for-profit publishers account for the lion's share of sales revenues, even though they do not have the lion's share of journals. According to Outsell, Inc., 70 percent of the revenue generated in the Scientific, Technical, and Medical (STM) market in 2001 went to commercial publishers, 18 percent to non-profits, and 12 percent to aggregators.[13]

These observations raise the question: why are prices of some journals, and in particular for-profit journals, so high, given that non-profit journals appear similar in format and production process and yet manage to survive with much lower prices?

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[8] *See* Barbara Albee and Brenda Dingley, U.S. Periodical Prices—2002, American Libraries 2, (May 2002) (unpublished manuscript), *available at* http://www.ala.org/al_onlineTemplate.cfm?Section=selectedarticles&Template= / ContentManagement / ContentDisplay.cfm&ContentID=7282; American Libraries Online, U.S. Periodical Prices—2002, at Table VII: Law, *available at* http://www.ala.org/ala/alonline/selectedarticles/7law.htm.

[9] *See* Thomas M. Susman & David J. Carter, Publishing Mergers: A Consumer-Based Approach to Antitrust Analysis 14 (Information Access Alliance White Paper, June 2003), *available at* http://www.informationaccess.org/WhitePaperV2Final.pdf.

[10] *See* Ass'n of Research Libraries, ARL Statistics 1999–2000: A Compilation of Statistics from the One Hundred and Twenty-Two Members of the Association of Research Libraries 9 (Martha Kyrillidou & Mark Young eds., 2001), *available at* http://www.arl.org/stats/pubpdf/arlstat00.pdf.

[11] *See* Bergstrom, *Free Labor, supra* note 4, at 189.

[12] STM and Elsevier Publishing Information, (unpublished manuscript, California Digital Library) (Sept. 22, 2003), *available at* http://www.law.berkeley.edu/faculty/rubinfeldd/Ac.%20Jour.%20Publishing/Academic%20Journal%20Project.html (comparing Elsevier's average title prices with industry averages to reach this conclusion). In 2003, the Cornell University Library paid over $1.5 million for Elsevier journals alone: While this amounts to less than 2% of the total number of Cornell's serials purchases, it claims over 20% of Cornell's serials budget. Cornell Univ. Library, Issues in Scholarly Communication: The Elsevier Subscription *available at* www.library.cornell.edu/scholarlycomm/elsevier.html (last updated, December 18, 2003).

[13] *See* Outsell, Inc., Industry Trends, Size, and Players in the Scientific, Technical & Medical (STM) Information Market 9 (Nov. 22, 2002) (unpublished manuscript on file with authors) . This figure may involve some double counting; we are uncertain how payments from aggregators to original publishers are treated. Aggregators like ProQuest repurpose articles and journals; one can think of them as resellers, but they aggregate before reselling, thereby creating new products. If the aggregator share were attributed to the primary sources, then the share of commercial and non-profits would rise.

As was discussed in the Introduction, one explanation for high prices is the substantial consolidation among the for-profit journal publishers, even though this is not our focus.[14] McCabe, for example, estimates that publisher mergers increase prices substantially.[15] Librarians thought this for some time and so have fought mergers, albeit unsuccessfully.[16] In the 1990s, Elsevier and Kluwer were particularly active in the acquisition business. Elsevier, through a combination of merger and internal growth, publishes approximately 1800 titles.[17] Candover and Cinven, which recently purchased Kluwer Academic Publishers, has even more recently purchased Bertelsmann-Springer; together, Bertelsmann-Springer and Kluwer publish 1350 journals.[18]

As a result, concentration in academic publishing has increased. Measured by revenue, in 2001 Elsevier Science had a 16.0 percent industry share, Kluwer, 8.2 percent, and Thomson-Scientific & Healthcare, 7.5 percent.[19] The top ten STM publishers (which includes the National Library of Medicine) accounted for 63.4 percent of the industry. These shares include publications from both segments of the journal industry: the commercial for-profit segment and the not-for-profit segment. The former is dominated by a relatively small number of large commercial publishers, while the latter includes smaller university presses and other non-profits. If we restrict ourselves to the commercial publishers segment of the STM industry, Elsevier Science's share is 22.9 percent, Kluwer, 11.7 percent, and Thomson, 10.7 percent.[20]

Rapid journal price increases have put pressure on library budgets. In the past several decades, college and university library budgets have grown only modestly, in comparison to the rapid increase in the prices of academic journals. The average total library budget grew at 4.3 percent

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[14] *See* McCabe, *Journal Pricing and Mergers*, *supra* note 7. One might infer evidence to the contrary from the fact that the Antitrust Division of the Justice Department has not blocked any journal publisher acquisitions (the recently proposed merger of Reed Elsevier and Kluwer was abandoned in 1998 in the face of substantial criticism). *See, e.g.*, Munroe, *supra* note 1; Richard Poynder, *The Debate Heats Up—Are Reed Elsevier and Thomson Corp. Monopolists?*, Information Today, Apr. 30, 2001, *available at* www.infotoday.com/newsbreaks/nb010430-1.htm. We only infer that the Division was not prepared to proceed, given its substantial burden of proof.

[15] *See* McCabe, *supra* note 7.

[16] *See*, e.g., Press Release, Ass'n of College and Research Libraries, Libraries Urge Justice Department to Block Cinven and Candover Purchase of Bertelsmann-Springer (May 30, 2003), *available at* http://www.informationaccess.org/MergerRelease-530.pdf.

[17] Charles Burress, *The Staggering Price of World's Best Research*, S.F. Chron., Mar. 28 2004, at B1, *available at* http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2004/03/28/BAGQE5SL3I1.DTL.

[18] *See* Munroe, *supra* note 1.

[19] *See Industry Trends, Size, and Players in the Scientific, Technical & Medical (STM) Information Market*, *supra* note 13, at 12.

[20] Figures calculated based on data from Outsell, using statistic that 70% of worldwide STM revenue accrues to commercial publishers. *See Industry Trends, Size, and Players in the Scientific, Technical & Medical (STM) Information Market*, *supra* note 13, at 9. Actual concentration may be higher if aggregators that are resellers are excluded. Among legal periodicals (based on Outsell data), the top three publishers are the same: Thomson and Reed-Elsevier are the two leaders, each with substantial market shares. Kluwer is third.

per year between 1991 and 2002, or 58 percent in total,[21] while journal prices grew several times faster.[22] One possible reaction by librarians would have been to cut journals drastically to keep the budget share spent on journals constant,[23] but cuts have generally not been that drastic, and the overall growth in serials expenditures has been 92 percent over this period, an average of 6 percent per year.[24]

What have libraries done in response to journal price increases? Conventional wisdom has it that libraries have shifted their budgets toward journals and away from books, monographs, and other research services, the prices of which have increased less rapidly than journals.[25] According to the Association of Research Libraries (ARL), for example, between 1986 and 2000, research libraries cut the number of monographs purchased by 17 percent, and the number of serials by only 7 percent.[26] Over this same time period, monograph expenditures grew 48 percent, slightly lower than the CPI growth of 57 percent, while serial expenditures grew 192 percent.[27] As a result, monographs' share of both acquisitions and overall library budgets fell, while serials' share of each rose. Some of the increased serial spending came from monograph budgets; some came from increases in library budgets.[28]

One might also ask why journal prices have continued to increase faster than inflation, despite the fact that drafts of papers are now posted on individual Web sites and through for-profit research networks, such as the Social Science Research Network (SSRN). The primary reason is that journals, whether in print or electronic, offer a certification (through the refereeing and editorial process) to readers of the importance and value of articles. This certification is supported by network effects: given that search is costly, authors will want to publish their best articles in journals that are widely read by their peers and readers will want to read articles in journals where the best articles are published. Tenure committees look for this same signal from quality peer-reviewed journals.

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[21] Library budget growth numbers are the authors' calculations from Association of Research Library statistics. *See* University of Virginia Library, ALR Statistics, *available at* http://fisher.lib.virginia.edu/cgi-local/arlbin/arl.cgi?task=setupstats (last modified June 23, 2003). Average total library expenditures for 1991 and 2002 were $4,280,986 and $7,001,907, respectively.

[22] For example, chemistry and physics prices grew 221% between 1991–2002; engineering grew at 170% between 1991–2002 *See* American Libraries Online, U.S. Periodical Prices—2002 at Table VII: Chemistry and Physics; Engineering, *available at* http://www.ala.org/ala/alonline/selectedarticles/7chemistry.htm and Overall Science and Technology serials price index increased during this period from 163.8 to 312.9 of 91%. *See* American Libraries Online, U.S. Periodical Prices—2002 at Table VII: Science and Technology, *available at* http://www.ala.org/ala/alonline/selectedarticles/Tablevus.htm.

[23] This is consistent with librarians having Cobb-Douglas utility functions.

[24] Average serials expenditures for 1991 and 2002 were $805,290 and $1,542,199 respectively. *See* ALR Statistics, *supra* note 21.

[25] For a comparison of the pricing of monographs versus journals, see Ass'n of Research Libraries, *supra* note 10, at 9. The shift in library budgets towards journals is documented, e.g., in Allen Powell, *Serials Pricing-An Agent's View: Trends and Characteristics of Higher Education Funding and STM Journal Pricing*, 36 Serials Librarian 253, 255–56 (1999).

[26] *See* Ass'n of Research Libraries, *supra* note 10, at 12.

[27] *Id.* at 9, 14.

[28] *Id.* at 14.

B. Journal Markets and the Journal Industry

In antitrust analysis, market definition is a means to an end, the end being to determine whether conduct has led or will lead to adverse competitive effects. A market is any group of goods and geographic regions in which a hypothetical monopolist could profit from a small but significant non-transitory increase in price.[29] With respect to merger analysis, the benchmark for considering increases in price is generally the existing price. For monopolization analysis, the benchmark is the competitive price.[30] Because there are frequently many possible markets one can take into consideration, the relevant markets depend on the competitive concerns that are at issue. When we consider academic journals taken as a whole, we will refer to the "journal industry." Naturally this is an antitrust market in the sense described above, but we use the "industry" designation to distinguish it from the "relevant market" of interest in this article, a market that is generally much smaller.

Within the context of merger analysis, the Antitrust Division of the Department of Justice typically relies on the smallest market principle of the FTC/DOJ Horizontal Merger Guidelines.[31] This approach has been adopted by the courts as well.[32] Applying the smallest market principle is appropriate when asking whether certain divestitures are required to avoid adverse competitive effects from a merger or acquisition under Section 7 of the Clayton Act.

In the context of academic journals, this leads to a quite narrow definition of the "relevant" market, typically a group of journals in a sub-area of an academic discipline. Thus, for example, it might be that macroeconomics journals would constitute a relevant market in a merger analysis because a hypothetical monopoly of macroeconomics journals could profitably raise price. Indeed, a relevant market might consist only of two macroeconomics journals, the journal of one merging firm and the journal of another. Consequently, even though there are many macroeconomics journals, a hypothetical firm owning these two journals could profitably raise prices. Similarly, a group of journals of a given publisher (PUB), or even an individual journal published by PUB, could constitute separate relevant markets if PUB could raise prices above competitive levels.

Price observations suggest that demand for individual journals is typically quite inelastic at competitive prices in the short-run. For example, in 1985, for-profit-journals cost three times as much per page as non-profit journals, yet by 2003 for-profit publishers had found it profitable to increase their prices to five-and-a-half times that of non-profit journals.[33] Libraries have been sufficiently slow to switch away from higher-priced

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[29] U.S. Dept. of Justice & FTC, Horizontal Merger Guidelines §1.0 (1992, revised 1997), *available at* http://www.ftc.gov/bc/docs/horizmer.htm.

[30] This avoids the so-called "*Cellophane* Fallacy," in which the Court wrongly concluded that two products were in the same market because there was substantial cross-elasticity of demand at the monopoly price. *See* United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377 (1956); *see also* Phillip Areeda, Louis Kaplow & Aaron Edlin, Antitrust Analysis: Problems, Text and Cases ¶ 345(b) (6th ed. 2004).

[31] Horizontal Merger Guidelines, *supra* note 29, § 1.11.

[32] *See, e.g.*, New York v. Kraft Gen. Foods, Inc., 926 F. Supp. 321 (S.D.N.Y. 1995).

[33] Bergstrom, *Free Labor, supra* note 4, at 189.

for-profit journals to lower-priced non-profit journals or monographs that for-profit publishers steadily continued this trend. A comparison of specific journals yields similar conclusions: *Econometrica*, a non-profit association journal publishing economic theory charges institutions less than one-sixth the price (per page) that Elsevier charges for the less prestigious *Journal of Economic Theory*.[34]

In dynamic markets, in which a firm's demand can reasonably be expected to become more elastic over time, one might argue that future entrants should be included in the relevant market or markets. In merger analysis, a potential entrant is considered part of the market "if, in response to a 'small but significant and nontransitory' price increase, it likely would enter rapidly into production or sale of a market product in the market's area, without incurring significant sunk costs of entry and exit;" otherwise, the potential entrant will not be considered in the market.[35] We agree with this conventional wisdom, and believe it equally relevant to monopolization claims like the ones we consider here.

Under this approach, new entry has little relevance to the definition of *existing* markets in the journal industry because journal creation entails substantial fixed and sunk costs and occurs over years or even decades. New journals may someday be created, representing new entry to the journal industry. Such journals will of course be different than PUB's journals, but if they have sufficiently similar characteristics and competitive pricing, then they will impose market discipline on PUB.[36] At that point, the new journals would be considered to be in the same market as PUB's journals. Because these new journals do not exist today, however, they are not now in the same market as PUB's journals. Among other things, then, market definition in the long run will depend on how antitrust policy influences future entry.

Another possible approach (with the same result) is to say that the market today consists of "journals with the characteristics of PUB's titles together with journals that do not yet exist but that have characteristics sufficiently close to PUB's that they could impose market discipline on PUB." This approach is cumbersome. We choose instead to distinguish the market today from what it might be in the future. This distinction is similar to the one made by the D.C. Circuit in *United States v. Microsoft Corp.*[37] The court accepted the DOJ's position that middleware should not now be included in the same market as operating systems, even though the monopolization claim was founded on Microsoft's exclusion of middleware that might otherwise someday compete in the same market with operating systems (the market for application program interfaces). Microsoft argued that if middleware posed that competitive threat, then middleware must today be counted in the market, but this position (rightly) was not accepted by the court.

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[34] Bergstrom observed that *Econometrica* was then priced at $241 to libraries, which amounted to 14 cents per page, while *the Journal of Economic Theory* was then priced at $1,800, which amounted to 90 cents per page. *Id.*

[35] Horizontal Merger Guidelines, *supra* note 29, § 1.0.

[36] These new journals are most apt to impose competitive discipline if they are closer in characteristics to PUB's journals than existing journals. They might, however, also impose discipline simply by their number, to the extent that they provide additional substitution possibilities for a library were PUB to raise its prices.

[37] 253 F. 3d 34, 53–54 (D.C. Cir. 2001).

Put simply, entry in a differentiated products industry may not be to the relevant market per se, as the entrants may well have different characteristics than the existing products. Nonetheless, entry can expand the relevant market by providing competition, and this is one of entry's most salutary features.

1. *Entry Barriers to Starting New Scholarly Journals*

New journals are difficult to start for a variety of reasons that we explain below. Because many of these reasons are inherent to the industry, we characterize them as "structural" barriers to entry.[38] Another substantial barrier, however, has been created by the Big Deal bundling strategy of large commercial publishers. We label this a "strategic" barrier, because it is created by market participants.

Barriers are not equal for all types of entry. It is easier for large commercial publishers to create new journals than for new for-profit or non-profit publishers. Existing scholarly societies have reputations and membership that puts them in a position more comparable to the large commercial publishers, though they may be held back by poor incentives in many cases.

2. *Structural Barriers*

Established scholarly journals are protected by large barriers to entry. The largest barrier to competing with an established journal is that journal's reputation. This reputation is much more complex in its formation than the reputation of most branded products, such as a Mercedes automobile, and it is probably harder to reproduce. In economic terms, an established journal is best characterized as a "coordination equilibrium."[39] 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. Unlike Mercedes and many other branded products, a journal is not valuable because of some special and distinctive production technology. If all the actors were simultaneously to 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 coordination equilibrium, the likelihood that such a reversal will occur is very small.[40]

To make the point somewhat differently, successful journals are the result of network effects. Authors want to publish where other respected

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[38] For a general discussion of structural barriers, see, for example, Richard Gilbert, *Mobility Barriers and the Value of Incumbency*, *in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 475 (Richard Schmalensee & Robert Willig eds., 1989).

[39] *See* Joseph Farrell & Garth Saloner, *Standardization, Compatibility, and Innovation*, 16 RAND J. ECON. 70, 72, 75–79 (1985) (discussing excess inertia in coordination games); *see also* Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM. ECON. REV. 940 (1986).

[40] The coordination equilibrium problem with journals is similar in character to the applications barrier to entry discussed in *U.S. v. Microsoft. See, e.g.*, Franklin M. Fisher & Daniel L. Rubinfeld, U.S. v. Microsoft: *An Economic Analysis*, 46 ANTITRUST BULL. 1, 15–16 (2001).

authors publish—in journals that have a reputation for publishing high-quality articles. Readers dismiss articles, and are not likely to read them, unless they are published in a sufficiently high quality journal. Libraries do not subscribe to journals when their communities do not read them.[41] Authors do not cite articles they have not read. Indexes do not list journals that are not cited. Articles that are in journals that are not listed by one or more indexes may not be discovered even if they are worth reading. Editors and reviewers do not want to allocate their time, typically at a low or nonexistent wage, to work for a journal unless the average quality of articles submitted to the journal is reasonably high.

Most production requires some degree of coordination, but for academic journals the requirements are substantially greater. With respect to journal production, it is most useful to think of authors as a production input and readers as final consumers (with libraries serving a distribution function). Authors are quite different from more traditional production inputs, since part of their compensation derives from reaching readers. While authors would pay a substantial sum to be published in an established journal with a large readership, they might have to be paid, perhaps handsomely, to put their work in a journal that is not likely to be read. Traditional product inputs, such as labor and capital, can be hired, purchased, or leased by a manager through the appropriate markets. Authors do not respond as directly to monetary payments because the cost of their time depends on the likelihood of success of the production effort. Thus, an automobile company can hire workers at the going wage to produce a good car without any promise that the cars will be marketed effectively and sold. In contrast, to start a new journal, each piece of the operation, to a much larger extent, must be put together simultaneously or the pieces will be prohibitively expensive. The need to coordinate makes the reputational barrier to entry substantial.

In a world without transaction costs (and without antitrust laws), the reputational barrier to entry above would be of little consequence. If existing established journals provided poor service (e.g., slow editing or refereeing), were sold to libraries at an exorbitant price (so that revenue far exceeded the minimum cost necessary to publish the journal), or began to deteriorate in quality, the various actors discussed above would look for a remedy. Authors and editors would see that high prices lead to fewer subscribers and less readership, and librarians would see that they were paying more for journals than they would if journals were sold in a more competitive environment. In an ideal Coasian world, all the parties would agree to found a low-price, high-quality journal that most readers could readily access. In the new post-Coasian equilibrium, authors of high-quality papers would submit their papers to the new journal with the knowledge that other quality articles were simultaneously being submitted as well. Because readers would want access to the articles, libraries would happily subscribe to the new low-priced journals. In this world, all this reorganization would be done without cost, and the over-priced, poor-service journal would be left with few readers, low-quality submissions, and few subscriptions.

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[41] More accurately, libraries do not subscribe to new journals without community demand, though they do maintain existing subscriptions to journals that may be scarcely read for reasons that we will identify when we discuss the switching cost barrier to entry.

To describe this Coasian solution is to recognize its near absurdity. Starting a new journal is an enormous undertaking. Editors have to be found, and a team of associate editors and willing reviewers assembled. The editors cannot be paid with the prestige that an established journal would pay them. Authors must be convinced to submit, with no guarantee that other good authors will be publishing there, that the journal will survive, or that it will be widely distributed, let alone read. Unless it is highly specialized and filling a need not otherwise addressed, the new journal most likely will have lower quality submissions than an established journal—if any submissions come at all. Libraries must be convinced to subscribe in the hope that the journal will develop and become better. It is possible, of course, that all these parties could be sold on the idea that it is in their joint interest to move towards a new coordination equilibrium, but the likelihood of success is small unless the journal has some particularly valuable and distinctive innovation.[42]

To say that there are entry barriers is not to say that entry will be impossible. If the returns to starting new journals are sufficiently high, then new journals will appear. Indeed, publishers have been eager to start new journals, and many have appeared in recent decades for exactly this reason. Most new journals were started by the large publishers, but some were created by academic associations and some by smaller independent entrants. For the large publishers and academic associations, the barrier to entry is lower, because there is an expectation that their journals will succeed. And, of course, this expectation of success makes success much more likely.

Large incumbent publishers have an existing stock of journals, each of whose existing reputation offers a prediction as to the likely reputation of the new journal. Distribution of a new journal is likely to be significantly easier than distribution for a new entrant publisher because of existing relationships and/or contracts with libraries (even absent bundling arrangements, to be discussed later).

We note one special case in which entry barriers are likely to be reduced. If any existing academic association chooses to begin a new specialized non-profit journal, that association has the ability, through direct contact with the membership, to overcome some of the coordination problems just discussed. Moreover, the association can offer a publisher a significantly higher likelihood that libraries will subscribe to the new journal, since the association members are well positioned to lobby

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[42] *See, e.g.*, Bergstrom, *Free Labor, supra* note 4, at 196 (proposing that scholars should not referee for over-priced journals). The PLOS Biology journal may prove the exception, but because one of the three who spear-headed the project was the Nobel Laureate and former head of the NIH Harold Varmus, it would be the exception that proves the rule. *See The 2004 Wired Rave Awards*, WIRED MAGAZINE, Apr. 2004, *available at* http://www.wired.com/wired/archive/12.04/rave.html?pg=14≧morial Sloan-Kettering Cancer Center, *Biography Harold Varmus*, *available at* http://www.mskcc.org/mskcc/html/1780.cfm. (last updated July 24, 2003). More information about the PLOS Biology can be found at http://www.plosbiology.org/plosonline/?request=index-html.

their libraries to do just that. Even in this case, it is likely to be quite difficult to disseminate the journal widely.[43]

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

The status quo dominates for other reasons as well. Librarians have limited information about usage of print journals and consequently are not apt to know which journals are scarcely used. Email questionnaires to faculty typically receive few if any responses. One strongly held objection to the replacement of a journal usually serves as a veto. The stickiness of the status quo and the value of retaining existing investments in subscriptions help to explain the relatively inelastic nature of libraries' demands for journals. The result, of course, is that as journal prices have increased, the library budget share of serials has grown substantially, and monograph acquisitions have suffered the greater cuts.[44]

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, copy editing, and typesetting articles is essentially independent of the number of copies that will be circulated. (This fact is all the more true with electronic publication, but holds for print publication as well.) Thus, an established association journal with 2000 institutional subscribers at a bargain price of $100/year may thrive and even help to cross-subsidize association conferences, while an upstart journal with fifty subscriptions will have trouble buying stamps, even if subscriptions are priced high. As journals can take many years or even decades to mature, the problem of achieving minimal viable scale, let alone minimum efficient scale, is substantial.

If capital markets were perfect, the losses that a journal would suffer in its early years could be financed on the expectation that the journal would eventually be profitable. However, whether a journal survives and thrives is a highly uncertain proposition, given the character of the reputation equilibrium we have described. Moreover, information asymmetries are potentially significant. The entrepreneurs who found the journal likely have a much better idea than the capital markets of the likelihood that a particular journal will be successful. As a result, it would not be surprising to see substantial equity and credit rationing in which

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[43] For example, in 1999 the American Law and Economics Association began a new not-for-profit journal, the *American Law & Economics Review*, currently published through contract with Oxford University Press. The *Review* currently has many fewer library subscriptions than the *International Review of Law and Economics*, an Elsevier journal, despite the fact that the *American Law & Economics Review* (published by Oxford University Press) has a prestigious list of editors and authors.

[44] As discussed *supra* Part IIA, between 1986 and 2000 serials subscriptions have been cut only 7% in response to price rises of 226%, suggesting a long run elasticity of demand of .03. In contrast, monographs prices rose only 66% (less than one-third as such as serials), but purchases fell by 17%.

start-up journals that would receive financing in a symmetric-information world would not be financed with asymmetric information.[45]

Funding limitations make it difficult or impossible for entrants to pursue strategies that successful, profitable publishers have used, such as penetration pricing—distributing journals free of charge to libraries for several years to ensure that authors are not discouraged from submitting by low circulation rates. Likewise journals without funding would find it difficult to pay authors to submit to a start-up journal, a strategy that some journals have found successful.[46] Some not-for-profit journals can, on occasion, turn to foundations for support, but such instances are relatively rare.[47]

How does the advent of electronic publishing affect structural barriers to entry? The possibility of electronic publishing is likely to lower the cost of distribution and the first-copy cost to some extent.[48] On the whole, however, the structural costs of entry still remain very 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.[49]

3. *A Strategic Barrier: The Big Deal*

As we described earlier, the past two decades have been a period of substantial mergers and acquisitions in academic publishing. The resulting landscape has a few publishers owning large portfolios of journals and commanding the bulk of library serials budgets. Historically these publishers typically sold their journals at list prices, with very little discounting or price discrimination among institutional purchasers.[50]

In the last several years, with the advent of electronic publishing, all the major commercial publishers have dramatically changed their pricing strategies. They have each begun to introduce what many librarians have dubbed the "Big Deal."[51] The specifics vary from publisher to publisher and from subscriber to subscriber. However, a typical offer would involve a multiyear contract in which the library agrees to keep its existing base

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[45] *See* Joseph Stiglitz & Andrew Weiss, *Alternative Approaches to Analyzing Markets with Asymmetric Information*, 73 Am. Econ. Rev. 246 (1983).

[46] The *Bell Journal of Economics*, now the *RAND Journal of Economics*, got its start in this manner.

[47] The American Law and Economics Association received a grant from the John M. Olin Foundation to support the startup of the *American Law and Economics Review.* (Rubinfeld served on the Board of the Association at that time).

[48] *See* Andrew Odlyzko, *The Economics of Electronic Journals*, *in* Technology And Scholarly Communication 380–93 (R. Ekman & R. E. Quandt eds., 1999).

[49] Consideration of several recent entrants bears this out: Medcentral, ELSSS, *available at* http://www.elsss.org, the Economics Bulletin, *available at* www.economicsbulletin.com, and various California Digital Library (CDL) journals, *available at* http://repositories.cdlib.org/escholarship/peer_review_list.html, are all subsidized through grants or other means, such as university-provided servers. An exception to this generalization is the Berkeley Electronic Press, which is a private for-profit electronic publishing company.

[50] While the price of a given journal varied very little among institutions, many journals had one rate for institutional subscribers and a different rate for individual subscribers.

[51] *See* Kenneth Frazier, *The Librarians' Dilemma: Contemplating the Costs of the 'Big Deal'*, 7 D-Lib Mag., Mar. 2001, *available at* www.dlib.org/dlib/march01/frazier/03frazier.html. We presume, absent information to the contrary, that the decisions to change pricing strategies were unilateral.

of print subscriptions (with the base price increasing annually). The library pays a surcharge for access to an electronic journal database. In some variants, the school's electronic access is to the same journals to which its libraries subscribe in print. In other cases, the school gets access to the publisher's entire electronic offerings or its entire offerings in selected disciplines.

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. Librarians value highly the right to cancel titles and save the full list price of each print title cancelled–i.e., to achieve "proportionate savings." On this point, Elsevier, Kluwer, and other large publishers have not been responsive. 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.

To be more specific, consider the following highlights of the choices that Elsevier Science offered individual libraries as of November 8, 2002:[52]

1. The "Limited Collection," in which the library makes no future commitment to purchasing print:

- The library can select which of its print titles it would like to obtain electronic access to. Electronic access to a given title costs 25 percent of current print fees in addition to the current print fees. Unlike a print title, the electronic access to a given year's content will only last as long as the subscription is maintained.
- Contracts are annual, with no "price protection."

2. The "Complete Collection," in which the library makes a "fiscal commitment to purchase print in the future:"

- Complete electronic access to all print titles to which the library subscribes for a 12.5 percent additional fee.
- Price protection that limits annual increases to 7.5 percent over the length of the contract.
- The ability to cancel the print version of a journal and receive some money back at a discount.[53]
- The ability to add "electronic only" subscriptions at 90 percent of the print list price (plus a content fee).
- A $22 "preferred" transaction fee for the use of non-subscribed articles.

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[52] Contracts vary from publisher to publisher and from subscriber to subscriber, in part as the result of individual negotiations. The proposals listed below are spelled out in an appendix to a letter dated November 8, 2002, from Roland Dietz, Managing Director of Global Sales at Elsevier Science to Arnold Hirshon of NELINET, a member-owned, member governed cooperative of 600 academic, public, and special libraries in six New England states. *See* Letter from Roland Dietz, Managing Director of Global Sales at Elsevier Science to Arnold Hirshon of NELINET (Nov. 8, 2002) (Dietz letter), *available at* http://www.law.berkeley.edu/faculty/rubinfeldd/Ac.%20Jour.%20Publishing/Academic%20Journal%20Project/Hirshon_NELINET.pdf. NELINET is, in turn, a member of the International Coalition of Library Consortia (ICOLC), a coalition of 150 library consortia from around the world.

[53] The Dietz letter does not specify the refund given. *See* Dietz letter, *supra* note 52. For one librarian's views on the available refunds, see *infra* note 54.

• The ability to swap titles for titles of equal value.

3. "ScienceDirect E-Choice" (Elsevier's most recently introduced model)

• The library gets electronic access to all the titles to which the library subscribes.

• The price for electronic access is 90 percent of the institution's total print subscriptions (valued at the highest of the preceding three years' subscription levels).

• Print journals are available at 25 percent of the base print list price.

The ScienceDirect E-choice and the Complete Collection (with or without their more comprehensive add-ons) are both examples of "Big Deals." Each involves a commitment to maintain current subscription levels; that is, if a library had $100,000 in base subscriptions, the library must maintain that figure plus yearly increases–a cancelled journal can be used to purchase another journal, but little or no refunds are otherwise available for cancellations. The commitment lasts for the length of the contract, which may be 2–5 years or more, but the length of the contract may not be the critical factor. Even at renewal, charges will be determined on the historical base, unless an institution decides to revert to à la carte pricing.[54]

In the case of the Complete Collection, in exchange for this commitment, electronic versions of all of an institution's subscribed titles are provided at a discount and price protection is offered. ScienceDirect E-choice "flips the traditional print model," so that the commitment is to purchase an electronic bundle of the journals to which the institution subscribes. Provided that this bundle is purchased, print titles are available for a deep (75 percent) discount.

Subscribers to either the Complete Collection or the ScienceDirect E-choice are also eligible for two more options: "Subject Collections" and the "Freedom Collection." In particular, a subscriber can choose to pay a "Subject Collection" fee equal to 15 percent of the print price of journals in the subject to which the subscriber has no print subscriptions; for this fee, the subscriber can expand electronic access to make it comprehensive in a subject. In the Freedom Collection, an additional fee purchases comprehensive access to the entire ScienceDirect database including Academic Press and Harcourt Health Science journals. We call these two options "Comprehensive Big Deals."

All Big Deals involve the bundling of print and digital representations of journals. Bundling typically involves price discrimination. Most economic studies of bundling have considered what is generally called second-degree discrimination; in this case, all buyers are offered the

[54] One librarian laments: "Elsevier has insisted to continue to use the AP Base Price formula in our existing APPEAL license for the new contract. That means we will have to maintain a minimum subscription value of 1997 holdings x 2003 prices. We find this quite unacceptable . . ." *See* Posting by Jenny Lai, Circulation Department, University of Hong Kong Library (Aug. 19, 2002), *available at* http://www.library.yale.edu/~llicense/ListArchives/0208/msg00093.html.

same pricing schedule but choose (often based upon unobservable demand characteristics) what to buy.[55] Because some bundles have higher implicit per-unit prices or higher profit margins, this is viewed as indirect discrimination.[56]

The Comprehensive Big Deal options also involve price discrimination, but it is direct discrimination and it amounts to what is generally called third-degree price discrimination.[57] Here, the price that a buyer is quoted depends upon that buyer's observable characteristics. In particular, it depends upon the subscription base prior to the introduction of Big Deal bundling, which reveals a good deal about each library's willingness to pay for journals.

Consider, for example, a college whose library budget allows it to subscribe to only five Elsevier math titles for $10,000. If the individual subscription prices of all of the Elsevier math journals totals to $100,000, the college will not need to pay $90,000 extra for access to the full collection once it has purchased either of the Big Deals. The subscriber will be able to pay a "Subject Collection" fee of 15 percent of $90,000 or $13,500 extra. Thus for $23,500, this school gets access to all the journals electronically. Another school that had already subscribed to $90,000 in math journals would need to pay $90,000 +.15*($100,000-$90,000) = $91,500. The price for the comprehensive collection is much higher for the school that had already revealed itself to have a large demand for math journals.

Moreover, in practice, the price of the Big Deal is often individually negotiated with a given library or with groups of libraries called "consortia," offering further opportunities for the publisher to price based on individual characteristics.[58]

The fact that the Big Deal bundle is individually priced according to the publisher's gauge of demand (either directly through negotiation or indirectly, because the Big Deal formulas depend on an institutions' historical subscription levels) allows the publisher to gain much broader acceptance than it could otherwise achieve.[59] In contrast, a large fee that

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[55] *See* Robert S. Pindyck & Daniel L. Rubinfeld, Microeconomics ch. 11 (6th ed. 2005).

[56] For a discussion of how firms use bundling as a means of indirect discrimination when buyer valuations are inversely correlated see Pindyck and Rubinfeld, *supra* note 55, ch. 11, and for the case when valuations are independent, see Barry Nalebuff, *Bundling as an Entry Barrier*, 119 Q.J. Econ. 159 (2004).

[57] Pindyck & Rubinfeld, *supra* note 55, at 387–393.

[58] Examples of consortia are: Northeast Research Libraries (NERL), California Digital Library (CDL), Ohio Link, Arizona Universities Library Consortium (AULC), Virtual Library of Virginia (VIVA). See http://www.library.yale.edu/consortia/icolcmembers.html for a list of most consortia.

[59] In the words of Dirk Haank, CEO of Elsevier Science, Elsevier's pricing of electronic site licenses are explained as follows: "And, basically the price then depends on a rough estimate of how useful is that product for you; and we can adjust it over time. We want to distinguish between big universities versus small universities, corporate versus universities, and maybe rich countries versus developing countries." *See* Carl Bergstrom & Theodore Bergstrom, *The Costs and Benefits of Library Site Licenses to Academic Journals*, 101 Proceedings of the National Academy of Sciences, 897, 898–899 (2004), *available at* http://www.econ.ucsb.edu/%7Etedb/archive/BergstromAndBergstrom04.pdf (quoting Proceedings of the Second International Council for Science-United Nations Educational, Scientific, and Cultural Organization International Conferences on Electronic Publishing in Science (2001, ICSU Press, Paris)).

was the same dollar amount across schools would have driven many schools away. It is not surprising, therefore, that a survey of his fellow librarians conducted by Kenneth Frazier (prior to Elsevier's acquisition of Academic Press) found that 66 percent had licensed Big Deals from the Academic Press and 60 percent from Elsevier.[60] According to a 2002 ARL study, 56 percent of respondents subscribe to one of Elsevier's Big Deals.[61] However, some schools, such as Stanford, have shunned the Big Deal and have chosen to buy electronic subscriptions à la carte at dramatically higher prices than print. Moreover, a number of prominent schools, including Harvard and Cornell, have recently taken the major step of exiting from their Big Deals with Elsevier.

Once a school has signed up for the Big Deal with the largest publishers, it becomes very difficult for a journal or journals of a smaller publisher to compete to replace the print journals to which the school subscribes. Because of the structure of the Big Deal contracts, canceling a print journal yields little savings, because cancellation saves only a fraction of the journal's list price (in some cases, 10 percent). So, for example, while the price of the *Journal of Economic Theory*, an Elsevier title, was $2070 per year in 2002, canceling the journal might only have saved a school $207. This means that if a competitor offers an alternative journal comparable to the *Journal of Economic Theory* for $300, and the library could not afford both, the library would not take the alternative journal—to do so would actually cost the library $100 extra. To compete effectively, the publisher of alternative journals either must price below $200, or it must produce its own bundle of journals of sufficient size and breadth that the school would actually be willing to cancel all of ScienceDirect instead of just the print titles.

The immediate effect of the introduction of Big Deal arrangements has been to move competition from individual journals to large bundles of journals. This strategic move by the large publishers has created a very substantial strategic barrier to entry into markets for journals. We observed previously that entry at the individual journal level is in itself quite difficult. Creating a large bundle of journals to compete with Elsevier or Kluwer seems almost insurmountable. Apart from the necessity of achieving viable scale, the new entrant would also face the necessity of competing for library subscriptions in an industry where a substantial number of libraries have entered into relatively long-term contracts with existing large publishers that consume the bulk of their serials budgets.

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. By selling electronic bundles, publishers have erected a strategic barrier to entry at just the time that the electronic publishing possibility has made it increasingly possible for alternative publishers to overcome the existing structural barriers.

III. ANTITRUST AND THE BIG DEAL

[60] *See* Frazier, *supra* note 51.

[61] Data provided to authors by Mary Case, Director of the Office of Scholarly Communication, American Research Libraries (ARL) from the ARL Fall 2002 Survey on E-Journal Subscription Trends (email correspondence of Feb. 23, 2004, is on file with the authors).

A. Monopoly Maintenance: Sherman Act, Section 2

Could the bundling of a large publisher like Elsevier constitute monopoly maintenance under Section 2 of the Sherman Act? Under *Grinnell*, the two elements of a monopoly maintenance claim are (1) the possession of monopoly power (defined as power over price or the power to exclude) in the relevant market; and (2) the "willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product. . . ."[62] In addressing the question, we first will explain why we believe that journal publishers likely have monopoly power in appropriately defined antitrust markets; second, we analyze whether the Big Deal is exclusionary; and third, we discuss the procompetitive benefits of Big Deal bundling.

1. *Monopoly Power*

Monopoly power is defined as "power to control price or the power to exclude competition."[63] As the D.C. Circuit in *U.S. v. Microsoft* points out, this can be shown directly by demonstrating that, in fact, a firm has raised price substantially above competitive levels, or indirectly by structural analysis that includes showing a sufficiently high and stable market share in a well-defined market.[64]

It is superficially tempting to think that the market is "academic journals" or "academic journals in a specific discipline," such as economics. Across all academic journals, the market share of even the largest publisher, Elsevier, is only roughly 25 percent when measured by revenues. This percentage is well shy of what is typically thought to create significant power over price, i.e., monopoly power. In some markets limited to journals devoted to certain disciplines, Elsevier's share of revenues would be higher, and might be high enough to create a prima facie presumption of monopoly power. But in markets for journals devoted to many other disciplines, it would not.

However, these do not appear to be the relevant markets for analyzing whether the use of the Big Deal constitutes monopoly maintenance in violation of Section 2, or indeed violates Section 1 of the Sherman Act. Defining the relevant market is not a necessary step in a monopoly power analysis, however, if Elsevier can be shown to have already exercised substantial power over price with regard to its journals collectively. In fact, there is substantial direct evidence that Elsevier and other large publishers have the power to raise price substantially above competitive levels. We argue below that they have already done so.

If a publisher has already raised price substantially above competitive levels and maintained that price increase for a substantial period of time, this evidence is sufficient to establish that publisher's monopoly power over price.[65] This suggests that including all scholarly journals is too

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[62] United States v. Grinnell Corp., 384 U.S. 563, 570–71 (1966).

[63] United States v. E.I. de Pont de Nemours & Co., 351 U.S. 377 (1956).

[64] United States v. Microsoft, 253 F. 3d 34, 51 (D.C. Cir. 2001). For an overview of the case, including the monopoly power issues, see Daniel L. Rubinfeld, *Maintenance of Monopoly: U.S. v. Microsoft*, *in* The Antitrust Revolution 476 (John E. Kwoka, Jr. & Lawrence J. White eds., 2004). On the general possibility of demonstrating monopoly power directly, see references *infra* notes 68 and 69.

[65] *See id.*

broad a definition of market. There could be a large member of relevant markets in which Elsevier has monopoly power. In principle, these markets could be found by subdividing Elsevier's journal portfolio and asking whether a hypothetical monopoly of a given bundle of journals could raise price above competitive levels. It is possible that each of Elsevier's journals in a given discipline would be sufficient alone to allow it to charge high prices, or it is possible that only combining its journals in various disciplines allows it to do so because of some portfolio effect. Answering such a question could be quite difficult. In fact, the most practical way to answer this abstract question is to look at an Elsevier journal or collection of journals and ask if prices have in fact been raised substantially above competitive levels. If they have, then this group of journals is a relevant market.

Market definition is only a traditional means to the end of determining whether power over price exists. Power over price is what matters. As is stated in the Areeda, Elhauge, and Hovenkamp treatise,[66] cases such as *Microsoft*,[67] and the Areeda, Kaplow, and Edlin casebook[68] if power can be shown directly, there is no need for market definition: the value of market definition is in cases where power cannot be shown directly and must be inferred from sufficiently high market share in a relevant market.[69]

a. Have large scholarly journal publishers raised price above competitive levels? To determine if monopoly power over price has been exercised (i.e., proving that the power exists), we must establish the relevant competitive benchmark. Perfect competition is not a reasonable ideal for this market. Each journal is a copyrighted collection of articles. As such, no perfect substitute for a journal can exist.

The appropriate benchmark is one that characterizes competition in a market with such differentiated products.[70] Because each firm's demand is not perfectly elastic, it can and does price above marginal cost. Despite this apparent market power, competition ensures that firms do not earn supracompetitive profits at the benchmark competitive price. Competition occurs mainly through entry. As firms enter the market with new products, demand becomes more fragmented, and each firm has fewer customers over whom to recover its fixed costs. Entry occurs until price is no higher than average cost. Although firms face downward sloping

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[66] *See* PHILLIP E. AREEDA, EINER ELHAUGE, & HERBERT HOVENKAMP, 10 ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION, 267, 325–28, ¶1758b (1996 & Supp. 2003).

[67] *Microsoft,* 253 F. 3d at 51.

[68] *See* AREEDA, KAPLOW & EDLIN, *supra* note 30, ¶ 344.

[69] *See* FTC v. Indiana Fed'n of Dentists, 476 U.S. 447, 460–61 (**DATE?**) (holding in a § 1 case, that "[s]ince the purpose of the inquiries into market definition and market power is to determine. . .the potential for genuine adverse effects on competition, 'proof of actual detrimental effects, such as a reduction of output,' can obviate the need for an inquiry into market power") (quoting PHILLIP AREEDA, ANTITRUST LAW, ¶ 1511 at 429 (1986)); *see also* ABA SECTION OF ANTITRUST LAW, ANTITRUST LAW DEVELOPMENTS 234 (4th ed. 1997) and the citations in note 24 therein.

[70] *See* AREEDA, KAPLOW & EDLIN, *supra* note 30, ¶ 345; Avinash K. Dixit & Joseph E. Stiglitz, *Monopolistic Competition and Optimum Product Diversity*, 67 AM. ECON. REV. 297 (1977); A. Michael Spence, *Product Selection, Fixed Costs, and Monopolistic Competition*, 43 REV. ECON. STUD. 217 (1976).

demand curves, they have no power over price in the monopolistically competitive equilibrium.[71]

While monopolistic competition characterizes the ideal scholarly journal market, reality is quite different. There is evidence that large publishers have accumulated substantial power over price, and they have exercised it. Profit margins offer one indication of that power, and they appear to be high. Reed-Elsevier operating margins on journals were nearly 35 percent in 2002.[72] While, this figure is impressive, it should be seen only as suggestive, since accounting profits do not always indicate economic profits.[73]

The exercise of substantial market power is most easily seen by comparing the prices of for-profit and not-for profit journals. As seen in Table 1, which is due to Bergstrom and Bergstrom,[74] the cost per page to subscribe to journals published by the for-profit publishers ranges from $0.63 to $1.01 per page in ecology, economics, atmospheric science, mathematics, neuroscience and physics. In contrast, the price for non-profit journals in these fields ranges from $0.10 to $0.27 per page.

Why such large price differences? Are the for-profit journals of higher quality? Higher quality journals would command higher prices even in monopolistic competition, without these high prices reflecting power over price. High quality fails as an explanation for these price disparities, however. The non-profit journals and for-profit journals both look quite similar. In fact, many scholars frequently are uninformed about who publishes a given journal. Many economists do not know, for instance, that the *Journal of Public Economics* is published by Elsevier and not by an association of economists created to promote research in public economics.

Indeed, the highest quality journals, measured by citations, are more often published by non-profit publishers. For example, the six most-cited journals in economics are owned by non-profits, and only five of the twenty most-cited are owned by for-profit publishers.[75] If one considers

Table 1

	Price per page ($ US)		*Price per citation ($ US)*		
	For-profit	*Non-profit*	*For-profit*	*Non-profit*	*Year*
Ecology	1.01	0.19	0.73	0.05	2000
Economics	0.83	0.17	2.33	0.15	2000
Atmosph. Sci.	0.95	0.15	0.88	0.07	1999
Mathematics	0.70	0.27	1.32	0.28	2000
Neuroscience	0.89	0.10	0.23	0.04	1997
Physics	0.63	0.19	0.38	0.05	1997

Source: Bergstrom and Bergstrom, *supra* note 59. Prices are based upon list prices for print journals.

[71] *See* PINDYCK & RUBINFELD, *supra* note 55, ch. 12.

[72] Morgan Stanley, Scientific Publishing: Knowledge is Power, at 8 and Exhibit 18 (Sept. 27, 2002), *available at* http://www.econ.ucsb.edu/~tedb/Journals/morganstanley.pdf.

[73] *See, e.g.*, PINDYCK & RUBINFELD, *supra* note 55, ch. 11.

[74] *See* Bergstrom & Bergstrom, *supra* note 59, at 897.

[75] *See* Bergstrom, *Free Labor, supra* note 4, at 183.

the price per citation, a quality adjusted price, the for-profit journals look pricier still. Then they are from five to eighteen times pricier in the six disciplines that Bergstrom and Bergstrom surveyed, as seen in Table 1 above.

An additional possible explanation is that the non-profits are subsidized by their parent associations and are pricing below the competitive price. Not according to Bergstrom. These journals are usually not subsidized, despite the fact that they may allocate some funds towards achieving non-economic goals.[76]

Another potential explanation for the high price of for-profit publishers is that their journals might be niche journals that have lower circulations than non-profit journals. Given the expected U-shaped average costs, in a monopolistically competitive equilibrium niche journals with low circulations would have higher average costs and correspondingly higher prices. High prices would not indicate monopoly power if they were explained by low volume. Because commercial circulation figures are not public, it is difficult to know with certainty whether this explanation holds.[77] This certainly needs to be explored, and we expect would be central to an antitrust case. The survival of many low-price and low-circulation journals, such as the journals in project MUSE or project EUCLID, for example, are indications that low-cost journals are viable with relatively low circulations, however.[78]

The non-profit price (perhaps factored upward somewhat to account for the lower circulation of for-profit journals) is, therefore, the best benchmark against which to estimate the market power of the for-profit publishers. Even using a doubling of the non-profit price as a benchmark, it appears that journal publishers have, on average, raised their prices 200 to 400 percent above this benchmark competitive price. By this line of argument, most of these publishers must have substantial power over price. Some for-profit publishers that charge low prices, and others that are small and may not have achieved efficient scale, may not be exercising power over price, but many of the publishers appear to be exercising that power.[79]

We conclude that Elsevier's high profit margins are not an aberration.[80] In fact, one might expect them to be even higher given how much higher

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[76] *See* Bergstrom, *The Peculiar Market for Academic Journals*, Slide 23 (unpublished manuscript) (PowerPoint presentation for talk delivered at the Second Nordic Conference on Scholarly Communication in Lund, Apr. 27, 2004), *available at* http://www.econ.ucsb.edu/%7Etedb/Journals/mypapers.html.

[77] However, several studies suggest that price differences over time and among journal types do not reflect differences in costs. *See* Bergstrom, *Free Labor, supra* note 4; M. Case ARL Newsletter 205 (unpublished manuscript on file with authors); C. Tenopir & D.W. King, Towards Electronic Journals (SLA Publishing, Washington DC 2000) (unpublished manuscript on file with authors).

[78] Information about these projects can be found at http://muse.jhu.edu/journals/index.html, and http://projecteuclid.org/Dienst/UI/1.0/TitleShort.

[79] Using non-profit journals as the competitive benchmark controls for cost increases when comparing rates of price changes between for-profits and non-profits.

[80] While we do not have information about Elsevier's capital investments, we doubt that an analysis of pricing and profitability that accounted appropriately for economic depreciation would change our conclusion. For a discussion of the complexities of drawing inferences about market power from profitability data, *see, e.g.*, Franklin M. Fisher, *On the Misuse of the Profit-Sales Ratio to Infer Monopoly Power*, 18 RAND J. ECON. 384 (1987).

their revenues are than those of non-profit publishers. This may be an example of the inefficiency that Learned Hand suspected was endemic to monopoly.[81] It also may be an example of rent seeking, as the rents may be burnt up in lobbying, marketing and other socially wasteful efforts.[82]

Even if non-profit publishers' costs are, for some reason, a misleadingly low estimate of the competitive benchmark, they would have to be several times too low to avoid the conclusion that many of the for-profit publishers must have raised prices in exercise of market power. This direct evidence of market power should be sufficient to establish monopoly power for large high-priced publishers. It suggests also that the holdings of such publishers are themselves an antitrust market.

We should note, however, that the success and market power of Elsevier titles depend on two crucial interconnected sets of events: the journals must receive an adequate number of submissions, and the journals must maintain their subscription levels. If there is sufficient entry of journals with subject matter and characteristics close to Elsevier journals, then Elsevier's market power will erode over time. This entry is what antitrust law should make possible and encourage. The relevant market for analysis of Elsevier's potential monopolization, therefore, includes Elsevier journals and any journals that might substantially diminish Elsevier's market power. (Similar markets may be defined for publications of the other publishers.) Defining the parameters of this market more precisely (i.e., by subject matter characteristics) is not important to the arguments that follow.

2. *Exclusionary Behavior: Big Deal Bundling*

Excluding competitors from the market through means other than competition on the merits constitutes willful maintenance of monopoly power and satisfies the second element under *Grinnell*.[83] The *Aspen* Court held that if a firm with monopoly power attempts "'to exclude rivals on some basis other than efficiency,' it is fair to characterize its behavior as predatory."[84] Areeda and Turner's definition of exclusionary conduct is behavior that "tends to impair the opportunities of rivals . . . in an unnecessarily restrictive way."[85]

The bundling inherent in the Big Deal means that an independent publisher could create a new economic theory journal (NEW) that could in principle compete, for example, with Elsevier's *Journal of Economic Theory* (JET), which listed at $2070 per year in 2002. NEW might have better articles, review and publish articles more quickly, edit articles more thoroughly, and offer the journal to subscribers at a lower price,

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[81] "[P]ossession of unchallenged economic power deadens initiative, discourages thrift and depresses energy; that immunity from competition is a narcotic, and rivalry is a stimulant, to industrial progress. . . ." United States v. Aluminum Co. of Am., 148 F. 2d 416 (2d Cir. 1945).

[82] *See* Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. Pol. Econ. 807 (1975).

[83] As one court aptly wrote, monopolizing through exclusion is "to be distinguished from a business that acquired monopoly power by greater skill efficiency, or 'by building a better mousetrap.' " United States v. AMR Corp., 335 F.2d 1109 (10th Cir. 2003).

[84] Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 605 (1985).

[85] 3 Phillip Areeda & Donald F. Turner, Antitrust Law 78 (1978); *see also* Robert H. Bork, The Antitrust Paradox 138 (1978).

say $600, than Elsevier's stand-alone print version of JET. Still, libraries that have signed on to the Big Deal may not subscribe. Suppose that libraries would prefer to pay NEW's subscription price than the $2070 price for JET. If the journals competed on the merits, we would expect libraries to purchase NEW first and only buy JET if they had extra funds. Yet, the reverse will generally be true for schools that participate in the Big Deal. They save little of the $2070 list price by canceling JET (perhaps only 10–25 percent, or even nothing at all);[86] and so they will continue to subscribe to JET and only buy NEW if it is worth buying *in addition* to JET (and the other journals in the collection). Authors will be loathe to publish in NEW because of its limited circulation, which will reduce subscriptions still further. The likely outcome is that NEW will not be able to realize its superior quality. At a low circulation level, the publisher of NEW might find it unprofitable to sell the journal at $600 and might either exit the market or raise the price.

The situation is not much different when libraries come up for renewal of the Big Deal. At renewal time, the libraries have one additional option. A library subscribing to the complete Elsevier package can cancel all 1800 Elsevier titles and buy à la carte. If the alternative publisher is only offering NEW, it is exceedingly unlikely the library would cancel the Elsevier titles to get NEW. Unless Elsevier knew the exact willingness of the library to pay for the 1800 titles, together these journals are apt to give much more surplus than the entrant can offer with NEW alone.[87] Now, if the alternative publisher had somehow started 1800 quality alternative titles, this option becomes conceivable. However, the entrant publisher must start somewhere, and if it cannot succeed with NEW, it is very unlikely that it will be able to found 1799 companion titles to make NEW succeed. The flip side of observing that the existing publishers find that the reputational barrier to entry is lower because of their existing stable of successes, is that the entrant publisher will find the barriers higher if it cannot succeed with NEW. No doubt the plight of the entrant publisher is sympathetic, but does it violate competition on the merits?[88]

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[86] *See* Posting by David Goodman, a Princeton librarian, to liblicense-l@lists.yale.edu (Aug. 21, 2002), *available at* http://www.library.yale.edu/~llicense/ListArchives/0208/msg00084.html ("It is no advantage to be able to cancel titles if you must pay for them anyway. . . . Most contracts I've seen provide for getting out of the contract altogether, if you prove you can't afford it, but not that you can reduce the amount of the contract.")

[87] It is of course, possible that Elsevier will demand too high a price for the Big Deal renewal and the library will walk away. Stanford has shunned the Big Deal in favor of à la carte purchases under plans like Elsevier's Limited Collection. As mentioned previously, Cornell and Harvard have cancelled their Elsevier Big Deals, and with them an enormous number of Elsevier subscriptions, as they opted to instead purchase Elsevier journals on an à la carte basis. *See* Andrew Albanese, *Cornell Bails on Elsevier Deal*, LIBRARY J. (Dec. 15, 2004), *available at* http://www.libraryjournal.com/article/CA339623?display=searchResults&stt=001&text=harvard+and+elsevier; *see also MIT Drops Multiyear Deals with Elsevier and Wiley*, LIBRARY J., (Feb. 17, 2004), *available at* http://www.libraryjournal.com/article/CA381688?display=searchResults&stt=001&text=harvard+and+elsevier (reporting that MIT kept one-year package deals, unlike Harvard, Cornell, and the research triangle schools that had dropped them). The decisions to cancel the Big Deals could be due in part to publishers of journals like NEW, but appear mainly due to Elsevier mis-estimating their customers' demand and not leaving some surplus across its 1800 titles.

[88] The recent controversial decision in *3M v. LePage's, Inc.*, 324 F.3d 141 (2003), *cert. denied*, 2004 U.S. LEXIS 4768 (June 30, 2004), *cert. denied*, involved bundled rebates that might be seen as comparable, but in *LePage's* the bundled rebates clearly provided an immediate benefit to purchasers in the form of lower prices. The same is not true here. 3M's petition for certiorari was recently denied.

Can Elsevier argue that it is successfully competing on the merits and that libraries do not cancel JET because its real price is low? Elsevier could argue that its "real" price is the $200 or so of the Big Deal purchase that is refunded if the library cancels JET. There is, of course, a sense in which this $200 is, on the margin, the price for JET. In fact, it is in the nature of the bundle that the price for all Elsevier titles are low at the margin, in the sense that little is refunded if a journal is cancelled, so a library has an incentive to buy them all if it is going to buy most of them.

The problem with a claim by Elsevier that it is winning through competition on the merits with its "low pricing" is that the total bundle price is so much higher than the sum of the marginal prices. A single-good monopoly can lawfully exclude rivals by charging low prices. In fact, that is what we would like the monopoly to do. There are two independent reasons for this. The first is that low prices promote consumer welfare, and in the famous words of *Brown Shoe*, antitrust laws protect "*competition*, not *competitors*."[89] The second is that the low prices are more efficient than the alternatives (so long as prices are not below marginal cost). Thus, whether the antitrust laws are here for consumers' interests or to promote overall wealth maximization, such "exclusion" is a good thing and does not violate Section 2.

In this particular case, however, the overall price is high even if arguably the price of a marginal journal is low.[90] The Big Deal bundling does not, therefore, benefit buyers while it excludes competitors. For this reason, the bundling is a good candidate to be judged exclusionary conduct under Section 2, at least under a consumer interest standard. To the extent that the exclusion prevents viable competitors from developing or limits their expansion and competitiveness, it could be inefficient as well.

The answer to the question of whether Big Deal bundling is exclusionary rests, in significant 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 would presumably depend, in part, on the decisions of librarians as to whether and to what extent they would allocate more funds towards new and alternative publications if they could achieve proportionate savings from cancelled subscriptions.

Some of the questions that should be considered include:

- What is the extent of penetration of Big Deals (e.g., what percentage of libraries have signed up for one or more Big Deals)?
- What percentage of library budgets is committed in Big Deal contracts?

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[89] Brown Shoe Co. v. United States, 370 U.S. 294, 320 (1962).

[90] The Big Deals often, apparently, come with commitments to keep prices secret, but off-the-record conversations convince us that average prices of $500–$1000 per title per campus are common. In 2003, the University of California paid roughly $10 million for access to 1400 Elsevier titles on 10 campuses, amounting to $714 per title per campus. *See* University of California Libraries, Challenge: The Economics of Publishing, *available at* http://libraries.universityofcalifornia.edu/scholarly/economics.html (last visited July 16, 2004). Such prices substantially exceed the average price of non-profit journals. *See* Bergstrom & Bergstrom, *supra* note 59, at 898.

- Do librarians say that they would spend significantly more on publications by alternative publishers if they could achieve proportionate reductions on their Big Deal contracts (i.e., without the Big Deal bundling)?
- Do alternative publishers say that they would achieve substantially more sales and could found more successful journals if library budgets were not pre-committed in Big Deals?

The above questions are all relevant to deciding the extent of the exclusionary effect. Even if the exclusionary effect is profound, though, not all exclusion risks condemnation under Section 2. A monopoly can lawfully exclude competitors by selling high quality wares at low prices.

What is the standard for determining whether the exclusion of Big Deal Bundling is of the type that can be a foundation for a monopolization claim? How does one decide whether this bundling is just competition on the merits or unlawful exclusion? Unfortunately, even after 100 years of the Sherman Act, the courts have not provided clear guidance as to the determining principle for this issue.

Some would argue that as long as the publisher's prices exceed its cost, its actions could not be illegal.[91] *Brooke Group* endorsed a price-cost comparison[92] in predatory pricing cases (without saying how the comparison should be performed), and bundling—especially bundling that led to immediate price reductions for customers—could be viewed through the same lens. This approach would go some way toward identifying a determining principle but would still leave significant operational questions open. For example, there would still be a question of whether we should look at the overall bundle to see if the bundle price exceeds its cost or at the "marginal" price of a given journal in the bundle as discussed above. The *Brooke Group* price-cost comparison is, in part, born out of the observation that labeling low prices as predatory without good reason runs the risk of chilling competition.[93]

Others would have us focus on sacrifice, which is typically easier for the plaintiff to prove.[94] Still, it remains unclear how one might spell out an appropriate sacrifice standard for exclusionary conduct cases involving bundling. Moreover, one of us has suggested that low pricing need not meet the sacrifice test to have anticompetitive effects when it discourages entry.[95] Because price-cost comparisons are claimed to

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[91] *See, e.g.*, Petition for Writ of Certiorari, *3M v. LePage's Inc.,* 2004 U.S. LEXIS 4768 (No. 02-1865), *available at* www.law.berkeley.edu/faculty/rubinfeldd/Ac.%20Jour.%20Publishing/Academic%20Journal%20Project/3M_Petition_only_6.20.03.pdf.

[92] Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 221–23 (1993).

[93] On the dangers of applying a more lenient pricing standard, see *Ortho Diagnostic System, Inc., v. Abbott Laboratories, Inc.*, 920 F. Supp. 455 (S.D.N.Y. 1996). On the economics issues raised by this debate, see Aaron S. Edlin, *Stopping Above-Cost Predatory Pricing*, 111 YALE L.J. 941 (2002), and Einer Elhauge, *Defining Better Monopolization Standards*, 56 STAN. L. REV. 253 (2003).

[94] *See* Fisher & Rubinfeld, *supra* note 40, who define a predatory act to involve short-run sacrifice to obtain long-run profits. *See also* the Solicitor General's brief on the merits in *Verizon Communications., Inc., v. Law Offices of Curtis V. Trinko,* 124 S. Ct. 872 (2004), *available at* http://www.usdoj.gov/osg/briefs/2002/2pet/5ami/2002-0682.pet.ami.htm.

[95] *See* Edlin, *supra* note 93, at 943.

be a surrogate for sacrifice, Edlin's critique also applies to price-cost comparisons.

We suggest for consideration the following test as being *sufficient* to prove that Big Deal bundling satisfies the second element of *Grinnell,* assuming that the first element has been proven (and we make no claim that passing this test is *necessary*).

The second element of *Grinnell* is satisfied if there exists a set of hypothetical new journals such that:

a. for each journal, if the 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, so that the journal competed with the monopolist's journals sold at the a la carte prices at which they are currently sold when purchased individually;

c. together, all of the journals could compete effectively as a bundle against the monopolist's Big Deal bundle;

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 the journals. The monopolist is not competing on the merits. Condition "d" prevents the test from being overinclusive: if the preexisting entry barriers were sufficient even without the Big Deal bundle to preclude entry, then condition "d" is not satisfied.

3. *Procompetitive Benefits*

Large academic journal publishers might defend Big Deal bundling by arguing that the procompetitive benefits outweigh the exclusionary problems. The Big Deal has 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 Big Deal bundling and the dynamic efficiency losses associated with a lack of additional entry. The Big Deal 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.[96]

Elsevier, Kluwer, and other publishers can point to the likelihood of expanded use of existing journals under the Big Deal, both because

[96] *See* Doh-Shin Jeon & Djomenico Menicucci, *Bundling Electronic Journals and Competition Among Publishers,* (unpublished manuscript, Universitat Pompeu Fabra) (Apr. 21 2003), *available at* http://www.ios.neu.edu/papers/s3i3.pdf.

electronic articles are easier to access than their print counterparts and because the library subscribes to more journals than they 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 save a defendant.

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 this comparison is difficult because of the presence of selection effects (the demand for reading journals will be affected by many of the same unobservable factors that determine whether an institution subscribes to the Big Deal). 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 procompetitive benefits to the bundling associated with the Big Deal, it is important to evaluate the extent to which those benefits would be achieved in a but-for world without the Big Deal. If that but-for world were one in which Elsevier and other publishers offered more competitively priced access to electronic subscriptions, many of the apparent procompetitive benefits might disappear.

Both the potential competitive harms and the potential efficiencies from Big Deal bundling could be substantial. Rendering a judgment on which is likely to be larger, based on currently available information, is beyond the scope of this article. Additional evidence, which may become available if a case were brought and extensive discovery taken, could well affect such an assessment.

B. Foreclosure and Tying: Sherman Act Section 1

The Big Deal agreements between publishers and libraries can also be attacked under Section 1 of the Sherman Act as unreasonable restraints of trade. Section 1 bans contracts, combinations, and conspiracies that restrain competition. Under the rule of reason, those restraints that do not "merely regulate" but that "may suppress or even destroy competition,"[97] are illegal. Some arrangements, such as certain tying arrangements, "pose an unacceptable risk of stifling competition and therefore are unreasonable 'per se.'"[98] A Section 1 claim would differ in two important respects from the Section 2 claim just discussed. First,

[97] Board of Trade of Chicago v. United States, 246 U.S. 231, 238, 244 (1918).

[98] Jefferson Parish Hosp. Dist. No. 2 v. Hyde 466 U.S. 2, 9 (1984). For economic analyses of issues relating to tying, market power, and foreclosure, see Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 Am. Econ. Rev. 837 (1990), and Dennis Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 Rand J. Econ. 194 (2002).

the market power element of Section 1 is less stringent; second, Section 1 cases are sometimes decided on per se grounds, which would preclude the defendants from offering their procompetitive justifications.

We argued above that large publishers with prices many times those of non-profit publishers must have monopoly power, or they could not price so high. However, proof of monopoly power is not essential to a Section 1 argument. Market power, which is something less than monopoly power, is required for tying claims or for rule of reason claims.[99] Moreover, it may not even be required that a single publisher by itself have market power. It might suffice that together several publishers with Big Deals have that power. For example, in *FTC v. Motion Picture Advertising* the aggregate effect of exclusive dealing contracts was deemed relevant; there, the Supreme Court found a Sherman Act violation, and hence a violation of the Federal Trade Commission Act, where four companies had in aggregate tied up three-fourths of the market of U.S. theatres that display advertising in exclusive dealing contracts. [100] Justice Frankfurter, in his dissent, argued that the majority was wrong to aggregate these shares for purposes of finding a violation absent a horizontal agreement, but the majority nonetheless thought it proper to focus on how little of the market remained for competition.[101]

Although a given library may have a deal with several publishers, unlike the theaters above, each of which had an exclusive arrangement with one distributor, the same principle holds. In this case, if we consider the serials budget for a given library, much of it could already be taken up by its Big Deal arrangements with one publisher or another. If a plaintiff showed that this was true, and was true of a large portion of libraries, and that serials purchases were not themselves highly price sensitive, then this could demonstrate that these deals in the aggregate foreclosed too much of aggregate library budgets to competition by new small publisher entrants. The analogy is close to *Motion Picture Advertising*.

The Big Deal can also be approached as a form of tying. While tying could be argued to occur in a variety of directions, the following approach is instructive. Assume that Elsevier had been selling a library $300,000 in print subscriptions. It now offers the comprehensive ScienceDirect package, its electronic database of 1800 journals, for $45,000 per year, but only if the print subscriptions are also renewed. In this scenario, the group of electronic journals is the tying good, and the library is forced to buy the tied good, the package of print subscriptions, if it wants the tying good.

According to *Jefferson Parish*, tying is per se illegal if (1) the two goods are distinct; (2) the defendant has market power in the tying product; (3) a substantial amount of commerce in the tied market is affected; and (4) the customers are being forced to buy the tied products if they

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[99] *See* Eastman Kodak Co. v. Image Technical Servs., 504 U.S. 451, 481 (1992) ("[m]onopoly power under § 2 requires, of course, something greater than market power under § 1".)

[100] FTC v. Motion Picture Adver. Serv. Co., 344 U.S. 392, 395 (1953).

[101] *Id.* at 395.

want access to the tying products, even though they would not buy the tied products in a competitive market.[102]

It appears that this bundling satisfies the first three conditions, and there are strong arguments that the fourth condition is satisfied as well. As to the distinctiveness of the two products, there are many. Electronic journals offer the convenience that all the users in an institution can have desktop access. This is a decided advantage and has led many journals to be solely electronic.[103] Libraries subscribe to solely electronic journals and databases. On the other hand, print journals have valuable and distinctive properties as well. Some libraries are concerned about long-term access to solely electronic journals.[104] Some authors are considerably comforted to know that thousands of tangible copies of their work will exist.

As to market power in the tying product (a publisher's entire electronic collection), that also seems relatively straightforward. The arguments that the large for-profit publishers have monopoly power apply to demonstrate market power as well. The third condition is also straightforward. Each large publisher sells hundreds of millions of dollars of print journals to libraries buying Big Deals.

The fourth condition, the "forcing" element, is the most interesting. Recall that the *Jefferson Parish* Court explained that "the essential characteristic of an invalid tying arrangement lies in the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms." Such "'forcing'," the Court wrote, denies "competition on the merits in the market for the tied item."[105]

Arguably, buyers are effectively forced to maintain their expensive print subscriptions in order to get electronic access to the comprehensive database. Sufficient public data are not available to offer a complete analysis of this difficult issue. Note, however, that (as discussed above), the credits provided to libraries for cancellations of individual subscriptions are small in relation to the à la carte price. When products are exclusively sold as bundles, it is often extremely difficult to determine the price at which we should ask whether a buyer is being "forced" to buy a product. Price is obviously critical to a judgment of forcing, because with most products, a buyer would willingly pay one penny but would have to be forced to pay one million dollars. In other cases, however,

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[102] *Jefferson Parish,* 466 U.S. at 12–18. *But see* Areeda, Elhauge, & Hovenkamp, *supra* note 66, at 345-46, who suggest that "some courts see no tie unless the package is the 'only viable option' for customers . . . While any line is arbitrary, we tentatively suggest that separate sales below 10 percent presumptively indicate a de facto tie." Rejection of the Big Deal by Harvard, Stanford, and other universities could be cited as evidence that the bundle is not coercive; *see supra* note 86.

[103] For examples of solely electronic journals, see, the Berkeley Electronic Press journals (information available at http://www.bepress.com), or Economics Bulletin (information available at http://www.economicsbulletin.com).

[104] In part for this reason, OHIO Link, a consortium of most Ohio colleges and universities, insists upon having full copies of all electronic journals to which it subscribes on its own servers. Another archival plan is LOCKSS (Lots of Copies Keeps Stuff Safe) spearheaded by Stanford University.

[105] Jefferson Parish, *supra* note 97, at 12.

such as *United States v. IBM,*[106] where IBM sold punch cards separately, and billed for them separately, one can ask the straightforward question of whether its customers would have bought those cards at that price if their contract did not require it.

The *Jefferson* Court goes on to say that "the law draws a distinction between the exploitation of market power by merely enhancing the price of the tying product on the one hand, and by attempting to impose restraints on competition in the market for a tied product, on the other."[107]

In our example, instead of charging a high price for *ScienceDirect*, Elsevier sells the 1800 journals in *ScienceDirect*'s electronic collection for only $45,000, but this sale is conditional on the school maintaining $300,000 in annual print subscriptions. Just as in *IBM*, it seems plausible here to characterize librarians as being "forced" to buy the print journals in the sense that if they could cancel one-third of them and get back $100,000 to spend on other journals (whether print or electronic) or monographs, their schools would be better off.

The argument for a Section 1 tying claim appears to be a powerful one. What happens, however, if Elsevier, for example, "flips" the contract, charging $315,000 for access to *ScienceDirect*, and only $30,000 for the print journals? In fact, Elsevier and Kluwer have both already done roughly that in many cases (see the E-Choice contract discussed above). The contract between the University of California, California Digital Library, and the Elsevier was flipped in this way several years ago, for example.[108] Of course, at these flipped prices, most schools would take the print journals and cancel *ScienceDirect*, so Elsevier can only do this only if it requires the purchase of *ScienceDirect* in order to buy the print journals at the low price of $30,000. And, of course, Elsevier does require the high-priced electronic purchase in order to be able to buy print at a discount. With this flipped contract, the school is in the same bind. So too are new potential entrants. In this case, the tying and tied goods become reversed. Is "forcing" present now? Is Elsevier forcing the library to buy *ScienceDirect* at the exorbitant price of $315,000? Again, if this question is decided in the straightforward manner by rephrasing it to ask whether this customer and others would likely not buy *ScienceDirect* at such a price, keep to their print collections and use the money to expand their collections with non-Elsevier materials, the answer is surely "yes."

The advantage to a plaintiff of bringing a tying case as opposed to a Section 1 foreclosure case or a monopolization case is that tying remains per se illegal. Hence, a publisher might not be able to defend itself by demonstrating the procompetitive benefits discussed above. This area of law remains unsettled, however. Journal publishers might defend tying claims by noting that the D.C. Circuit in *Microsoft* declined to apply the

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[106] IBM Corp. v. United States, 298 U.S. 131 (1936).

[107] Jefferson Parish, *supra* note 97, at 14.

[108] In 2003, UC paid Elsevier roughly $8 million for electronic access and $2 million for print copies (*see* http://www.lib.ucdavis.edu/info/jrnltrans/pubcrisis.html). Because the contract was "flipped" so that the big charge was for electronic access, print subscriptions were available for 25% of list. *See Faculty and the Scholarly Journal Publishing Crisis*, *supra* note 3.

per se rule against the technological tying of the browser and the operating system because it thought that software was a quickly moving market where the list of products that could be viewed as separate was likely to change swiftly.[109] Alternatively, they might argue that tying would be permissible in order to promote the development of a new industry,[110] or to assure product quality.[111] If the per se rule were not applied, then a court would need to undertake the difficult task discussed under Section 2 of balancing these potential procompetitive effects against the potential exclusionary effects.

IV. CONCLUSION

This article has outlined the substantive antitrust issues that flow from the Big Deal bundling of print and electronic journals in a world in which the market for academic journals has become increasingly concentrated.

With respect to Section 2, it is appropriate to focus on the monopoly power of the largest journal publishers in the markets defined by the bundles of journals that those publishers sell and any journals that might substantially diminish these publishers' market power. Although we outline the case that would have to be made if one wished to argue that bundling and other practices in the for-profit journal industry are predatory and entail unlawful monopoly maintenance, we reach no ultimate conclusion about whether Big Deal bundling constitutes monopoly maintenance. Large commercial publisher monopoly power could be inferred if they have already raised prices substantially above the competitive benchmark provided by non-profit journals, though this inference might be defeated if the high prices of these publishers could be shown to reflect low circulations from being in niche markets, instead of the exercise of market power. A finding of monopolization would require a finding that the exclusionary effect of the Big Deals dominates procompetitive aspects from increased access.

With respect to Section 1, there are two foreclosure concerns. One is that Big Deal agreements could take up so much of library budgets or budgets in certain areas that competitors are prevented from taking root or flourishing. For a plaintiff to win with that approach might require considering the cumulative foreclosure of many firms that have independently instituted Big Deals. The second concern is that the bundling of print with digital journals is a form of tying that may be per se illegal. Interestingly, some of Elsevier's Big Deals appear to tie electronic journals to print journals and force libraries to buy a high-priced electronic package in order to get a low-priced print package. Other Big Deals tie high-priced print journals to a low-priced electronic package and force libraries to maintain their print subscriptions in order to get the bargain-priced electronic package. Given the increased reliance of journal users on convenient electronic versions of articles, both kinds of tying have the potential to limit competition in both the tied and tying products.

We conclude with two further thoughts. First, suppose that a large

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[109] U.S. v. Microsoft, 253 F. 3d 34, 89–90 (D.C. Cir. 2001).

[110] United States v. Jerrold Electronics Corp., 187 F. Supp. 545, 558, 560–61 (E.D. Pa. 1960), *aff'd per curiam*, 365 U.S. 567 (1961).

[111] Mozart Co. v. Mercedes-Benz of N. Am., Inc., 833 F.2d 1342, 1348–51 (9th Cir. 1987).

journal publisher such as Elsevier abandoned the idea of selling print journals at all, choosing only to sell its electronic bundle, *ScienceDirect*, at a high price. Because of the value of the bundle, many libraries might well accept the offer. Since no print journals are included, there is no longer an obvious tie between print and electronic journals here. But, this offer could be just as exclusionary as the first two. Would this pure bundle constitute an illegal tie as well—across journals instead of across media? Would it violate Section 1, either under tying analysis or as an exclusionary agreement? Might it violate Section 2 as monopoly maintenance? We leave an analysis of this more complex hypothetical for another day. Second, suppose that it is not possible for independent journals to compete on their own. Might they sue under *Aspen* to be offered as part of the Big Deal?[112]

[112] The plaintiff's case is weaker than in *Aspen*, in the sense that there is no history of voluntary dealing that is suddenly ceased. Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585 (1985). However, usage monitoring of downloads is quite feasible (like the multi-mountain lift ticket in *Aspen*). Moreover, there is no existing regulatory structure, as in *Verizon*, to discourage a court from mandating access. Verizon Communications Inc. v. Law Offices of Curtis v. Trinko, LLP, 124 S. Ct. 872 (2004).