

**The Impact of Publisher Mergers on Journal Prices:
An Update
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You will find a list of his other research-in-progress at his Web site,

<http://www.econ.gatech.edu/~mmccabe/index.html>

Professor McCabe's recent work caught Medusa's eye when he introduced it in "The Impact of Publisher Mergers on Journal Prices: A Preliminary Report." ARL, the Newsletter of the Association of Research Libraries. October, 1998. Below he reports his latest findings.

Near the end of 1997, Reed-Elsevier and Wolters-Kluwer proposed a merger of their operations that upset more than a few librarians. Elsevier's publishing "empire" was about to grow even larger. The fear of runaway academic journal prices was palpable in places where the mere mention of the company's name causes people to grab for their wallets.

Meanwhile, in Washington, DC, the holiday season was approaching. At the Justice Department's Antitrust Division, however, the mood was one of ambivalence. In the midst of an extraordinarily buoyant economy, antitrust attorneys and economists were burdened with a fascinating but almost overwhelming caseload of proposed mergers and civil investigations (can you say Microsoft?). On the 10th floor of the Bicentennial Building, located at 6th and E Streets in Northwest DC, the author was planning his escape. After more than six years, his mission to "promote and protect the competitive process" was complete, or so he thought. Hoping to find

more time (and freedom) to write about his experiences in DC, he was revising his resume....when he heard a knock on his office door. For those not familiar with the daily routine of a trust busting economist, the proverbial knock on the door means that your boss needs help with a “little” case. The assignment? Some transaction involving two Dutch publishing companies.

More than a year and a half later, much has changed in the academic publishing markets. Although the proposed Elsevier/Kluwer deal failed after facing regulatory scrutiny, consolidation continues at a rapid pace. A half dozen major transactions involving science, technical, medical (STM) or legal publishers have occurred over the past 18 months. At the same time, new web-based technologies are transforming the production and delivery of scholarly research articles. These events have provided me with a unique opportunity to assess the economic behavior of academic publishers and libraries, first at the Justice Department and now as an Asst. Professor at Georgia Tech. Last fall I reported some preliminary results from this effort in the ARL. My intention here is to briefly revisit that article and then describe my subsequent progress.

Traditional merger analysis

Normally, the most important issue in merger analysis is determining the extent of the relevant market. A narrowly defined market, where the number and type of products included is small, makes it more likely that a merger of two sellers in this market is anti-competitive. Conversely, in a broadly defined market the likelihood of harm is not as great. For any given merger the choice of market definition depends on whether market power could be exercised by a hypothetical monopolist in the defined market.¹

In the case of publishing, the DOJ typically assumed that products consisted of book or journal content and that the appropriate market definition included books or journals containing very similar content. So, for example, if two publishers proposed a merger, antitrust officials would focus on the extent of overlap between the companies’ content. If the market definition suggested that the two firms’ share of a given market was “too” high, i.e. a post-merger price increase was likely, then a divestiture might be required; if the extent of the overlap was large across the firms’ product range, the DOJ could sue to block the entire transaction. Of course,

¹ According to the horizontal merger guidelines (http://www.usdoj.gov/atr/public/guidelines/horiz_book/hmg1.html), antitrust authorities

“...will delineate the product market to be a product or group of products such that a hypothetical profit-maximizing firm that was the only present and future seller of those products ("monopolist") likely would impose at least a "small but significant and nontransitory" increase in price.”

since any journal is at best an imperfect substitute for any other journal, markets were defined fairly narrowly.² And because most companies' journal assets were highly differentiated, most if not all mergers appeared to be harmless. As a consequence, over the past decade or so antitrust activity in the academic and legal publishing markets has been very quiet. Even the controversial Thomson/West merger in the mid-1990s resulted in few meaningful divestitures.

So when the Elsevier/Kluwer deal was proposed in 1998, the companies probably anticipated little resistance from government authorities in the US or Europe. Although the EU would eventually register concerns about overlap among the two companies' European legal products, their argument was based on the traditional approach to publishing markets. The product market was defined narrowly in terms of content. In the US, where these foreign-language legal treatises had no market, there was little opportunity for a conventional antitrust case. If markets were defined narrowly, STM journal content overlap among the two companies was fairly minor.

Rethinking tradition

A characteristic of antitrust enforcement in the US is that the population of staff attorneys and economists experiences a fair amount of turnover from year to year. Furthermore, even if an experienced crew is theoretically available, they may have pressing commitments on other cases. This is both a strength and a weakness: a weakness because good ideas may need to be rediscovered (or at least learned anew) by a new staff; a strength because the staff is more likely to adopt a fresh approach when the staff has no strong prior beliefs about a case. I like to think that the **situation at DOJ** at the time of the Elsevier/Kluwer deal reflected the latter set of circumstances. The staff had no experience with publishing markets. And thanks to discussions with dozens of concerned librarians, the staff grasped the need for a fresh approach.

Indeed, librarians across the country were concerned about persistent journal price inflation, especially among STM titles. In response, since their budgets were growing more slowly than journal prices, many university libraries had been forced to re-allocate dollars from monographs to journals, to postpone the purchase of new journal titles, and in many cases, to cancel titles. As a consequence, libraries now need to rely more often on inter-library loans to satisfy faculty demands. However, the most interesting thing we learned from these discussions was that library demand for journals was unlike most markets. Given a set of similar titles, libraries do not subscribe only to the journal offering the best value. Rather, journal cost per use is minimized across a broad field of study, e.g., biomedicine, subject to a budget constraint, and the result is a demand for a portfolio of titles.

² For example, suppose two publishers of economics titles were merging. If one owned a series of labor economics journals and the second firm specialized in industrial organization, it is not likely that antitrust concerns would be raised.

Testing the new model

Based on this observation, we developed a portfolio theory of buyer and seller behavior in academic journal markets. Given libraries' portfolio demand, we demonstrated in a simple economic model that, all else equal, publishers set prices so that higher use (or quality) journals exhibit lower cost/use ratios.³ Thus, higher use journals (that have lower cost/use) are purchased by most libraries. Conversely, lower use journals (that have higher cost/use) are purchased by fewer, relatively high budget libraries.

The intuition for this particular ordering is that higher use imparts a "cost advantage" that makes it more profitable to price low and sell widely. Given this strategy, lower use or "high cost" journals find it most profitable to price high and sell to fewer, relatively high budget libraries. Note that although the latter firms could match the "low cost" firms' prices, this strategy is less profitable than targeting the smaller base of high budget customers.

Using this model it is also possible to show, in some cases, that mergers are profitable for journal publishers. A corollary is that the merged firm's journal prices increase. The idea here is that the merged firm is able to internalize certain pricing externalities that the merging parties fail to consider when they act independently. In other words, if one firm raises the price of its journals, it is profitable for other firms to increase the price of their journals. Larger portfolio firms are better able to capture these benefits and therefore, all else equal, set prices at a higher level.

Given these theoretical possibilities, we attempted to test these predictions with actual data. We collected information on literally thousands of STM titles from a variety of sources, for the period 1988-1998. We chose to initially focus on biomedical titles (see my working paper for details). By May, 1998, we were able to show, using a so-called reduced-form econometric model, that a firm's portfolio size was positively related to journal prices, and that past mergers were associated with higher prices. And after controlling for this size effect, we still observed a substantial inflation residual.

One of the weaknesses of a reduced-form approach is that unless the investigator has strong prior beliefs about the events that are being measured, the cause of a price change may be uncertain. For example, when we observe higher post-merger prices is this because the merged firm is exploiting greater market power or are the price increases due to unrelated changes in the willingness of buyers to pay higher prices, i.e., a decrease in the elasticity of demand? To help eliminate this uncertainty, economists are sometimes able to estimate structural econometric

³ For a more extensive discussion of this model, its predictions, etc., see my working paper entitled, "Academic Journal Pricing and Market Power: A Portfolio Approach" (July, 1999). This paper can be obtained in pdf format at <http://www.econ.gatech.edu/~mmccabe/journalWEA.pdf>

models that explicitly identify these separate factors. To estimate these types of models price and quantity data are necessary. In other words, journal prices need to be supplemented by a good measure of journal circulation (the number of subscriptions for each title). Fortunately, during our antitrust investigation we were able to collect circulation data from a variety of academic and medical libraries. However, unlike other types of information, such as journal price and citation data, library holdings are reported in a highly idiosyncratic fashion. Thus, creating a usable database is very labor- and time-intensive. As a consequence, estimation of a structural model was delayed until June of this year.

To estimate the model I used holdings data from 194 medical libraries, selected randomly from among Medical Library Association members. This data includes some 60,000 subscriptions to ISI-ranked journals. Libraries of all sizes are represented in the sample, some holding less than ten subscriptions, while others report collections exceeding 1,300 ISI-ranked titles. The preliminary results are most encouraging (see my previously cited working paper for details). During the sample period (1988-1998) two significant mergers occurred: one between Pergamon (57 biomedical titles) and Elsevier (190) and the other between Lippincott (15) and Kluwer (75). According to the empirical estimates, each of these mergers were associated with substantial price increases; in the case of the Elsevier deal the price increase was due solely to increased market power. For example, compared to pre-merger prices, the Elsevier deal resulted in an average price increase of 22% for former Pergamon titles, and an 8% increase for Elsevier titles. This asymmetry probably reflects the corresponding asymmetry in pre-merger journal portfolio size for the two firms. That is, Pergamon's relatively small biomedical portfolio prevented it from profitable setting prices at the same level as Elsevier.

The results also contain a likely explanation for the persistent journal price inflation observed in most academic fields.⁴ The sensitivity of library demand to price increases is very small by normal standards (a 1% increase in price results in a 0.3% decline in subscriptions). Given this "inelastic" demand, publishers have a strong incentive to increase prices faster than the growth rate of library budgets. Based on the structural model estimates, the average annual increase in journal prices was nearly 10%. Note that this number is net of price changes due to journal quality and costs.

Formulating the future

These new results are consistent with our earlier findings. Consider the policy implications. To date, the cumulative evidence indicates that conventional antitrust procedures are inadequate for evaluating mergers in academic journal markets. First, market definition needs to be focused on broad portfolios of titles rather than a narrow content-based concept. Second, mergers involving relatively small companies can have substantial price effects (in 1991, Pergamon was not among the top five publishers in terms of portfolio size). Although antitrust policies in the U.S. and

⁴ Note that these inflationary trends are not restricted to commercial publishers; in the case of biomedical journals, non-profits and university presses have raised prices nearly as fast.

Europe have changed considerably over the past two decades in response to new developments in economics, the special case of academic publishing remains to be addressed. At least two options are available. On occasion, the DOJ and FTC have adopted special antitrust guidelines for markets with unusual characteristics, e.g. for health care and intellectual property. In other instances, antitrust immunity has been granted to certain parties when important social objectives are threatened (access to scientific research certainly merits the label of an “important social objective”). For example, the DOJ (with congressional approval) could grant libraries permission to form a single nationwide buying consortium to counter the substantial market power of publishers.

In the meantime, this research project is still in its infancy. Important future objectives include (1) examining the impact of new journal entry on prices of incumbent journals, (2) contrasting the behavior of non-profit and for-profit publishers, and (3) testing the robustness of this portfolio approach in other STM fields. Finally, I would like to thank the many libraries, librarians and their associations for their invaluable assistance over the past year and a half.

And one last thing. I'm glad I heard that knock on my office door....