

# UC Santa Barbara

## Ted Bergstrom Papers

### **Title**

Pricing and Cost of Electronic Journals

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## Comments

# Pricing and Cost of Electronics Journals

*To be considered for publication in the Comments section, letters should be relatively short—generally fewer than 1000 words—and should be sent to the journal offices at the address appearing inside the front cover. The editors will choose which letters will be published. All published letters will be subject to editing for style and length.*

*In what follows, Joop Dirkmaat of Elsevier Science and Robert E. Kohn of Southern Illinois University at Edwardsville comment on Theodore C. Bergstrom's article, "Free Labor for Costly Journals," from the Fall 2001 issue. Bergstrom then responds.*

The Fall 2001 issue published "Free Labor for Costly Journals," by Theodore C. Bergstrom (pp. 183–198). The essay is critical toward the involvement of commercial publishers, including Elsevier, in economics publishing. The essay is provocative, but it ignores major elements of the existing publishing situation and leads to conclusions that are highly questionable.

### **Library Prices**

The essay provides a critical comparison on the basis of quoted library prices for print subscriptions alone. However, it does not acknowledge the availability of sophisticated electronic versions of the Elsevier journals. ScienceDirect (at <http://www.sciencedirect.com>), the world's largest electronic journal publishing platform for academic research, is not referred to at all. Depending upon the license, ScienceDirect can provide participating universities/consortia with access to more than 1,500 journals, of which are over 140 titles in economics, finance, management and business. Basic electronic access to the Elsevier journals is offered through the ScienceDirect web-editions at no additional cost to the print subscription price. This includes access to a rolling 12 months of full text articles from the subscribed journals in both .pdf and HTML formats.

ScienceDirect can also include a range of additional contents and services. For example, it includes a searchable database of more than 2 million scientific research articles going back to 1995. For quick scanning, there is a "summary plus" of each article: abstract, outline, graphics and linked references. Each article is published in .pdf and HTML formats, enabling searching through references and linking to the full text of the cited articles in ScienceDirect and to those of participating publishers within CrossRef. Each article is linked to the abstract as

available in AEA's Econlit and other databases. Each article in every Elsevier journal is provided with a citation history (cited by) building up over time, so it is possible to see how an article was later cited within the ScienceDirect journals.

ScienceDirect license agreements are individually tailored to the needs of participating universities and consortia of libraries. Depending upon the additional desired contents and functionalities, there is a maximum surcharge of 15 percent. It is becoming clear through such collaborations that Elsevier journals are increasingly used by readers. Thomas Sanville (2001), Executive Director of OhioLINK, has recently described their experience over four years with the usage of electronic journals. In that article, he provides an independent description of the real-life experience of libraries in an electronic consortium for the state of Ohio and, supported by facts and figures, probes the value element of electronic resource sharing within library consortia.

As a result of consortial deals and other forms of electronic availability, the actual price paid by a library for access to a journal can vary greatly below the quoted list price. It is possible to obtain electronic access at large discounts to nonsubscribed titles within the economics subject collection. A hypothetical ScienceDirect customer subscribing to 40 economics titles could gain electronic access to the remaining 37 economic journals as listed on (<http://www.economicsdirect.com>) at a discount of as much as 85 percent.

There are also significant savings in administration and storage for a library that licenses ScienceDirect. (On average, a library spends less than 30 percent of its total budget on journal/book material; over 70 percent goes to staff and the costs associated with housing, staff and administering the collection). Moreover, the essay does not factor in the significant benefits in convenience and time for faculty and students arising from the availability of all Elsevier journals from one electronic platform on the basis of IP-domain recognition. No passwords are required.

### **Prices for Individuals**

The essay suggests that the average subscription price for individuals is \$360. This is misleading with respect to the Elsevier Science journals, which make up seven of the top ten commercial journals on Bergstrom's list. The average personal subscription price for the year 2002 for the Elsevier journals referred to is \$167. Each subscription averages 1,740 pages. Not taken into account are other reduced prices such as for members of the European Economic Association receiving the *European Economic Review* (2000 pages) at a cost of \$48, various student subscription prices and other discount arrangements such as "subscribe by submission" options.

### **Publishing Costs**

The article makes a distinction between first copy costs and marginal subscribers' costs. However, it ignores the additional costs that arise for electronic versions. Today's market requires *dual publication* of both paper journals and electronic delivery, and electronic formats with added functionalities are increasing first copy costs significantly.

A key element of the essay is the calculation of the “excessive profits of commercial publishers,” which comes up with figures that bear no relation to reality. Bergstrom bases his calculations of the profits of a commercial journal upon the studies of Tenopir and King (2000), which provide an accurate cost model for journal publishing. Bergstrom makes the assumption that first copy costs of economics journals are \$100 per page; nowhere in his article is this choice explained or justified. He also applies marginal subscriber costs of \$0.02 per subscriber per page.

Let us apply the Tenopir and King model to the journals of the American Economic Association for the year 2000, as reported in the May 2001 issue of the *American Economic Review*. Total publication costs quoted in the statement are \$3,349,000. Cumulative number of pages published in the *AER*, *JEL* and *JEP* is 4,346. Total number of members/subscribers is 24,448. Using the Tenopir and King model ( $0.02 \times 4,346 \times 24,448$ ), we arrive at a total marginal costs of \$2,125,000. The total first copy costs can then be calculated as  $\$3,349,000 - \$2,125,000 = \$1,224,000$ . On a page basis, this amounts to  $\$1,224,000/4,346 = \$281$  per page. This estimate is probably low, since general organizational expenses of the AEA that help to support the journals are not fully allocated to the journals, and the AEA can draw on a considerable amount of volunteer time related to the production of these journals.

There have been many studies on first copy costs of the publishing system. The figures quoted by both Odlyzko (1995, 1997) and Tenopir and King (1997) give \$4,000 per article as the median figure, with an upper limit of \$8,000. Assuming 20 pages per article, these estimates would imply first copy costs of \$200 to \$400 per page. Given these figures and our own calculation of the AEA first copy cost as \$281 per page, Bergstrom’s choice of \$100 per page as an “average” for first copy costs appears far too low, which means that his estimates of profits to be earned from journal publication are far too high.

## Conclusion

In general, Bergstrom’s essay is based on an outdated print-based view of the publishing industry. It does not recognize the benefits of desk-top access to a wide array of journals from one integrated electronic source, as opposed to readers scrambling over a single paper copy in a library reading room.

Data from the Association of Research Libraries indicate that the index of total U.S. research spending as measured in constant U.S. dollars has increased from 100 in 1976 to 243 in 1995, while average library expenditure increased only to 158. If library spending continues to increase at a much slower pace than R&D budgets (which drive the volume of articles produced), tensions will continue to exist. It can be alleviated by new business models only. As per year-end 2001, worldwide, over 2,000 academic institutions are using full ScienceDirect functionalities, and this number is increasing monthly. Hence, it can be conceivably argued that the tailor-made offerings meet the needs of many libraries.

In the meantime, most of the Elsevier journals and other commercial journals mentioned were started at a time when university presses and other “not-for-profit”

organizations were not prepared to assume the entrepreneurial risks. Elsevier recognized an opportunity. In cooperation with editors, it responded to market demands from readers and authors and started publishing these journals at its own expense and risk. Judging from the authors published, the highly respected editorial boards and the citation levels of the published papers, these Elsevier journals serve the economics community exceptionally well.

It would be peculiar for economists to object to firms earning a profit through risk taking and foresight in an industry that has traditionally had relatively low barriers to entry.

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With respect to the "price-gouging" by commercial journals, I agree with Theodore C. Bergstrom (Fall 2001, pp. 183–198) that economists should encourage their "libraries to cancel these journals and spend the money on something more cost-effective." However, I suggest a different alternative, one that he mentions in passing but does not include among his "substitution possibilities." With the powerful search engines that are available, researchers are often able to come up with relevant articles from so extensive a range of journals that most libraries would not have the space, much less the funding, to subscribe to them all; the access to interlibrary loan has become indispensable. Although interlibrary loan may be slower than recovering articles from actual journals in the library, downloading them from the Online Computer Library Center (OCLC) on a personal or library

computer does save the effort and expense of manual photocopying. As the researcher becomes more experienced with search engines and downloading, he or she becomes attuned to the idea of electronic publishing.

It never occurred to me, until I read Professor Bergstrom's paper, that some economists may be "refus[ing] to do free refereeing for any of the overpriced journals," which may in part explain why I have had some horrible silences and unconscionable waits for decisions from several in his "rogue's gallery of the world's most expensive economics journals"—that, and perhaps the malaise of some editors that he describes under "Defections by Editors and Editorial Boards." Although other journals on Professor Bergstrom's lists of commercial publishers, to which I have submitted manuscripts, are exceptionally well managed, answer my e-mail queries promptly and provide quick decisions, I do think that in general the turnaround is quicker with the nonprofit journals. If, by refusing to referee, economists are intent on "Punishing Overpriced Journals," they are at the same time punishing other economists.

Professor Bergstrom observes that "the established elite journals tend to prefer articles of general interest and to reject more specialized articles, even though they may be of great interest to a relatively small group of readers." It makes sense that suppliers to "specific subfields of economics" would be monopolists and that social welfare might be greater in the presence of those monopolists than it would be in their absence. I am able to subscribe, at a reasonable price, to several of the commercial journals that Bergstrom lists because I am a member of their sponsoring societies. Those publishers took a chance on these journals when their specialized areas seemed more marginal than they turned out to be. In fact, over the years that I have subscribed to them, these journals have expanded, one of them from four to six issues per year, the other from four to twelve issues per year, which says something about the service they are providing in their subfields.

Commercial journals that fill specialized niches deserve higher prices. It is not obvious that "huge rents to owners of commercial journals" are translating into excessive current profits, because in one way or another, those profits are likely to have been capitalized into fixed costs. However, that may explain why many of the commercial journals are continuing to raise their prices to libraries, some by 15 percent or more a year. I agree with Professor Bergstrom that "price gouging" publishers who "have been draining huge amounts of money from university budgets" need to be restrained. Economists should support the strategic cancellations by their library of those expensive journals that others in the OCLC consortium prefer to keep. For those who take pride in seeing their articles displayed in the libraries they use, and who feel like freeloaders when publishers of their articles write them personal letters urging them to pressure their libraries to subscribe, this adversarial strategy will be painful. Perhaps it will motivate the commercial journals to rely more on their reasonably priced society subscriptions.

Intensifying the use of interlibrary loan may cause commercial journals to increase their prices and even seek to prevent the libraries from disseminating their articles electronically. But as hard copies of the journals become more rare and their contents less accessible, economists will be increasingly attracted to

the “innovative and reasonably priced new electronic economics journals” that Professor Bergstrom heralds. As electronically published articles become accessible via the search engines and are found to download as easily as conventionally printed articles, economists who take pleasure in citing relevant articles and who measure their own effectiveness by the number of times their papers are cited will become more open to publishing in and citing from the new electronic journals. Instead of trying to punish the commercial journals, as Professor Bergstrom urges, economists should be moved by his rhetoric to get past their former biases in favor of bound volumes in library stacks and respond to calls, that some of us have regrettably ignored, to participate in that next revolution in scholarly publishing. The commercial journals helped pave the way for that revolution and deserve credit for that, but they can only play a small part in what the future has to offer.

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## **Response from Theodore Bergstrom**

I am grateful to Joop Dirkmaat of Elsevier Science and to Professor Robert Kohn for raising some interesting issues that received little attention in my article, and I am pleased to have a chance to carry the discussion a little further.

### **Electronic Access**

Mr. Dirkmaat suggests that my essay is “based on an outdated print-based view of the publishing industry” and fails to “recognize the benefits of desk-top access.” There is no doubt that electronic access is an important breakthrough in delivery technology and a great timesaver for scholars. But how have these changes affected costs, and how have nonprofit and commercial publishers priced these improved products? A year ago, when I wrote my article, several major publications had not yet gone on-line, and it was not clear to me that pricing policies had settled into a stable configuration. Now, all of the top economics journals have on-line versions, and systematic pricing patterns seem to have emerged. Let us have a look at the data.

Almost all of these journals bundle the print edition with a university-wide site license allowing any user on campus to access the on-line version. These licenses also allow faculty and students to access the journal from their home computers via a proxy server. Prices for print and on-line versions of the ten most cited nonprofit and ten most cited commercial economics journals are reported in Tables 1 and 2.

In my article in the Fall 2001 issue, I reported that the average price of an institutional subscription in 2001 for the ten most cited nonprofit journals was \$0.15 per page, while the average price per page for the ten most cited commercial journals was \$0.82. Tables 1 and 2 show that the picture for subscriptions that

Table 1

**Library Prices of Nonprofit Journals in 2002 for Print and Electronic Versions**

<i>Journal Title</i>	<i>Print Subscription</i>	<i>On-line Plus Print</i>	<i>Price Per Page<sup>a</sup> On-line Plus Print</i>
AEA Journals <sup>b</sup>	\$150	\$300	\$0.07
Econometrica	\$267	n.a.	n.a.
J Polit Ec	\$207	\$207	\$0.16
Quarterly J Ec	\$168	\$168	\$0.12
J Finance	\$250	\$250	\$0.09
J Consumer Res	\$99	\$99	\$0.19
Ec Journal <sup>c</sup>	\$338	\$338	\$0.15
Rev Ec Studies	\$180	\$180	\$0.22
Rev Ec Stats	\$180	\$180	\$0.28
Am J Ag Ec	\$150	\$150	\$0.14
Average	\$202	\$211	\$0.16

<sup>a</sup> Prices are for 2002, page count is for 2001.

<sup>b</sup> American Ec Review, J of Ec Perspectives, and J of Ec Literature

<sup>c</sup> Economic Journal subscription includes Journal of Econometrics.

Table 2

**Library Prices of Commercial Journals in 2002 for Print and Electronic Versions**

<i>Journal Title</i>	<i>Print Subscription</i>	<i>On-line Plus Print</i>	<i>Price Per Page On-line Plus Print</i>
J Financial Economics	\$1522	\$1522	\$0.77
J Economic Theory	\$2070	\$2070	\$1.04
J Econometrics	\$2152	\$2152	\$1.08
J Monetary Ec	\$1427	\$1427	\$1.08
J Public Ec	\$1647	\$1647	\$1.20
World Development	\$1649	\$1649	\$0.77
European Ec Review	\$1225	\$1225	\$0.61
J Env Ec Mgmt	\$748	\$748	\$1.07
J Health Ec	\$921	\$921	\$0.81
Ec Letters	\$1696	\$1696	\$1.13
Average	\$1506	\$1506	\$0.89

*Note:* Page count is for 2001, price for 2002.

include on-line access is very similar. The average price per page for an institutional electronic site license bundled with a paper edition was \$0.16 for nonprofit journals and \$0.96 for commercial journals.<sup>1</sup> The only exception among the top economics journals is *Econometrica*, which offers on-line access to individual subscribers, but does not yet offer an institutional site license.

Publishers have incurred costs in setting up a system of electronic access and

<sup>1</sup> Some journals offer small discounts for subscribers who choose to take only the electronic version. Kluwer Publishing adds a 20 percent surcharge for subscribers who take *both* print and electronic versions.



bear recurring costs of converting articles from print to electronic media and of administering contracts with electronic subscribers. Moreover, the availability of desk-top access through university site licenses is likely to reduce publishers' revenue from individual subscriptions. Since nonprofit journals price approximately at their average cost, we can get a rough estimate of the cost of going on-line by looking at library subscription prices of nonprofit journals before and after the introduction of electronic access. All of the top-cited nonprofit journals have introduced on-line access since 1998. The average per-page price of the top-cited nonprofit economics journals (measured in 2002 dollars) rose from \$0.10 in 1998 to about \$0.12 in 2002. Thus, for the nonprofit journals, a price increase of about 2 cents per page has sufficed to pay the costs of going on-line. During the same time period, the top-cited commercial journals increased their prices by an average of about 10 cents per page, from \$0.79 to \$0.89.

Mr. Dirkmaat points out that Elsevier now offers "package deals" to libraries. By paying some multiple of its current total expenditure on Elsevier journals, a library can subscribe electronically to Elsevier journals that it doesn't currently hold. The net price of these additional journals can be substantially lower than their list price. With electronic site licenses, commercial publishers, who traditionally charged a uniform institutional price for paper editions, have found ways to price discriminate between large and small universities by offering negotiated group rates to consortia of smaller libraries. There is reason to be pleased that price discrimination will extend access to work published in Elsevier journals beyond the largest and richest universities. On the other hand, once commercial journals are able to price discriminate, they can relax a significant constraint on prices charged to large universities. Price discrimination enables them to raise prices to the largest universities without fearing that they will lose the subscriptions of the middle-sized. Carl Bergstrom and I (Bergstrom and Bergstrom, 2001) present a theoretical case that the introduction of university site licenses by profit-maximizing publishers is likely to *reduce* rather than increase the consumers' surplus of the academic community.

### **Prices for Individuals**

Mr. Dirkmaat suggests that my data on the average price of personal subscriptions is "misleading with respect to the Elsevier Science Journals, which make up seven of the top ten commercial journals on Bergstrom's list." (Actually, with recent acquisitions, all ten journals on this list are published by Elsevier. The *Journal of Economic Theory* and *Journal of Environmental Economics and Management*, formerly published by Academic Press, now belong to Elsevier, as does *World Development*, formerly published by Pergamon.) But even when we account for discounts to members of professional societies, we see from Tables 3 and 4 that, on average, personal subscriptions to the top Elsevier journals are more than twice as expensive as for the top nonprofit journals. Even more striking is the fact that all of the leading nonprofit journals bundle electronic access with print subscriptions at little or no extra charge, while only one commercial journal offers electronic access to

Table 3

**Personal Subscriptions for Nonprofit Journals: Paper Editions, On-line Access and On-line Back Issues**

<i>Journal Title</i>	<i>Paper</i>	<i>On-line</i>	<i>Back Issues</i>
AEA Journals	\$86	included	\$10 extra
Econometrica	\$60	included	included
J Polit Ec	\$48	included	included
Quarterly J Ec	\$44	included	\$50 extra
J Finance	\$80	included	included
J Consumer Res	\$45	included	included
Ec Journal	\$65	included	included
Rev Ec Studies	\$54	included	included
Rev Ec Stats	\$50	included	\$50 extra
Am J Ag Ec	\$90	included	n.a.
Average	\$62		

Table 4

**Personal Subscriptions for Commercial Journals: Paper Editions, On-line Access and On-line Back Issues**

<i>Journal Title</i>	<i>Paper</i>	<i>On-line</i>	<i>Back Issues</i>
J Financial Economics	\$95	n.a.	n.a.
J Economic Theory <sup>b</sup>	\$1035 (\$75)	n.a.	n.a.
J Econometrics	\$160	n.a.	n.a.
J Monetary Ec	\$95	n.a.	n.a.
J Public Ec	\$180	n.a.	n.a.
World Development	\$257	n.a.	n.a.
European Ec Review <sup>a</sup>	\$74	n.a.	n.a.
J Env Ec Mgmt <sup>b</sup>	\$449 (\$80)	\$105	n.a.
J Health Ec	\$85	n.a.	n.a.
Ec Letters	\$300	n.a.	n.a.
Average	\$273 (\$140)		

<sup>a</sup> Personal subscription available to members of European Economic Association.

<sup>b</sup> The higher prices are those quoted by publisher for individual subscribers. By joining an associated society, one can obtain the lower price listed in parentheses.

individuals.<sup>2</sup> In addition to providing free online access to individual subscribers, all but one of the nonprofit journals give them access to the complete backlist of previous volumes (via JSTOR) at little or no extra charge. None of the commercial journals includes electronic access to old volumes with private subscriptions. Although it does not sell on-line subscriptions to individuals, Elsevier does allow

<sup>2</sup> The exception is the *Journal of Environmental Economics and Management*, the official organ of the Association of Environmental and Resource Economists. According to the AERE newsletter (Kolstad, 2001), after protracted negotiations, in which the association threatened to found its own journal, the publisher agreed to reduce prices to members, to offer individual electronic subscriptions and to triple its financial support of the editorial office of *JEEM*.

nonsubscribers to view web-based articles on a “pay-per-view” basis at a price of \$30 per article.

Mr. Dirkmaat asks us to notice that members of the European Economic Association can receive the *European Economic Review* at reduced rates. I am surprised that he brings *this* to our attention. The *EER* has been the official journal of the EEA, but this relationship is about to end. Because of discontent with Elsevier’s pricing policies, the EEA Council voted unanimously to terminate its agreement with Elsevier with effect from January 1, 2003. I expect that the EEA will demonstrate over the next few months that it is possible to break free from an exploitative publishing arrangement and to offer an improved and reasonably priced alternative. Other professional societies whose journals have been captured by commercial publishers will find this a useful lesson.

### **Publishing Costs**

Mr. Dirkmaat is concerned that my article doesn’t explain the basis of my estimate of \$100 per page for first copy costs of journal articles. Fair enough. Here is where it comes from. Tenopir and King (2000, pp. 256–259) offer detailed estimates of first copy costs for journal articles. Their estimate (p. 259) is \$130 per page (which includes \$60 per page for “special graphics,” a figure that seemed to me high for economics papers). By pestering several economics journal editors and their staffs, I obtained rough breakdowns of production costs for a few journals and thus estimated marginal, per subscriber costs. For other journals, I had data on total costs and the number of subscriptions sold. With this data, I made estimates of first copy costs for about 20 journals. While my estimates varied quite widely across journals, the median was close to \$100.

Dirkmaat attempts his own estimate of first copy costs, using data from the May 2001 *AER*, which reports total publication costs for each of the three AEA journals. Based on the assumption that marginal costs are \$0.02 per page per subscriber, he estimates that the average first copy cost per page is \$281. I applaud Dirkmaat’s efforts to argue from actual data. His method is reasonable in principle, but (understandably for someone not familiar with AEA publications) he did not realize that the publication expenses reported for the *Journal of Economic Literature* also include the cost of producing EconLit, an electronic bibliography of economic literature. EconLit is produced in a separate office from the office that handles the *JEL* articles and book reviews. EconLit is marketed separately from the AEA journals and maintains separate accounts. The staff of the *JEL* provided me with a breakdown of expenditures between the two offices. Of the \$1.57 million reported as *JEL* expenses, only about \$700,000 are attributable to the articles and book reviews. When we apply Dirkmaat’s method, but exclude the EconLit costs, the resulting estimate of average first copy costs for the three AEA journals is \$84 per page.<sup>3</sup>

Since the May issue of the *AER* reports total publication expenses separately for

<sup>3</sup> This calculation accounts for the fact that 500 of the 1,254 pages in the 2001 *Journal of Economic Literature* consist of material, such as annotated book listings, that is prepared in the EconLit office. These are excluded from the pages credited to the *JEL* office in calculating costs per page, but are

each of the three journals, it is possible to estimate their costs separately. If we assume marginal costs of \$0.02 per page, the estimated per page first copy costs are \$55 for the *AER*, \$154 for the *JEP* and \$134 for the *JEL* (with EconLit costs excluded). However, because circulation of the AEA journals is so large, these estimates are highly sensitive to the assumption made about marginal cost per page. For example, if it is assumed that marginal costs are \$0.015 per page instead of \$0.02, the estimated first copy cost for the *AER* is \$177 per page, and the average for the three journals is \$222.

Whether first copy costs are \$100 or \$200 per page, it appears that the leading commercial journals are priced far above average cost and enjoy very large profits at the expense of the academic community. (Of course, I cannot disprove the alternative explanation that large commercial publishers operate much less efficiently than the nonprofits and thus have higher first copy costs and lower profits than my calculations suggest.) Consider a journal with 1,700 pages (the average number of pages in the journals in Table 2) and 850 institutional subscribers, with first copy costs of  $c$  per page and marginal costs of \$0.02 per page per subscriber. Its average cost per subscriber will be given by

$$AC = c \frac{1700}{850} + \$0.02 \times 1700 = 2c + \$34.$$

Its average costs are \$234 per subscriber if  $c = \$100$  and \$434 if  $c = \$200$ . The average price of journals listed in Table 2 is \$1500 per subscriber. At this price, the journal's profits per subscriber are \$1266 with the low-cost estimate and \$1066 with the high estimate.

## Conclusion

As Kohn and Dirkmaat point out, most of the current top commercial economics journals were founded in the 1970s, at a time when the nonprofit journals failed to expand their capacity to match the growth in economic research. The new journals served an important purpose, and even in their early years, their publishers seem to have been handsomely rewarded with profits. In 1985, the average institutional price of the commercial journals listed in Table 2 was about \$0.30 per page (measured in 2002 dollars). There is good evidence that this price was well above average cost. Four well-known *nonprofit* specialty economics journals were founded at roughly the same time as the “new” commercial journals: the *Journal of Labor Economics*, *Journal of Money, Credit, and Banking*, *Journal of Human Resources* and the *Journal of Law and Economics*. Institutional subscription prices for these four nonprofit journals ranged from \$0.09 to \$0.12 per page (in 2002 dollars), only about one-third the price of the new commercial journals. Since 1985, the large commercial publishers have not been content with prices merely three times those of

comparable nonprofit journals. They have managed to raise their prices per page to almost *six times* the prices of nonprofit journals. Just how far should our gratitude extend?

The profession has fallen into an unfortunate equilibrium in which many able authors, editors and referees donate their time and effort to overpriced journals that sap resources from the academic community<sup>4</sup> and severely limit access to research by setting prices far above average cost. Several recent developments suggest that electronic technology is likely to help us break out of this bad equilibrium and to distribute and certify our research papers without monopolistic exploitation. In addition to the European Economics Association's departure from the Elsevier fold, three distinct electronic journals projects have made encouraging headway. Two of these projects got underway in 2001. These are *Economic Bulletin*, which is available on-line for free and is an effective substitute for Elsevier's pricey *Economic Letters*, and the *Berkeley Electronic Press* series of journals in theoretical economics, macroeconomics and economic analysis and politics. The Electronic Society for Social Scientists (ELSSS), which plans to introduce a series of low-priced, high-quality, technologically advanced economics journals, has recently acquired the necessary working capital for initiating the first of this series, the *Review of Economic Theory*, and is currently assembling an editorial board. These developments suggest that we are well on our way to fulfilling Professor Kohn's prophecy that although the commercial journals "helped pave the way for a revolution in scholarly publishing, they can only play a small part in what the future has to offer."

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<sup>4</sup>As my previous paper pointed out, a library that subscribed to all economics journals would spend about 90 percent of its budget on commercial journals, though these journals receive only about 38 percent of all citations.