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## Why Scientific Publishing Should Be Audited

Reprinted from *THE SCIENTIST* ® 3(15):12, 24 July 1989.

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Rising journal prices are indeed a serious problem for libraries and scientists, as the story on page 1 makes clear. The Association of Research Libraries (ARL), representing 119 United States and Canadian libraries, reports that the average cost per serial has increased 250%—from \$22 in 1976 to \$75 in 1988. Over the last three years alone, journal prices have jumped 32% ("Report of the ARL Serials Prices Project," Washington, D.C., May 1989).

This has forced many libraries to cancel subscriptions, delay purchases of new journals, cut book purchases, and curtail services. Presumably, the volume of current research information at local libraries is shrinking.

The ARL points to for-profit scientific publishers as the chief culprits. It examined 165 privately published journals by comparing estimated subscription income with publishing costs from 1973 through 1987 and defining the difference as "profit." The ARL estimates that profits increased between 40% and 137%, which it calls unjustifiable.

As a solution, the ARL recommends that researchers should consider submitting manuscripts to nonprofit rather than to for-profit

publishers. Universities and granting agencies could also designate nonprofit publishers as the preferred means for reporting publicly funded research results.

However, the ARL report lacks data on nonprofit publishers to support its recommendation. What is needed is a comprehensive audit of *all* scientific publishers. To make fair comparisons, the audit would reflect subsidies that lower the price of journals published by university and society presses. These include tax exemptions, page charges, manuscript handling fees, membership dues, and preferential postal rates.

A comprehensive scientific publishing audit would help libraries make better-informed decisions about journal selection. It would help authors select the most efficient and responsive journals and benefit publishers by revealing where they need to make improvements.

Cost-effectiveness studies that can serve as a model have been performed on journals from different fields. They compared journals by costs per article, page, word, and character.

Some of these studies have used data from the Institute for Scientific Information's "Journal Citation

Reports" of the *Science Citation Index*. For example, Henry H. Barschall of the Publishing Policy Committee of the American Institute of Physics developed a ratio of the cost per 1,000 characters and citation impact in a survey of 200 physics journals ("The cost-effectiveness of physics journals," *Physics Today*, 41:569, 1988). "Impact" is the average number of citations in a given year to articles published by a journal in the previous two years. Without accounting for price subsidies, he found that nonprofit publishers had the lowest average costs per character and cost/impact ratios.

In a recent issue of *The Scientist*, Andrew Herxheimer of the Westminster Medical School, London, suggested other journal data that should be audited ("Make Scientific Journals More Responsive—And Responsible," March 20, 1989, page 9). He urged journal editors to report on the time it takes for manuscripts to be rejected, accepted, peer reviewed, revised, and printed.

Herxheimer's comments in *The Scientist* subsequently were alluded to in a *New York Times* news story by Lawrence Altman ("Errors Prompt Proposals to Improve 'Peer Review' at Science Journals," June 6, 1989, page C3). George Lundberg, editor of *JAMA*, and others were quoted as saying they would be reluctant to provide the information Herxheimer seeks, because "it could provide crucial data to rivals that compete for articles, media attention, and advertising revenue." This statement illustrates that the distinction between for-profit and nonprofit publishers is often blurred: Both, basically, are commercial enterprises.

Scientific publishing is an essential component of international research communication. It is also a big business. In 1988, ARL-member university libraries alone spent \$222 million on periodicals of all types. As the primary consumers of journal literature, research libraries and scientists can use cost-benefit analyses to improve performance of all publishers in a free marketplace. ■