

Research Notes

The Economics of Economics Journals: A Statistical Analysis of Pricing Practices by Publishers

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This study uses multiple regression analysis to investigate price determinants of the top-ranked economics journals. Holding other factors constant, the study found that the prices charged to libraries in the United States are significantly higher for journals from for-profit publishers and for those originating in Europe. The estimated price differential for European journals is too large to be attributed entirely to the extra cost of shipping the periodicals to the United States. Another finding was that there is a positive and significant correlation between a journal's impact (measured by frequency of citations) and its price. The results suggest that journal prices are not always cost based. One implication is that, as the main buyers in the market, libraries should not passively acquiesce to all price increases. Rather, working through their associations, libraries should require publishers of journals whose prices appear to be excessive to justify their pricing policies.



ide variation occurs in the prices of economics journals. Often, these differences cannot be explained by publishing costs alone. For example, the 1990 subscription price to libraries in the United States for the *Journal of Econometrics* was \$575, while the rate for the *Journal of Economic Issues* was only \$40. But the two journals have about the same number of pages per year and are generally similar in appearance. Clearly, factors other than cost must determine the relative prices of such publications.

This paper reports the results of a statistical analysis of pricing practices by

the publishers of economics journals. It is similar to a previous study by the author, but incorporates more sophisticated methodology, a better-defined sample of journals, and additional explanatory variables.¹ The objective of the analysis is to determine the noncost factors that affect prices of the leading economics journals. Specific hypotheses to be tested are that (1) prices of periodicals from for-profit publishers are higher than those of other publishers, (2) European journals have higher prices than those of publications originating in the United States, and (3) prices of more prestigious journals are higher.

A *Journal of Economic Literature* article by S. J. Liebowitz and J. P. Palmer evaluated the relative impact of economics journals by using the number of times articles from a particular journal were cited in other journals. These counts were adjusted by the size of each publication and were used to formulate a ranking of economics journals.² The results reported here are based on that ranking. Starting with the top 100 journals as determined by Liebowitz and Palmer, nine journals were deleted (e.g., *Yale Law Review*) from this study because they originated in another discipline. Another 10 had to be eliminated because of missing data. The remaining 81 journals from the Liebowitz and Palmer ranking constitute the sample used here to investigate the determinants of journal prices.

The price data are 1990 one-year subscription prices charged to libraries in the United States.³ Table 1 shows relationships between mean prices and journal characteristics. Note that prices are higher for journals from the for-profit publishers and those originating in Great Britain and Europe. Some plausible reasons exist for these differentials. The com-

mmercial publishers can be assumed to be maximizing profit, while institutional and societal publishers tend to have other goals, such as disseminating knowledge. Thus, it is not surprising that commercial suppliers, facing similar costs, would charge higher prices. Higher prices in the United States for journals published abroad could reflect several factors. The most likely is additional distribution costs of shipping journals to the United States.

Another explanation for the observed price differentials is that the demand for some journals is more inelastic because those periodicals are considered to be more useful or more prestigious. If such journals are not randomly distributed by nation of origin or type of publisher, this factor may explain the price differences shown in table 1.

Note also the circulation data in table 1. Four journals have less than 1,000 subscribers. At the other extreme is the *American Economic Review* with a circulation of 26,000. The table suggests that prices are inversely related to journal circulation. This is consistent with the existence of economies of scale in publishing and distribution.

TABLE 1
PRICE CHARACTERISTICS OF ECONOMICS JOURNALS

Characteristic	No.	Mean One-Year 1990 Library Price
Total sample	81	\$107.00
Type of publisher		
Commercial	25	217.40
Academic society or other Nonprofit institution	56	57.71
Country of origin		
United States or Canada	50	62.38
Great Britain	16	113.94
Europe	10	343.80
Other countries	5	57.40
Circulation (number of copies)		
1,000 or less	4	203.50
1,001-2,000	30	148.63
2,001-5,000	35	73.63
More than 5,000	12	68.08

$$\text{PRICE} = a_0 + a_1\text{FREQ} + a_2\text{LENGTH} + a_3\text{CIRC} + a_4\text{ADV} + a_5\text{IMPACT} + a_6\text{PROFIT} \\ + a_7\text{GB} + a_8\text{EUR} + a_9\text{OTHER} + u$$

with variables defined as follows:

PRICE = 1990 one-year subscription price to libraries.

FREQ = Number of issues per year.

LENGTH = Number of pages per issue.

CIRC = Circulation. Number of copies per issue.

ADV = Advertising found in the journal. Yes=1, No=0.

IMPACT = Impact or usefulness of journal. Citations per character as calculated by Liebowitz and Palmer.

PROFIT = Journal published by a for-profit firm. Yes=1, No=0.

GB = Journal published in Great Britain. Yes=1, No=0.

EUR = Journal published in Europe. Yes=1, No=0.

OTHER = Journal not published in United States, Canada, Great Britain, or Europe. Yes=1, No=0.

u = Randomly distributed error term.

FIGURE 1

A general problem with the data in table 1 is that they mask interactions between the factors that affect journal prices. For example, although the commercial publications have higher prices, the data do not prove differential pricing by publisher type. It could be that the journals from for-profit publishers are longer, more expensive to produce, or are perceived as more prestigious than those from societies and other nonprofit institutions.

Sorting out the effects of individual determinants of journal prices requires statistical analysis. Of the many available techniques, the investigators chose multiple regression because, in addition to separating the effects of different variables, it also provides quantitative estimates of the magnitudes of those effects. The regression model used is described in the next section.

MODEL

The factors that affect journal pricing can be divided into four categories—cost, systematic noncost, demand, and random. Among the most important of the cost factors are number of pages per issue, number of issues per year, circulation, whether advertising is accepted (advertising generates revenue that can offset production costs), and distribution costs. Possible systematic noncost

factors already noted are type of publisher and nation of origin. Demand-related factors affecting journal prices include the prestige or perceived value of the publication. Any remaining variation in prices is assumed to reflect random influences.

This study estimated that journals published in Europe cost about \$168 more than those originating from the United States or Canada.

Based on the previous discussion, the following equation is suggested to explain variations in the price charged to libraries for economics journals. This model should be viewed as a reduced form equation THAT incorporates the net effects of cost, systematic noncost, and demand-related influences on prices.

The coefficient of PROFIT estimates price differentials for journals provided by commercial publishers relative to those from societies and other nonprofit institutions. The coefficients of GB, EUR, and OTHER estimate prices of journals published in Great Britain, Europe, and other countries in comparison to prices for journals from the United States and Canada.

$\text{PRICE} = -19.6644 + 17.7148 \text{FREQ} + 0.1154 \text{LENGTH} - 0.0051 \text{CIRC}$			
	(3.92) ^{***}	(0.89)	(-2.35) ^{**}
$- 11.4022 \text{ADV} + 54.3712 \text{PROFIT} + 0.6562 \text{IMPACT}$			
	(-0.71)	(2.63) ^{***}	(1.68)
$+ 23.5423 \text{GB} + 167.6590 \text{EUR} + 5.3231 \text{OTHER}$			
	(1.19)	(5.26) ^{***}	(0.17)
R = 0.739 n = 81		* Significant at 0.05: one-tail test. ** Significant at 0.05. *** Significant at 0.01.	

FIGURE 2

The coefficient of CIRC captures scale economy effects. An inverse relationship is predicted. That is, journals with larger circulations are likely to have lower production costs and, consequently, lower prices.⁴

With respect to the impact variable, journals perceived to be more useful should be able to charge higher prices. The number of *Social Science Citation Index* listings calculated by Liebowitz and Palmer is used as the index of impact or usefulness. Hence, it is expected that the estimated coefficient of IMPACT would be a positive number.⁵

REGRESSION RESULTS

Coefficients of the regression equation for library prices were estimated using ordinary least squares and data from the 81 journals. Results are provided below with *t*-statistics in parentheses. The statistically significant coefficients are designated with asterisks. A one-tail test was used in one case because the sign of the coefficient could be predicted from economic theory. Approximately 74 percent of total variation in journal prices is explained by the independent variables of the model.

The coefficients of the cost variables are consistent with prior expectations. Number of issues each year is significantly and positively related to price. Prices increase as the number of pages per issue increase. Prices and the presence of advertising are inversely correlated. However, the coefficients of LENGTH and ADV (advertising) are not statistically significant.

Note that the regression analysis indicates a statistically significant inverse relationship between price and journal

circulation. This negative coefficient reflects economies of scale in journal publishing. The size of the coefficient implies that for each 1,000 increase in circulation, the price declines by approximately \$5.

The demand-related effect of journal usefulness on prices was estimated by the coefficient of IMPACT. The coefficient was positive (as predicted) and statistically significant based on a one-tail test. That is, more frequently cited journals were found to have higher prices.

Journals from forprofit publishers are significantly more expensive.

With respect to systematic noncost factors, those journals published in Great Britain, Europe, and other (non-U.S.) nations were determined to command higher prices than those originating in the United States and Canada. However, the coefficient is only statistically significant for European journals. For those observations, the differential is quite large. Holding other factors constant, this study estimated that journals published in Europe cost about \$168 more than those originating from the United States or Canada.

Some differential would be expected because of distribution costs for European journals shipped to the United States. The real question is whether the differentials are greater than could be attributed to these costs. The estimated coefficient for Great Britain provides a frame of reference. The mean price of British journals is about \$24 more than that of U.S. journals. Assume that this value approxi-

mates the additional costs of shipping journals across the Atlantic Ocean. Note that the price premium charged for European journals is about seven times that amount. Some of the additional differential could reflect higher production costs in Europe, but it is unlikely that costs would be seven times greater than those in Great Britain. Apparently, European publishers have a different pricing policy than those of other journal suppliers.

For type of publisher, the coefficient of PROFIT is positive and statistically significant. With other factors held constant, journals from the for-profit publishers are estimated to cost about \$53 more than those from academic societies and other nonprofit institutions. This conclusion is consistent with prior expectations.

CONCLUSIONS AND IMPLICATIONS

The results of this study provide some preliminary findings on pricing of economics journals. Noncost factors can have a significant impact on prices. In particular, statistically significant price differentials exist for journals from for-profit publishers and for those originating in Europe. The European premium is too large to be attributed solely to additional costs of production and distribution. More frequently cited economics journals command higher prices.

Rapidly increasing journal prices and budgetary restrictions have caused libraries to severely limit purchases of new journals and to cancel subscriptions for journals already in the library's collection. As this practice continues, it will reduce access of faculty and graduate students to new ideas in their fields. Over time, the result will be diminished research and teaching productivity.

The finding of this research, that noncost factors are significant determinants of journal prices, suggests that rapid price increases are not inevitable, and that the groups affected should not pas-

sively acquiesce. The question is: Which groups have the incentives and influence to facilitate change? One possibility is the scholars who use journals for their research and submit articles for publication. If prices of certain journals become too high, scholars could use their professional associations to establish other, less expensive publications. The problem is that scholars have little incentive to do so. They have access to library subscriptions of journals at no cost and can usually purchase individual subscriptions at rates significantly less than the library price. Cancellation of library subscriptions may not only deprive the scholar and the graduate student of access to library subscriptions but also to personal subscriptions which are sometimes contingent on an institutional subscription.

Also, scholars are evaluated not only on how frequently they publish but also on the prestige of the journals in which their work appears. Articles in new, little-known journals do not contribute as much to professional advancement as do articles in the top journals. Consequently, it is unlikely that scholars will abandon such journals for less expensive, but less prestigious substitutes. Societies can establish new journals and invest them with excellent editors and boards, but the process is a lengthy one.

Another group that could influence journal pricing is library associations. Because their budgets are affected, libraries have a strong incentive to oppose price increases. Because they represent the largest purchasers in the market, these associations may be able to exert their economic influence in dealing with journal suppliers. At the very least, publishers whose prices are significantly higher than charges for comparable publications should be asked to justify their pricing practices by providing detailed information on costs.

REFERENCES AND NOTES

1. See H. C. Petersen, "Variations in Journal Prices: A Statistical Analysis," *The Serials Librarian* 17:1-10 (1989).
2. See S. J. Liebowitz and J. P. Palmer, "Assessing the Relative Impacts of Economics

Journals," *The Journal of Economic Literature* 22:77-88 (Mar. 1984). Data used in this analysis are taken from table 2, col. 2, p.85. The rankings are based on citations to articles in a particular journal by articles from other journals. These data were obtained from E. Garfield, ed., *Social Science Citation Index* (Philadelphia: Institute for Scientific Information). Data were adjusted for journal length by dividing the total number of citations by number of characters in the journal.

3. Library prices as reported in Faxon Inc., *Faxon Librarian's Guide to Serials:1990* (Westwood, Mass.: Faxon, 1990).
4. The inclusion of circulation data is a unique contribution of this study. This information is available for most U.S. journals, but can be very difficult to obtain for foreign journals, especially those from commercial publishers.
5. The citation data were normalized by assigning the journal with the most citations per character (the *Journal of Political Economy*) a value of 100. For all other publications, the data represent the percent of citations per character compared to the most frequently cited journal.



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