Chapter 2

Pricing Studies of Electronic Journals: A Review
2.1. **Introduction**

While scholarly journals have demonstrated remarkable stability for over three centuries, their economics look strange. Odlyzko (1997) believed that one of the most important features of scholarly publishing is lack of price competition and this is the reason of wide variation in journals price among publishers. For example, Odlyzko (1995) addressed that the cost per article ranged from $1,000 for some journals to over $8,000 for some others. While the traditional print scholarly journals are transforming into electronic medium, there is a key question; can electronic publications be operated at much lower costs than print journals? In order to have better understanding of economics of scholarly journals, the following issues were taken into consideration: the misleading ideas in scholarly publishing, the crisis in scholarly communication, the first-copy costs and the value chain of print and electronic journals. After addressing these issues, the literature review on pricing studies is presented in this chapter.

2.2. **The Misleading Ideas in Scholarly Publishing**

It seems that there are some misleading ideas in the scholarly publishing business. Discussing on the “perverse incentives” in scholarly publishing, Odlyzko (1997), states that there are four principal groups of players in scholarly publishing. The first one consists of scholars as producers of information that makes journals valuable. The second consists of scholars as users of that information. However, as users, they gain access to journals primarily through the third group, i.e. the libraries. Libraries purchase journals from the fourth group, the publishers, usually in response to requests from scholars. These requests are based overwhelmingly on the perceived quality of the journals, and price seldom plays a role.

Scholars as writers of papers determine what journals their work will appear in, and thus how much it will cost the society to publish their work. However, scholars have no incentive to care about those costs. What matters the most to them is the prestige of the journals they publish in. Often the economic incentives are to publish in high-cost outlets. It has often been argued that page charges are a rational way to allocate costs of publishing, since they make the author (or the author’s institution or research grant) cover

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some of the costs of the publication, which, after all, is motivated by a desire to further the author’s career. However, page charges are less and less frequent.

A secondary consideration for authors is ensuring that their papers are widely available. However, this factor has seldom played a major role, and with the availability of preprints through email or home pages it is becoming even less significant. Authors are not told what the circulation of a journal is (although for established publications, they probably have a rough idea of how easy it is to access them). Further, it is doubtful this information would make much difference, at least in most areas. Authors can alert the audience they really care about (typically a few dozen experts) through preprints, and the journal publication is for the resume more than to contact readers.

A study of literature reveals that lack of price competition in scholarly publishing has created unusually high profits and even professional societies earn substantial profits on their publishing operations. According to Lustig (1997) “Not-for-profit scientific societies, particular in the United States and in the UK, also often realize substantial surpluses from their publishing operations. Net returns of 30 percent and more have not been uncommon.”

Such surpluses are used to support other activities of the societies, but in economic terms they are profits. Another sign of an industry with little effective competition is that some publishers keep over 75 percent of the revenues from journals just for distributing those journals, with all the work of editing and printing being done by learned societies.

The misleading incentives in scholarly publishing have led to the current expensive system. They are also leading to its collapse. The central problem is that scholars have no incentive to maintain it. For the bulk of scholarly publishing, though, the market is too small to provide a significant financial payoff to the authors.

Although scholars have no incentive to maintain the current journal system, they also have no incentive to dismantle it. The data from the Association of Research Libraries show that the average cost of the library system at leading research universities
is about $12,000 per faculty member. This figure, however, is not visible to the scholars, and they have no control over it. They are not given a choice between spending for the library and for other purposes (Association of Research Libraries, 2001).

2.3. The First-Copy Costs

It is now practically universally accepted that scholarly journals will have to be available in digital formats. What is not settled is whether they can be much less expensive than print journals. Many publishers argue that costs cannot be reduced much, even with electronic publishing, since most of the cost is the first-copy cost of preparing the manuscripts for publication (Odlyzko, 1997).

First copy costs are those that are required to produce even a single issue and are independent of the number of subscribers. For an academic journal, first copy costs include the cost of managing an editorial office—primarily wages and secretarial support for editors who handle, evaluate, and comment on the papers that authors submit—and the costs of copy-editing and typesetting. Marginal subscriber costs include the cost of printing and paper, shipping and postage, and the costs of managing subscriptions (Bergstrom, 2001).

Tenopir and King (1996) have provided a comprehensive overview of the economics of journal production. According to their estimates, the “first-copy” costs of an academic article are between $2,000 and $4,000. The bulk of these costs are labor costs, mostly clerical costs for managing the submission, review, editing, typesetting and setup costs.

In their book *Towards Electronic Journals*, Tenopir and King analyzed the scholarly journal publishing industry and the influences upon it that affected subscription costs. They believed that many activities were common to both electronic and paper publishing. Electronic journals can, however, save in reproduction and distribution and some other costs such as journal covers. While electronic production and distribution costs may be much lower than the corresponding paper costs, production and distribution account for a somewhat small percentage of the total costs of low-circulation journals; a
higher circulation is needed for savings to become substantial. The authors noted that prices of scientific journals (adjusted for inflation) had risen 260% between 1975 and 1995. The number of subscriptions, especially personal subscriptions, fell precipitously as subscription prices rose. The fixed cost portion of a journal's total costs increases as the number of subscribers decreases. Since nearly 60% of scientific journals have fewer than 2500 subscribers, fixed costs dominate the cost picture for most journals. The authors calculated that the total cost per average journal subscription ranges from $70 for a journal with 10,000 subscribers, to $775 for a journal with only 500 subscribers. They also calculated “cost per subscription,” that is, the minimum price necessary to recover all costs associated with publishing a scholarly journal based on number of subscribers. Commercial publishers were at the top of these averages. They have the highest cost per subscriber ($441) and average journal price ($487) (Tenopir and King, 2000).

Odlyzko (1995) estimates that “first-copy” costs between $900 - $8700 to produce a single math article. Seventy percent of the cost is editorial and production, thirty percent is reproduction and distribution. A special-purpose, non technical academic journal that publishes 4 issues per year with 10 articles each issue would have fixed costs of about $120,000.

Varian (1997) discusses that information goods such as electronic journals have two defining characteristics. The first and most important is low marginal (incremental) cost. Once the content is transformed into a digital format, the information can be repackaged and distributed at almost zero cost. Nevertheless, information goods often involve high fixed (“first copy”) costs of production. A production facility and distribution server must be in place in order to take advantage of the low costs of distribution. For a typical scholarly journal, most of the cost to be recovered by the producer is fixed. The same is true for both publisher and distributor in an electronic access environment. With the cost of electronic “printing and postage” essentially zero, nearly all of the cost of distribution consists of the system costs due to hardware, administration, and database creation and maintenance -- all costs that must be incurred whether there are two or two million users. On the other hand, the variable costs of printing and mailing for print journals would be about $12 per year. Such a journal might
have a subscriber list of about 600, which leads to a break-even price of $212 (Varian, 1997).

Of course, many journals of this size are sold by for-profit firms and the actual prices may be much higher: prices of $600 or more are not uncommon for journals of this nature. If the variable costs of printing and shipping were eliminated, the breakeven price would fall to $200. This illustrates the following point: fixed costs dominate the production of academic journals; reduction in printing and distribution costs due to electronic distribution will have negligible effect on breakeven prices.

Nevertheless, electronic access offers new opportunities to create and extract value from scholarly literature. This additional value can benefit readers, libraries, distributors and publishers. For distributors and publishers, additional value can help to recover the high fixed costs. Increased value can be created through the production of new products and services (such as early notification services and bibliographic hyperlinking).

2.4. Value Chain of Print and Electronic Journals

Print journals have played an important role in information creation and dissemination for more than three centuries. Further, print journals assume crucial value in scholarly practice. Electronic journals are gradually gathering the momentum to replace traditional journals by offering new features. Electronic journals provide value to scholars by combining distinct connectivity features and capabilities of the web, such as search engines and hyperlink; access to publicly maintained databases; availability of multimedia and other software; and connections to people, places and institutions through e-mail (King and Tenopir, 1998). A value-chain analysis of both print and electronic journals, while facilitating in a better understanding of the “structure of production” of individual journals, would provide a longitudinal view of the cost involved in different activities carried out in producing the journals.
Based on King and Tenopir (1998) and Bot, et al. (1998) a value chain involved in the production of a typical print and electronic journals can be structured as shown in Table 2.1:

<table>
<thead>
<tr>
<th>SN</th>
<th>Activity</th>
<th>Print Journals (%)</th>
<th>E-Journals (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preliminary Survey</td>
<td>-</td>
<td>2.4</td>
</tr>
<tr>
<td>2</td>
<td>Article / Non-article Processing</td>
<td>41.65</td>
<td>5.43</td>
</tr>
<tr>
<td>3</td>
<td>Reproduction / Technical Realization</td>
<td>20.80</td>
<td>41.54</td>
</tr>
<tr>
<td>4</td>
<td>Distribution</td>
<td>12.70</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Maintenance</td>
<td>-</td>
<td>16.46</td>
</tr>
<tr>
<td>6</td>
<td>Publishing Support</td>
<td>24.02</td>
<td>34.47</td>
</tr>
</tbody>
</table>

Table 2.1: Costs Involved in Different Activities in Producing Print and Electronic Journals

As it is seen from table 2.1, the principal activities involved in production of print and electronic journals are: Preliminary Survey, Article / Non-article Processing, Reproduction / Technical Realization, Distribution, Maintenance and Publishing Support. A brief explanation regarding each activity has been given here.

1. **Preliminary Survey**: As regard the activities performed in the production of electronic journals, the initial task involves a “preliminary survey”, which is taken up to identify the existing print and electronic journals, their subject coverage and the level of satisfaction they command in the respective field. Besides providing valuable insights about the present system, the preliminary survey would facilitate in identifying the lacuna in the existing system and avoid in replication of the existing system. Since electronic journals are a new venture, this activity assumes larger significance. The results obtained in this stage would serve as input to the next stages of electronic journal production.
2. Article / Non-Article Processing:

2.1. Article Processing: This activity includes manuscript receipt processing, initial disposition decision making, identifying reviewers or referees, review processing, subject editing, special graphic and other preparation, formatting, copy editing, processing author approval, indexing, coding, redaction, and preparation of master images.

2.2. Non-article Processing: Non-articles processing includes many of the same activities involving editorial, letters to the editors, brief communications, and book review. It also includes preparation of issue covers (for paper version), tables of contents and indexes. The "first-copy" obtained in the "article / non-article processing" stage is utilized for bringing out traditional print journals in the "reproduction" stage.

3. Reproduction / Technical Realization:


3.2. Technical Realization: This activity is related to the production of electronic journals. Once the editorial concept and the article for the publication is ready, the technical realization of the journal is taken up. "Technical realization" is of critical importance in producing electronic journals as the effectiveness of electronic journals depends upon the efficiency of technical realization of the journal. The activities, which are involved in technical realization, are: website development, website design, website programming and website launching.

4. Distribution: Distribution of paper versions involves wrapping, labeling, sorting by zip code, mailing, and electronic versions include storage and access. Subscriptions maintenance is required for both versions.

5. Maintenance: Once the journal is technically realized and launched successfully, the task of maintenance begins. This involves continuing in production, controlling
and supporting editorial flow, copy editing and alerting the users of newly published issues. The function of alerting is generally taken up through journal’s list server and other selected list servers and Usenet newsgroup. This stage also involves continuous monitoring of the usage and obtaining feedbacks relating to the journals and making necessary corrections for increasing usage of electronic journals.

6. Publishing Support: The “publishing support” is primarily concerned with activities pertinent to marketing and promotion, administration, managing rights and copyright protection, finance costs etc.

It may be mentioned that the initial cost in establishing an electronic journal is comparatively higher than that of a print journal. It is observed that the structural annual costs of publishing electronic journals reduces drastically over the consecutive years of its establishment.

2.5. Pricing Studies in the Literature

It seems that virtually everyone associated with research libraries knows about the crisis that has been building in scholarly communication during the last twenty years. As extraordinary journal price increases continue to outstrip increases in fiscal support, libraries look for ways to manage the bottom line as rationally as possible – to provide the highest quality information support for scholars within often-severe budget restrictions. For most libraries and the faculties they serve, meeting this objective means making choices: discontinuing journal subscriptions, choosing new subscriptions with great caution, and seeking alternative cost-effective means of providing users with information. So, the major purposes of data collection related to journal price are:

- To support local decision-making, chiefly journal cancellation decisions.
- To educate faculty and other users of the journal literature about this very expensive sector of scholarly publication and to open up discussions about changing the scholarly communication system.
In December, 1986, Henry Barschall, Physics Professor at the University of Wisconsin, published a brief article in *Physics Today (July, 1988)* in which he looked at the costs of a small sample of Physics journals (20 titles), as well as an even smaller number of philosophy and mathematics journals. Barschall used a methodology previously used by the American Mathematical Society and others: i.e., comparison of costs per 1000 characters. He concluded:

"While one would expect journals published by not-for-profit publishers to be less expensive than those published by commercial publishers, the cost-per-character ratio of over 40 between the most expensive commercial [at $0.31 per 1000] and the least expensive not-for-profit publication [at $0.007] is larger than one might have expected. We found the variation to be similar for mathematics and physics journals. An unexpected finding was that the average cost per character is about the same for physics and philosophy journals; subscription prices for philosophy journals are less expensive because they typically publish far fewer pages, of generally smaller size."

Two years later, Barschall conducted another study using a much larger sample of over 200 Physics journals. The results of this study confirmed the results of the earlier study. In this second study, in addition to expanding the sample, Barschall added the ISI impact factor to his analysis. Tabular data showed cost per 1000 characters, impact factor (for the titles for which it was available), and cost per impact factor. The data, therefore, indicated cost-effectiveness in two ways: cost per quantity of content and cost as related to value apparently placed on the publication by others in the field (Barschall, 1988).

Barschall drew some important conclusions from this study. He found, for example, that the cost per 1000 characters did not vary greatly for journals published by the same publisher. More importantly, he concluded that "all the publishers whose journals have low average costs per character or low ratios of cost to impact are scientific societies or associations, while the publishers whose journals have high costs per character or high ratios of cost to impact are commercial firms." This conclusion agreed with his conclusion from the previous study. Within his sample, he found real differences
in impact numbers among journals publishing review articles, letter journals, and archival journals.

In 1998, the University of Wisconsin Library commemorated the tenth anniversary of Barschall’s landmark 1988 study by conducting a study using essentially the same methodology – that is, focusing on cost per 1000 characters and the cost/impact ratio that Barschall found such a persuasive measure of journal cost-effectiveness. This time, in addition to Physics journals (N = 93), journals in Economics (N = 128) and Neuroscience (N = 72) were also studied. Athena Salaba of the School of Library and Information Studies gathered the data from April through August of 1998 for titles published in 1997.

Results confirmed Barschall’s findings, though there are some differences in the details, as one might expect after ten years. Following are the key findings of the study (See Tables 2.2).

- In Physics, the cost/impact ratio in 1998 varied from 0.2 to 182.0 cents, that is, by a factor of about 910. In 1988, Barschall found that these ratios varied from 0.063 to 54.00, that is, by a factor of about 850.

- Of the three fields, Physics had the lowest average cost per characters (10.15 cents) in 1998, 5% lower than the average for Economics (10.60 cents) and 36% lower than the average for Neuroscience (13.83 cents). Lower costs per 1000 characters suggest greater cost-effectiveness.

- By the measures employed here, commercially published journals in all three fields are significantly less cost-effective than journals published by not-for-profit enterprises.

- The measure that Barschall found most persuasive as an indicator of cost-effectiveness was the cost/impact ratio. Lower cost/impact ratios mean greater cost-effectiveness. In Physics, the average cost-impact ratio for commercial journals (15.34) is 1.87 times higher than the ratio for non-profit journals (8.21). In Economics, the average for commercial journals (42.62) is 3.69 times higher than that
for non-profit journals (11.55). In Neuroscience, the average for commercial journals (8.69) is 13.58 times higher than that for non-profit journals (0.64).

Also confirmed was Barschall's finding concerning U.S. and foreign publishers of Physics journals. By the measures employed here, journals published abroad, on average, are significantly less cost-effective than those published in the U.S. Using the cost/impact ratio and dividing the list of journals ranked from lowest to highest cost/impact ratio into thirds, American imprints account for 84% of the lowest third and foreign imprints (largely European) account for 90% of the highest third (See the magnitude of difference figures in Table 2.2).
<table>
<thead>
<tr>
<th></th>
<th>Average Subscription Price (US$)</th>
<th>Average Cost per 1000 Characters (in cents)</th>
<th>Average Impact Factor</th>
<th>Average Cost/Impact Ratio</th>
<th>Median Cost/Impact Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial (N = 47)</td>
<td>$2615.51</td>
<td>14.48</td>
<td>2.13</td>
<td>15.34</td>
<td>10.41</td>
</tr>
<tr>
<td>Non-Profit (N = 46)</td>
<td>$1115.35</td>
<td>5.72</td>
<td>2.33</td>
<td>8.21</td>
<td>2.50</td>
</tr>
<tr>
<td><strong>Magnitude of Difference</strong></td>
<td><strong>2.35</strong></td>
<td><strong>2.53</strong></td>
<td><strong>0.92</strong></td>
<td><strong>1.87</strong></td>
<td><strong>4.16</strong></td>
</tr>
<tr>
<td>All Titles (N = 93)</td>
<td>$1873.49</td>
<td>10.15</td>
<td>2.23</td>
<td>11.81</td>
<td>7.02</td>
</tr>
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</table>

**Physics Journals: Summary Data**

<table>
<thead>
<tr>
<th></th>
<th>Commercial (N=75)</th>
<th>$451.31</th>
<th>15.32</th>
<th>0.64</th>
<th>42.62</th>
<th>27.03</th>
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<tbody>
<tr>
<td></td>
<td>Non-Profit (N = 53)</td>
<td>$97.17</td>
<td>3.91</td>
<td>0.96</td>
<td>11.55</td>
<td>5.35</td>
</tr>
<tr>
<td><strong>Magnitude of Difference</strong></td>
<td><strong>4.64</strong></td>
<td><strong>3.91</strong></td>
<td><strong>0.67</strong></td>
<td><strong>3.69</strong></td>
<td><strong>5.05</strong></td>
<td></td>
</tr>
<tr>
<td>All Titles (N = 128)</td>
<td>$304.68</td>
<td>10.60</td>
<td>0.77</td>
<td>29.76</td>
<td>14.46</td>
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**Economics Journals: Summary Data**

<table>
<thead>
<tr>
<th></th>
<th>Commercial (N = 63)</th>
<th>$1534.99</th>
<th>15.47</th>
<th>3.77</th>
<th>8.69</th>
<th>6.92</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Non-Profit (N = 9)</td>
<td>$431.11</td>
<td>2.38</td>
<td>4.49</td>
<td>0.64</td>
<td>0.33</td>
</tr>
<tr>
<td><strong>Magnitude of Difference</strong></td>
<td><strong>3.56</strong></td>
<td><strong>6.50</strong></td>
<td><strong>0.84</strong></td>
<td><strong>13.63</strong></td>
<td><strong>20.75</strong></td>
<td></td>
</tr>
<tr>
<td>All Titles (N = 72)</td>
<td>$1397.00</td>
<td>13.83</td>
<td>3.86</td>
<td>7.69</td>
<td>5.57</td>
<td></td>
</tr>
</tbody>
</table>

**Neuroscience Journals: Summary Data**

Table 2.2: Comparison between Commercial and Non-Profit Publishers
In November, 1998, a Faculty Task Force at Cornell University published its *Journal Price Study: Core Agricultural and Biological Journals*, both in paper form and on the World Wide Web. The publication has achieved wide visibility and influence throughout the research library community. There are many similarities between this study and Barschall’s work of the late 1980s.

Some of the important findings of this study are:

- Regardless of mitigating circumstances (production costs, etc.), “the journal costs charged by commercial publishers as institutional costs are extraordinary compared to costs charged by other types of journal publishers.”

- “Not all commercially published journals have extraordinary subscription costs. Those with very high costs can be identified with a few commercial publishers.”

- Working with a set of core journals, as identified through citation analysis and peer identification, the study found that “the commercially published journals do not show greater quality or greater impact [than other journals]. In fact, slightly more than half are below the 1.0 impact factor and above the highest cost of the journals of other types of publishers.”

- “The heavy commercial charges for library subscriptions come largely from European publishers with the greatest influence coming from those in Germany, the Netherlands and the United Kingdom. It is also clear that a portion of the costs result from cost of living increases and the low value of the U. S. dollar in these countries.”

This study is important for several reasons. First, it is probably the most careful study of the cost-effectiveness of journals ever conducted. Second, it was conducted by faculty members themselves and thus it is likely to be perceived by other faculty as having a high level of credibility. Third, the study presents a remarkable array of options available to the principal stakeholders in the journal publication area. For each stakeholder, there is the option to do nothing.
Loughner in 1999 has conducted a study on the library budget in University of Georgia. A major conclusion of this study is that a larger and larger proportion of library budget is going to a small number of major publishers. The library spent 76% of its science journal budget with the top ten publishers. This was up from 54% in 1990. The list of the 10 publishers that library spent the most money in 1999, 1996, 1993 and 1990 included: Elsevier, Springer, Wiley, Harcourt, Taylor & Francis, Blackwell, Kluwer, Plenum, Gordon Breach and Marcel Dekker (Loughner, 1999).

Bergstrom (2001) has done price comparison for economics journals between nonprofit and commercial publishers. He assembled a database that includes essentially all academic English-language economics journals. He also surveyed the price of the most-cited economics journals listed in the Social Science Citation Index are all nonprofit journals and their average library subscription price was $180 per year. Only five of the twenty most-cited journals are owned by commercial publishers, and the average price of these five journals was $1660 per year. The average price per page (calculated by dividing year 2001 prices by the number of pages published in the year 2000) of the commercial journals is about six times more and the average price per citation is about sixteen times more compare to prices of non-profit institutions. The differences in prices and cost-effectiveness between nonprofit and commercial journals are similar for less prestigious journals.

Bergstrom states that if a library were to subscribe to all of the available economics journals, it would spend less than 10% of its budget on nonprofit journals and these journals would provide access to more than 60% of all articles cited in economics. Subscriptions to the commercial journals (excluding Blackwell) would consume more than 80% of the library’s budget but would supply only a third of all citations.

Pricing studies by librarians show that the pattern found in economics is common to many disciplines. The commercial journals are far more expensive than the journals published by the professional societies, but the most-cited and influential journals are almost universally those published at low cost by professional societies. For example, about 50 percent of all citations in chemistry come from journals published by
professional societies, but expenditure on these journals constitutes only about 25 percent of library subscription costs for chemistry journals (Wilder, 1998).

Another price study published by Bergstrom and Bergstrom in 2004 revealed a startling difference between the prices university libraries pay for academic journals from commercial publishers and the prices they pay for journals from professional societies and university presses. For example, in the fields of economics and ecology, the average institutional subscription price per page charged by commercial publishers is about five times than that of the price charged by nonprofit publishers. These price differences do not reflect differences in quality as measured by number of recorded citations to a journal. For commercial journals the average price per citation is about fifteen times than that of the average price of nonprofit journals. Similar price differences of journals were found across a wide variety of scientific disciplines. This rapid increase in price differences is seen since last fifteen years. The average real (adjusted for inflation) price per page for economics journals from commercial publishers had increased by 300% since 1985, while that of nonprofit economics journals had increased by 50 percent (Bergstrom and Bergstrom, 2004).

A report on a study in Publishers Weekly stated, “While many university libraries face severe budget cuts, large commercial publishers in the academic journal market have enjoyed increasing profits. In 2002, for instance, revenue rose 26% and operating profit increased to 25% for Elsevier, the largest journal publisher in the science, technology, and medical field.” (Publishers Weekly, 2003).

Edwards and Shulenburger looked at the history of nonprofit and commercial publishers in 2003. They noted that traditionally scholars at research institutions had made their research available through what they termed a “gift exchange” arrangement, whereby scholars submitted articles to publishers and served on peer-review editorial boards with little or no expectation of personal financial gain, but with the implicit understanding that the publishers would provide the widest possible audience for their research. They stated, however, that “Beginning in the late 1960s and early 70s, this gift exchange began to break down. A few commercial publishers recognized that research
generated at public expense and given freely for publication by the authors represented a commercially exploitable commodity" (Edwards and Shulenburger, 2003). Prior to this breakdown, most journals were published by scholarly societies that charged enough for their journals to break even and fund society activities, but were essentially not-for-profit ventures. By contrast, the current academic journal market is dominated by a few very large multinational firms that have methodically bought up the top titles in various fields and steadily ratcheted up the prices for them. Edwards and Shulenburger put it:

"The old model operated on the basis of gift exchange to ensure wide distribution of what was readily acknowledged—indeed trumpeted—as clearly a public good. The new model operates for profit; it essentially says, “If you want access, pay up and we’ll set the prices.”

As commercial publishers came to dominate academic publishing, North American research libraries faced an average annual increase of 8.5% in journal prices between 1986 and 2001 (Edwards and Shulenburger, 2003).

The Allen Press has conducted a long-term pricing study of society journals and all U.S. periodicals. The 14-year study shows that prices for U.S. society-published journals increased on average of 7.5% annually during 1988–2001. The journal price increase was above the Consumer Price Index but substantially below the average annual price increase for all U.S. periodicals of 9.7% during the same period. Librarians interviewed said that non-profit society journals tend to be priced lower and have much smaller price increases than commercially published journals.

The pricing trends differ by discipline. For example, chemistry and physics titles, with an average 2001 price of $1,407.47 (8.0% higher than in 2000), continue to be more expensive than other subject categories surveyed, except for Russian translations. Rates of increase in 2001 ranged from 12.3% (medicine) to 1.5% (children’s periodicals). Psychology journals increased by 11.3% and general sciences by 8.2%, according to the American Library Association (ALA) U.S. Periodicals Price Index. Average prices will vary depending on who is doing the study and the mix of journals studied. The U.S. Price Index study is based on subscription price information compiled by Faxon that includes prices of 3, 928 journals produced by commercial publishers as well as by societies.
(Kean, 2001). This study has been continued for 2002 and 2003. The results show that the average U.S. institutional price change from 2002 to 2003 for 196 non-profit society journals studied was 6.8%. This average percent of change included journals that raised prices as well as those that did not.

The Allen Press studies over 16 years showed that each year there was change in the prices of about 50% of the society journals. For the 196 society journals studied, which were predominantly scientific and medical representing many different subject fields, the average U.S. institutional subscription price was $219.00. The average price per issue was $30.63 and the average journal had 7.15 issues a year. Some result for different discipline was similar with the results of other studies. For example, chemistry and physics titles, with an average 2003 price of $1,626.47 (7.0% higher than in 2002), continue to be more expensive than other subject categories surveyed (Kean, 2003).

A recent pricing study across subjects/disciplines was reported by Kean. Gene Kean has conducted annual pricing studies for eighteen years. In the 18th Annual Study of Journal Prices for Scientific and Medical Society Journals, published in 2005, he reports that for the 251 journals studied, which were predominantly scientific and medical representing many different subject fields, the average U.S. institutional subscription price was $326.11. The average price per issue was $43.83 and the average journal had 7.44 issues a year. The pricing trends differ by discipline. For example, chemistry and physics titles, with an average 2005 price of $1,879.56, continue to be more expensive than other subject categories surveyed (Kean, 2005).

Another price study by American Library Association shows that the highest average price, excluding Russian Translations, was for the Chemistry and Physics category, at $1,626.47 (U.S. Periodical Prices, 2003). While the American Library Association prices study annually tracks the inflation or price changes on U.S. periodicals, another different type of study analyzes the pricing trends on both U.S. and non-U.S. periodicals that are ordered by libraries. This study is a cooperative project by EBSCO and the Institute for Scientific Information (ISI). It is valuable to librarians in projecting budgets to renew journals from overseas.
The "Periodicals Price Survey 2003," using EBSCO data, is a cost survey of more than 6,000 titles tracked over the last seven years. Journals are analyzed by subject category and country of origin. This is the 43rd year of the study. For this study, the Institute for Scientific Information (ISI) databases provided 6,231 titles used in the core study. The three ISI databases used for this study are the Arts and Humanities Citation Index, Social Sciences Citation Index, and Science Citation Index. These databases generally reflect the subscription lists of large research libraries. Cost history and other information for the study are from EBSCO's database of serial prices. According to Born, "The average prices for journals by subject category in the ISI database will be much higher than average prices for journals in the ALA study, which concentrates only on U.S. periodicals." The ISI-EBSCO study may be useful to journal managers who want to compare their journals' prices with the average prices of others in their subject category that includes the higher-priced commercially-published overseas journals (Born and Orsder, 2003).

2.6. Summary

Economics of scholarly journals looks strange. One of the most important features of scholarly publishing is lack of price competition and this feature has created unusually high profits to publishers, more particularly commercial publishers. The pricing studies indicated that there is a remarkable difference between society publishers and commercial publishers. The commercial journals are far more expensive than the journals published by the professional societies, but the most-cited and influential journals are almost universally those published at low cost by professional societies.

By charging prices far above their average costs, commercial publishers of academic journals have been draining huge amounts of money from libraries budgets. Their high prices also prevent the flow of scholarly information to teachers and researchers at universities due to budgetary crisis in many libraries. The drastic price differences between commercial and society journals have appeared relatively during recent years.