Chapter 12

Summary of Findings
12.1. Introduction

The purpose of this chapter is to present a summary of the reports discussed in previous chapters.

12.2. Objectives of the Study

The general objectives of the study are:

1. To survey different publishers of electronic journals;
2. To identify and develop parameters for measuring value of electronic journals;
3. To study the economics of electronic journals and their pricing patterns;
4. To study the value of electronic journals in terms of parameters developed and chosen for this purpose;
5. To identify the correlation between the economics and value of different electronic journals; and
6. To compare the economics and value of different electronic journals published by different publishers;

The specific objectives of the study are:

1. To study different pricing patterns of electronic journals in selected area
2. To compare journal pricing and value of commercial publishers and society publishers

12.3. Methodology of the Research

The present study carried out in two distinct levels, each involving different approaches as outlined below:

**Macro Level Study:**

1. Developing parameters for measuring economics and value of electronic journals.
2. Identifying of important society publishers and commercial publishers.
3. Developing parameters for comparison.

4. Identifying of different publishing and pricing models of electronic journals.

5. Analytical study of publishing and pricing models.

6. Analytical study of economic issues (Pricing, Access Control, Licensing, and Archiving) for all the selected publishers.

**Micro Level Study:**

1. Calculating the Average Subscription Price (ASP) and the Average Subscription Price Per Issue (ASPPPI) for all journals of the selected publishers

2. Calculating the Average Subscription Price (ASP) and the Average Subscription Price Per Issue (ASPPPI) for all journals of the selected publishers in different disciplines

3. Classification of the identified 4,415 journals into various disciplines using the Australian Standard Research Classification (ASRC)

4. Usage study of electronic journals at IISc using questionnaire as a tool and identifying the most-used electronic journals at IISc

5. Evaluating the top-thirty journals at IISc by using impact factor

6. Identifying the annual subscription costs of these journals

7. Comparison and correlation between price and impact factor of journals published by commercial publishers and society publishers.

It is quite usual for a single study to combine quantitative and qualitative methods and to use primary and secondary data. In this research, a multi-method approach was employed in order to ensure that data analysis and interpretations are more holistic.

At macro level study, it was difficult to distinguish between commercial and nonprofit/university publishers. For example, MCB University Press was considered as a nonprofit/university publisher in the study, but the author is now convinced, following the analysis of the data, that despite its name, MCB University Press should not be
classified as such. Because of this, the press was omitted from the calculations in Table 9.5 in this study.

Another difficulty in splitting publishers was the fact that some commercial publishers publish journal for learned society publishers.

For example, Blackwell is a commercial publisher which has experience of partnering with societies, and currently has contracts with over 600 societies (http://www.blackwellpublishing.com/press/societies.asp). However, Blackwell has been considered as commercial publisher in the present study.

Identifying the pricing models of publishers was not easy as it seemed. Publishers had offered different pricing models and rates for their journals in 2003. These models even become more complicated in recent years. The investigator considered institutional subscription price for the detailed study, because all publishers covered under present study had offered this pricing model. Nevertheless, calculation of ASP and ASPPI for other pricing models which had offered by Blackwell, Oxford University Press and Cambridge University Press were carried out by researcher and presented in chapter nine (See Table 9.7, Table 9.8 and Table 9.9).

Identifying pricing and publishing initiatives also was not easy. It may be noted that scholarly journals are in a transition era from print to electronic, so many initiatives may appear by different organizations and some of them may disappear. For example, the initiatives such as TULIP and PEAK were appeared and ended while other initiatives such as SPARK, BioOne, HighWire Press, Project Muse, JSTOR, PubMed, EPIC, Open Access still exist. So, what has been done at the time of this study was a snapshot of publishing models. The same is true for publishers' policies regarding format, access control, archiving and licensing of electronic journals. In fact, all of these are fast-changing areas and policies, therefore there can only be a snapshot of those relevant at the time of investigation. There are always changes in publishers' policies and websites, and initiatives as well. For example, SHERPA project finished in January 2006. Much of its work in advocacy and assistance in the establishment of institutional repositories is continuing under SHERPA Plus.
Classification of journals into various disciplines using the Australian Standard Research Classification (ASRC) was difficult. Publishers had followed their own subject categorization. Sometimes there was an overlap among journals and researcher had to do more search in order to categorize a journal into an appropriate subject. It was hard and time-consuming to categorize 4,415 journals into ASRC and calculate their ASP and ASPPI.

The ASP (Average Subscription Price) and the ASPPI (Average Subscription Price Per Issue) were considered as parameters for measuring price of journals. There are other parameters such as average price per paper or average price per page but they have not been considered for the present study; because using these parameters required physical access to considerable number of journals from different publishers which were not available to the researcher.

The number of issues of a journal per year was an important factor which required for calculation of the ASP and the ASPPI. The researcher used number of issues which publishers promised in their subscription price list in 2003. Moreover, few scholarly journals were not available electronically at the time of study, so they excluded from calculation and the ASP and the ASPPI, however, the number of omitted journals was very few and it did not affect the result of the study. Parameters for user study were identified and developed in view of comprehensive literature review.

12.4. Summary of Findings:

1. This research was set to study of different publishers of electronic journals. The first step of the study was to select the publishers. In accordance with conventional wisdom, they were grouped into two broad categories—for-profit ("commercial") publishers and not-for-profit ("society/university") publishers. One hundred twenty-four commercial publishers and ninety society/university publishers were identified and ranked according to the number of electronic journals they published. While the complete lists were used for initial studies, for this detailed study, the research was limited to ten publishers, the top five from each category. Elsevier, Taylor & Francis, Blackwell, Kluwer and Springer-Verlag formed the commercial publishers group; (since that time,

2. Study of pricing models of electronic journals among publishers was considered as one of the objective of the present study. It was observed that different publishers had offered different pricing policies, however, all of them had offered institutional subscription rates in 2003 which were used for detailed price study. Elsevier had offered institutional subscription rates in 2003. The rates were invoiced in one of three currencies depending on the geographic location of the subscriber – Euro for subscriber in Europe, Yen for those in Japan and US dollars in the rest of the world. In the present study, the subscription price in US dollars was taken. In the case of Taylor & Francis, online editions of the printed journals were made available free to institutional subscribers as part of their subscription fee has been considered. For Kluwer’s journals, the price for the electronic version was identical to that for print. Kluwer had offered subscription to electronic only version and subscription to electronic version plus print version which was 20% more than the electronic only subscription price. Springer-Verlag handled institutional subscriptions only in 2003. Blackwell had three different pricing models for its journals in 2003.

1. *Premium Subscription (print with extended online access)*: The premium pricing model provides online access for an additional 10% of the print subscription.

2. *Standard Subscription (print with standard online access)*: All institutions subscribing to Blackwell Publishing journals are entitled to standard access to the online version for as long as their subscription continues.

3. *Online Only Subscription*: Blackwell Publishing titles that are available online can also be bought at the discounted fee of 90% of the standard subscription price.
Most of Oxford University Press journals were available online to subscribers to the print copies, at no additional cost. Oxford University Press had offered three different pricing models in 2003. In fact, Oxford University Press has some discounts for some of its journals under following schemes: Subscription for developing countries (including 27 journals), Project Muse Subscription (including 6 journals), and Academics/Non Profit Institution Subscription (including 8 journals). Cambridge University Press had two pricing models. For institutions, it offered bundled print plus electronic subscriptions, or the option of electronic-only subscriptions. IEEE had given four journal packages for subscription as follow:

- IEEE All-Society Periodicals Package (ASPP)
- IEEE Proceedings Order Plans (POP & POP All)
- IEEE Computer Society Library Subscription Plan (CSLSP-e),
- IEEE Information Technology Library (ITL)

MCB University Press had prepared all of its journals in a full text database which could be accessed electronically alongside a hard copy print subscription. American Psychological Association had offered two pricing models as follow: nonmember subscription and subscription for members with discount of up to 60 percent off nonmember subscription rates.

3. In addition to publishers pricing policies, following initiatives in the area of journals publishing were studied: TULIP, PEAK, SPARK, BioOne, HighWire Press, Project Muse, JSTOR, PubMed, EPIC, Open Access. Most pricing and publishing initiatives were created to offer a constructive response to the high and fast-rising price of journals. They aim to introduce top-quality journals at a significantly lower price than those currently available. Some models such as TULIP and PEAK began and ended but others models are developing. SPARC and HighWire Press support for STM (Science, Technology, Medicine) journals, BioOne for high-impact bioscience research journals, PubMed Central for Life Science and Medical Sciences journals, EPIC for political science, earth science, and history journals. Project Muse is a model that supports
journals in humanities, the arts, and the social sciences. JSTOR (Journal Storage) is a scholarly journal archiving model. Open Access journals offer an alternative model to the traditional toll access, in which institutions purchase access to content from publishers. The open access model levies a charge on the individual researcher, or their institution, for submitting a research article.

4. The study of economics of electronic journals was another objective set to do. In addition to price which was the focus of the study, other economics aspects of electronic journals identified were: access control, archiving, and licensing.

Access control to electronic journals is a challenge both for libraries and publishers. Users understandably expect seamless and rapid delivery of electronic publications with links from bibliographic citations to full text. Publishers allow access by a variety of means - some only by IP [Internet Protocol] authentication, some by means of logon identification and passwords, and some by a mixture of IP address recognition with logon passwords. The access control policies (in 2003) of the ten publishers covered under the present study showed that two commercial publishers including Taylor and Francis and Springer-Verlag use both “User ID and Password” and “IP Authentication” and other publishers use only one method of access control.

Archiving of electronic journals is one of the important challenges for libraries and publishers. Most publishers are creating and allowing access for the short term to materials published in electronic form, and many are enabling subscribers to access previously published materials that are digitally available. However, not all publishers are retrospectively digitizing materials originally published in print or migrating older digital formats to more current ones. Archiving policies (in 2003) of the ten publishers covered under study showed that except Taylor and Francis, IEEE, and MCB University Press all other publishers have been working with other institutions such as National Library of the Netherlands or university libraries for archiving of electronic journals. Taylor and Francis, IEEE and MCB University Press have prepared their own electronic archiving.

Licenses are becoming standard business practice for providing access to and use of electronic information in library settings. Publishers and consumers now enter into
license agreements that regulate the ways in which the content may be used, and by whom. Licensing of the publishers studied showed that all publishers have defined “authorized users” in their licensing agreements and all of them banned any reproduction of their journals. Except three publishers viz- Kluwer, Cambridge University Press and Emerald- other publishers have defined walk-in users. Generally, license agreements of these ten publishers in 2003 were very similar and all of them followed a similar pattern. There was not significant difference between commercial and society publishers according to their licensing agreements.

5. Identifying and developing parameters for measuring economics and value of electronic journals was another objective of the study. Two parameters were developed for measuring economics of electronic journals:

- ASP (Average Subscription Price)
- ASPPI (Average Subscription Price Per Issue)

The ASP is thus the average annual price of a journal from a given publisher. The number of issues per year is a factor that might account for the price of a journal. The ASPPI is the value that gives some more information about price of a journal in a specific year. For this reason, the ASPPI is also chosen as a parameter for better pricing analysis in this study.

The following criteria were developed for measuring value of electronic journals:

- Purpose of Use
- Preferred Format
- Components Used
- Frequency of Use
- Time Spent on Reading Journals
- Number of Articles Read
- Accessibility and Availability
• General Feature of Electronic Journals
• Browsing Feature of Electronic Journals
• Impact Factor from ISI’s JCR for the selected top journals at IISc

Pricing study of publishers showed that among commercial publishers, Elsevier was the most expensive publisher with an ASP of $1,589 in 2003. In terms of the ASPPI, Springer-Verlag was the most expensive publisher. Among the society/university publishers, excluding MCB University Press, IEEE had the highest ASP ($529) and ASPPI ($74) in 2003. The results also indicated that Blackwell was the least expensive of the five commercial publishers and that Cambridge University Press had the lowest ASP ($279) from among the five society/university publishers. If one disregards the MCB University Press figures, the remaining ASPs and ASPPIs demonstrate a remarkable difference in the pricing structures of the commercial versus the society/university publishers.

MCB University Press (Emerald) had a strangely high ASP among the nonprofit/university publishers. It should be noted that MCB University Press is an independent academic publisher established in 1967 by a group of academics from the Bradford Management Center in the United Kingdom. It is not affiliated with, nor does it receive any financial support from, any institution. In 2001 MCB University Press adopted the name Emerald as its new organizational identity. It seems that MCB University Press has changed its policy and become a commercial publisher; perhaps this is the reason for its high prices. Most of MCB University Press’ journals—91 out of 139, or 65.5%—dealt with Commerce and Management. This could perhaps be one of the reasons for the press's high subscription rates. Another reason for the high ASP and ASPPI may be the fact that MCB University Press is located in the United Kingdom, and so the exchange rate between the US dollar and the British pound must be taken into consideration. As observed in a Cornell University study in 1998, “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”. In the present research also, the
ASP and the ASPPI of the commercial publishers, all located in European countries, are found to be quite expensive.

6. A comparison made between the top four commercial publishers (Elsevier, Taylor & Francis, Kluwer, and Blackwell) and the top four society/university publishers (Oxford University Press, Cambridge University Press, IEEE, and the American Psychological Association) show that the ASP of the commercial publishers was 2.8 times higher than that of the society/university publishers. In addition, the ASPPI of the commercial publishers was 1.8 times higher than that of the society/university publishers. These results once again confirm the findings of earlier studies of journal pricing issues such as Wilder’s study in 1998. According to Wilder, the commercial journals are far more expensive than the journals published by the professional societies (Wilder, 1998) (It may be noted that MCB University Press was excluded from this comparison as its pricing was totally at variance with that of the other society/university publishers).

7. A comparison of the two groups—commercial and society/university publishers—reveals that the number of journals published by the commercial publishers was higher than the number of journals published by the society/university publishers (See Table 9.2). As a matter of fact, the smallest commercial publisher in the present study (Springer) published twice as many journals as Oxford University Press, the largest nonprofit/university publisher.

8. The subject-wise ASPs of specific publishers showed that in the case of Elsevier, Physical Sciences journals were 6.2 times and Chemical Sciences journals were 5.7 times more expensive than the general Social Sciences, Humanities, and Arts journals (See Table 9.3). Kluwer’s Physical Sciences journals were 3.7 times more expensive than its general Social Sciences, Humanities and Arts journals. In the case of Taylor & Francis, Chemical Sciences journals were 8.4 times more expensive than the general
Social Sciences, Humanities, and Arts journals. Among the nonprofit/university publishers a somewhat similar pattern seems to be true. For example, Cambridge University Press's Physical Sciences journals were 3.5 times more expensive than its general Social Sciences, Humanities and Arts journals. It can be concluded that, for individual publishers, general Social Sciences, Humanities and Arts journals were considerably less expensive than those in the Physical and Chemical Sciences.

9. The study showed that the Average Subscription Price (ASP) is somewhat crude measurement, and the Average Subscription Price per Issue (ASPPI) is more refined. The ASPPI is found to reflect more closely the actual cost of the journals in a specific discipline.

10. Subject-wise ASPPI shows no significant difference among Elsevier's ASPPIs for various subjects except Journalism, Librarianship, and Curatorial Studies. Its highest ASPPI ($154) was in the Chemical Sciences. Taylor & Francis's and Kluwer's Chemical Sciences ASPPIs were also highest ($337 and $230, respectively). Chemical Sciences was thus the most expensive discipline for the three publishers. Blackwell's highest ASPPI ($113) was in the Information, Computing and Communication Sciences area, while Springer's was in the Physical Sciences ($590).

Oxford University Press's highest ASPPI ($80) was in the Earth Sciences. Cambridge University Press's highest ($106) ASPPI was in the Physical Sciences. Once again, MCB University Press's Education journals proved to be the most expensive of all subjects across the various publishers, having as ASPPI of $959. The American Psychological Association and IEEE showed no appreciable variation in their respective ASPPIs.

11. Viewed from the perspective of the ASPPI, the price difference between the general Social Sciences, Humanities and Arts journals and Physical/Chemical Sciences journals was not as high for individual publishers. For example, Elsevier's Chemical Sciences journals cost 1.5 times more. For Taylor & Francis and Kluwer, the cost was 3.3 and 2.6 times respectively more. The ASPPIs of the five commercial publishers show that
journals in science, technology, and medicine (STM) disciplines were more expensive than those in the social sciences and humanities. This pattern seems to be true for the society/university publishers as well. Among the STM journals, Physical and Chemical Sciences journals were more expensive than other commercially produced journals. It is difficult to make a generalization for the society/university publishers regarding Physical and Chemical Sciences journals because only Cambridge University Press published journals in either of the two disciplines.

12. The subject classification of the journals indicate that all five commercial publishers focused on disciplines in science, technology and medicine, while two well-established society/university publishers (Oxford University Press and Cambridge University Press) focused more on journals in the social sciences and the humanities. One possible reason the commercial publishers may have focused less on the social sciences and the humanities could be a small market for such journals.

13. Use of electronic journals published by different publishers showed that electronic journals from Elsevier are being used maximum by the IISc respondents with 63.97% of the total usage and Sage Publication recorded the lowest usage rate with mere 2.51%. The following is the list of other publishers in the decreasing order of popularity: John Wily & Sons (38.03%), Springer-Verlag (34.76%), IEEE (29.97%), American Chemical Society (23.42%), Cambridge University Press (16.87%).

It is not surprising that the largest publisher of electronic journal i.e., Elsevier with 1,349 journals, as opposed to- 436 from Springer-Verlag, 300 from John Wiley & Sons and 120 from IEEE - is found to be most preferred one in this study. It may not be out-of-place to note here again that Academic Press merged into Elsevier in January 2003. Elsevier topping the list is expected in view of its dominant position both in terms of absolute number of journals, as well as the broad coverage of subject areas.
14. The results of the survey, in general, reflect a growing interest in electronic journals among the users at the IISc.

15. The electronic journals are mostly used for research needs followed by Education, Current facts and services. As expected they are least used for Recreational purpose and for Winning awards.

16. PDF format is the most preferred choice of electronic journal. The HTML format, MS Word, LaTeX, ASCII and PostScript formats are next in that order of preference. It may be noted here that PDF and HTML formats are the most common formats in which the full texts are available. It appears that users have also accepted these formats as their choice.

17. The fact that users have free access to electronic journals all the 24 hours from their own computers in their offices seems to be the most appealing feature. This of course is an ideal situation in any research institutes like IISc.

18. In addition, the respondents strongly agree with the features such as “up to date information”, “search capabilities” and “download possibilities” that attract for more usage.

19. It is found from this study that the journals Nature, Science and PNAS (Proceeding National Academic Sciences) are the most popular research journals. The findings of this research in India are similar to an earlier study in Germany, a survey carried out at the Max Planck Society (MPG) in 1999 (Rusch-Feja and Siebeky, 1999).

20. Comparison between economics and value of electronic journal from different publishers was another objective of the study. This comparison was carried out for top-thirty used journals at IISc. The parameters used for this comparison were ASPPI, journal
usage at IISc and ISI' Impact Factor. The result reveals that three top journals at the
Indian Institute of Science are “Nature”, “Science”, and “Cell” with impact factor 32.182,
31.853, and 28.389 and ASPPI $23.53, $11.47, and $41.07 respectively. The least
expensive journal is “Science” which is being published by a society publisher, namely
the American Association for the Advancement of Science. The results also indicated that
the most expensive journal among the top-thirty used at IISc was “The International
Journal for Numerical Methods in Engineering” which is published by a commercial
publisher, namely Wiley InterScience. The ASPPI in 2004 for this journal was US$206.6
and the impact factor was 1.239.

21. The study of the top thirty journals used at the Indian Institute of Science
showed that the journals with a high impact factor in the Journal Citation Report are
attractive for researchers in India as well as all over the world.

22. Impact factor has long been considered as qualitative tool to measure
scholarly journals’ value. However, comparison between publishers of the top journals
showed that there is a considerable difference between the prices that for-
profit/commercial publishers charge to libraries for scholarly journals and the prices that
professional societies and university presses charge. This price difference does not reflect
higher impact factors or a difference in use or perceived value.

23. The study showed that the Indian Institute of Science spent $49,350 (54% of
the total amount spent on top 30 journals) for 19 society-publisher-owned journals and at
the same time spent $42,221 (46% of the total amount spent on top 30 journals) for
subscriptions to only 11 commercial-publisher-owned journals in 2004. Although the
journals published by commercial publishers are more expensive, researchers at the
Indian Institute of Science appear to use more scholarly journals being published by
society publishers. According the result of the present study, two-thirds of thirty most
used journals at the Indian Institute of Science (IISc) belong to society publishers and
one-third belong to commercial publishers. This suggests that it might be useful to spend
more on subscriptions to scholarly journals from professional societies. Comparison with
the study undertaken in Germany suggests that the result from IISc is not an isolated
example.

12.5. Conclusion

The present study is a comprehensive work on the economics and value of
electronic journals. There exist literature gap and lack of empirical studies regarding the
cost of journals. While there are hundreds of articles written about the price of scholarly
journals in recent years, very little has been written about the cost of publishing journals.
Yet to understand why prices are what they are, one must know about the cost of
publishing journals. One reason that costs are not often discussed is that publishers do not
want their competitors to know their costs. Also, costs vary a great deal among journals,
depending on the characteristics of journals (i.e., manuscript rejection rates, number of
articles, number of pages, number of issues, circulation, etc.) and type of resources used
(i.e., location and experience of editors, technologies applied, quality of paper, etc.).

Moreover, much has been written on issues pertaining to digital information.
Until recently, there was no enough information to evaluate how these digital products,
particularly journals, are being used. Furthermore, meaningful data are often difficult to
obtain as some publishers and vendors supply little or no data or only information they
feel that supports the purchase of their products. As it becomes increasingly difficult to
afford all digital content, librarians must be able to measure use of electronic journals in
order to make the best purchasing decisions for their institutions.

Now, scenario of scholarly electronic journals is changing dramatically.
Economics of scholarly journals has changed, as the environment is changing from print
to electronic. In order to cope with the present volatile electronic environment, increasing
attention needs to be directed towards an understanding of new scenario and issues. A
better understanding of these scenario and issues would undeniably result in bringing not
only clarity but help understand the realities based on empirical evidence, rather than
mere perceptions.
12.6. Areas for Further Research

1. Pricing of journals is changing every year. Comparison between pricing of journals over years can give better picture of actual price. Therefore, researcher hopes that other researchers do similar study of price for the same publishers in different years and compare their results with the present study.

2. It is also possible to do some price studies on specific subject among many more publishers. It means that the potential researchers can increase the number of publishers with focus on fewer subjects.

3. For measuring value of electronic journals there are many more potential possibilities than economics. Electronic journals can be investigated from different aspects in digital environment. The same study can be done in different institute and compare the usage pattern among various institutions. Transaction log can be used in evaluating use of electronic journals in a specific institute.