

## SELECTED SCIENCE AND TECHNOLOGY E-JOURNAL'S PRICE ESCALATION: A CASE STUDY

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Ever increasing electronic journal price is a major concern for libraries. To find best e-journals that disseminates quality information to users are a challenging process. An attempt made in this study to find the price increase in selected e-journals subscription during 2015 to 2018. The aim is to understand price increase range over the period and the average percentage of price increase. The library budget in the last five years also appraised to understand the actual budget increase. In the library database, price data of 34 foreign e-journals from the year 2014 to 2018 obtained; and Excel spreadsheet used to calculate the increases in subscription price. The study found that overall subscription price increase from 2015 to 2018 was about 20.28%. The average increase per year was 5.07%. The price fluctuation range was from -3.54 to 18.42 percentages. The result of this study helps to estimate the future budget requirements; and manage journals subscription and renewal processes effectively.

**Keywords:** Journal price, Journal crisis, Electronic journals, Online journals; E-journals,

Journal price fluctuation, E-journals subscription, Collection management

### INTRODUCTION

Inflation is the most common concerns for many countries, though the moderate inflation easily managed, but high inflation creates problems for consumers. Resource for libraries are no exception to inflation, libraries are facing number of problems in maintaining balanced collections due to journals price fluctuation and flat or marginal increase in library budget. In special libraries, particularly libraries attached to the Science and Technology(S&T) institutions a major portion of budget being spend annually for journals subscription and renewal. The demands for primary resources of information in electronic form are also high in S&T special libraries. Due to journals annual price increase and high currency conversion rate, managing the journal subscription and renewal processes is a challenging task. Libraries forced to find alternative solution such as consortium, resource sharing and inter-library loan etc.

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### **RRCAT SCIENTIFIC INFORMATION RE-SOURCE CENTRE**

Raja Ramanna Centre for Advanced Technology (RRCAT) is a leading research and development centre of Department of Atomic Energy (DAE), Government of India. The centre is engaged R&D activities in front line areas of laser, accelerator and its related fields. The two synchrotron radiation sources, Indus-1 and Indus-2 are national facility serving the user communities round the clock. Scientific Information Resource Centre (SIRC) formerly library, of RRCAT fulfils the information needs of users from time to time. Being a special library and information centre, it serves the user communities relentlessly over the past 30 years.

SIRC holds number of resources, both in print and electronic form to meet the information needs of users. Many e-journals are being subscribed through consortium such as Sciencedirect, IEEE/ IEE journals. 34 individual e-journals are being subscribed apart from number of consortium and print titles. The e-journals subscription and renewal price varies from library to library based on FTE (full-time equivalent), population served and other factors. In order to understand e-journals price fluctuation at locally this sample study is undertaken to find average annual increases in subscription renewal price for SIRC.

### **LITERATURE REVIEW**

Some of the literature published on journals price increase and subscription crisis studied. EBSCO serials price projections (2018) reports that journals not priced by customer's currency (non-US) have a higher currency impact due to titles priced on the publisher's currency. It also calculated the projected price increase by customer billing currency for various currencies; and predicated Open Access (OA) model would not disruptive for commercial publishing. In an another report of EBSCO Five Year Journal Price Increase History (2013 - 2017) the journal price fluctuation measured for different

types of libraries, and for the Association of Research Libraries (ARL) Libraries the average increase was 5.18%(US titles), 5.37%(non-US titles), 5.31% of total titles; and the overall price percentage of fluctuation during 2013 to 2017 shown in the report. (Bosch,S. And Henderson,K., 2017) Library Journal Periodical Price Survey 2017<sup>3</sup> predicated the projected 2018 price increase for science journals as 5.6% and 2017 physics journals average cost per title as \$4369. An article explains price discrimination practice of commercial and non-commercial publishers to libraries<sup>4</sup>. To sustain journal's price increase author viewed cooperation among libraries and between libraries, publishers and vendors. It also viewed that raising journals cost and problems library facing need to be educated to administrators and managers for reasonable budget allocation<sup>5</sup>. A paper discusses the Australian perspective of pressures, opportunities and costs, the research libraries facing; and also discusses the strategies enunciated to address the challenges on journals subscription<sup>6</sup>.

### **OBJECTIVES OF THE STUDY**

The objectives of the study are:

1. To find the library budget increases during the period and actual spending for journals subscription.
2. To find profit versus non-profit publisher's e-journal price increase; and
3. To find our average percentage of S & T journals price increase.

### **METHODS AND LIMITATIONS**

The invoices received for annual subscription renewal from publishers and suppliers for all journals have taken. The price data as per the original invoice entered in library automation software's serials module every year. 34 e-journal subscription renewal price data obtained from the

system; and after necessary formatting the data imported into Excel spreadsheet. In the Excel sheet formulas applied to calculate the price increase over the previous year and the average price. As the calculation is based on publication's original price as per the invoices, the variation in currency conversion rate, service taxes applied, bank service charges at the time of payment are not reflected in the results drawn.

### SIRC BUDGET

The resource development process entirely based on library committee review and approval, it chooses resources carefully based on users recommendation and demand. As SIRC is a special library, the budget for document resources collection both in digital and print form came from different budget heads of parent organisation. The actual amounts spend for journal subscription renewals were only taken. Since special library users highly depend on primary sources of information such as journals, conference proceedings, reports, standards, etc. About 90% of budgets spend for journals subscription and renewals alone, and **Table 1**, explains budget received over the past five years.

**Table 1: SIRC journals subscription renewal budget**

Financial Year	Amount spend in lakhs*
2014-15	205.00
2015-16	208.00
2016-17	222.00
2017-18	206.00
2018-19	346.00

\* approximate in rupees

Introduction of Goods and Services Tax (GST) on digital resources subscription at the rate of 18% is an additional budgetary burden to the libraries which only receives moderate increase in the budget every year. The budget allocation is financial year based and subscription is calendar year based, some print journals are mid-period subscription based, there by, the actual renewal payment for some journals

usually processed by utilising current financial year budget. In this situation library faces fund shortage in the current year library budget. The average budgetary increase over the period was 35%. With this 35% increases, SIRC effectively managed journal price escalation and inducting additional resources during this period.

### Profit versus Non-Profit Publisher's E-Journals Price Increase

The major role of non-profit publisher such as societies, institutions, university press is to disseminate information, but it generates marginal income to sustain the publication activities. However, for profit publishers the objective is not only to disseminate the information, but in the process generates higher income through publication activities. Therefore, profit publisher's publication price always higher than their counterpart non-profit publisher's publications. This result also proves the common perception and trend, that is, for profit publisher's journal price is higher than that of non-profit publishers. Out of 34 e-journals selected, 29 titles are non-profit publisher publications and only six titles are profit publisher's publication. During 2015 to 2018 the average price increase over the previous year for the non-profit publication found was 4.96% and profit publication it was 5.88%. The price increase range, for non-profit publications were from -3.54% to 18.42% and the range for profit publications were 1.89% to 10.93%. The reason for a non-profit publication range went up a maximum by 18.42% that too in a particular year was journal price remains unchanged for consecutive few years. However, for profit publisher it increased the price moderately every year is observed.

### Science and Technology E-Journals Price Increase

Of the 34 e-journal titles chosen, 15 journals subscription amount in the invoice was in GBP - British Pound (£) and remaining 19 titles amount was in USD - US Dollar (\$). The average price raise of British Pond billed titles over the period was 5.28%. The price raise in US Dollar billed

titles was 4.97% during 2015-2018. Overall price increase was 20.28% and the average raise was 5.07%. The table 2 shows a complete price increase percentage during 2015-2018 for 34 titles studied. As mentioned, the price raises reflected are based on the actual invoice price. The publisher and supplier charge the price based on FTE. The conversion rate variations, service tax added are not included for price raise calculations. The result drawn here are only for e-journals price fluctuation.

### CONCLUSION

This sample study attempted to know the price rise of e-journals subscribed by our library. It was found that during the year 2015 to 2018 the average prices of 34 S&T e-journals increased by 5.07%. The non-profit publications price increase was 4.96% and 5.88% for profit publications. Over the period, the price fluctuation range of our subscribed S & T e-journals were from -3.54% to 18.42%. As price raise influenced by FTE, number of users, currency and other factors, similar study is helpful to estimate the actual price increase at a library level. GST applied on digital resources subscription in the past few years is an additional factor of budget shortage. The result of this study does not reflect the variations due to conversion rate change, bank

commission for transfer payments; these amounts are extra in addition to journals price raise. The approximate price increase calculated through this study helps to estimate budget requirements for annual e-journal subscription renewal and decision-making processes.

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**Table 2 – Price Increase of 34 S&T E-journals during 2015-2018**

No	Set	Title	Category	Currency	2015	2016	2017	2018	Total	Average
1	Set1	Applied Physics Express	non-profit	£.	5.03	7.43	4.52	4.52	21.49	5.37
2	Set1	Japanese Journal of Applied Physics	non-profit							
3	Set2	Journal of Applied Crystallography	profit	\$	6.04	6.03	9.03	7.00	28.10	7.03
4	Set2	Journal of Synchrotron Radiation	profit							
5		American Journal of Physics	non-profit	\$	6.46	2.50	3.02	3.04	15.01	3.75
6		Applied Physics Letters	non-profit	\$	3.10	2.98	3.00	6.00	15.09	3.77
7		Journal of Applied Physics	non-profit	\$	3.00	3.02	3.00	6.02	15.03	3.76
8		Journal of Biophotonics	profit	\$	2.65	4.30	6.02	6.02	18.99	4.75
9		Journal of Chemical Physics	non-profit	\$	2.98	3.02	3.00	6.01	15.00	3.75
10		Journal of Laser Applications	non-profit	\$	2.70	3.16	3.06	5.94	14.86	3.72
11		Journal of Optics (IOP)	non-profit	£.	5.01	4.01	-3.54	4.97	10.44	2.61
12		Journal of Physics B	non-profit	£.	3.31	1.62	1.27	3.51	9.70	2.43
13		Journal of Physics D: Applied Physics	non-profit	£.	3.95	5.79	3.20	4.96	17.89	4.47
14		Journal of Physics: Condensed Matter	non-profit	£.	3.71	4.32	4.89	3.50	16.41	4.10
15		Journal of the American Chemical Society	non-profit	\$	2.47	2.99	2.99	2.99	11.44	2.86
16		Laser and Particle Beams	non-profit	£.	4.90	5.07	4.95	5.08	19.99	5.00
17		Lasers in Surgery & Medicine	profit	\$	4.96	6.02	10.93	6.01	27.91	6.98
18		Measurement Science and Technology	non-profit	£.	3.82	3.17	2.59	4.50	14.07	3.52
19		Nature	non-profit	£.	8.01	7.99	1.50	14.93	32.44	8.11
20		Nature Materials	non-profit	£.	7.98	8.01	1.51	14.89	32.40	8.10
21		Nature Photonics	non-profit	£.	8.01	8.01	1.50	14.92	32.44	8.11
22		Nature Physics	non-profit	£.	7.98	8.01	1.51	14.89	32.40	8.10
23		Photochemistry and Photobiology	profit	\$	5.82	1.89	5.32	6.01	19.04	4.76
24		Photomedicine and Laser Surgery	non-profit	\$	0.00	10.00	15.15	18.42	43.57	10.89
25		Physical Review A	non-profit	\$	3.50	6.03	6.08	6.02	21.62	5.41
26		Physical Review B	non-profit	\$	3.48	6.01	6.01	13.98	29.49	7.37
27		Physical Review E	non-profit	\$	3.54	6.20	5.84	6.01	21.59	5.40
28		Physics of Plasmas	non-profit	\$	3.06	3.03	3.00	5.99	15.08	3.77
29		Plasma Physics and Controlled Fusion	non-profit	£.	3.68	1.45	3.46	3.52	12.11	3.03
30		Proceedings of the National Academy of Sciences of the USA	non-profit	\$	4.12	1.98	1.94	1.90	9.95	2.49
31		Physical Review Online Archive (PROLA)	non-profit	\$	3.64	5.85	6.08	6.25	21.81	5.45
32		Reports on Progress in Physics	non-profit	£.	5.00	5.81	7.96	4.95	23.71	5.93
33		Science Online	non-profit	\$	3.05	4.00	2.01	5.02	14.07	3.52
34		Superconductor Science & Technology	non-profit	£.	4.26	3.78	4.43	3.49	15.96	3.99
					4.35	4.80	4.23	6.91	20.28	5.07