

A QUANTITATIVE ANALYSIS OF THE OPEN ACCESS BUSINESS AND ECONOMICS JOURNALS

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ABSTRACT

The main purpose of the paper is to study the publishing trends of the open access business and economics journals available in the Directory of Open Access Journals (DOAJ). The online survey was conducted for collection of data and quantitative method was applied for data analysis. The data were collected from the December 10-20, 2013 about more than six hundred business and economic journals and later presented in tabular forms to reveal the findings in accordance with desired objectives. The findings show that 607 business and economics journals are listed in the DOAJ and are published from the 67 countries of the world. The maximum number of journals (88, 14.50%) is published from Brazil, and during the first decade (2001-2010) of the 21st century (382, 62.93%). The linguistic assessment shows that the open access business and economics journals are mostly monolingual (405, 66.72%) and the majority of these are published in English language (498, 82.04%). The results also reveal that the majority of the business and economics journals (415, 68.37%) doesn't charge publication fees to authors whereas almost one-fourth (147, 24.22%) of the journals demand article processing charges. The study does not explore the whole World Wide Web, but only the DOAJ and therefore, figures do not represent the actual number of the open access business and economics journals available online. The study is very beneficial for the business and economics scientists, academicians, researchers, information experts and open access advocates across the globe.

Keywords: Open access journals; online journals; electronic journals; business journals; economics journals

1. INTRODUCTION

In the present knowledge based society, all the countries of the world spend a good portion of their budget on research. The major regions of the world have reserved a fixed percentage of their Gross Domestic Product (GDP) on research & development (R&D) activities. The GDP of the world in 2013 was 85,751 billion US dollars and global spending on R&D 1,558 billion US dollars measuring 1.8% of the total GDP in which Americas spent 2.4%, Asia 1.9%, Europe 1.9% and rest of the

world 0.9%. The top ten countries as per the expenditure on R&D are given as under (Battelle 2013):

S. No.	Countries	GDP* <i>Bil, US \$</i>	R&D <i>as % GDP</i>	GERD** <i>Bil, US \$</i>
1.	United States	16,195	2.8%	450
2.	China	13,568	1.9%	258
3.	Japan	4,798	3.4%	163
4.	Germany	3,266	2.8%	92
5.	South Korea	1,686	3.6%	61
6.	France	2,296	2.3%	52
7.	United Kingdom	2,408	1.8%	44
8.	India	4,942	0.85%	42
9.	Russia	2,593	1.5%	38
10.	Brazil	2,454	1.3%	31

Table 1: Top Ten Countries investments in R&D in 2013

**GDP= Gross Domestic Product ** GERD = Gross Expenditures on Research & Development*

These ten countries have spend about 80% of the total invested on R&D around the world and the combined investments by the U.S., China and Japan account for more than half of the total. At the current rates of growth and investment, China's total funding of R&D is expected to surpass that of the U.S. by about 2022 (Battelle 2013). It reveals the rat race of the leading countries of the world in surpassing the others in research and developmental activities. The higher educational institutions and research centres of the world are the major consumers of the allocated budget as it is their duty to conduct research on various facets of knowledge to solve the immediate and future problems of the global society. After conducting research in various disciplines, the researchers choose different means to communicate and share their findings with their counterparts across the globe. The journals are considered as the best vehicles in the scholarly information transfer cycle. However, the increasing cost of journals and shrinking library budgets make are the biggest barriers between journal and researcher as the subscription prices of scholarly journals have been increasing at a rate faster than the inflation rate for

several decades (Dingley 2005). The Library and Information Managers (LIMs) find many ways to create connections between information and researchers. The resource sharing, library consortia, inter library loan, routing of periodicals, document delivery services, photocopy or printout of articles, pay per use or purchasing single articles, and cancellation of subscriptions to the least used or least cost-effective journals are noteworthy steps to tackle these problems. However, only the open access (OA) electronic publishing was heralded as a potential solution to overcome the maximum barriers in connecting researcher and the nascent information. The open access models have reduced the monopoly power of the commercial scholarly journal publishers in dissemination of scholarly information.

The open access (OA) idea arises from a small but lively meeting convened in the Budapest by the Open Society Institute (OSI) on December 1-2, 2001 known as the "Budapest Open Access Initiative" which was made public in February 2002 (Bailey 2006). The philanthropist George Soros and the founder of the OSI provided \$3 million to support the open access initiative (Sathyanarayana 2008). The *Moore Foundation* also provided \$9 million grant to the *Public Library of Science* for open access (OA) publishing on December 17, 2002 (Seber 2009). Gradually many institutions, societies, organizations, foundations, publishers and individuals joined the movement to transform the idea into reality. The Open Access Scholarly Publishers Association (OASPA) also came into existence on 14 October 2008 (www.oaspa.org). This provides a vehicle for all stakeholders of open access to share their experiences and develop common good practices. The Directory of Open Access Journals (DOAJ) was launched by the Lund University on May 12, 2003 with funding from the Open Society Institute and the Scholarly Publishing and Academic Resources Coalition (SPARC) (Seber 2009). The DOAJ service covers free, full text, quality-controlled scientific and other scholarly journals. The DOAJ includes journals published by the not-for-profit open access journal publishers and all contents are freely available without delay to the end-users.

2. REVIEW OF LITERATURE

A sizeable literature is available on the open access scholarly communication. There were only five journals offering open access mode to their contents in 1992 and the number reached to 1200 in 2004 (Falk 2004). Frantsvag (2010) reported that the Ulrich Periodical Directory listed 24,263 journals in which 996 were available

through open access mode. McVeigh (2004) evaluated the number of open access journals from a regional perspective available in the ISI citation databases and revealed that nearly 15% of the covered titles from Asia-Pacific are available as open access, and over 40% of the titles from Central and South America are open access journals. In contrast, out of the total journals from North American and Western Europe only 1.5% and 1.1% were open access journals respectively. Lone, Rather, and Shah (2008) found that the USA, Brazil, UK, Spain and Germany were the top five countries in terms of the number of journals in the Directory of Open Access Journals in 2008. India ranked at 7th place in the list, well ahead of countries such as China, Australia and Japan. Kaufman-Wills Group (2005) investigated various sources of the open access journals and revealed that there were only 248 journals in the DOAJ in all disciplines in which 45% were in science and technology, 34% in medicine, 10% in the social sciences, and 7% in the arts and humanities. The study further depicted that most of the full open access journals were published by the commercial (54.8%), followed by not-for-profit associations (14.5%) and academic institutions (12.9%) respectively. Walters and Linvill (2011) examined the characteristics of 663 open access journals in the six disciplines and revealed a great variation in the publishing trends of the open access journals. The largest publishes more than 2,700 articles whereas half publish 25 or fewer per year. The results also depicted that just 29% of the open access journals charge publication fees and the number of such journals is higher in the disciplines of biology and medicine. Hu (2012) identified 147 journals offered open access in the humanities and social sciences among the 2960 scholarly journals indexed by the Chinese National Knowledge Information (CNKI) database. Rufai, Gul and Shah (2011) found a total of 144 open access journals in the field of library and information science from the DOAJ, Ulrichsweb.com and J-Gate. These open access library and information science journals were published from 37 countries in which the maximum of 45 titles was published in the United States (31.25%), followed by Brazil (12; 8.33%) and Spain (10; 6.95%). The researchers also found that 72.92% of journals (105) are unilingual, 19.44% bilingual (28), and 4.17% titles (6) in three languages. According to the report by the UNESCO (2011) the DOAJ listed 7300 plus open access journals published from more than 115 countries by 2985 publishers in which 29% (2040) of journals accepted author processing charges whereas 71% (5063) didn't demand such charges. The author processing charges were highly demanded by

journals published from Africa (60%) followed by North America (44%) and minimum by journals published from South America (7%). Solomon and Bjork (2011) also reported that 26% of the journals listed in the Directory of Open Access Journals charged author processing charges (APCs) whereas 74% didn't charge any publication fee to the authors. In the recent study, Loan (2014) revealed that the maximum number of journals (567) listed in the DOAJ is published in education, from the United States (120, 21.16%) and during the first decade (2001-2010) of 21st century (393, 69.31%). The linguistic assessment showed that the open access education journals were published in 32 different languages and English was the principal language adopted by the 75.84 percent (430) of journals. The results also revealed that the majority of the education journals (496, 87.48%) don't charge publication fees to authors and still cent percent (100%) have maintained their continuity.

A number of studies have been conducted all over the world on open access journals in general and the Directory of Open Access Journals (DOAJ) in particular. The results reveal that the idea of open access journals was alive in the minds of scholars before the Budapest Open Access Initiative and in fact few journals were available in the world under the banner freely accessible journals. However, BOAI formally launched the open access movement which spreads at an exponential rate all over the world and presently the open access journals are published from various regions and countries in all subject areas and in almost all influential world languages. The present study will be a step forward to study the open access scholarly journals in business and economics disciplines.

3. PROBLEM STATEMENT

The business and economics disciplines play very crucial role in the national as well as global developments be it social, political, or economic. Business is the nucleus of a nation's development whereas economics is an engine of financial growth and stability. However, information is the life blood of these institutions to formulate plans and policies and implement in a timely manner and fix targets and achieve them successfully. Without information support, the risk of collapse or failure of the business and economic plans increases due to ignorance of their strengths, weaknesses, opportunities and threats. Many reputed business companies of the world like the former national airline of Switzerland namely *Swissair* (popularly

known as the *Flying Bank*); *Edison Labs*- (Once the leading company in new inventions); *Commodore 64* (the biggest computer industry of 1980s); *WaMuBank* (Washington Mutual Bank- the sixth largest bank in the United States); *IndyMac Bank* (the 7th largest loan originator in America) are success stories of business failure among many others. The failure of *Satyam* and the collapse of *Kingfisher Airlines* are other examples noteworthy to mention. The lack of information was one of the crucial drawbacks for the collapse and failure these business giants. The open access to the business and economics information is very important for the sustainable development of these institutions at national and international levels. Hence, the present study will examine the availability of the scholarly information in open access mode.

4. PURPOSE OF THE STUDY

The main purpose of the paper is to study the publishing trends of the open access journals in the fields of business and economics available in the Directory of Open Access Journals (DOAJ). The present study aims to assess:

- To identify the subject-wise number of journals in business and economics
- To identify the country-wise number of journals in business and economics
- To identify the period-wise number of journals in business and economics
- To identify the language-wise number of journals in business and economics
- To identify the publication fee-wise number of journals in business and economics

5. SCOPE AND LIMITATIONS OF THE STUDY

The study is limited only to the Directory of Open Access Journals (DOAJ) and therefore, figures doesn't represent the actual number of open access business and economics journals, but journals listed in the DOAJ. Hence the findings shouldn't be generalised.

6. METHODOLOGY

The quantitative method of research was conducted to complete the study. In quantitative method of research numerical data are collected (data in the form of numbers) and analysed using mathematical/statistical methods. In the present study, the data was collected about more than six hundred journals from the DOAJ which

provides information about country, subject, language(s), publisher, author processing charges and many other features. The DOAJ was accessed from December 10-20, 2013 to collect data. An excel file of the collected data was created, and data were analysed using mathematical formulae. Data were later presented in tabular forms to show findings in accordance with desired objectives.

7. DATA ANALYSIS

7.1. Subject-wise information

As on date the DOAJ lists 10027 journals covering more than 100 subject areas in which 607 (6.05%) journals are published in business and economics. In business & economics, more journals (366, 60.30%) are published in the field of business as compared to economics (241, 39.70%) (Table 2). In 2005, Kaufman-Wills Group found that 45 percent of the DOAJ journals were in science and technology, 34 percent in medicine, 10 percent in the social sciences, and 07 percent in the arts and humanities. Presently, DOAJ contains 6.05 percent journals in business and economics alone which is indication of rapid growth in social science fields as well.

Table 2: No. of Journals in Business and Economics (n=607)

S.NO.	Subject	No. of Journals	Percentage
1.	Business	366	60.30
2.	Economics	241	39.70
Total		607	100.00

7.2. Country-wise information

Till date 67 countries have contributed 607 open access journals in the fields of business and economics. Among these, the maximum of journals (88, 14.50%) is published in Brazil, followed by Romania (63, 10.38%), United States America (58, 9.56%), Spain (39, 6.43%), UK (28, 4.61%), Canada (22, 3.62%) and Germany (19, 3.13%) respectively. The other leading countries are the Colombia, Pakistan, Czech Republic, India, and Turkey (Table 3). The present study reveals that the developed

countries aren't ahead in Science and technology publishing only but business and economics as well.

Table 3: Country-wise Journals in Business and Economics (n=607)

S.NO.	Country	No. of Journals	Percentage
1.	Brazil	88	14.50
2.	Romania	63	10.38
3.	United States	58	9.56
4.	Spain	39	6.425
5.	United kingdom	28	4.61
6.	Canada	22	3.62
7.	Germany	19	3.13
8.	Colombia	18	2.965
9.	Pakistan	17	2.80
10.	Czech Republic , India, Turkey	(Each) 14	2.306
11.	Australia, Mexico	(Each) 12	1.976
12.	Croatia	11	1.81
13.	Poland	10	1.65
14.	Italy	9	1.48
15.	Russia, Slovakia, Ukraine	(Each) 8	1.32
16.	Argentina, Chile, Malaysia, Serbia Singapore, Switzerland	(Each) 7	1.15
17.	France, Indonesia, Iran, Lithuania Venezuela	(Each) 5	0.82
18.	Greece, Macedonia, South Africa	(Each) 4	0.66
19.	Bosnia, Denmark, Egypt, Finland, Nigeria, Peru, Portugal, Slovenia, Sweden	(Each) 3	0.49
20.	Costa Rica, Hong Kong, Kyrgyzstan, Taiwan, U.A.E	(Each) 2	0.33
21.	Austria, Bolivia, China, Dominican Republic, Estonia, Guatemala, Hungry, Japan, Kenya, Moldova, Montenegro, Netherlands, New Zealand, Norway, Oman, Philippines, Puerto Rico, Uruguay and Zambia	(Each) 1	0.16
Total Countries =(67)		607	100

7.3. Period-wise information

In table 4 the data are classified as per the date of publication. The results show that the highest number of journals (382, 62.93%) are published in the first decade of the 21st century (2001-2010) and the least numbers (13, 2.14%) up to 1990 (Table 3). The findings show that after the more journals have been published in business and economics after the Budapest Open Access Initiative.

Table 4: Period-wise Journals in Business and Economics (n=607)

S.NO.	Time period	No. of Journals	Percentage
1.	≥1990	13	2.14
2.	1991-2000	63	10.38
3.	2001-2010	382	62.93
4.	2011-2013	149	24.55
Total		607	100

7.4. Language-wise information

The linguistic assessment of the journals shows that 66.72 percent of journals (405) are monolingual, 24.88 percent (151) bilingual, and 7.08 percent (43) trilingual whereas four (4) journals are published in four and five languages each (Table 5).

Table 5: Linguistic-wise Journals in Business and Economics (n=607)

S.NO.	No. of Languages	No. of Journals	Percentage
1.	Monolingual	405	66.72
2.	Bilingual	151	24.88
3.	Trilingual	43	7.08
4.	Four Languages	4	0.66
5.	Five Languages	4	0.66
Total		607	100

The open access business and economics journals are published in 25 different languages. English is the principal language adopted by the 82.04 percent (498) of journals followed by Spanish (119, 19.60%) and Portuguese (94, 15.49%)

respectively, French, Romanian, Russian, German, Croatian, Slovenian, Turkish, Chinese and Ukrainian are other prominent languages (Table 6). The linguistic analysis depicts that open access business and economics journals are published in all the influential languages of the world.

Table 6: Language-wise Journals in Business and Economics

S.NO.	Language	No. of Journals	Percentage
1.	English	498	82.04
2.	Spanish	119	19.60
3.	Portuguese	94	15.49
4.	French	27	4.45
5.	Romanian	23	3.79
6.	Russian	18	2.96
7.	German	12	1.98
8.	Croatian, Slovenian, Turkish	(Each)9	1.48
9.	Chinese, Ukrainian	(Each 8)	1.32
10.	Italian	6	0.99
11.	Indonesian, Siberian	(Each)4	0.66
12.	Persian	3	0.49
13.	Basque, Bosnian, Danish, Dutch, Galician, Greek, Hungarian, Lithuania, Malay	(Each)1	0.16
Total Languages = (25)			

Note: Journals were multi-lingual and hence percentage and total will vary

7.5. Publication fee- wise information

The present study depicts that the majority of the business and economics journals (415, 68.37%) doesn't charge publication fees to authors whereas 24.22% percent of journals (147) require the payment of fees (Table 7). Fee-based open access journals require payment on behalf of the author. The author can pay the fee from his own income or approach his employer or institution for the same. However, in cases of economic hardship, many journals waive all or part of the fee.

Table 7: Publication fee-wise Journals in Business and Economics

S.NO.	Publication fee	No. of Journals	Percentage
1.	Yes	147	24.22
2.	No	415	68.37
3.	Information missing	7	1.15
4.	Conditional	38	6.26
Total		607	100

8. DISCUSSION

The noteworthy expenditure on research all over the world makes the research community responsible to publish their research findings in the open access mode in every sphere of knowledge. The present study shows that scholarly information in business and economics is published in open access mode as well. More than 600 journals (607) have preferred the open access models in which 76 were earlier commercial journals and now have adopted the open access mode in the fields of business and economics. These journals are very helpful for the researchers, academicians, economists, policy makers and business giants of the world. These open access scholarly journals are also very valuable for the business and economic institutes to overcome the serial crises. The library and information managers (LIMS) have to create awareness about these journals among the business and economics scientists, researchers, scholars, and other information seekers for maximum utilization of these sources. The awareness of the open access resources can be created by various marketing techniques especially by electronic means like institutional websites, library websites, social networking sites, blogs, wikis etc. The other manual methods include user education programmes like orientation courses, refresher courses, workshops, conferences, seminars and the like.

The open access movement has become the world domain after the Budapest Open Access Initiative. The developed countries like the USA that spend more on research are well ahead of other countries in the open access scholarly publishing. The developing and few underdeveloped countries have also joined the hands in the open access scholarly publishing but there is need to increase the

budget on research and development activities to accelerate the scholarly output. India figures among the top ten scholarly publishing countries in the fields of business and economics. However, India needs to increase its budget on research activities in order to contribute as per its capacity.

The open access movement is crossing the linguistic barriers as well and information is published in all the most influential world languages. However, it is a matter of concern that not a single open access journal is published in Hindi in the fields of business and economics. Indian journals are mostly monolingual and published almost exclusively in English language. The need is to take efforts to publish their Hindi versions as well for the Indian citizens. The other countries need to adopt the same policy to publish information in their national languages. However, English language should be adopted by all journals for the dissemination of information at the international level.

There are three basic sources of revenue to which a publisher can turn: (1) authors, (2) readers, and (3) sponsors (West, Bergstrom, and Bergstrom 2014). Publishers regularly employ each of these sources, sometimes in combination for their survival and continuity. The most prominent publishing model alternative to the 'reader-side funding' model is 'author-side funding' in which authors bear the costs incurred in the publication of their articles, usually through their funding agencies and distribute their content freely to readers. The article processing charges (APCs) have become the predominant means of funding the professional open access publishing. Now it is a debatable question that who should pay the article processing charges- author, his institution or any funding agency like University Grants Commission. The author/researcher uses his mind, time and labour to generate the new knowledge for the benefit of whole global community and obviously, he/she shouldn't pay from his/her own pocket. The institutions or funding agencies should come forward to support the author as well as the open access journals and in return these can get free access to the scholarly information for their academic scientists.

9. FUTURE RESEARCH

The present research is based on quantitative analysis of the business and economics journals. In the future research; the focus should be on qualitative research in order to judge the quality of the open access journal articles which can be determined by evaluating journals and their publishing bodies, impact factor,

coverage in indexing and abstracting services; authors and their institutions, h-indexes; and other similar parameters.

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