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Authorship Distribution and Collaboration in LIS Open Access Journals: A Scopus based analysis during 2001 to 2015

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Abstract: The present study is a bibliometric analysis of some selected open access Library and Information Science (LIS) journals indexed in Scopus database during the period 2001 to 2015. The study has covered 10 LIS open access journals with 5208 publications to establish an idea about the pattern of authorship, research collaboration, collaboration index, degree of collaboration, collaboration coefficient, author's productivity, ranking of prolific authors etc. of said journals. Lotkas's inverse square law has been applied to know the scientific productivity of authors. Results show that, the covered LIS open access journals are dominant with single authorship pattern. The value of Collaborative Index (0.73), Degree of Collaboration (0.72), and Collaboration Coefficient (0.29) do not show the trend of collaboration. Lotka's law of author's productivity is fitting to the present data set. The country wise distribution of authorship based on the country of origin of the corresponding author shows that 83 countries across the Globe are active in publication of their research in LIS open access journals. United States of America (USA) is the leader country producing of 2822(54.19%) authors alone.

Keywords: Open Access, Bibliometrics, Collaboration Index, Degree of Collaboration, Collaboration Coefficient, Lotka's law.

Introduction

Scientific publishing is undergoing significant changes due to immense growth of online publications and increases in the number of open access journals. Most leading publishers like Elsevier, Taylor and Francis, Springer and others have introduced open access journals in a big way and their acceptance among authors for publishing articles has also increased. Open access journals are gaining its popularity because of free availability of articles on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles. As the numbers of open access journals are growing in a big way, it's a challenge for the authors to identify the best journals for their research and publications. So, the present study entitled "Authorship Distribution and Collaboration in LIS Open Access Journals: A Scopus based analysis during 2001 to 2015" is an attempt to analyzed the authorship pattern, collaboration index, degree of collaboration, collaboration coefficient, author productivity, and ranking of prolific authors of LIS open access journals

covered in the study during the period 2001 to 2015. The study will be a useful for the authors and researchers in the field of Library and Information Science to be aware about the ongoing trend of authorship, research collaboration, author's productivity of LIS open access journals.

Literature Review

The author have referred so many research papers and articles related to authorship studies of LIS journals to have a clear understanding of ongoing trend of authorship studies and to find out some possible ways to carry out the present study smoothly in a qualitative way.

Parameswaran and Smitha (2001) examine the 60 issues of Library and Information Science Abstracts (LISA), published from 1994-1998, and reveal that single authors publications were greater in number than collaborative work as covered by LISA. Tiew, Abdullah and Kaur (2001) carry out a bibliometric examination of all the journal articles published in the Malaysian Journal of Library & Information Science from 1996-2000 and reveal that the percentage of multi-authored papers is slightly higher at 52.6%. Bharvi, Garg and Bali (2003) analyze the 1317 papers published in first fifty volumes during 1978 to 2001 of the international journal of Scientometric and show that the journal is dominated by the single authored papers; however, multi authored papers are gaining momentum. Similar pattern has been observed for domestic and international collaboration. Uzun (2004) identifies an increase in the share of collaborative papers contributed by authors in JASIST, Journal of Documentation, Journal of Information Science (JIS), and Information Processing & Management (IP&M). Mittal, Sharma & Singh (2006) present in their study of 536 papers covering to library and information science education from 1995 to 2004 and reveal that most of the papers are contributed by single authors (72.8%) contribution and only less numbers of papers are collaborated by two and more authors. Verma, Rajnish and Priyanka (2007) reveal that most of the contributions of the journal Annals of Library and Information Studies are contributed by single author. Mukherjee (2009) reveals the collaborative authorship pattern of the Journal of the American Society for Information Science and Technology (JASIST) during the period 2000 to 2007. Park (2010) studies the authorship characteristics of journal D-Lib Magazine and reveals that the source journal is dominated by single author contributions with 77% of papers. Pradhan and Chandrakar (2011) find in their study that Indian LIS authors' contribution to scholarly publication is moving towards single to two authors as 75.88 % articles covered in the study are contributed by two authors. Thanuskodi (2011) presents the authorship pattern of the journal Library Herald for the period 2006 to 2010 and reveals that out of 138 articles covered in the study single author contributions are 72 (52.17%) articles and rest 66 (47.83%) articles are contributed by joint authors. Warraich and Ahmad (2011) analyze Pakistan Journal of Library and Information Science (PJLIS) during 1995 to 2010 and reveal that the authors' collaboration is clearly visible in the journal PJLIS. Ardanuy (2012) analyzes the level of co-authorship of Spanish research in Library and Information Science (LIS) until 2009 and found a significant increase in all co-authorship, including publications in English and those involving international collaboration. Priya and Khaparde (2012) elucidate the trends of authorship pattern and authors' collaborative research

in their study covering with a sample of 12263 LIS articles that single authored contributions are dominant in the journal *Library Management*. Thanuskodi (2012) shows the authorship pattern of *DESIDOC Journal of Library and Information Technology* covering to a total of 199 articles published in the journal and finds that 116 articles, out of 199 articles are contributed by joint authors while the rest 83 articles are contributed by single author. Yank and Lee (2012) assess the research patterns and trends of library and information science (LIS) in Korea and find an increasing trend for research collaboration among LIS authors. Ardanuy (2013) shows the scientific output of Library and Information Science in Spain during 2006-2010 and reveal that the authorship pattern of published works indicates towards multi authorship. Barik and Jena (2013) analyse the authorship patterns of journal *Trends in Information Management* and reveal that the source journal is dominant by joint authorship pattern. The degree of authors' collaboration is not so strong in the journal. However, the journal constitutes 28% of foreign authors' contributions. Khaparde (2013) reveals in the study *E- Journals in Library and Information Science: A bibliometric study* that joint authorship has dominated the research where male authors have the dominance over gender with (66.28%) of total publications and collaborative research with (64.11%) publications. Khurshid (2013) measures the quality of articles published in foreign LIS journals by Pakistani authors and reveals that the authorship patterns show a shift from single-authorship to collaborative authorship. Pandita (2013) undertakes a bibliometric study of *Annals of Library and Information Studies (ALIS)* journal during the last decade and finds that 65.81% articles of the journal are contributed on co-authorship pattern. Swain, Swain and Rautaray (2013) examine the scholarly communications in *Library Review (LR)* from 2007 to 2011 and to reveal that single authored articles occupy the prominent position indicating the supremacy of solo research in *Library Review*. The degree of collaboration in the publications of this journal is found to be 0.36. Satpathy, Maharana and Das (2014) investigate the scholarly communications in open access journals of Library & Information Science and show that single authored papers are found to be the highest (40.48 percent), followed by two-authored and then three-authored papers. The degree of collaboration is found to be between 0.33 and 0.8. Singh and Chander (2014) explore the authorship pattern of the journal *Library Management*, and highlight that the journal has produced majority of the contributions by single authors during the period 2006-2012. Swain (2014) shows the authorship patterns of *International Information and Library Review* from 2004 to 2013 and highlights that majority of papers are published in single authorship mode followed by two-authorship mode. It is seen that contributions in three-authorship and more than three-authorship mode are quite less. The degree of collaboration is found to be 0.45, indicating less intensity of collaborative trend of research. Das (2015) highlights the authorship pattern and research collaboration in the area of Informetrics based on 420 scholarly communications appeared in the *Journal of Informetrics* during 2007 to 2013. Study illustrates various significant aspects like types and trends of authorship, author productivity, degree of collaboration, collaborative index, geographical diffusion and institutional diversification of authorship. Swain (2015) shows the authorship patterns of *Library Hi Tech* from 2004 to 2013 and highlights that the majority of papers are produced in single authorship mode followed by two-authorship mode. The degree of collaboration (DC) in *Library Hi Tech*

publications is found to be 0.519 indicating less intensity of collaborative trend of research. Verma, Sonkar and Gupta (2015) show the authorship pattern of Library Philosophy and Practice from 2005 to 2014 and reveal that single authorship is leading authorship trend in the journal and the rate of degree of collaboration is 0.51. Vellaichamy and Jeyshankar (2015) analyse the 158 papers published in the journal Webology during the period 2004-2013 and reveal that single authorship possess a lead role in the journal. Zakaria (2015) studies the authorship pattern of Arab Librarians who published in Library and Information Science journals. The study analyses the journal research publications in Library and Information Science journals by professional librarians from 1981 to 2010. Single-author articles are found to be highly followed by two and three authored articles. The average degree of collaboration between authors in Library and Information Science journals is 9.64% (only 19 journal articles written by at least two or three authors). Khan (2016) explores the bibliometric analysis of the LIBRI: International Journal of Libraries and Information Services during the period of 2011-2015. The result shows that out of 140 research articles 63(45%) articles are contributed by single authored whereas, 77(55%) articles were contributed by multi-authored. The average degree of author collaboration was 0.55 which ranges from 0.57 to 0.58. Shukla and Moyon (2017) analyze the bibliometric analysis of Indian open access LIS journal for five years from 2011 to 2015 covering 218 publications and reveal that two authorship patterns is prevalent with 0.66 degree of collaboration. Suresh (2017) examines authorship pattern of 556 papers published in Journal of Documentation during 2003 to 2015 and finds that almost half of the total publications published by single authors.

Objectives of the study

The main objectives of the present study are;

- To establish an idea on yearly distribution of publications of LIS open access journals,
- To know the journal wise distribution of authorship pattern,
- To identify the strength of Single Vrs Collaborative authorship,
- To identify the Collaborative Index (CI), Degree of Collaboration (DC), and Collaborative Coefficient (CC) of authors,
- To study the author's productivity,
- To trace authorship patterns by country of authors, and most prolific authors

Scope & Limitations

The scope of the present study is limited to only open access journals published in the field of Library and Information Science and indexed in Scopus database. The study is to focus on the journals which are only registered under Directory of Open Access Journals (DOAJ) and indexed for a period of 15 years uninterruptedly. The period of study is to cover from the year 2001 to 2015. The source journals are identified by consulting the Scopus database pertaining to the following criterion to avoid unnecessary influence and ambiguity in selecting the journals. The criterion followed are: i) The journal must have published in an open access platform and registered in Directory of Open Access Journals (DOAJ; ii) The journal must

have indexed in Scopus database for a period of 15 years continuously from the year 2001-2015 and there must not be discontinuation of any year; iii) Publication status of journal must be showing Active as on 31st December, 2015.

Based on the aforesaid criterion for selecting of journals, the study found 10 numbers of Scopus indexed open access Library and Information Science journals fitting to the study. The journals covered in the study with their abbreviation are; i) College and Research Libraries (LRL), ii) D-Lib Magazine (D-Lib), iii) Information Research (IR), iv) Information Technology and Libraries (ITL), v) Informing Sciences (IS), vi) Journal of the Medical Library Association (JMLA), vii) LIBER Quarterly (LIBERQ), viii) Library and Information Science Research (LISR), ix) Libres (LIBRES), x) School Library Media Research (SLMR).

Methodology

The publications of selected 10 journals were searched individually one by one ranging from the year 2001 to 2015 in the Scopus database. The required data were exported in an excel spreadsheet and analyzed using some statistical methods like average, mean, percentage etc. The gathered data were tabulated for final presentation of the results.

Results & Discussions

Year wise Distribution of LIS Open Access Publications

Table 1 depicts the year wise distribution of 10 LIS open access journals covered in the study. During the period 2001 to 2015, a total numbers of 5208 publications are indexed in Scopus database. The year wise distribution of publications show that in the year 2002, a highest number of 433(8.31%) publications were witnessed followed by the year 2003 with 416(7.99%) publications, and 2006 with 405(7.78%) publications. The year 2013 has witnessed a very low numbers of publications with 285(5.47%).

It is observed in the study that, the year wise distribution of journals do not show any increasing trend, however the cumulative numbers of distribution shows a steady growth of publications. Further it is seen that, not a single journal is strict to a constant numbers of publications by its issues or by its volumes. Every journal has a distribution of random numbers of publications in each year. Figure 1 shows the year wise distribution of publications.

Table 1: Year wise Distribution of Publications

| Sl No | Publication Year | CRL | D-LIB | IR | ITL | IS | JMLA | LIBERQ | LISR | LIBRES | SLMR | Total | Percentage (%) | Cumulative | Cumulative Percentage (%) |
|-------|------------------|-----|-------|-----|-----|-----|------|--------|------|--------|------|-------|----------------|------------|---------------------------|
| 1 | 2001 | 34 | 191 | 47 | 24 | 14 | 2 | 37 | 26 | 6 | 6 | 387 | 7.43 | 387 | 7.43 |
| 2 | 2002 | 40 | 178 | 28 | 25 | 19 | 67 | 42 | 24 | 5 | 5 | 433 | 8.31 | 820 | 15.75 |
| 3 | 2003 | 28 | 157 | 23 | 33 | 23 | 68 | 45 | 26 | 10 | 3 | 416 | 7.99 | 1236 | 23.73 |
| 4 | 2004 | 18 | 115 | 51 | 21 | 8 | 75 | 44 | 29 | 11 | 2 | 374 | 7.18 | 1610 | 30.91 |
| 5 | 2005 | 28 | 79 | 40 | 29 | 15 | 83 | 31 | 30 | 8 | 6 | 349 | 6.70 | 1959 | 37.62 |
| 6 | 2006 | 35 | 106 | 48 | 32 | 14 | 83 | 41 | 33 | 7 | 6 | 405 | 7.78 | 2364 | 45.39 |
| 7 | 2007 | 34 | 63 | 52 | 24 | 15 | 81 | 28 | 32 | 9 | 8 | 346 | 6.64 | 2710 | 52.04 |
| 8 | 2008 | 32 | 59 | 35 | 28 | 15 | 58 | 49 | 34 | 12 | 5 | 327 | 6.28 | 3037 | 58.31 |
| 9 | 2009 | 42 | 74 | 41 | 31 | 6 | 62 | 12 | 33 | 8 | 6 | 315 | 6.05 | 3352 | 64.36 |
| 10 | 2010 | 37 | 42 | 52 | 34 | 7 | 61 | 31 | 36 | 7 | 7 | 314 | 6.03 | 3666 | 70.39 |
| 11 | 2011 | 39 | 44 | 56 | 32 | 4 | 52 | 16 | 43 | 6 | 11 | 303 | 5.82 | 3969 | 76.21 |
| 12 | 2012 | 38 | 41 | 52 | 32 | 3 | 60 | 37 | 40 | 1 | 14 | 318 | 6.11 | 4287 | 82.32 |
| 13 | 2013 | 40 | 43 | 52 | 26 | 7 | 53 | 8 | 41 | 7 | 8 | 285 | 5.47 | 4572 | 87.79 |
| 14 | 2014 | 46 | 58 | 52 | 19 | 2 | 51 | 18 | 28 | 11 | 7 | 292 | 5.61 | 4864 | 93.39 |
| 15 | 2015 | 63 | 67 | 46 | 27 | 7 | 62 | 13 | 45 | 7 | 7 | 344 | 6.61 | 5208 | 100.00 |
| Total | | 554 | 1317 | 675 | 417 | 159 | 918 | 452 | 500 | 115 | 101 | 5208 | 100.00 | - | - |

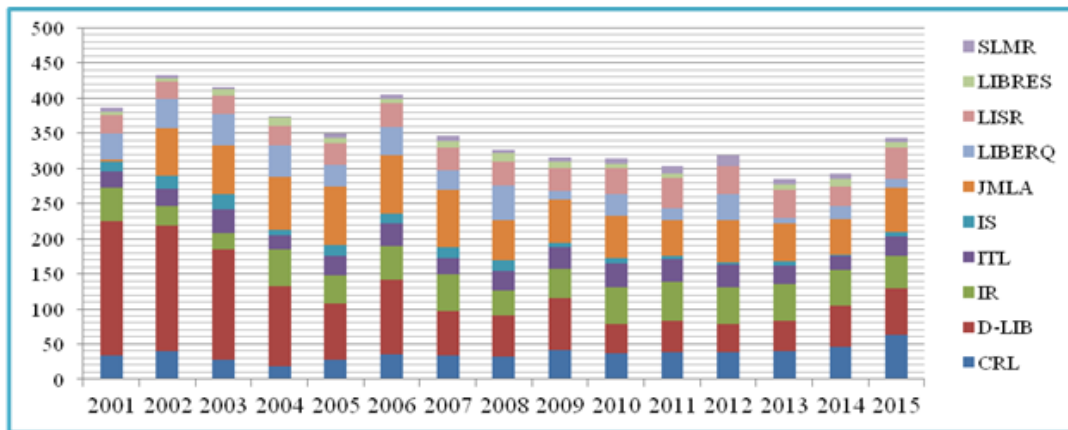


Figure 1: Year wise Distribution of Publications

Distribution of Authorship Pattern

Table 2 shows the authorship pattern of the LIS open access journals covered in the study. During the period 2001 to 2015, single authorship contribution is dominant with highest 2791(53.59%) publications, followed by two authorship contribution with 1209(23.21%) publications, and three authorship contribution with 627(12.04%) publications. The data set shows that, there are no such established research groups in this area or the researchers are not interested to publish their research by collaborative authorship. Further, the study throws light in the journal wise authorship pattern and finds that, JMLA is the only LIS open access journals having ≥ 2 mean authorship while other journals have ≥ 1 mean authorship. The average mean of authorship has found to be 1.93. This means the authorship pattern of LIS open access journals clearly indicates towards single authorship publications.

Further it is observed that D-Lib has produced highest 2579(25.59%) authorship followed by JMLA with 2322(23.04%) authorship and IR with 1230(12.21%) authorship. The lowest percentage of authorship has been contributed by the journal SLMR with 173(1.72%). Figure

2 illustrates the authorship pattern and mean of authorship of the LIS open access journals covered in the study.

Table 2: Distribution of Authorship Pattern

| Sl No | Source Journal (abbreviated) | Distribution of Authorship Pattern | | | | | | | | | | | Total Papers | Total Authorship | Mean of Authorship | % of Authorship |
|-------|------------------------------|------------------------------------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|------------------|--------------------|-----------------|
| | | One | Two | Three | Four | Five | Six | Seven | Eight | Nine | Ten | > Ten | | | | |
| 1 | CRL | 240 | 201 | 68 | 30 | 4 | 5 | 5 | 1 | 0 | 0 | 0 | 554 | 1059 | 1.91 | 10.51 |
| 2 | D-LIB | 773 | 230 | 152 | 68 | 37 | 27 | 9 | 8 | 9 | 0 | 4 | 1317 | 2579 | 1.96 | 25.59 |
| 3 | IR | 422 | 79 | 103 | 42 | 16 | 7 | 2 | 1 | 1 | 2 | 0 | 675 | 1230 | 1.82 | 12.21 |
| 4 | ITL | 270 | 86 | 39 | 13 | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 417 | 661 | 1.59 | 6.56 |
| 5 | IS | 72 | 57 | 16 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 159 | 293 | 1.84 | 2.91 |
| 6 | JMLA | 352 | 210 | 145 | 95 | 55 | 26 | 13 | 10 | 5 | 3 | 4 | 918 | 2322 | 2.53 | 23.04 |
| 7 | LIBER | 347 | 77 | 16 | 6 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 452 | 606 | 1.34 | 6.01 |
| 8 | LISR | 192 | 216 | 56 | 24 | 7 | 1 | 0 | 1 | 1 | 1 | 1 | 500 | 967 | 1.93 | 9.60 |
| 9 | LIBRES | 68 | 29 | 13 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 187 | 1.63 | 1.86 |
| 10 | SLMR | 55 | 24 | 19 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 101 | 173 | 1.71 | 1.72 |
| | Total | 2791 | 1209 | 627 | 294 | 136 | 67 | 31 | 22 | 16 | 6 | 9 | 5208 | | | |
| | Percentage (%) | 53.59% | 23.21% | 12.04% | 5.65% | 2.61% | 1.29% | 0.60% | 0.42% | 0.31% | 0.12% | 0.17% | 100.00 | 10077 | 1.93 | 100.00 |

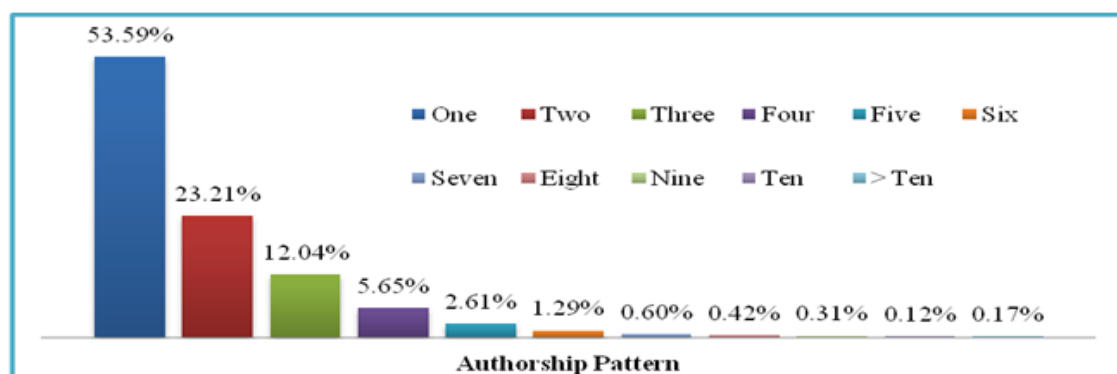


Figure 2: Authorship Pattern

Single Authorship Vrs Collaborative Authorship

In the present study, table 3 shows the number of single vrs collaborative authored publications. Single authored publications have shown an increasing trend throughout the period of study except the years 2009, 2010, 2011, 2013, and 2014. Out of 5208 publications highest 2791(53.59%) publications were contributed with Single Authorship and only 2417(46.41%) publications were contributed by Collaborative Authorship contribution. Further it is seen that a total of 10077 authorship have been counted for 5208 publications. The mean of authorship per publication is seen at 1.95 which is less than 2 or far from collaboration. So, the present dataset shows that LIS open access journals do not favor collaborative research. The year wise Single authorship Vrs Collaborative authorship is depicted in figure 3.

Table 3: Single Authorship Vrs Collaborative Authorship

| Sl No | Publication Year | Total Publications | Single Authored | | Collaborative Authored | | Total Authorship | % of Authorship | Mean of Autorship per Publication |
|----------------|------------------|--------------------|-----------------|-------|------------------------|-------|------------------|-----------------|-----------------------------------|
| | | | No. | % | No. | % | | | |
| 1 | 2001 | 387 | 249 | 64.34 | 138 | 35.66 | 616 | 6.11 | 1.59 |
| 2 | 2002 | 433 | 298 | 68.82 | 135 | 31.18 | 710 | 7.05 | 1.64 |
| 3 | 2003 | 416 | 237 | 56.97 | 179 | 43.03 | 773 | 7.67 | 1.86 |
| 4 | 2004 | 374 | 193 | 51.60 | 181 | 48.40 | 703 | 6.98 | 1.88 |
| 5 | 2005 | 349 | 213 | 61.03 | 136 | 38.97 | 650 | 6.45 | 1.86 |
| 6 | 2006 | 405 | 225 | 55.56 | 180 | 44.44 | 794 | 7.88 | 1.96 |
| 7 | 2007 | 346 | 188 | 54.34 | 158 | 45.66 | 683 | 6.78 | 1.97 |
| 8 | 2008 | 327 | 174 | 53.21 | 153 | 46.79 | 609 | 6.04 | 1.86 |
| 9 | 2009 | 315 | 136 | 43.17 | 179 | 56.83 | 645 | 6.40 | 2.05 |
| 10 | 2010 | 314 | 156 | 49.68 | 158 | 50.32 | 605 | 6.00 | 1.93 |
| 11 | 2011 | 303 | 147 | 48.51 | 156 | 51.49 | 622 | 6.17 | 2.05 |
| 12 | 2012 | 318 | 168 | 52.83 | 150 | 47.17 | 640 | 6.35 | 2.01 |
| 13 | 2013 | 285 | 114 | 40.00 | 171 | 60.00 | 650 | 6.45 | 2.28 |
| 14 | 2014 | 292 | 95 | 32.53 | 197 | 67.47 | 708 | 7.03 | 2.42 |
| 15 | 2015 | 344 | 198 | 57.56 | 146 | 42.44 | 669 | 6.64 | 1.94 |
| | Total | 5208 | 2791 | 53.59 | 2417 | 46.41 | 10077 | 100.00 | 1.93 |
| Percentage (%) | | 100.00% | 53.59% | | 46.41% | | | 6.67 | 1.95 |

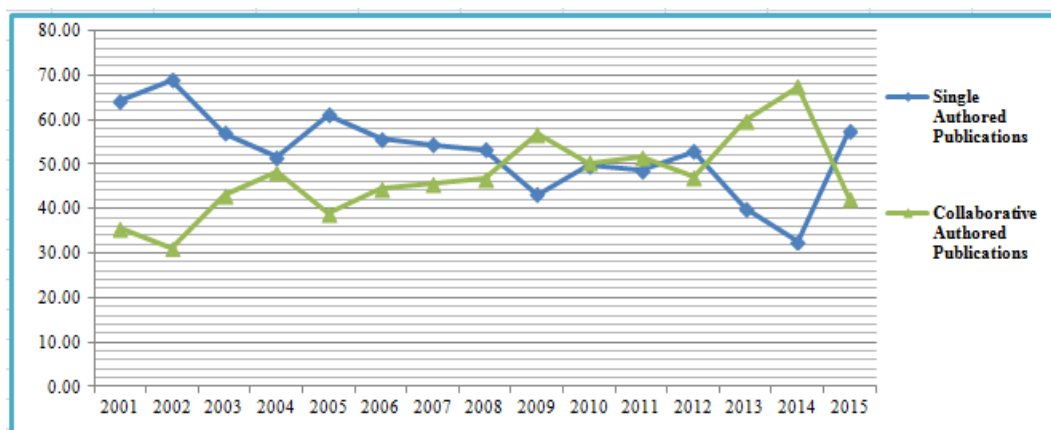


Figure 3: Single Authorship Vrs Collaborative Authorship

Collaborative Index (CI), Degree of Collaboration (DC), and Collaborative Coefficient (CC) among authors

The Collaborative Index (CI), Degree of Collaboration (DC), and Collaborative Coefficient (CC) among authors in LIS open access journals covered in the study are shown in table 4. Collaborative Index is a mean number of authors per publication. The formula used to identify Collaborative Index of authors per publication is; $CI = (total\ publications) / (total\ collaborative\ authors)$. The CI mean value in the present study shows to be 0.73 which is so weak at its label.

For analysis of Degree of Collaboration among authors, the study has applied the Subramanian's equation of $C = (N_m / N_m + N_s)$ where; C = degree of collaboration, N_m = number of multi-authored work, and N_s = number of single-authored works to examine the extent of

research collaboration among LIS authors and prominent area of inquiry indicating the patterns of single and joint authors' publication. It is observed that, the DC value has ranged up and down from minimum 0.58 to maximum 0.87 which shows a weak intensity of author's collaboration at 0.72. Correspondingly, the Collaboration Co-efficient value which measures the extent and strength of collaboration among the authors shows at 0.29 which is also so weak at its level. This implies that, the LIS open access journals are far from collaborative research. Figure 4 clearly shows the graphical presentation of CI, DC, and CC values of LIS open access journals.

Table 4: Collaborative Index (CI), Degree of Collaboration (DC), and Collaborative Coefficient (CC)

| Sl No | Publication Year | Year wise Authorship Distribution | | | | | | | | | | | Total Publications | Total Authorship | CI | DC | CC |
|-------|------------------|-----------------------------------|--------|--------|-------|-------|-------|-------|-------|-------|-------|--------------|--------------------|------------------|-------------|-------------|-------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | More than 10 | | | | | |
| 1 | 2001 | 249 | 91 | 30 | 5 | 6 | 3 | 0 | 2 | 0 | 0 | 1 | 387 | 616 | 1.05 | 0.60 | 0.20 |
| 2 | 2002 | 298 | 56 | 47 | 19 | 6 | 3 | 1 | 1 | 1 | 0 | 1 | 433 | 710 | 1.05 | 0.58 | 0.19 |
| 3 | 2003 | 237 | 112 | 32 | 15 | 7 | 5 | 3 | 2 | 0 | 1 | 2 | 416 | 773 | 0.78 | 0.69 | 0.25 |
| 4 | 2004 | 193 | 105 | 42 | 16 | 9 | 4 | 2 | 1 | 1 | 1 | 0 | 374 | 703 | 0.73 | 0.73 | 0.29 |
| 5 | 2005 | 213 | 56 | 35 | 23 | 14 | 2 | 3 | 2 | 1 | 0 | 0 | 349 | 650 | 0.80 | 0.67 | 0.25 |
| 6 | 2006 | 225 | 87 | 47 | 20 | 9 | 6 | 4 | 2 | 2 | 2 | 1 | 405 | 794 | 0.71 | 0.72 | 0.28 |
| 7 | 2007 | 188 | 72 | 44 | 22 | 11 | 4 | 2 | 0 | 1 | 0 | 2 | 346 | 683 | 0.70 | 0.72 | 0.28 |
| 8 | 2008 | 174 | 89 | 31 | 19 | 7 | 3 | 0 | 1 | 3 | 0 | 0 | 327 | 609 | 0.75 | 0.71 | 0.28 |
| 9 | 2009 | 136 | 91 | 49 | 25 | 7 | 5 | 1 | 1 | 0 | 0 | 0 | 315 | 645 | 0.62 | 0.79 | 0.34 |
| 10 | 2010 | 156 | 89 | 39 | 17 | 5 | 5 | 0 | 0 | 2 | 0 | 1 | 314 | 605 | 0.70 | 0.74 | 0.30 |
| 11 | 2011 | 147 | 73 | 44 | 18 | 9 | 6 | 4 | 2 | 0 | 0 | 0 | 303 | 622 | 0.64 | 0.76 | 0.32 |
| 12 | 2012 | 168 | 58 | 53 | 21 | 10 | 0 | 3 | 3 | 2 | 0 | 0 | 318 | 640 | 0.67 | 0.74 | 0.30 |
| 13 | 2013 | 114 | 92 | 30 | 19 | 14 | 6 | 3 | 5 | 1 | 1 | 0 | 285 | 650 | 0.53 | 0.82 | 0.37 |
| 14 | 2014 | 95 | 91 | 48 | 31 | 13 | 9 | 3 | 0 | 0 | 1 | 1 | 292 | 708 | 0.48 | 0.87 | 0.42 |
| 15 | 2015 | 198 | 47 | 56 | 24 | 9 | 6 | 2 | 0 | 2 | 0 | 0 | 344 | 669 | 0.73 | 0.70 | 0.27 |
| | Total | 2791 | 1209 | 627 | 294 | 136 | 67 | 31 | 22 | 16 | 6 | 9 | 5208 | 10077 | 0.71 | 0.72 | 0.29 |
| | Percentage (%) | 53.59% | 23.21% | 12.04% | 5.65% | 2.61% | 1.29% | 0.60% | 0.42% | 0.31% | 0.12% | 0.17% | 100.00 | | Mean (0.73) | Mean (0.72) | Mean (0.29) |

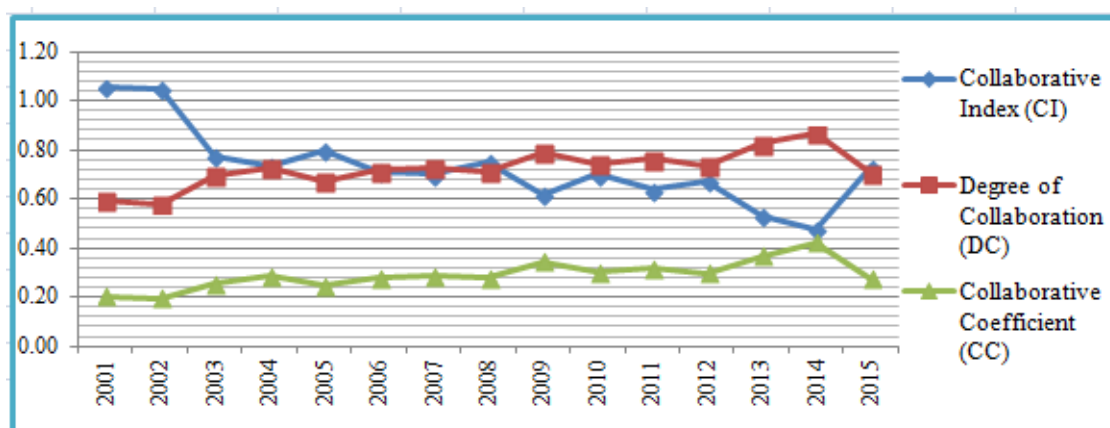


Figure 4: CI, DC & CC of authors

Author's Productivity and Applicability of Lotka's Law

Lotka's inverse square law of scientific productivity is a widely used law for bibliometric mapping of research outputs and authors' productivity in any discipline of knowledge. Lotka's law states that the number of authors making n contributions is about $1/n^2$ of those making one; and the proportion of all contributors, that make a single contribution, is about 60 percent. This means that out of all the authors in a given field, 60 percent will have just one publication, and 15 percent will have two publications, 7 percent of authors will have three publications and so on. Table 5 shows the author's productivity and applicability of Lotka's law to the following data set. The study finds that with one article contribution 2791 (53.59%) authors are both observed and expected. Whereas for two articles contribution 1209 (23.21%) authors are observed and 1223 (23.48%) authors expected. Again for three articles contribution 627(12.04%) authors observed and 755(14.50%) authors expected. So, in this following data set it is found that the numbers of authors observed are somehow equal with the numbers of authors expected. So, the study fits to Lotka's law of scientific productivity. Figure 5 shows the authors observed and authors expected value for the present data set.

Lotk'a formula for scientific productivity of authors has been applied in the present study as $X^n Y = C$ and $Y = C/X^n$ Where, X = number of publications, Y = relative frequency of authors with ' X ' publications, and C = constants depending on the specified field.

Putting the value of $X= 1$ and $Y= 2791$, the calculation obtained is;

$$1n.2791= C$$

$$\Rightarrow C=2791$$

Again putting the value of $X= 2$ and $Y= 1209$ and $C= 2791$ the calculation obtained is;

$$2n.1209= 2791$$

$$\Rightarrow 2n= 2791/1209$$

$$\Rightarrow n \log 2 = \log 2.308$$

$$\Rightarrow n(0.301)= 0.361$$

$$\Rightarrow n= 2.30/0.301$$

$$\Rightarrow n=1.19$$

Table 5: Authors observed and authors expected

| No. of Contributions "X" | No. of Authors observed "Y" | Perce n tage (%) | No. of Authors expected (n=2) | Perce n tage (%) | No. of Authors expected (n=3) | Perce n tage (%) | No. of Authors expected (n=1.19) | Perce n tage (%) |
|--------------------------|-----------------------------|------------------|-------------------------------|------------------|-------------------------------|------------------|----------------------------------|------------------|
| 1 | 2791 | 53.59 | 2791 | 53.59 | 2791 | 53.59 | 2791 | 53.59 |
| 2 | 1209 | 23.21 | 698 | 13.40 | 349 | 6.70 | 1223 | 23.48 |
| 3 | 627 | 12.04 | 310 | 5.95 | 103 | 1.98 | 755 | 14.50 |
| 4 | 294 | 5.65 | 174 | 3.34 | 44 | 0.84 | 536 | 10.29 |
| 5 | 136 | 2.61 | 930 | 17.86 | 22 | 0.42 | 411 | 7.89 |
| 6 | 67 | 1.29 | 78 | 1.50 | 13 | 0.25 | 331 | 6.36 |
| 7 | 31 | 0.60 | 57 | 1.09 | 8 | 0.15 | 275 | 5.28 |
| 8 | 22 | 0.42 | 44 | 0.84 | 5 | 0.10 | 235 | 4.51 |
| 9 | 16 | 0.31 | 34 | 0.65 | 4 | 0.08 | 204 | 3.92 |
| 10 | 6 | 0.12 | 28 | 0.54 | 3 | 0.06 | 180 | 3.46 |
| 11 | 3 | 0.06 | 23 | 0.44 | 2 | 0.04 | 161 | 3.09 |
| 12 | - | 0.00 | 19 | 0.36 | 2 | 0.04 | 145 | 2.78 |
| 13 | 2 | 0.04 | 17 | 0.33 | 1 | 0.02 | 132 | 2.53 |
| 14 | 1 | 0.02 | 14 | 0.27 | 1 | 0.02 | 121 | 2.32 |
| 15 | - | 0.00 | 12 | 0.23 | 0 | 0.00 | 111 | 2.13 |
| 16 | 1 | 0.02 | 11 | 0.21 | 0 | 0.00 | 103 | 1.98 |
| 17 | - | 0.00 | 10 | 0.19 | 0 | 0.00 | 95 | 1.82 |
| 18 | 1 | 0.02 | 9 | 0.17 | 0 | 0.00 | 90 | 1.73 |
| 19 | - | 0.00 | 8 | 0.15 | 0 | 0.00 | 84 | 1.61 |
| 20 | - | 0.00 | 7 | 0.13 | 0 | 0.00 | 79 | 1.52 |
| 21 | - | 0.00 | 6 | 0.12 | 0 | 0.00 | 74 | 1.42 |
| 22 | - | 0.00 | 6 | 0.12 | 0 | 0.00 | 71 | 1.36 |
| 23 | - | 0.00 | 5 | 0.10 | 0 | 0.00 | 67 | 1.29 |
| 24 | - | 0.00 | 5 | 0.10 | 0 | 0.00 | 64 | 1.23 |
| 25 | - | 0.00 | 4 | 0.08 | 0 | 0.00 | 61 | 1.17 |
| 26 | 1 | 0.02 | 4 | 0.08 | 0 | 0.00 | 58 | 1.11 |

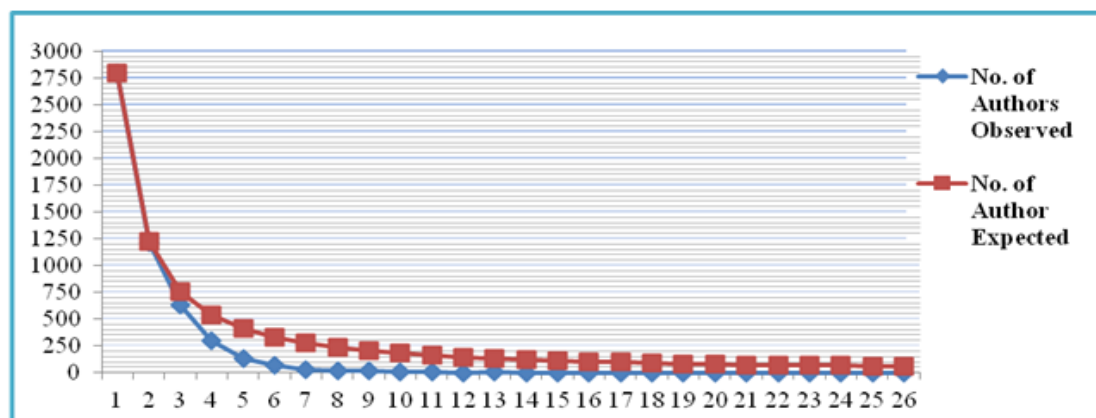


Figure 5: Authors observed and authors expected

Testing of K-S Goodness-of-Fit for Author's Productivity

The K-S (Kolmogorov- Smirnov) test is a statistical method to test the applicability of Lotka's Law to a set of data. The K-S test determines the maximum deviation of D, where $D = \text{Max} [F_o(x) - S_n(x)]$

$F_o(x)$ = Theoretical cumulative frequency function

$S_n(x)$ = Observed cumulative frequency function of a sample of n observations.

At a 0.01 level of significance, the K-S statistics is equal to $1.63/\sqrt{n}$. If D is greater than the K-S statistics, then the sample distribution does not fit the theoretical distribution. In the present study, table 6, shows the value of D is -0.0067 which is lesser than the K-S statistics i.e. $1.63/\sqrt{5208} = 0.0225$. The value of D is lesser than 0.0225, and therefore Lotka's generalized formula with exponent value "n"= (1.19), somehow fit to the LIS open access publications.

Table 6: K-S Goodness-of-Fit for Author's Productivity

| No. of Contributions "X" | Observed Authors | | | Expected Authors | | | Deviation D= Fo(x)- Sn(x) | DMax [Fo(x)- Sn(x)] |
|---|--------------------|----------------------|----------------------------|--------------------------|----------------------|----------------------------|---------------------------|---------------------|
| | No. of Authors "Y" | Cumulative Frequency | Relative Frequency {Sn(x)} | No. of Authors (n= 1.19) | Cumulative Frequency | Relative Frequency {Fo(x)} | | |
| 1 | 2791 | 2791 | 0.5359 | 2791 | 2791 | 0.3300 | -0.2059 | -0.0067 |
| 2 | 1209 | 4000 | 0.7680 | 1223 | 4014 | 0.4746 | -0.2934 | |
| 3 | 627 | 4627 | 0.8884 | 755 | 4769 | 0.5639 | -0.3245 | |
| 4 | 294 | 4921 | 0.9449 | 536 | 5305 | 0.6273 | -0.3176 | |
| 5 | 136 | 5057 | 0.9710 | 411 | 5716 | 0.6759 | -0.2951 | |
| 6 | 67 | 5124 | 0.9839 | 331 | 6047 | 0.7150 | -0.2688 | |
| 7 | 31 | 5155 | 0.9898 | 275 | 6322 | 0.7475 | -0.2423 | |
| 8 | 22 | 5177 | 0.9940 | 235 | 6557 | 0.7753 | -0.2187 | |
| 9 | 16 | 5193 | 0.9971 | 204 | 6761 | 0.7995 | -0.1977 | |
| 10 | 6 | 5199 | 0.9983 | 180 | 6941 | 0.8207 | -0.1775 | |
| 11 | 3 | 5202 | 0.9988 | 161 | 7102 | 0.8398 | -0.1591 | |
| 12 | 0 | 5202 | 0.9988 | 145 | 7247 | 0.8569 | -0.1419 | |
| 13 | 2 | 5204 | 0.9992 | 132 | 7379 | 0.8725 | -0.1267 | |
| 14 | 1 | 5205 | 0.9994 | 121 | 7500 | 0.8868 | -0.1126 | |
| 15 | 0 | 5205 | 0.9994 | 111 | 7611 | 0.9000 | -0.0995 | |
| 16 | 1 | 5206 | 0.9996 | 103 | 7714 | 0.9121 | -0.0875 | |
| 17 | 0 | 5206 | 0.9996 | 95 | 7809 | 0.9234 | -0.0762 | |
| 18 | 1 | 5207 | 0.9998 | 90 | 7899 | 0.9340 | -0.0658 | |
| 19 | 0 | 5207 | 0.9998 | 84 | 7983 | 0.9440 | -0.0559 | |
| 20 | 0 | 5207 | 0.9998 | 79 | 8062 | 0.9533 | -0.0465 | |
| 21 | 0 | 5207 | 0.9998 | 74 | 8136 | 0.9620 | -0.0378 | |
| 22 | 0 | 5207 | 0.9998 | 71 | 8207 | 0.9704 | -0.0294 | |
| 23 | 0 | 5207 | 0.9998 | 67 | 8274 | 0.9784 | -0.0214 | |
| 24 | 0 | 5207 | 0.9998 | 64 | 8338 | 0.9859 | -0.0139 | |
| 25 | 0 | 5207 | 0.9998 | 61 | 8399 | 0.9931 | -0.0067 | |
| 26 | 1 | 5208 | 1.0000 | 58 | 8457 | 1.0000 | 0.0000 | |
| | 5208 | | | 8457 | | | | |
| K-S statistics=1.63/$\sqrt{(n = 5208)}$ | | | | | | | | 0.0225 |

Ranking of Prolific Authors

The study have identified 10077 authorship for publication of 5208 papers across the 83 countries (excluding unidentified countries) of the world during the period 2001 to 2015. It is observed that in the rank of 20 most prolific authors, there are 108 authors have been identified. Out of these 108 authors 82 from United States, 7 from UK, 4 each from Canada and Italy, 3 from Australia, 2 each from Israel and Netherlands, and 1 each from Austria, Finland, Germany, and South Korea. Wilson, B. of Corporation for National Research Initiatives, Reston, United States has contributed maximum 74(1.42%) papers and ranked top amongst all contributing authors. The other most prolific authors are Hernon, P. of Simmons

College, Boston, United States with 62(1.19%) papers, followed by Schwartz, C. of Simmons College, Boston, United States with 55(1.06%) papers, Wilson, T of USA with 45(0.86%) papers, and Lannom, L. of Corporation for National Research Initiatives, Reston, United States with 35(0.67%). A detailed list of prolific authors is depicted in table 7.

Table 7: Ranking of Prolific Authors

| Sl No | Author | Country | No. of Publications in the Source Journals | | | | | | | | | | Total (n=5208) | Percentage (%) | Rank |
|-------|-------------------|-------------|--|-------|----|-----|----|------|-------|------|-------|------|----------------|----------------|------|
| | | | CRL | D-LIB | IR | ITL | IS | JMLA | LIBER | LISR | LIBRE | SLMR | | | |
| 1 | Wilson, B. | USA | | 74 | | | | | | | | | 74 | 1.42% | 1 |
| 2 | Hernon, P. | USA | 7 | | | | | | | 55 | | | 62 | 1.19% | 2 |
| 3 | Schwartz, C. | USA | | | | | | | | 55 | | | 55 | 1.06% | 3 |
| 4 | Wilson, T. | USA | | | 45 | | | | | | | | 45 | 0.86% | 4 |
| 5 | Lannom, L. | USA | | 35 | | | | | | | | | 35 | 0.67% | 5 |
| 6 | Plutchak, T.S. | USA | | | | | | 21 | | | | | 21 | 0.40% | 6 |
| 7 | Savolainen, R. | UK | | | 11 | | | | | 8 | | | 19 | 0.36% | 7 |
| 8 | Wilson, T.D. | USA | | | 19 | | | | | | | | 19 | 0.36% | 7 |
| 9 | Giuse, N.B. | USA | | | | | | 18 | | | | | 18 | 0.35% | 8 |
| 10 | Nelson, M.L. | USA | | 17 | | | | | | | | | 17 | 0.33% | 9 |
| 11 | Morris, C.M. | USA | | 16 | | | | | | | | | 16 | 0.31% | 10 |
| 12 | Bakker, T. | USA | | | | | | | 15 | | | | 15 | 0.29% | 11 |
| 13 | Truitt, M. | Canada | | | | 15 | | | | | | | 15 | 0.29% | 11 |
| 14 | Walter, S. | USA | 15 | | | | | | | | | | 15 | 0.29% | 11 |
| 15 | Starr, S. | USA | | | | | | 14 | | | | | 14 | 0.27% | 12 |
| 16 | Brooks, T.A. | USA | | | 13 | | | | | | | | 13 | 0.25% | 13 |
| 17 | Julien, H. | Canada | | | 3 | | | | | 10 | | | 13 | 0.25% | 13 |
| 18 | Van De Sompel, H. | USA | | 13 | | | | | | | | | 13 | 0.25% | 13 |
| 19 | Ayris, P. | Germany | | | | | | | 12 | | | | 12 | 0.23% | 14 |
| 20 | Williamson, K. | Australia | | | 4 | | | | | 6 | | 2 | 12 | 0.23% | 14 |
| 21 | Angevaare, I. | Netherlands | | | | | | | 11 | | | | 11 | 0.21% | 15 |
| 22 | Dekeyser, R. | USA | | | | | | | 11 | | | | 11 | 0.21% | 15 |
| 23 | Dilevko, J. | Canada | 3 | | | | | | | 8 | | | 11 | 0.21% | 15 |
| 24 | Eldredge, J.D. | USA | | | | | | 11 | | | | | 11 | 0.21% | 15 |
| 25 | Epstein, B.A. | USA | | | | | | 11 | | | | | 11 | 0.21% | 15 |
| 26 | Lagoze, C. | USA | | 11 | | | | | | | | | 11 | 0.21% | 15 |
| 27 | Tennant, M.R. | USA | | | | | | 11 | | | | | 11 | 0.21% | 15 |
| 28 | Thelwall, M. | UK | | | 4 | | | | | 6 | 1 | | 11 | 0.21% | 15 |

| | | | | | | | | | | | | | | | |
|----|-----------------|-----------|----|----|---|---|----|----|---|---|---|---|----|-------|----|
| 29 | Branin, J. | USA | 10 | | | | | | | | | | 10 | 0.19% | 16 |
| 30 | Castelli, D. | Italy | | 8 | | | | | 2 | | | | 10 | 0.19% | 16 |
| 31 | Gill, T.G. | USA | | | | | 10 | | | | | | 10 | 0.19% | 16 |
| 32 | Jerome, R.N. | USA | | | | | | 10 | | | | | 10 | 0.19% | 16 |
| 33 | Rauber, A. | Austria | | 10 | | | | | | | | | 10 | 0.19% | 16 |
| 34 | Shipman, J.P. | USA | | | | | | 10 | | | | | 10 | 0.19% | 16 |
| 35 | Alpi, K.M. | USA | | | | | | 9 | | | | | 9 | 0.17% | 17 |
| 36 | Gross, M. | USA | 2 | | | | | | | 6 | | 1 | 9 | 0.17% | 17 |
| 37 | Jaeger, P.T. | USA | | | | 4 | | | | 5 | | | 9 | 0.17% | 17 |
| 38 | King, D.W. | USA | | 9 | | | | | | | | | 9 | 0.17% | 17 |
| 39 | Manghi, P. | Italy | | 9 | | | | | | | | | 9 | 0.17% | 17 |
| 40 | Stvilia, B. | USA | | | | | | | | 9 | | | 9 | 0.17% | 17 |
| 41 | Webb, J. | USA | | | | 9 | | | | | | | 9 | 0.17% | 17 |
| 42 | Aharony, N. | Israel | 3 | | | | | | | 5 | | | 8 | 0.15% | 18 |
| 43 | Allard, S. | USA | | 3 | 2 | | | | | 3 | | | 8 | 0.15% | 18 |
| 44 | Ankem, K. | USA | | | 2 | | | 2 | | 3 | 1 | | 8 | 0.15% | 18 |
| 45 | Bertot, J.C. | USA | | | | 5 | | | 1 | 2 | | | 8 | 0.15% | 18 |
| 46 | Byrd, G.D. | USA | | | | | | 8 | | | | | 8 | 0.15% | 18 |
| 47 | De Groote, S.L. | USA | | | | | | 8 | | | | | 8 | 0.15% | 18 |
| 48 | Fox, E.A. | USA | | 8 | | | | | | | | | 8 | 0.15% | 18 |
| 49 | Gerrity, B. | Australia | | | | 8 | | | | | | | 8 | 0.15% | 18 |
| 50 | Knoth, P. | UK | | 8 | | | | | | | | | 8 | 0.15% | 18 |
| 51 | Luo, L. | USA | | | | | | | | 7 | 1 | | 8 | 0.15% | 18 |
| 52 | McClure, C.R. | USA | | | | 3 | | | | 4 | 1 | | 8 | 0.15% | 18 |
| 53 | Murphy, S.A. | USA | 2 | | | | | 6 | | | | | 8 | 0.15% | 18 |
| 54 | Shenton, H. | UK | | | | | | | 8 | | | | 8 | 0.15% | 18 |
| 55 | Shultz, M. | USA | | | | | | 8 | | | | | 8 | 0.15% | 18 |
| 56 | Anderson, T.D. | Australia | | | 7 | | | | | | | | 7 | 0.13% | 19 |
| 57 | Bronstein, J. | Israel | | | 5 | | | | | 2 | | | 7 | 0.13% | 19 |
| 58 | Dutcher, G.A. | USA | | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 59 | Given, L.M. | Canada | | | | | | | | 6 | 1 | | 7 | 0.13% | 19 |
| 60 | Harnad, S. | UK | | 7 | | | | | | | | | 7 | 0.13% | 19 |
| 61 | Koonce, T.Y. | USA | | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 62 | Kwon, N. | USA | 2 | | 2 | | | | | 3 | | | 7 | 0.13% | 19 |
| 63 | Lipscomb, C.E. | USA | | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 64 | Maggio, L.A. | USA | | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 65 | McClure, | USA | | | | | | 7 | | | | | 7 | 0.13% | 19 |

| | | | | | | | | | | | | | | |
|-----|---------------------|-------------|---|---|---|---|---|--|---|--|---|---|-------|----|
| | L.W. | | | | | | | | | | | | | |
| 66 | McGowan, J.J. | USA | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 67 | Sathe, N.A. | USA | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 68 | Shedlock, J. | USA | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 69 | Small, R.V. | USA | | | | | | | | | 7 | 7 | 0.13% | 19 |
| 70 | Sumner, T. | USA | | 7 | | | | | | | | 7 | 0.13% | 19 |
| 71 | Tanner, S. | UK | | 7 | | | | | | | | 7 | 0.13% | 19 |
| 72 | Tannery, N.H. | USA | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 73 | Tenopir, C. | USA | | 4 | | | | | 3 | | | 7 | 0.13% | 19 |
| 74 | Vaughan, J. | USA | | | | 7 | | | | | | 7 | 0.13% | 19 |
| 75 | Winston, M.D. | USA | 3 | | | | | | 4 | | | 7 | 0.13% | 19 |
| 76 | Wood, F.B. | USA | | | | | 7 | | | | | 7 | 0.13% | 19 |
| 77 | Blecic, D.D. | USA | 4 | | | | 2 | | | | | 6 | 0.12% | 20 |
| 78 | Candela, L. | Italy | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 79 | Choudhury, G.S. | USA | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 80 | Cogdill, K.W. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 81 | Connaway, L.S. | USA | 3 | | | | | | 3 | | | 6 | 0.12% | 20 |
| 82 | Crane, G. | USA | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 83 | Czyk, M. | USA | | | | 6 | | | | | | 6 | 0.12% | 20 |
| 84 | Dehmlow, M. | USA | | | | 6 | | | | | | 6 | 0.12% | 20 |
| 85 | DiLauro, T. | USA | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 86 | Dorsch, J.L. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 87 | Fisher, K.E. | USA | | | 4 | | | | 2 | | | 6 | 0.12% | 20 |
| 88 | Fulda, P.O. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 89 | Hickey, T.B. | USA | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 90 | Huber, J.T. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 91 | Järvelin, K. | Finland | | | 6 | | | | | | | 6 | 0.12% | 20 |
| 92 | Kim, S. | South Korea | | | 3 | | 3 | | | | | 6 | 0.12% | 20 |
| 93 | Kronenfeld, M.R. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 94 | Markey, K. | USA | 2 | 4 | | | | | | | | 6 | 0.12% | 20 |
| 95 | Marmion, D. | USA | | | | 6 | | | | | | 6 | 0.12% | 20 |
| 96 | Martin, E.R. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 97 | Miller, P. | UK | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 98 | Montiel-Overall, P. | USA | | | | | | | 4 | | 2 | 6 | 0.12% | 20 |
| 99 | Oh, S. | USA | | | 2 | | | | 4 | | | 6 | 0.12% | 20 |
| 100 | Olney, C.A. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |

| | | | | | | | | | | | | | | |
|--|------------------|-------------|---|---|--|--|---|---|--|--|--|------|--------|----|
| 101 | Pagano, P. | Italy | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 102 | Rethlefsen, M.L. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 103 | Scherrer, C.S. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 104 | te Boekhorst, P. | USA | | | | | | 6 | | | | 6 | 0.12% | 20 |
| 105 | Van Veen, T. | Netherlands | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 106 | Warner, S. | USA | | 6 | | | | | | | | 6 | 0.12% | 20 |
| 107 | Weller, A.C. | USA | 2 | | | | 4 | | | | | 6 | 0.12% | 20 |
| 108 | Wessel, C.B. | USA | | | | | 6 | | | | | 6 | 0.12% | 20 |
| 2991 Authors with range of 5-1 publications each | | | | | | | | | | | | 4043 | 77.63% | - |

Most cited Authorship

Table 8 shows the most cited authorship of LIS open access journals during the period 2001 to 2015. Amongst the 10077 authorship across the 83 countries, the most cited authors have been identified based on their citations count. Wilson T.D. is in top among all the authors with 407(0.94%) citations followed by Hammond T., Hannay T., Lund B., Scott J. with 294(0.68%) citations, Levy Y., Ellis T.J. with 277(0.64%) citations and so on. It is seen that among the top 100 highly cited authorship, there are 37 highly cited authorship are from single authorship contribution and 63 are from collaborative contribution. So, the trend shows that collaborative contributions are highly cited by LIS authors and researchers. Table 9 shows the detailed list of most cited authorship.

Table 8: Most cited Authors

| <i>Sl No.</i> | <i>Most Cited Authorship</i> | <i>Total Citations</i> | <i>Percentage (%)</i> | <i>Cumulative Citations</i> | <i>Percentage (%)</i> | <i>Rank</i> |
|---------------|--|------------------------|-----------------------|-----------------------------|-----------------------|-------------|
| 1 | Wilson T.D. | 407 | 0.94 | 407 | 0.94 | 1 |
| 2 | Hammond T., Hannay T., Lund B., Scott J. | 294 | 0.68 | 701 | 1.61 | 2 |
| 3 | Levy Y., Ellis T.J. | 277 | 0.64 | 978 | 2.25 | 3 |
| 4 | Saha S., Saint S., Christakis D.A. | 269 | 0.62 | 1247 | 2.87 | 4 |
| 5 | Borlund P. | 225 | 0.52 | 1472 | 3.39 | 5 |
| 6 | Savolainen R. | 219 | 0.5 | 1691 | 3.89 | 6 |
| 7 | Harnad S., Brody T. | 216 | 0.5 | 1907 | 4.39 | 7 |
| 8 | Case D.O., Andrews J.E., Johnson J.D., Allard S.L. | 198 | 0.46 | 2105 | 4.85 | 8 |
| 9 | Guy M., Tonkin E. | 188 | 0.43 | 2293 | 5.28 | 9 |
| 10 | Glanville J.M., Lefebvre C., Miles J.N.V., Camosso-Stefinovic J. | 177 | 0.41 | 2470 | 5.69 | 10 |
| 11 | Heinström J. | 173 | 0.4 | 2643 | 6.09 | 11 |
| 12 | Wong S.S.-L., Wilczynski N.L., Haynes R.B. | 168 | 0.39 | 2811 | 6.47 | 12 |
| 13 | Knight S.-A., Burn J. | 162 | 0.37 | 2973 | 6.85 | 13 |

| | | | | | | |
|----|--|-----|------|------|-------|----|
| 14 | Duval E., Hodgins W., Sutton S., Weibel S.L. | 160 | 0.37 | 3133 | 7.21 | 14 |
| 15 | Hildreth P.M., Kimble C. | 157 | 0.36 | 3290 | 7.58 | 15 |
| 16 | Gross M., Latham D. | 153 | 0.35 | 3443 | 7.93 | 16 |
| 17 | Coumou H.C.H., Meijman F.J. | 150 | 0.35 | 3593 | 8.27 | 17 |
| 18 | Foster N.F., Gibbons S. | 147 | 0.34 | 3740 | 8.61 | 18 |
| 19 | Bates M.J. | 135 | 0.31 | 3875 | 8.92 | 19 |
| 20 | Whitmire E. | 134 | 0.31 | 4009 | 9.23 | 20 |
| 21 | Jansen B.J. | 131 | 0.3 | 4140 | 9.53 | 21 |
| 22 | Davis P.M. | 129 | 0.3 | 4269 | 9.83 | 22 |
| 23 | Charnigo L., Barnett-Ellis P. | 124 | 0.29 | 4393 | 10.12 | 22 |
| 24 | Smith M., Bass M., McClellan G., Tansley R., Barton M., Branschofsky M., Stuve D., Walker J.H. | 124 | 0.29 | 4517 | 10.40 | 22 |
| 25 | Ankem K. | 123 | 0.28 | 4640 | 10.69 | 23 |
| 26 | Choo C.W. | 120 | 0.28 | 4760 | 10.96 | 24 |
| 27 | Björk B.-C. | 114 | 0.26 | 4874 | 11.22 | 25 |
| 28 | Connaway L.S., Dickey T.J., Radford M.L. | 114 | 0.26 | 4988 | 11.49 | 25 |
| 29 | Lewis D.W. | 114 | 0.26 | 5102 | 11.75 | 25 |
| 30 | Johnson C.A. | 113 | 0.26 | 5215 | 12.01 | 26 |
| 31 | Shill H.B., Tonner S. | 112 | 0.26 | 5327 | 12.27 | 27 |
| 32 | Iannella R. | 107 | 0.25 | 5434 | 12.51 | 28 |
| 33 | Lynch C.A., Lippincott J.K. | 107 | 0.25 | 5541 | 12.76 | 28 |
| 34 | Hartley J. | 106 | 0.24 | 5647 | 13.00 | 29 |
| 35 | Aharony N. | 104 | 0.24 | 5751 | 13.24 | 30 |
| 36 | Bauer K., Bakkalbasi N. | 102 | 0.23 | 5853 | 13.48 | 31 |
| 37 | Bouthillier F., Shearer K. | 102 | 0.23 | 5955 | 13.71 | 31 |
| 38 | Van De Sompel H., Beit-Arie O. | 101 | 0.23 | 6056 | 13.95 | 32 |
| 39 | Davis P.M., Connolly M.J.L. | 100 | 0.23 | 6156 | 14.18 | 33 |
| 40 | Virkus S. | 100 | 0.23 | 6256 | 14.41 | 33 |
| 41 | Frazier K. | 99 | 0.23 | 6355 | 14.63 | 33 |
| 42 | Spink A., Cole C. | 99 | 0.23 | 6454 | 14.86 | 33 |
| 43 | Dee C., Stanley E.E. | 98 | 0.23 | 6552 | 15.09 | 34 |
| 44 | Grimes D.J., Boening C.H. | 96 | 0.22 | 6648 | 15.31 | 35 |
| 45 | Jaeger P.T., Thompson K.M. | 96 | 0.22 | 6744 | 15.53 | 35 |
| 46 | Cullen R.J. | 95 | 0.22 | 6839 | 15.75 | 35 |
| 47 | Maughan P.D. | 95 | 0.22 | 6934 | 15.97 | 35 |
| 48 | Plutchak T.S. | 95 | 0.22 | 7029 | 16.19 | 35 |
| 49 | Hall H., Davison B. | 94 | 0.22 | 7123 | 16.40 | 35 |
| 50 | Lynch B.P., Smith K.R. | 94 | 0.22 | 7217 | 16.62 | 35 |
| 51 | Cogdill K.W. | 91 | 0.21 | 7308 | 16.83 | 36 |
| 52 | Antelman K., Lynema E., Pace A.K. | 90 | 0.21 | 7398 | 17.04 | 37 |
| 53 | Thelwall M. | 89 | 0.2 | 7487 | 17.24 | 38 |
| 54 | Hsieh-Yee I. | 88 | 0.2 | 7575 | 17.44 | 39 |

| | | | | | | |
|----|---|----|------|-------|-------|----|
| 55 | Majid S., Foo S., Luyt B., Zhang X., Theng Y.-L., Chang Y.-K., Mokhtar I.A. | 88 | 0.2 | 7663 | 17.65 | 39 |
| 56 | Järvelin K., Ingwersen P. | 87 | 0.2 | 7750 | 17.85 | 40 |
| 57 | Tenopir C., King D.W., Boyce P., Grayson M., Zhang Y., Ebuen M. | 84 | 0.19 | 7834 | 18.04 | 41 |
| 58 | McGowan J., Sampson M. | 83 | 0.19 | 7917 | 18.23 | 42 |
| 59 | Shultz M. | 83 | 0.19 | 8000 | 18.42 | 42 |
| 60 | Björk B.-C., Roos A., Lauri, M. | 82 | 0.19 | 8082 | 18.61 | 43 |
| 61 | George C., Bright A., Hurlbert T., Linke E.C., St. Clair G., Stein J. | 82 | 0.19 | 8164 | 18.80 | 43 |
| 62 | Hernon P., Powell R.R., Young A.P. | 82 | 0.19 | 8246 | 18.99 | 43 |
| 63 | Kuh G.D., Gonyea R.M. | 82 | 0.19 | 8328 | 19.18 | 43 |
| 64 | Evans D. | 81 | 0.19 | 8409 | 19.36 | 43 |
| 65 | Julien H., Barker S. | 81 | 0.19 | 8490 | 19.55 | 43 |
| 66 | Lund B., Hammond T., Flack M., Hannay T. | 81 | 0.19 | 8571 | 19.74 | 43 |
| 67 | Tenopir C., King D.W., Bush A. | 81 | 0.19 | 8652 | 19.92 | 43 |
| 68 | Holley R. | 79 | 0.18 | 8731 | 20.11 | 44 |
| 69 | Shank J.D., Dewald N.H. | 79 | 0.18 | 8810 | 20.29 | 44 |
| 70 | Järvelin K., Wilson T.D. | 76 | 0.18 | 8886 | 20.46 | 45 |
| 71 | Kwon N. | 76 | 0.18 | 8962 | 20.64 | 45 |
| 72 | Sollaci L.B., Pereira M.G. | 75 | 0.17 | 9037 | 20.81 | 46 |
| 73 | Van De Sompel H., Nelson M.L., Lagoze C., Warner S. | 75 | 0.17 | 9112 | 20.98 | 46 |
| 74 | Andrews J.E., Pearce K.A., Ireson C., Love M.M. | 74 | 0.17 | 9186 | 21.15 | 47 |
| 75 | Ponzi L.J., Koenig M. | 74 | 0.17 | 9260 | 21.32 | 47 |
| 76 | Burkell J. | 73 | 0.17 | 9333 | 21.49 | 48 |
| 77 | Agosto D.E., Hughes-Hassell S. | 72 | 0.17 | 9405 | 21.66 | 49 |
| 78 | Kim K.-S. | 72 | 0.17 | 9477 | 21.82 | 49 |
| 79 | Mackey T.P., Jacobson T.E. | 72 | 0.17 | 9549 | 21.99 | 49 |
| 80 | Agosto D.E. | 71 | 0.16 | 9620 | 22.15 | 50 |
| 81 | Chua A.Y.K., Goh D.H. | 71 | 0.16 | 9691 | 22.32 | 50 |
| 82 | De Groote S.L., Dorsch J.L. | 71 | 0.16 | 9762 | 22.48 | 50 |
| 83 | Dervin B. | 71 | 0.16 | 9833 | 22.64 | 50 |
| 84 | Johnson R.K. | 71 | 0.16 | 9904 | 22.81 | 50 |
| 85 | Booth A. | 70 | 0.16 | 9974 | 22.97 | 51 |
| 86 | Herring S.D. | 70 | 0.16 | 10044 | 23.13 | 51 |
| 87 | Marchionini G., Geisler G. | 70 | 0.16 | 10114 | 23.29 | 51 |
| 88 | Tabatabai D., Shore B.M. | 70 | 0.16 | 10184 | 23.45 | 51 |
| 89 | Van De Sompel H., Payette S., Erickson J., Lagoze C., Warner S. | 70 | 0.16 | 10254 | 23.61 | 51 |
| 90 | Foley M. | 69 | 0.16 | 10323 | 23.77 | 52 |
| 91 | McGillis L., Toms E.G. | 68 | 0.16 | 10391 | 23.93 | 53 |
| 92 | Hayslett M.M., Wildemuth B.M. | 66 | 0.15 | 10457 | 24.08 | 54 |

| | | | | | | |
|--------------|---|--------------|------------|----------|----------|----------|
| 93 | Hendrix D., Chiarella D., Hasman L., Murphy S., Zafron M.L. | 66 | 0.15 | 10523 | 24.23 | 54 |
| 94 | Nesset V., Large A. | 66 | 0.15 | 10589 | 24.39 | 54 |
| 95 | Shah C., Oh S., Oh J.S. | 66 | 0.15 | 10655 | 24.54 | 54 |
| 96 | Xie H. | 65 | 0.15 | 10720 | 24.69 | 55 |
| 97 | Nisonger T.E., Davis C.H. | 65 | 0.15 | 10785 | 24.84 | 55 |
| 98 | Urquhart C., Light A., Thomas R., Barker A., Yeoman A., Cooper J., Armstrong C., Fenton R., Lonsdale R., Spink S. | 65 | 0.15 | 10850 | 24.99 | 55 |
| 99 | Dorsch J.L., Aiyer M.K., Meyer L.E. | 64 | 0.15 | 10914 | 25.13 | 56 |
| 100 | Fisher K.E., Marcoux E., Miller L.S., Sánchez A., Cunningham E.R. | 64 | 0.15 | 10978 | 25.28 | 56 |
| 101- 3188 | Other 3088 authorship | 32446 | 74.72 | 43424 | 100.00 | - |
| TOTAL | | 43424 | 100 | - | - | - |

Country wise Authorship Distribution

The country wise distribution of authorship has been counted based on the country of origin of the corresponding author. Authors from 83 countries (excluding unidentified countries) across the world are active in publication of their research in LIS open access journals. Amongst them authors from America and Europe are the leaders. Table 9 shows that United States of America (USA) is the top country producing of 2822(54.19%) authors alone followed by United Kingdom (UK) with 372(7.14%) authors, Canada with 242(4.65%) authors, Australia with 176(3.38%) authors and so on. United States of America alone contributes more than fifty percent of authorship to the LIS open access journals. Amongst the Asian countries China, Singapore and Taiwan are much ahead of India. The developing countries like India should give more emphasis on their authors to aware them for open access publications.

Table 9: Country wise Authorship Distribution

| Sl No | Country | No. of Publications in the Source Journals | | | | | | | | | | Total (n=5208) | Percentage (%) | Rank |
|-------|--------------------------------|--|-------|-----|-----|----|------|--------|------|-------|------|-------------------|-------------------|------|
| | | CRL | D-LIB | IR | ITL | IS | JMLA | LIBERQ | LISR | LIBRE | SLMR | | | |
| 1 | United States of America (USA) | 441 | 621 | 163 | 320 | 71 | 755 | 15 | 300 | 45 | 91 | 2822 | 54.19 | 1 |
| 2 | United Kingdom (UK) | | 191 | 80 | 1 | 9 | 23 | 37 | 27 | 4 | | 372 | 7.14 | 2 |
| 3 | Canada | 25 | 27 | 44 | 28 | 4 | 49 | 3 | 52 | 10 | | 242 | 4.65 | 3 |
| 4 | Australia | 4 | 38 | 50 | 5 | 20 | 11 | 1 | 29 | 13 | 5 | 176 | 3.38 | 4 |
| 5 | Germany | | 69 | 2 | 2 | 5 | | 24 | 1 | | | 103 | 1.98 | 5 |
| 6 | Spain | 3 | 13 | 59 | 10 | | 6 | 2 | 6 | | | 99 | 1.90 | 6 |

| | | | | | | | | | | | | | | |
|----|----------------|---|----|----|---|---|---|----|----|---|---|----|------|----|
| 7 | Netherlands | | 42 | 8 | | 5 | 7 | 25 | 1 | | | 88 | 1.69 | 7 |
| 8 | Finland | | | 53 | | 1 | | 6 | 18 | | | 78 | 1.50 | 8 |
| 9 | Sweden | 1 | 4 | 41 | 1 | 6 | 1 | 1 | 1 | | | 56 | 1.08 | 9 |
| 10 | Italy | | 40 | 2 | 2 | 2 | 1 | 5 | 2 | 1 | | 55 | 1.06 | 10 |
| 11 | New Zealand | | 20 | 11 | 1 | 5 | 3 | | 1 | | 1 | 42 | 0.81 | 11 |
| 12 | China | 5 | 13 | 11 | 1 | | 2 | | 9 | | | 41 | 0.79 | 12 |
| 13 | France | | 13 | 6 | | 1 | 8 | 10 | 1 | | | 39 | 0.75 | 13 |
| 14 | South Africa | 1 | 4 | 11 | 2 | 8 | | | 4 | 7 | | 37 | 0.71 | 15 |
| 15 | Singapore | 1 | 5 | 11 | | | 1 | | 8 | 9 | | 35 | 0.67 | 16 |
| 16 | Greece | | 20 | 3 | 2 | | | 1 | 7 | 1 | | 34 | 0.65 | 17 |
| 17 | Austria | | 24 | 2 | | 1 | | 2 | | 2 | | 31 | 0.60 | 18 |
| 18 | Denmark | | 6 | 14 | | 1 | | 8 | 1 | 1 | | 31 | 0.60 | 18 |
| 19 | Norway | | 5 | 4 | | 7 | | 6 | 9 | | | 31 | 0.60 | 18 |
| 20 | South Korea | | 3 | 10 | 1 | | | | 15 | 1 | | 30 | 0.58 | 19 |
| 21 | Israel | 3 | | 10 | | 5 | 1 | 1 | 9 | | | 29 | 0.56 | 20 |
| 22 | Belgium | | 16 | 2 | | | 1 | 6 | 2 | 1 | | 28 | 0.54 | 21 |
| 23 | Taiwan | 1 | | 11 | 1 | | 1 | | 5 | 1 | | 20 | 0.38 | 22 |
| 24 | India | | 6 | 1 | 2 | 1 | | 2 | 4 | 2 | | 18 | 0.35 | 23 |
| 25 | Japan | | 7 | 5 | | | 3 | | 2 | 1 | | 18 | 0.35 | 23 |
| 26 | Ireland | | 3 | 3 | 3 | 4 | | 1 | 2 | | | 16 | 0.31 | 24 |
| 27 | Portugal | | 6 | 7 | | | | 3 | | | | 16 | 0.31 | 24 |
| 28 | Hong Kong | 3 | 3 | 2 | | | 2 | | 4 | | 1 | 15 | 0.29 | 25 |
| 29 | Brazil | 1 | 2 | 8 | | | 2 | | | 1 | | 14 | 0.27 | 26 |
| 30 | Iran | | | 5 | | | 2 | | 4 | 1 | | 12 | 0.23 | 27 |
| 31 | Poland | | 5 | 3 | 1 | | | 1 | 1 | | | 11 | 0.21 | 28 |
| 32 | Switzerland | | 5 | 1 | 2 | | 1 | 1 | 1 | | | 11 | 0.21 | 28 |
| 33 | Malaysia | | | 4 | | | | | 3 | 3 | | 10 | 0.19 | 29 |
| 34 | Czech Republic | | 4 | | | 1 | | 3 | 1 | | | 9 | 0.17 | 30 |
| 35 | Mexico | | | 5 | 1 | 1 | 1 | | 1 | | | 9 | 0.17 | 30 |
| 36 | Turkey | | | 3 | | | | 4 | 2 | | | 9 | 0.17 | 30 |
| 37 | Slovenia | | | 5 | 1 | | 1 | 1 | | | | 8 | 0.15 | 31 |
| 38 | Hungary | | 2 | 1 | | 1 | 1 | 1 | 1 | | | 7 | 0.13 | 32 |
| 39 | Iceland | | | 6 | | | | | 1 | | | 7 | 0.13 | 32 |
| 40 | Lithuania | | | 6 | | 1 | | | | | | 7 | 0.13 | 32 |
| 41 | Nigeria | | | | 1 | | 1 | | 1 | 4 | | 7 | 0.13 | 32 |
| 42 | Chile | | | 6 | | | | | | | | 6 | 0.12 | 33 |
| 43 | Finland | | 6 | | | | | | | | | 6 | 0.12 | 33 |
| 44 | Uganda | | | 3 | | | | | 1 | 2 | | 6 | 0.12 | 33 |
| 45 | Pakistan | | | | | | 2 | | 1 | 2 | | 5 | 0.10 | 34 |
| 46 | Kuwait | | | 2 | | | | | 1 | 1 | | 4 | 0.08 | 35 |
| 47 | Slovakia | | 1 | 3 | | | | | | | | 4 | 0.08 | 35 |

| | | | | | | | | | | | | | | |
|----|----------------------|----|-----|----|----|---|----|-----|---|---|---|-----|-------|----|
| 48 | United Arab Emirates | 1 | | | | 1 | | | 1 | 1 | | 4 | 0.08 | 35 |
| 49 | Argentina | | 1 | 2 | | | | | | | | 3 | 0.06 | 36 |
| 50 | Colombia | | | 1 | | | 1 | 1 | | | | 3 | 0.06 | 36 |
| 51 | Croatia | | 1 | 1 | | | | | 1 | | | 3 | 0.06 | 36 |
| 52 | Cuba | | | 2 | | | | | | 1 | | 3 | 0.06 | 36 |
| 53 | Estonia | | | 2 | | | | 1 | | | | 3 | 0.06 | 36 |
| 54 | Russian Federation | | 1 | | 2 | | | | | | | 3 | 0.06 | 36 |
| 55 | Serbia | | | | 2 | 1 | | | | | | 3 | 0.06 | 36 |
| 56 | Thailand | | | | | | | | | 3 | | 3 | 0.06 | 36 |
| 57 | Botswana | | | | | | | | 1 | 1 | | 2 | 0.04 | 37 |
| 58 | Ecuador | | | | | | | 2 | | | | 2 | 0.04 | 37 |
| 59 | Latvia | | | 2 | | | | | | | | 2 | 0.04 | 37 |
| 60 | Macedonia | | 1 | | | 1 | | | | | | 2 | 0.04 | 37 |
| 61 | Netherlands Antilles | | | | | | 1 | 1 | | | | 2 | 0.04 | 37 |
| 62 | Qatar | | 1 | | | | | | 1 | | | 2 | 0.04 | 37 |
| 63 | Trinidad and Tobago | | | | | | 1 | | | 1 | | 2 | 0.04 | 37 |
| 64 | Zambia | | | | | | 2 | | | | | 2 | 0.04 | 37 |
| 65 | Aruba | | | | | | 1 | | | | | 1 | 0.02 | 38 |
| 66 | Bahrain | | | | | 1 | | | | | | 1 | 0.02 | 38 |
| 67 | Bangladesh | | | | | | | 1 | | | | 1 | 0.02 | 38 |
| 68 | Bulgaria | | | | | 1 | | | | | | 1 | 0.02 | 38 |
| 69 | Costa Rica | | | | | | 1 | | | | | 1 | 0.02 | 38 |
| 70 | Cyprus | | | | | | | 1 | | | | 1 | 0.02 | 38 |
| 71 | Fiji | | | | | | | | | 1 | | 1 | 0.02 | 38 |
| 72 | Ghana | | 1 | | | | | | | | | 1 | 0.02 | 38 |
| 73 | Honduras | | | | | | | | 1 | | | 1 | 0.02 | 38 |
| 74 | Iraq | | 1 | | | | | | | | | 1 | 0.02 | 38 |
| 75 | Kazakhstan | 1 | | | | | | | | | | 1 | 0.02 | 38 |
| 76 | Kenya | | | | | | | | | 1 | | 1 | 0.02 | 38 |
| 77 | Panama | | | | | | 1 | | | | | 1 | 0.02 | 38 |
| 78 | Peru | | | 1 | | | | | | | | 1 | 0.02 | 38 |
| 79 | Saudi Arabia | | | | 1 | | | | | | | 1 | 0.02 | 38 |
| 80 | Swaziland | | 1 | | | | | | | | | 1 | 0.02 | 38 |
| 81 | Togo | | 1 | | | | | | | | | 1 | 0.02 | 38 |
| 82 | Uruguay | | | 1 | | | | | | | | 1 | 0.02 | 38 |
| 83 | Venezuela | | | | | 1 | | | | | | 1 | 0.02 | 38 |
| 84 | Unidentified | 70 | 224 | 58 | 33 | 3 | 53 | 287 | 7 | 5 | 3 | 743 | 14.27 | - |

Key Findings

The key findings of the study are presented as under:

- During the period 2001-2015, it is observed in the study that, the year wise distribution of journals do not show any increasing trend, however the cumulative numbers of distribution shows a steady growth of publications.
- The authorship pattern of LIS open access journals shows that single authorship contribution is dominant with highest 2791(53.59%) publications.
- The Collaborative Index mean value in the present study shows to be 0.73 which is so weak at its label. The Degree of Collaboration value shows a weak intensity of author's collaboration at 0.72. Correspondingly, the Collaboration Co-efficient value shows at 0.29 which is also so weak at its level. This implies that, the LIS open access journals do not favour for collaborative research.
- The value of D is lesser than 0.0225, and therefore Lotka's generalized formula with exponent value "n"= (1.19), somehow fit to the LIS open access publications.
- Wilson, B. of Corporation for National Research Initiatives, Reston, United States has contributed maximum 74(1.42%) papers and ranked top amongst all contributing authors. Based on the citations count Wilson T.D. is in top among all the authors with 407(0.94%) citations.
- Authors from 83 countries across the world are active in publication of their research in LIS open access journals. Amongst them authors from America and Europe are the leaders, and United States of America (USA) is the top country producing of 2822(54.19%) authors alone

Conclusion

The present day research is fast embracing open access platforms because of greater visibility of publications with considerable impact and influence. As it has posed tough challenges for LIS researchers, academicians and librarians to select specific journals that promise quality and impact, some front line open access journals have proved their mettle to be chosen as the right channel of publications to follow suit. Contextually, the present study has rightly addressed the trends of authorship, research collaboration, author's productivity, prolific authors, geographical distribution of authors of 10 selected open access LIS journals that have gained immense popularity with high reputation. Geographically scattered contributors and the quantum of citations received by different articles published in these open access journals indicates the quality of publications brought out by these journals. This in fact, will motivate the LIS researchers, academicians and librarians to bank on open access journals to insure academic and research excellence in different parts of the world.

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