

# Author Productivity and Application of Lotka's Law in LIS Research Articles

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## ABSTRACT

**Aim:** This study is to explore the authorship distributions of LIS articles as uploaded in IASLIC Bulletin during 2011-2024. Apart, it tries to examine validation of Lotka's Law for author productivity. **Background:** Lotka's law for author productivity is one of the popular empirical laws in bibliometric research. This paper examines its validation in LIS research articles. **Methodology:** The present study investigates 277 papers published by 510 authors in total (irrespective of author's name). Various bibliometric indicators such as number of yearly publications, authorship pattern, degree of collaboration, collaborative index, gender wise contributors, ranking of leading authors, etc. are demonstrated. **Results:** Lotka's law is found to be applicable with the value of  $n$  as 3.15 rather than  $n=2$  (in real case) for the data set of IASLIC Bulletin. The expected values using 3.15 are quite close to the actual or observed values and the number of authors obtained with the value of  $n=2$  is widely different from the observed (real) values. Graphical curves in drawings represent clearly such closeness and or distance-ness for the data set. **Conclusion:** After the long time, this present study collects data in the same field from IASLIC Bulletin during 2011-2024, and final finding is representing same trends author productivity as found by Sen 29 years ago through his study in the field of library and information science. Validation reveals quite close for the value of Lotka's exponent  $n=3.15$  getting from the dataset of the present study.

**Keywords:** Bibliometric, Author productivity, Authorship pattern, Library and Information Science (LIS), Lotka's law, Observed value, Calculated value, Expected Value, Real value.

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## INTRODUCTION

There are several well-known bibliometric laws in use in bibliometric research. Lotka's Law is one of them, which is applied for author productivity in a specific field of subjects during a particular period. In other words, it describes the publication-frequency of authors in a given subject field. This law is popularly known as "Lotka's Law of Scientific Productivity" (Hertz, n.d.; Sen, Taib, and Hassan, 1996). It is also called as the Inverse Square Law of Scientific Productivity. This law was related to the field of science like physics, chemistry, etc. All though it is applied to other disciplines also. So, present study tries to apply the law in LIS field with special reference to a comparison between observed value and two expected values harvested in two ways ( $n=2$ , and  $n=3.15$ ) from the data set of this study.

## Author Productivity and Lotka's Law

Fractional authorship is generally called author productivity. It means average number of papers/books produced by an author in a particular subject for a specific period. For example, if January issue of a monthly journal have published 10 papers by 12 authors, the author productivity per author is  $10/12$  i.e. 0.83, a fraction value. Each author gets fractional credit based on the number of authors for a paper. If a paper has  $n$  authors, each is credited with  $1/n$ . But Lotka's Law did not consider fractional authorship. For collaborative papers, he gave one credit to all the authors. So, for verification of Lotka's Law, the author productivity is to be taken as 12 (Sen, 2010).

Alfred J. Lotka was a mathematician, and supervisor of mathematical research in the Statistical Bureau of the Metropolitan Life Insurance Company from 1942 to 1933. It was during the time, 1926, that his definitive work, later called Lotka's Law, was produced. His investigation was a productivity analysis. His general formula was developed to observe the general relation between the frequencies of persons making contributions. Lotka's law describes the publication-frequency of authors in a given subject field. This law is stated as "the number of persons making 2 contributions is about one-fourth of those making one;



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the number making 3 contributions is about one-ninth, etc.; the number making  $n$  contributions is about  $1/n^2$  of those making one, and the proportion, of all contributions, that make a single contribution, is about 60 percent" (Hertz, n.d.). In other words, it may simply be that out of all the authors (suppose 100) in a given field, 60 percent will have just one publication and 15 percent will have two publications (i.e.  $1/2^2 \times 60$ ). Seven percent authors will have three publications (i.e.  $1/3^2 \times 60$ ), and so on (Dutta, 2019). The general form of Lotka's Law can be expressed as  $X^n Y = \text{Constant}$  or  $X^2 Y = C$  or  $Y = C/X^2$ , where,  $Y$  stands for number of contributors,  $X$  stands for number of contributions by a contributor, and  $C$  is constant.

## REVIEW OF LITERATURE

There are many articles on application of Lotka's law in different subject fields. A. J. Lotka (1926) analyzed frequency distribution of scientific productivity from where he formulated his empirical law. D. K. Gupta (1987, 1989 and 1992) conducted various studies on Lotka's law for finding author productivity and productivity trend in different subject fields such as entomological research in Nigeria for the period 1990-1973; exploration geophysics; psychological literature of Africa for the period 1966-1975; Pao (1985) nicely stated testing procedure of Lotka's law in his paper. As yet some said that '*the method of calculating á suggested by Pao may not prove to be very good for all data sets*' (Sen, 2010). Prof. B. K. Sen, one of the pioneers of Indian bibliometricians (Sen, Taib and Hassan, 1996) also studied and applied the law in different subject fields such as 29 years back, he examined validation of the law in LIS literature using the data from LISA for the years 1992 and 1993. He has further shown applications of Lotka's law in different ways (Sen, 2010). Kumar, (2010) worked on this law and showing calculation through Pao's method. Recently, Chander and Singh (2021) investigated authorship pattern and applied Lotka's law in books in Punjabi language. Gujral and Shrivarama (2021) used Lotka's law finding collaborative authorship pattern in health informatics domain from 2009-2019. In addition, many authors have been examined validation of Lotka's law in bibliometric or biobibliometric studies viz, Kalyane and Sen (1995) described this law in a bibliometric study of the Journal of Oil-seeds Research. Dutta (2019) included testing of Lotka's law for the data set in his study harvested from the publications of B K Sen. Koley (2023, 2024) has also tested this law for co-authors in his papers of biobibliometric study on research papers contributed by medical scientists, Dr. Subhas Mukherjee, creator of Indian first test baby, and Prof. Dilip Mahalanabis, pioneer of ORS. Thus, Lotka's law has been using in author productivity in different science subjects and non-science fields for long period and becomes one of the empirical laws in bibliometric studies. Present study tries to examine validation of Lotka's law for the data set taken from IASLIC Bulletin for the period 2011-2024.

## Objectives

The main objectives of this study are:

To find out year wise distribution of research papers;

To observe authorship pattern;

To analyze the author productivity patterns;

To find out gender wise distribution of authors;

To identify leading authors of papers and their ranking;

To examine the validity of Lotka's law in the field of LIS research papers;

To determine expected values using value of  $n=2$  in an ideal case and calculated value of  $n=3.15$ .

## SCOPE AND METHODOLOGY

This study covers 277 research papers contributed by 510 authors as reflected in the online archive of IASLIC Bulletin for the period 2011-2024. Data are collected from 4 issues of each 14 volumes excluding 2<sup>nd</sup> issue of Vol. 68, 2023, and 2<sup>nd</sup> to 4<sup>th</sup> issue of Vol. 69, 2024 as these issues could not be available in IASLIC database during searching period from 16.01.25 to 20.01.25. It must be noted that 2<sup>nd</sup> and 3<sup>rd</sup> issue of Vol. 61, 2016 have been merged into a single issue and published. All collected data are transformed into MS-excel and Words and subjected to further analysis to generate necessary information to meet the objectives of the study. It has also been examined validation of Lotka's Law using calculated value of  $n=3.15$  from the data set of this study, and  $n=2$  in an ideal case for Lotka's law. In addition, it prepares a comparative statement of observed and expected values so that closeness or distantness to/from two curves drawing with observed and calculated values can be identified.

## DATA ANALYSIS AND DISCUSSION

### Chronological Growth of Papers

Table 1 demonstrates the growth of published articles in IASLIC Bulletin from 2011 to 2024. The source journal published a total 277 scholarly articles. The highest number i.e. 25 has been published in the volume 67 (4 issues), 2021 followed by 23 each in the volumes 56 (2011), 57 (2012), 59 (2014), 64 (2019); 22 each in the volumes 62 (2017) and 67 (2022) respectively; 21 in volume 65 (2020); 19 in volume 63 (2018); 18 each in the volumes 58 (2013), 60 (2015), and 68 (2023) respectively. Only 6 papers from 1<sup>st</sup> issue of volume 69 (2024) have been included in this study because of unavailability of the remaining papers in the database. However, average 16.21 or 16 papers per volume have been published.

Maximum number of papers i.e. 72 (i.e. 25.99%) in total is published in the 4<sup>th</sup> issue followed by 71 (i.e. 25.63%) in 1<sup>st</sup> issue, 69 (i.e. 24.91%) in 2<sup>nd</sup> issue, and 65 (i.e. 23.47%) in 3<sup>rd</sup> issue.

## Authorship Pattern

Table 2 shows authorship pattern of 277 LIS publications during 2011-2024 and Figure 1 represents such pattern using bar chart. It is observed that IASLIC Bulletin has a limitation of number of authors in a paper maximum four authors. It has been seen throughout the issues over the period. The highest number of papers i.e. 149 (53.79%) are two-authored papers followed by 88 (31.77%) single-authored papers, 36 (12.99%) three-authored papers. Only 4 (1.45%) are belonged to four-authored papers.

## Year-wise Authorship Pattern

Table 3 reveals the majority of articles are contributed by two authors followed by single author, three author and four authors during 14 years. Maximum number of two-authored papers (16, 10.74 %) have been published in the year 2021 followed by 14 (9.39%) in 2018, 13 (8.72%) in 2019, 12 (8.05%) each in 2015, 2017, 2020, 2022 and 10 (6.72%) in 2014. The highest number of single authored paper i.e. 13 (14.77%) has produced in the year 2014 and then 12 (13.63%) in 2011, 9 (10.22%) papers each in 2012 and 2020. Majority of three authored papers i.e. 5 (13.88%) each has published in the year 2012 and 2022 followed by 4 (11.12%) each 2017 and 2019 and so on. Only 2 (50%) four-authored papers are published in 2022, and one each in 2021 and 2023 respectively. Over all, the highest number of papers has published in the year 2021 (i.e. 25 papers, 9.03%) and next highest number of publications are 23 (8.31%) each in 2011, 2012, 2014, 2019; 22 (7.94%) papers each in 2017 and 2022; 21 (7.58%) in 2020, etc. It is surprisingly known that there are no three-authored papers in the year 2015 and 2020, whereas no four-authored

papers from the years 2011 to 2020 and 2024 (yet to complete uploading all issues during data collection). Figure 2 shows year wise authorship pattern graphically. Giving equal credit to each author, number of total authors is to be accounted as 510.

## Collaborative Index

Here, 277 papers have been published by 510 authors irrespective of names. So, Collaborative index=Total author/Total papers=510/277=1.8412.

## Degree of Collaboration (DC)

In all, as per Table 3, there are 88 Single Authored Papers (SAP), and 277-88=189 Multiple-Authored Papers (MAP). So, DC for the data set of this study=MAP/SAP=189/88=2.1477.

## Gender-wise Authorship

Table 4 shows gender-wise authorship and Figure 3 represents graphical curves for male and female authors. Out of 510 authors, 361 (70.78%) are male authors, and 149 (29.22%) are under the category of female author during 2011-2024. Highest number of male authors i.e. 34 (9.42%) each is seen in the year 2012 and 2017 followed by 33 (9.15%) each in 2021 and 2022; 29 (8.4%) each in the year 2011 and 2019; 28 (7.73%) in 2023 and so on. Among female authors, maximum numbers i.e. 17 (11.41%) each has been found in the year 2021 and 2022 followed by 15 (10.07%) in 2019; 14 (9.39%) each in 2018 and 2020; 13 (8.73%) in 2015, and etc.

**Table 1: Year wise distribution of papers in IASLIC Bulletin 2011-2024.**

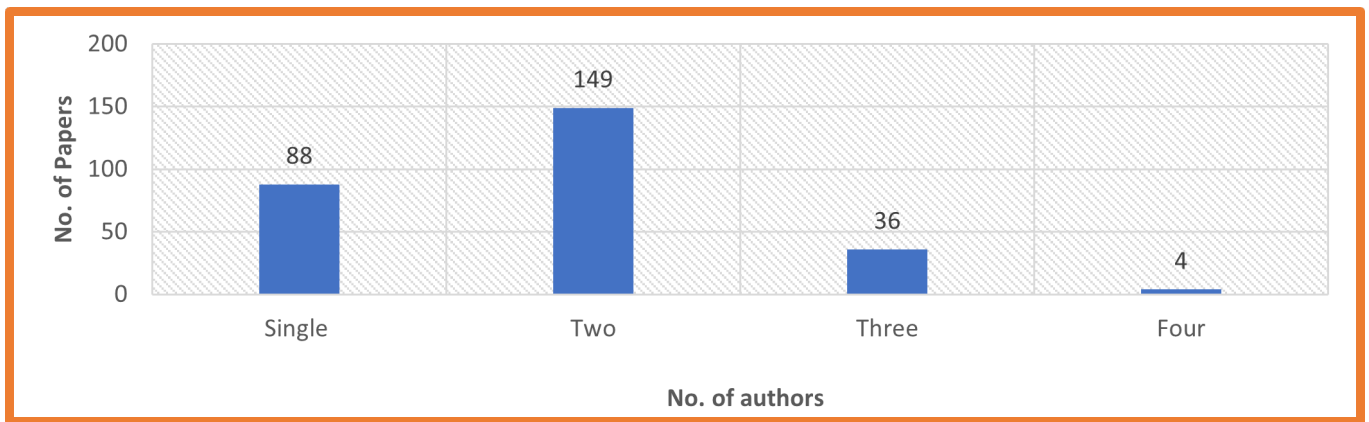
Year	Volumes (V)	Issues				Total
		I	II	III	IV	
2011	V56	5	6	7	5	23
2012	V57	5	7	5	6	23
2013	V58	5	5	4	4	18
2014	V59	6	6	5	6	23
2015	V60	4	5	5	4	18
2016	V61	6	5		5	16
2017	V62	5	6	5	6	22
2018	V63	4	5	5	5	19
2019	V64	5	6	5	7	23
2020	V65	4	6	5	6	21
2021	V66	6	6	7	6	25
2022	V67	5	6	6	5	22
2023	V68	5	0	6	7	18
2024	V69	6	0	0	0	6
Total		71	69	65	72	277
%-age		25.63	24.91	23.47	25.99	100

**Table 2: Authorship patterns.**

Authorship Pattern	No. of Research Articles	%-age	Cumulative %
Single	88	31.77	31.77
Two	149	53.79	85.56
Three	36	12.99	98.55
Four	4	1.45	100
Total	277	100	--

**Table 3: Year wise authorship pattern.**

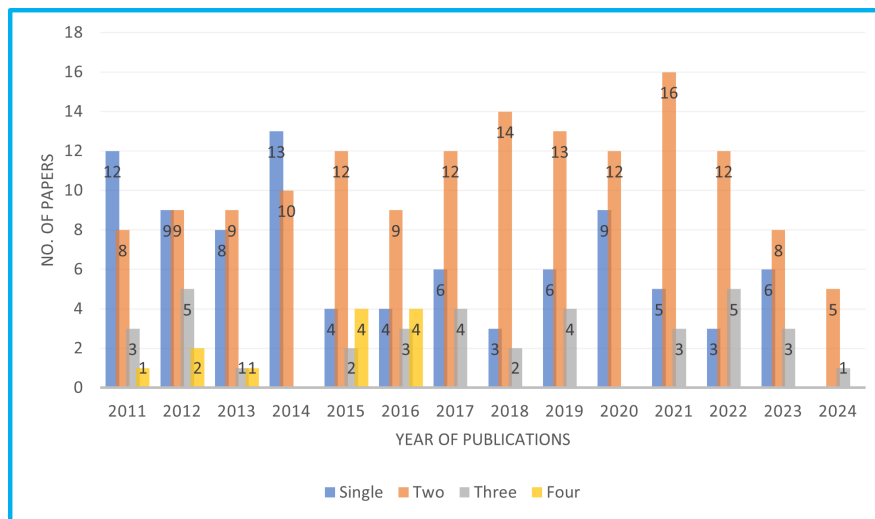
Year	Authorship Pattern								Total	
	SAP		TAP		TAP		FAP			
	NP	%	NP	%	NP	%	NP	%	NP	%
2011	12	13.63	8	5.36	3	8.34			23	8.31
2012	9	10.22	9	6.05	5	13.88			23	8.31
2013	8	9.09	9	6.05	1	2.77			18	6.49
2014	13	14.77	10	6.72					23	8.31
2015	4	4.55	12	8.05	2	5.55			18	6.49
2016	4	4.55	9	6.05	3	8.34			16	5.78
2017	6	6.82	12	8.05	4	11.12			22	7.94
2018	3	3.41	14	9.39	2	5.55			19	6.85
2019	6	6.82	13	8.72	4	11.12			23	8.31
2020	9	10.22	12	8.05					21	7.58
2021	5	5.68	16	10.74	3	8.34	1	25.00	25	9.03
2022	3	3.42	12	8.05	5	13.88	2	50.00	22	7.94
2023	6	6.82	8	5.36	3	8.34	1	25.00	18	6.49
2024			5	3.36	1	2.77			6	2.17
Total Papers	88	100	149	100	36	100	4	100	277	100
Multiplier	1		2		3		4		****	
Total Authors	88		298		108		16		510	



**Figure 1:** Bar chart of collaborative authorship pattern.

**Table 4: Gender wise distribution of authors.**

Year	Male		Female		Total	
	Total	%	Total	%	Grand Total	%
2011	29	8.04	8	5.37	37	7.25
2012	34	9.42	8	5.37	42	8.24
2013	27	7.47	2	1.34	29	5.68
2014	24	6.64	9	6.04	33	6.47
2015	21	5.81	13	8.73	34	6.67
2016	19	5.26	12	8.06	31	6.07
2017	34	9.42	8	5.37	42	8.24
2018	23	6.37	14	9.39	37	7.25
2019	29	8.04	15	10.07	44	8.63
2020	19	5.26	14	9.39	33	6.47
2021	33	9.15	17	11.41	50	9.81
2022	33	9.15	17	11.41	50	9.81
2023	28	7.75	7	4.69	35	6.86
2024	8	2.22	5	3.36	13	2.55
Total	361	100	149	100	510	100
%-age	70.78	--	29.22	--	100	--

**Figure 2:** Year wise authorship pattern of papers during 2011-2024 in IASLIC Bulletin.

### Rank-wise Authorships with Publications

As per contributions in IASLIC Bulletin in the field of LIS, a rank list has been prepared in Table 5 that describes author's name, time span between FYP and LYP, and paper publication per year. It is found that *Sangita Gupta* topped in the rank list by contributing 6 papers during the period of 10 years i.e. 2012-2024 with an average of 0.6 paper per year. A group of five authors contributed 5 paper each that obtained the second rank. Another category of six authors published 4 papers each and ranked in third position. A class of fourteen authors has contributed 3 papers each and attained third position in the ranking, and a group of thirty-eight authors has published three papers each and placed in fifth

position in the rank list. Finally, 337 authors are grouped in sixth position by contributing one paper each within a year.

### Author Productivity

Table 6 discusses number of authors with number of publications by each author. Accordingly, it counts that number of authors is 401 by individual name of authors, and number of contributions is 510 for giving equal credit to all authors during the period 2011-2024. Out of 401 authors, 337 (84.04%) authors produced one paper each, 38 (9.48%) contributed two papers each, 14 (3.49%) authors published three papers each, 6 (1.49%) authors published 4 papers each, and 5 (1.25%) authors published 5 papers

**Table 5: Ranking list of authors by name with number of papers.**

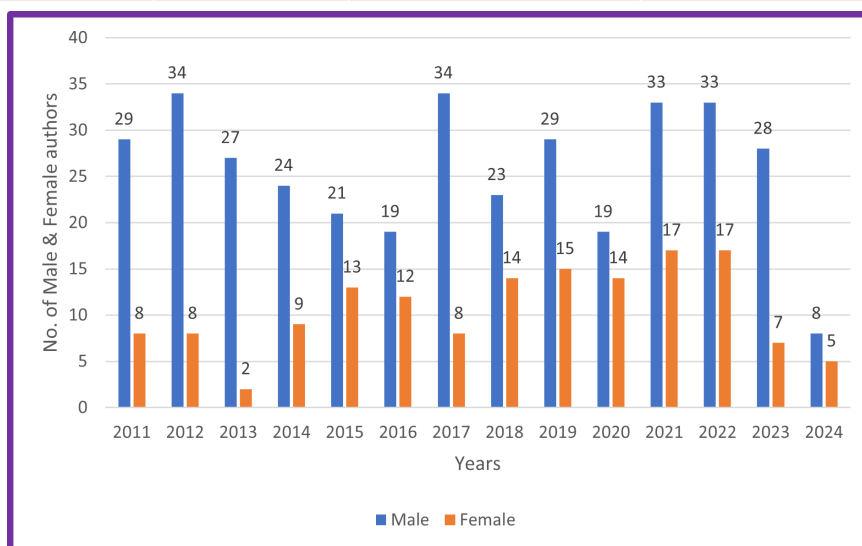
Ranks	Names (YFP- YLP)	Paper by each author	Span of time	Paper per year
1	Sangita Gupta (2012-2022)	6	10	0.6
2	Aditya Tripathi (2015-2024); Krishanapada Majumder (2012-2019); Meera Yadev (2015-2024); Pijushkanti Panigrahi (2014-2019); Sanjay Kumar Singh (2015-2024) [05]	5	9,7, 9, 5, 9	0.55, 0.71, 0.55, 1, 0.55
3	Babita Jaiswal (2016-2021); Charoibam Ibohal Singh (2011-2020); Durga Prasad Rath (2011-2017); K. P. Singh (2011-2022); Rupak Chakrabarty (2017-2023); Sudip Kumar Hatua (2011-2023) [06]	4	5, 9, 6, 11, 6, 12	0.8, 0.44, 0.67, 0.36, 0.67, 0.33
	Devika P Madalli (2015-2021); Dhiman Mondal (2017-2021); Harish Babu (2014-2019); K. G. Shudier (2018-2021); Nitai Raychodhury (2017-2021); P Balasubramanian (2012-2022); Parthasarathi Mukhopadhyay (2015-2018); Prabin Karkee (2012-2023); Prangya Das (2011-2022); Prijith Jacob Thomas (2014-2019); Puspanjali Jena (2013-2015); R. K. Ngurtinkhuma (2011-2022); Tarun Kumar Mondal (2014-2020); Udayan Bhattacharya (2013-2021) [ 14]	3	6, 4, 5, 3, 4, 10, 3, 11,11, 5, 2, 11, 6, 8	0.5, 0.75, 0.6, 1, 0.75, 0.3, 1, 0.27, 0.27, 0.6, 1.5, 0.27, 0.5, 0.38
5	A K Sharma (2015-2017); A Thirumagal (2013-2014); Abdul Mannan Khan (2013-2014); Amit Kumar Bandyopadhyay (2011-2016); Anindya Bhattacharya (2014-2022); Ashok Pal (2016-2018); B. K. Sen (2016-2019); Bhanu Partap (2015-2022); Bijan Kumar Ray (2016-2021); Deepti Khatri (2020-2023); Dimple Patel (2015-2020); Dipen Deka (2017-2021); J. Shivarama (2021-2022); Jaydeep Chandra (2016-2023); Kimi (2018-2019); M. D. Baby (2011-2022); Mangkhollen Singson (2019-2023); Mehtab Alam Ansari (2013-2019); Moorttimeete Samantaray (2020-2022); Moses M. Naga ( 2022-2024); Nabin Chandra Dey (2017-2019); Nirmal Ranjan Majumder(2015-2024); P. C. Shah (2011-2016); Pooja Jain (2022-2024); Prakriti Ranjan Goswami ( 2020-2021); Ram Prasad Majumdar ( 2011-2013); Ramesha (2015-2021); Ranjan Sinha Thakur ( 2012-2018); Rashmi Kumbar (2019-2022); Ratna Bandyopadhyay ( 2017-2019); Ravi Shukla ( 2020-2021); S. B. Banerjee ( 2017-2020); Sagender Singh Parmar ( 2019-2022); Sanghamitra Pradhan ( 2012-2014); Shiv Kumar ( 2012-2018); Subhas C. Biswas (2012-2013); T. K. Gireesh Kumar (2013-2015); Tilak Hazarika (2017-2020) [ 38]	2	2, 1, 1, 5, 8, 2, 3, 7, 5, 3, 5, 5, 1, 7, 1, 11, 4, 6, 2, 2, 2, 9, 5, 2, 1, 2, 6, 6, 3, 2, 1, 3, 3, 2, 6,1, 2, 3	1, 2, 2, 0.4, 0.25, 1, 0.67, 0.28, 0.4, 0.67,0.4, 0.4, 2, 0.28, 2, 0.18, 0.5, 0.33, 1, 1, 1, 0.22, 0.4, 1, 2, 1, 0.33, 0.33, 0.67, 1, 2, 0.67, 0.67, 1, 0.33, 2, 1, 0.67
6	337 single authors	1	1 each	1 (for all authors)

**Table 6: Author productivity.**

No. of papers by each author	No of authors by individual name	%-age	Total no. of contributions	%
1	337	84.04	337	66.08
2	38	9.48	76	14.90
3	14	3.49	42	8.24
4	6	1.49	24	4.70
5	5	1.25	25	4.90
6	1	0.25	6	1.18
Total	401	100	510	100

**Table 7: Distribution of number of research papers according to authors.**

No. of Contributions (X)	No. of authors (Y) (Observed Value)	%-age	No. of authors (Y)	
			Calculated Value for	Calculated Value for
			Method (A): $X^n \cdot Y=C$ or $Y=C/X^n$ and $n=3.15$	Method (B): $X^2 \cdot Y=C$ or $Y= C/X^2$ and $n=2$ in an ideal case
1	337	84.04	337	337
2	38	9.48	38	84
3	14	3.49	11	37
4	6	1.49	4	21
5	5	1.25	2	13
6	1	0.25	1	9
Total	401	100	393	501



**Figure 3:** Graphical representation of male and female author ratio, 2011-2024.

each. Only one author (0.25%) has published 6 papers alone. However, here author productivity per author is  $510/401=0.79$ .

**Application of Lotka's Law**

In this study, two methods have been taken for studying the author productivity and validation of Lotka's Law. Here, this study has taken the value of n as equal to 2 in an ideal case and not equal to 2 in another. There was no need to take the value of n as equal to 2 for all cases, because its value varies from subject to subject and from time to time within the same subject (Sen, 2010; Gujral and Shrivarama, 2021). It tries to make a comparative statement of observed and expected values in favour of Lotka's law for the data set of this study. Expected values in two ways have been marked by A and B in Table 7.

**Method A:  $n \neq 2$**

Here, the equation to represent Lotka's law is,  $X^n Y=C$ , where

X stands for the contributions,  
Y stands for the number of authors, and  
C is constant.

**Calculation for finding value of C**

Putting the value of X=1, corresponding Y=337 as given in 1<sup>st</sup> and 2<sup>nd</sup> column in Table 7,

We get,

$1^n \times 337=C, [1^n =1]$

Or  $C=1 \times 337=337$ .

**Calculation for finding value of n**

Putting the data of 2nd row in the equation, X=2, Y=38, and C=337,

We get,

$$2^n \times 38 = 337$$

$$\text{or } 2^n = 337/38 = 8.868$$

Taking log both sides,  $\log 2^n = \log 8.868$

$$\text{or } n \log 2 = \log 8.868$$

$$\text{or } n \times 0.301 = 0.947$$

$$\text{or } n = 0.947/0.301 = 3.146 = 3.15 \text{ (approximately).}$$

Therefore,  $n = 3.15$

Now, value of Y in each of 4<sup>th</sup> column can be calculated as follows:

$$\text{For } X=2, Y = 337/2^{3.15} = 37.96 = 38.$$

$$\text{For } X=3, Y = 337/3^{3.15} = 10.58 = 11 \text{ and so on.}$$

**Method B:**  $n=2$  in an ideal case

Using inverse square law of Lotka, value of Y can be calculated as follows,

$$\text{Here } Y = C/X^n, \text{ and } n=2,$$

### Calculation of C

When  $X=1$ , and corresponding  $Y=337$ ;

$$\text{So, } C = 337 \times 1^2 = 337 \times 1 = 337.$$

Therefore,  $X=1, Y=337$

$$\text{When } X=2, Y = 337/2^2 = 337/4 = 84.25 = 84$$

Similarly, for  $X=3, Y = 337/3^2 = 37.44 = 37$ , and so on.

Table 7 harvests the actual author is 401 and expected authors are 393 and 501 for the two methods respectively. Using both the values of “n”, the expected values of “Y” have been determined and placed in 4<sup>th</sup> and 5<sup>th</sup> columns for two methods A and B. It is observed from Table 7 that the values of Y are quite close to the actual values when calculated with  $n=3.15$ . On the other hand, the values of Y calculated with  $n=2$ , are far away from the actual values. Except the values for X 1, 2 and 6, it is enumerated using formula A that observed values for X 3, 4, and 5 of 1<sup>st</sup> row are 14, 6, and 5 very close to corresponding calculated values 11, 4, 2 in 4<sup>th</sup> column whereas the same values for 1 to 6 calculating through formula B are far away from actual or observed values

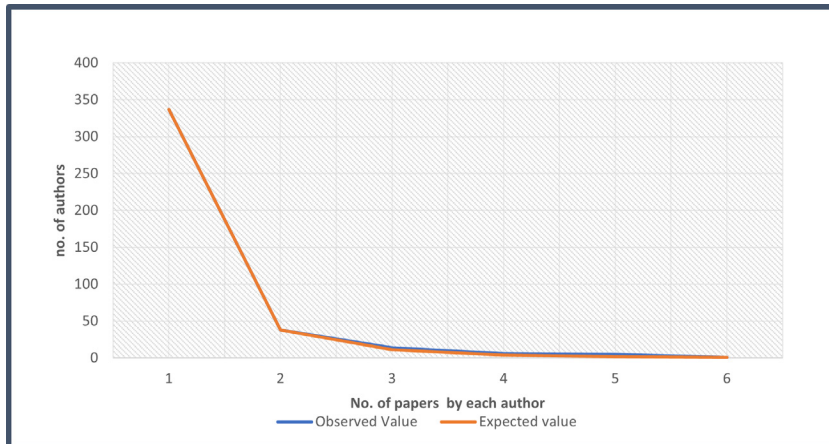


Figure 4: Closeness of two curves of observed and expected values when  $n = 3.15$ .

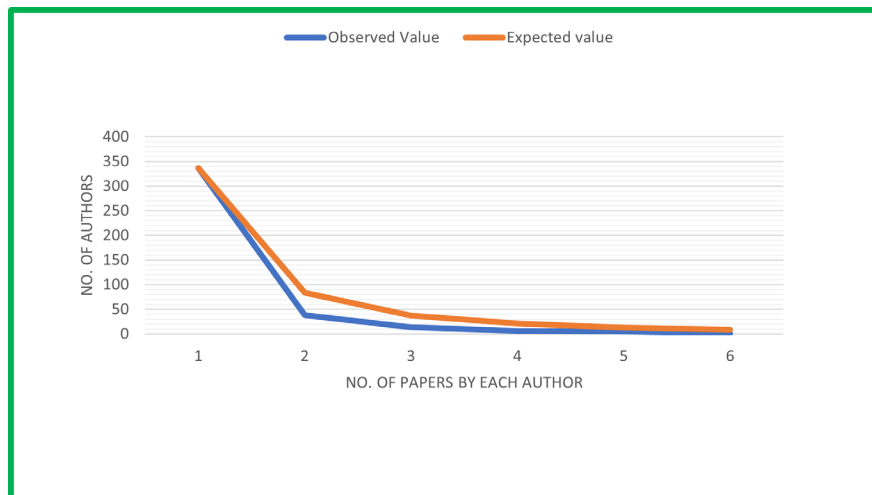


Figure 5: Distinctness of two curves of observed and expected values when  $n = 2$  in ideal cases.

(5<sup>th</sup> column) and the values widely vary from A to B method. Therefore, it may be noted in conclusion that the difference between the two values found using  $n=3.15$  and  $n=2.00$  is rather big i.e.1.15. So, in this case, calculated or expected values using  $n=3.15$  are very closed and good for the data; by and large it follows Lotka's Law for the data set of this study. Figure 4 shows closeness of the Observed Values (OV) and Expected Values (EV) when  $n=3.15$  whereas Figure 5 demonstrates distantness between OV and EV accounting for the values as  $n=2$  (in ideal case of Lotka's exponent).

## CONCLUSION

However, with the value of  $n=3.15$ , the observed and calculated values are found to be very close through the present study. It must be noted that Prof. B. K. Sen carried out a study on application of Lotka's Law in LIS field in 1996. Data were taken from LISA 1992 and 1993. In his study, he also proved that calculated values obtained with the value of  $n=2$  in real case were widely different from the real or observed values, and in the case of the value of  $n$ , not equal to 2, the calculated values are found to very close to the observed value (Sen, Taib and Hassan, 1996). After the long time, this present study collects data in the same field from IASLIC Bulletin during 2011-2024, and final finding is representing same trends in author productivity as found by Sen 29 years ago through his study in the field of library and information science. Value of  $n=3.15$  is higher than  $n=2$ . It causes due to a smaller number of papers published by a smaller number of authors as also found for the data set in the source journal "IASLIC Bulletin" for this study.

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## CONFLICT OF INTEREST

The author declares that there is no conflict of Interest.

## ABBREVIATIONS

**LIS:** Library and Information Science; **ORS:** Oral Rehydration Solution; **SAP:** Single Authored Papers; **MAP:** Multiple Authored Papers; **FYP:** First Year of Publication; **LYP:** Last Year of

Publication; **TAP:** Two Authored Paper; **THAP:** Three authored Paper; **FAP:** Four Authored Paper; **NP:** No. of Papers.

## SUMMARY

This research article explores author productivity in Library and Information Science (LIS) research articles published in the 'Archives of IASLIC Bulletin' from 2011 to 2024. The study analyzes 277 articles by 510 authors, examining publication trends, authorship patterns, gender distribution, and leading authors. A key focus is the application of Lotka's Law to determine if it accurately predicts author productivity within this dataset. The study found that Lotka's Law is applicable, with a calculated value of  $n=3.15$  providing a closer fit to the observed data than the traditional  $n=2.0$ . The findings suggest that author productivity in the 'IASLIC Bulletin' follows similar trends to those observed in other LIS studies, with a relatively small number of authors contributing a large proportion of the publications.

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