



Evaluating author productivity and journal professionalism using Lotka's Law

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ABSTRACT

Lotka's law is a bibliometric approach that examines the authorship distribution. The study in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan evaluated authors' productivity and professionalism in three ways using Lotka's law: straight count, complete count, and proportionate count. This study involved data collection, cleaning, and extraction, as well as data analysis. Data are collected directly from the Jurnal Ilmu Informasi Perpustakaan dan Kearsipan. Data cleaning and extraction are necessary to ensure data veracity. The third stage involves data analysis using straight, complete, and proportionate count processes along with Lotka's law. The results show that the calculation using the straight count follows Lotka's law, whereas the complete count does not. This journal is unprofessional. The use of straight count and complete count will agree with Lotka's proposition if journal management is done properly. Suggestions for further research: Lotka's law technique can be used to assess a journal's professionalism in terms of article publication and dissemination.

ABSTRAK

Hukum Lotka adalah pendekatan bibliometrik yang meneliti distribusi kepengarangan. Penelitian ini pada Jurnal Ilmu Informasi Perpustakaan dan Kearsipan mengevaluasi produktivitas dan profesionalisme penulis dalam tiga cara menggunakan hukum Lotka: penghitungan langsung, penghitungan lengkap, dan penghitungan proporsional. Studi ini melibatkan pengumpulan, pembersihan, dan ekstraksi data, serta analisis data. Data dikumpulkan langsung dari Jurnal Ilmu Informasi Perpustakaan dan Kearsipan. Pembersihan dan ekstraksi data diperlukan untuk memastikan kebenaran data. Tahap ketiga melibatkan analisis data menggunakan proses penghitungan langsung, lengkap, dan proporsional bersama dengan hukum Lotka. Hasil penelitian menunjukkan bahwa perhitungan menggunakan penghitungan langsung sesuai hukum Lotka, sedangkan penghitungan lengkap tidak sesuai hukum Lotka. Jurnal ini tidak profesional. Penggunaan penghitungan langsung dan penghitungan lengkap akan sesuai dengan proposisi Lotka jika manajemen jurnal dilakukan dengan benar. Saran untuk penelitian lebih lanjut: metode hukum Lotka dapat digunakan untuk mengukur profesionalisme jurnal dalam hal publikasi dan penyebaran artikel.

Keywords: Bibliometrics; Lotka's law; Professionalism journal

1. INTRODUCTION

Numerous emerging bibliometric methodologies can be applied in research. The bibliometric method can be applied to a wide range of subjects (Al-Raei, 2023; Chen et al., 2023; Cheng et al., 2023; Chirinos et al., 2023; Dželalija & Roić, 2023; X. Li et al., 2023; Liu et al., 2023; López-Muñoz et al., 2023; Lu et al., 2023; K. Sharma et al., 2023; Shiah et al., 2023; Wang et al., 2023; Zhang et al., 2023). The bibliometric method is used to analyze large amounts of cumulative research using secondary data in the form of bibliographic data (Adnan et al., 2022; Caballero et al., 2023; Hasenay & Aćkar, 2022; Lee et al., 2023; Li, 2022; Nuryana et al., 2023; Vivarelli, 2023; Yanhui et al., 2022). In bibliometric research, bibliographical information can be analyzed in many different ways, especially when it comes to authorship analysis. In cumulative research, the productivity of the author can be ascertained using the bibliometric method of authorship analysis. Aside from understanding the author's work, the authorship pattern among authors, which is related to author

collaboration can also be recognized (Alshaikh, 2023; Asatani et al., 2023; Barbu, 2023; J. Li et al., 2023; Mehta et al., 2023; Mitrović et al., 2023; Mohammed et al., 2023; Singh, 2023; Zakaria et al., 2023; Zharova et al., 2023).

However, most analyses of bibliographic data, particularly those pertaining to author columns, simply take into account the total number of entries. Author analysis based on author weight is still not implemented (Bolaños et al., 2022; Desai et al., 2018; Kalcioglu et al., 2018; Qua et al., 2021). Determining the author's weight is crucial in determining the author's productivity in a cumulative study, whether it is representative or not (Donner, 2020; Lee, 2022; Shi et al., 2019; Wang et al., 2019). Straight count, complete count, proportional count, adjusted count, harmonic count, geometric count, and golden count are ways for determining the composition of the author's weight when analyzing the author's contribution in an article (Todeschini and Baccini, 2016). Each method for calculating the author's weight has its own set of standards or rules. The first author is the only one whose weight is recognized by the straight count technique; the other authors are excluded. The complete count technique calculates the weight of each author who contributed to the literature. The proportionate count approach calculates the author's weight based on the authors' contributions 1, 2, 3, and so on, resulting in different amounts for each author. The adjusted count, also known as fractional count, is the author's weight composition determined by dividing the average contribution value across authors 1, 2, 3, and so on.

The author's weight composition measurement method can be applied to journals or various scientific fields to analyze cumulative study results and draw conclusions. Lotka's law analysis, as well as the author's weight are used in this study to establish the weight of authorship. Lotka's law is a bibliometric technique focusing on the distribution of authorship (Kushairi & Ahmi, 2021; Sahu & Jena, 2022; Tunga, 2021). Lotka's law can be used to both straight and complete count procedures. In Indonesia, numerous journals are published by various entities. The Ministry of Education and Culture oversees Sinta (Science and Technology Index), which rates Indonesian publications. The reasons for Jurnal Ilmu Informasi Perpustakaan dan Kearsipan Sinta-Indexed 4 are as follows: this journal is in the process of developing into a high-quality and recognized reference publication. This measurement approach can also be used to evaluate the performance of Indonesian journals. There are significant gaps between this research and earlier research. Several previous studies on employing straight count and complete count methodologies to analyze journal performance were completed. (Naheem et al., 2015; Naqvi & Fatima, 2017). The previous study used straight count, complete count, and proportional count procedures but did not apply Lotka's law method (Egghe et al., 2000). This study will evaluate author productivity and professionalism in a journal using the straight count, complete count, and proportional count approaches, as well as Lotka's law, in the indexed Jurnal Ilmu Informasi Perpustakaan dan Kearsipan, Sinta 4.

2. LITERATURE REVIEW

2.1 Bibliometric

Bibliometrics is a quantitative examination of descriptive statistics (Carlos et al., 2024; Thompson & Walker, 2015) that examines bibliographic data contained in publications (e.g., journal articles, books, policy papers, patents, news, etc.). The bibliometric method, including association tests for citation and social media variables, can be used for quantitative analysis of inferential statistics (Fox et al., 2024; Ivanović et al., 2025; Mullins et al., 2020; S. Sharma et al., 2023; Valizadeh-Haghi et al., 2022). Bibliometric research can assess state productivity, institutional, and even individual productivity. According to Lotka's law, bibliometric methods can also be used to measure the distribution of authors, identify the most productive journals and even the most productive and influential authors, and determine the topics that are trending in a particular field (Aytac et al., 2025; Sahu & Jena, 2022; Singh & Jaiswal, 2025).

2.2 Lotka's law

Bibliometrics (1922) is the source of Lotka's law, which was initially presented by Alfred J. Lotka in the early 1900s (1926). For certain themes, nations, institutions, and journals, the frequency distribution of authors is determined using Lotka's law (Amanullah et al., 2025; Aytac et al., 2025; Bisaria, 2020; Da Silva et al., 2019; Fadhli et al., 2023; Singh & Jaiswal, 2025). Lotka's law method is centered on author measurement. Calculations pertaining to the authorship weight assessment's composition are directly tied to authorship (Todeschini & Baccini, 2016). Todeschini and Baccini (2016) state that the authorship weight is made up of the following: proportional count, adjusted count, proportional count, geometric count, harmonic count, golden count, straight count (first author/senior author), and full count (normal count/standard count/total author count). The distribution of author frequencies applied to Lotka's law technique, however, can be determined using the authorship weight, which is both a straight and complete count.

2.3 Journal

A journal is a database or storage space for a collection of articles published in each volume and year. Every scientific discipline has journals, each with a distinct scope based on its unique features. According to the citations gathered from the article's publication, journals have their own ratings on their respective index rankings, such as Sinta (Ahmadi, 2019; Supranto et al., 2021), Scimago journal ranking (SJR) (Melero-Fuentes et al., 2025), and journal citation report (JCR) (Kim & Atteraya, 2024). Furthermore, the journal object can address citation points. Given the volume of authors who submit to journal papers, the question of authorship in journals can be comprehensively explored, particularly when using Lotka's law method.

3. METHOD

This study uses a quantitative method with a bibliometric approach, specifically Lotka's law. The purpose of this study is to measure authors' productivity and professionalism in journals using Lotka's law in three ways: straight count, complete count, and proportionate count in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan. This study includes three stages: data collecting, data cleaning and extraction, and data analysis.

3.1 Data collection

Data for this study were acquired from Jurnal Ilmu Informasi Perpustakaan dan Kearsipan (E-ISSN: 2302-3511), Padang State University, and were indexed by Sinta, specifically Sinta 4, between 2013 and 2022. During the data collection phase, researchers used the Publish or Perish (PoP) program to retrieve the necessary data by inputting the journal's E-ISSN. The acquired data is exported to Microsoft Excel as a CSV file.

3.2 Data cleaning and extraction

The exported data is next processed for data purification, which entails directly matching Excel data to the journal website. If two titles have the same title, only one is chosen, and if the journal website discovers a missing title, it is removed. After filtering, 426 items were obtained after manual entry. 8 articles were removed because they were not on the website, whereas 14 were added because they were not recorded when the data were first collected.

The researcher then creates an ID for each author based on their position, to make the data accessible when loaded into Rstudio and biblioshiny software. This is done after comparing the Excel data to the journal website. Using text to column/conditional formatting and countif to identify duplicate names, the researcher established the author's ID and separated the first, second, third, and so on authors.

3.3 Data analysis

To estimate the worth of the author's contribution using the straight count, complete count, and proportional count approaches, the data obtained in the CSV file is analyzed with Rstudio and Biblioshiny software. When employing the straight count technique to determine the value of each author's contribution, only the first/primary author is counted, while subsequent authors are ignored. When employing the complete count technique to evaluate the value of their contributions, all authors are assigned a value of one. It differs from the proportional count technique in that the author's position is considered when determining the value of their contribution, resulting in a single number when all contributions are added together. The following formula is used:

The straight count formula:

$$W(1) = 1 \quad w(k) = 0 \quad k = 2, \dots, A \dots (i) \text{ (Todeschini \& Baccini, 2016)}$$

where A is the total number of authors on the manuscript, and k is the author position. The senior scientist in the byline receives credit one, despite the fact that the senior author count is equal to the first author count. assigns the first author a weight of one, and all other authors a weight of zero.

The complete count formula:

$$w(k) = 1 \quad k = 1, \dots, A \dots (ii) \text{ (Todeschini \& Baccini, 2016)}$$

where A is the total number of authors on the manuscript, and k is the author position. Each author's position receives one point.

The proportional count formula:

$$P(k) = \frac{2}{n} \left(1 - \frac{k}{n+1}\right) \dots (iii) \text{ (Todeschini \& Baccini, 2016)}$$

where n is the total number of authors in the paper and k is the author position.

After determining the participation values for all the techniques to be used, the next step is to analyze the pattern of author productivity in the Padang State University Jurnal Ilmu Informasi Perpustakaan dan Kearsipan indexed Sinta 4 using the Lotka's law test and the Kolmonogrov-Smirnov test (K-S Test). The following formula is used:

1. Parameters n and C

To determine the value of parameters n and C, the following formula is used:

$$b = \frac{n(\sum XY) - (\sum X)(\sum Y)}{n(\sum X^2) - (\sum X)^2}$$

$$b = n$$

n = number of pairs of data

x = logarithm of x, i. e. number of articles

y = logarithm of y, i. e. number of authors

$$C = \frac{1}{\sum \frac{1}{x^n}}$$

2. The Kolmonogrov-Smirnov test (K-S test) uses a critical value of $\alpha=0.05$. can be found using the equation $1.36/\sqrt{N}$.

The Lotka Theorem test and the K-S test are not used in the proportional count technique to ascertain the author's productivity pattern because of the limitations of the researchers. In this case, it is difficult to perform calculations based on the Lotka Theorem test and the K-S test because the proportional count computation utilizes a decimal value. Thus, the author who employs this tactic the most successfully can be determined by looking at the highest proportion.

After finding the most prolific author in each strategy used, the researcher examines his/her research competence using the Scientometric method to evaluate the relationship between the research themes. The steps involved searching for papers published in the journal using PoP in the RIS format and extracting them from Mendeley. The next step is to manually validate the journal, eliminate duplicate articles, and use Mendeley to add articles if there are none. Then, using Mendeley, manually enter keywords based on the keywords from each article. After the metadata is completed, it is exported in the RIS format, which includes all the metadata. To assess skills, the final stage is visualization with Vosviewer and interpretation of the appearance and co-occurrence of keywords.

4. RESULT AND DISCUSSION

The three methods of Lotka's law, straight count, complete count, and proportionate count were used in this study to evaluate the productivity and professionalism of authors in the journal published by the Sinta 4-indexed Jurnal Ilmu Informasi Perpustakaan dan Kearsipan.

4.1 Straight Counting

The first strategy is the straight-count method, in which all other authors receive zero points and only the first author of a published piece receives one point.

Table 1. The calculations for Lotka's law parameters

No	Number of articles (x)	Number of authors (y)	X=log x	Y=log y	XY	X ²
1	1	397	0	2.598790507	0	0
2	2	13	0.301029996	1.113943352	0.335330363	0.090619058
3	3	1	0.477121255	0	0	0.227644692
Σ	n=3	411	0.77815125	3.712733859	0.335330363	0.31826375

Source: Author's processed data (2024)

Table 1 displays the author distribution in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan's publications. According to the straight-count approach for obtaining Lotka's law parameters, 397 authors create one article, 13 authors create two articles, and one author creates three. According to Table 1, more people only wrote one article.

Table 2. The Calculation of the value of parameter C

No	Number of articles (x)	Number of authors (y)	X ⁿ	$\frac{1}{X^n}$
1	1	397	1	1
2	2	13	41.97438197	0.023824055
3	3	1	373.5676592	0.002676891
Σ	n=3	411		1.026500947

Source: Author's processed data (2024)

Furthermore, to obtain the value of parameter C, the authors perform calculations by using the formula $C = \sum \frac{1}{X^n}$. The value of n is obtained based on the formula

$b = \frac{n(\sum XY) - (\sum X)(\sum Y)}{n(\sum X^2) - (\sum X)^2}$, where b = -n, so the value of n = 5.3914. The researcher then determines the

value of parameter C based on the formula above and the value contained in Table 2, the value of $C = 0.974183222$.

Table 3. The percentage of number of authors based on observations and theoretical calculations of Lotka's law

with pattern $Yx, X^{5.3914} = 0.974183222$

No	Number of Articles (x)	Number of Authors (y)	% of observed authors (y')	X^n	C	% estimation of Lotka's theoretical value $Y = \frac{C}{X^n}$
1	1	397	96.59367397	1	0.974183222	97.4183222
2	2	13	3.163017032	41.97438197	0.974183222	2.32209
3	3	1	0.243309002	373.5676592	0.974183222	0.260778
Σ		411				

Source: Author's processed data (2024)

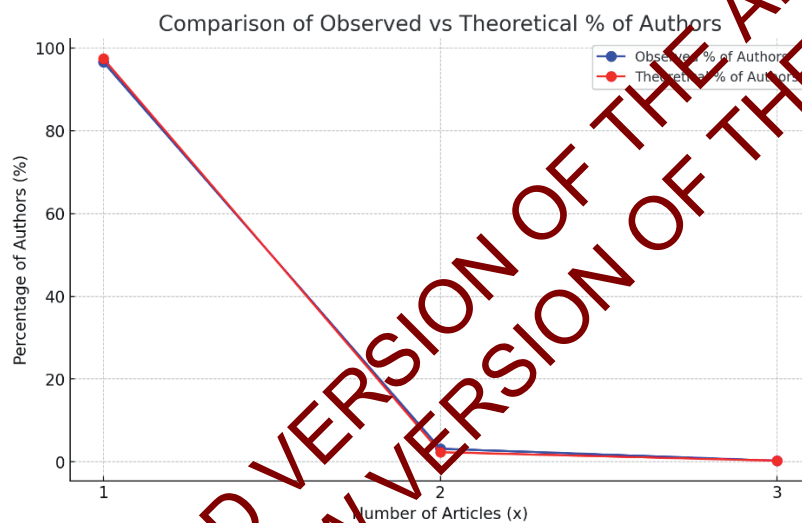


Figure 1. The percentage of number of authors based on observations and theoretical calculations of Lotka's law based on straight count

Source: Author's processed data (2024)

After calculating the value of C, the researcher calculated the theoretical value of Lotka's theorem using the following formula: $Y = \frac{C}{X^n}$. Table 3 indicates the percentage of authors based

on the theoretical Lotka value estimate: 97.41% of the authors wrote one article out of 397 authors. Based on observations, 96.59% of the authors wrote a single article with up to 397 authors. Based on the data in Table 3, no significant difference was found between the percentage of authors based on observations and the percentage of authors based on the estimation of the theoretical Lotka value, with a difference of 0.82% or <1%. $Y = \frac{C}{X^n}$

Table 4. The Kolmogorov-Smirnov test

No	Number of Articles (x)	Number of Authors (y)	% Number of Authors [Y']	Cumulative Sum Y'[Sn(X)]	Lotka's law Theoretical Frequency [Yx]	Cumulative Sum of Theoretical Frequency [F0(X)]	Dmax Fo(x)-Sn(x)
1	1	397	0.96593674	0.96593674	0.974183	0.974183222	0.008246483
2	2	13	0.03163017	0.99756691	0.023209	0.997392217	-0.000174693
3	3	1	0.00243309	1	0.002608	1	0
Σ		411					

Source: Author's processed data (2024)

The next stage is to determine the research hypothesis. The researcher performs a Kolmogorov-Smirnov test to determine the crucial value. The critical value is calculated using the formula $1.36/\sqrt{N}$. therefore, the critical value found = 0.0671 with $\alpha = 5\%$. Table 4 displays the Dmax values. The largest Dmax value was obtained by applying an absolute value, Dmax = 0.008246483. The Dmax value is less than the critical value, indicating acceptance of the null hypothesis or the Lotka proposition. This suggests that there is no significant difference in the percentage distribution of authors based on observations against the percentage distribution of authors based on Lotka theoretical value estimation.



Figure 2. The most productive authors based on straight counting

Source: Author's processed data with R biblioshiny (2024)

Figure 2 reveals that the most productive author in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan using the straight count approach is D. Desriyeni, who published three scientific publications in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan.

4.2 Complete Counting

The second technique to author productivity distribution use the complete count method. The complete count is a method of determining the weight of authors who write a single article by allocating one point to each author. Authors 1, 2, 3, and so on all receive the same point, which is 1.

Table 5. The calculations for calculating Lotka's law parameters

No	Number of articles (x)	Number of authors (y)	X=log x	Y=log y	XY	X ²
1	1	425	0	2.62838893	0	0
2	2	15	0.301029996	1.176091259	0.354038747	0.090619058
3	3	1	0.477121255	0	0	0.227644692
4	5	1	0.698970004	0	0	0.488559067
5	10	1	1	0	0	1
6	21	1	1.322219295	0	0	1.748263863
7	52	1	1.716003344	0	0	2.944667475
8	60	1	1.77815125	0	0	3.161821869
9	69	1	1.838849091	0	0	3.381365979
10	86	1	1.934498451	0	0	3.742284258
11	88	1	1.944482672	0	0	3.781012862
Σ	n=11		13.01132536	3.804480189	0.354038747	20.56623912

Source: Author's processed data (2024)

Table 5 shows the distribution of authors in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan who publish. Lotka's law parameters determined using the complete count approach indicate that 425 authors produce one article, 15 authors produce two articles, and one author produces three to 88 articles. Table 1 reveals that more people wrote a single article.

Table 6. The calculation of the value of parameter C

No	Number of articles (X)	X^n	$\frac{1}{X^n}$
1	1	1	1
2	2	1.742366401	0.573932096
3	3	2.410999085	0.414765815
4	5	3.630016101	0.275480872
5	10	6.32481809	0.158107314
6	21	11.45938138	0.087264746
7	52	23.6919667	0.0422084
8	60	26.56957285	0.037637037
9	69	29.71710224	0.033650657
10	86	35.45081232	0.028208998
11	88	36.10971259	0.02769338
Σ	n=11	178.1067478	2.678948414

Source: Author's processed data (2024)

Furthermore, to obtain the value of parameter C, the author performs calculations by using the formula $C = \sum \frac{1}{X^n}$. The value of n is obtained based on the formula $b = \frac{n(\Sigma XY) - (\Sigma X \cdot \Sigma Y)}{n(\Sigma X^2) - (\Sigma X)^2}$, where b =

-n, therefore value n = 0.8010. The researcher then determines the value of parameter C based on the formula above and the value contained in Table 6, the value of C = 0.373280797.

Table 7. The percentage of number of authors based on observations and theoretical calculations of Lotka's law

with pattern $Yx \cdot X^{0.8010} = 0.373280797$

No	Number of Articles (x)	Number of Authors (y)	% of observed authors (y')	X^n	C	% estimation of Lotka theoretical value $Y = \frac{c}{X^n}$
1	1	425	94.65478842	1	0.373280797	37.32808
2	2	15	3.340757238	1.742366401	0.373280797	21.42378
3	3	1	0.222717149	2.410999085	0.373280797	15.48241
4	5	1	0.222717149	3.630016101	0.373280797	10.28317
5	10	1	0.222717149	6.32481809	0.373280797	5.901842
6	21	1	0.222717149	11.45938138	0.373280797	3.257425
7	52	1	0.222717149	23.6919667	0.373280797	1.575559
8	60	1	0.222717149	26.56957285	0.373280797	1.404918
9	69	1	0.222717149	29.71710224	0.373280797	1.256114
10	86	1	0.222717149	35.45081232	0.373280797	1.052954
11	88	1	0.222717149	36.10971259	0.373280797	1.033741
Σ		449				

Source: Author's processed data (2024)

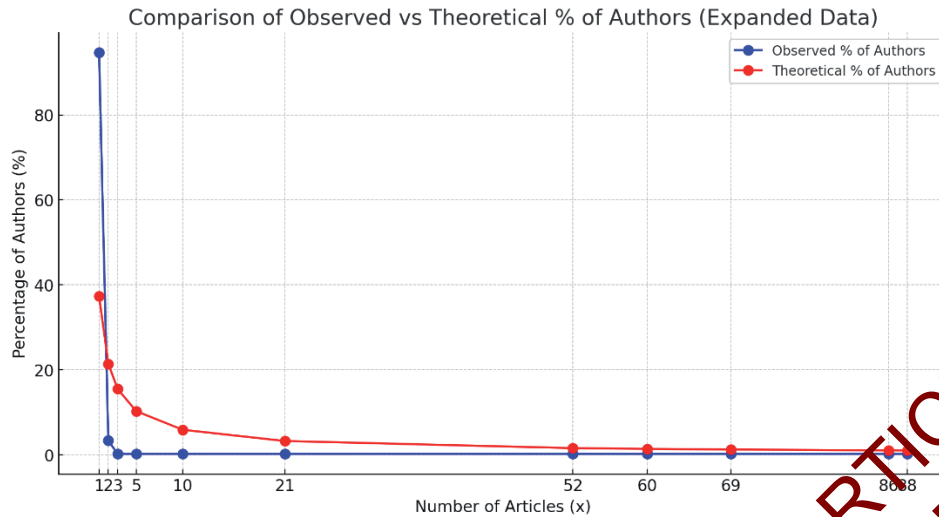


Figure 3. The percentage of number of authors based on observations and theoretical calculation of Lotka's law based on complete count

Source: Author's processed data (2024)

After calculating the value of C , the researcher calculated the theoretical value of Lotka's theorem by using the formula $Y = \frac{C}{x^n}$. Table 7 displays the percentage of authors according to the

theoretical Lotka value: From a total of 425 authors, 37.32% wrote at least one article. While the percentage of authors based on observations is 94.65%, the authors who wrote one piece out of 425 authors. According to the findings in Table 7, there is a substantial discrepancy between the percentage of authors based on observations and the percentage of authors based on estimating the theoretical Lotka value, which is 57.32% or more than 50%.

Table 8. The Kolmogorov-Smirnov test

No	Number of Articles [x]	Number of Authors [y]	% Number of Authors [Y]	Cumulative Sum Y* [Sn(X)]	Lotka's law Theoretical Frequency [Yx]	Cumulative Sum of Theoretical Frequency [F0(X)]	Dmax Fo(x)-Sn(x)
1	1	425	0.946547884	0.946547884	0.373281	0.373280797	-0.57327
2	2	15	0.033407572	0.979955457	0.214238	0.587518628	-0.39244
3	3	1	0.002227171	0.982182628	0.154824	0.742342742	-0.23984
4	5	1	0.002227171	0.9844098	0.102832	0.845174461	-0.13924
5	10	1	0.002227171	0.986636971	0.059018	0.904192885	-0.08244
6	21	1	0.002227171	0.988864143	0.032574	0.936767139	-0.0521
7	52	1	0.002227171	0.991091314	0.015756	0.952522724	-0.03857
8	60	1	0.002227171	0.993318486	0.014049	0.966571908	-0.02675
9	69	1	0.002227171	0.995545657	0.012561	0.979133052	-0.01641
10	86	1	0.002227171	0.997772829	0.01053	0.989662593	-0.00811
11	88	1	0.002227171	1	0.010337	1	0
Σ		449					

Source: Author's processed data (2024)

The researcher then used the Kolmogorov-Smirnov test to determine the research hypothesis and calculate the crucial value. The formula $1.36/\sqrt{N}$ is used to calculate the critical value, which is 0.0642 for $\alpha=5\%$. Table 8 depicts the Dmax value. Dmax = 0.57327 is the maximum value obtained by applying an absolute value. Dmax value > critical value, indicating whether or not the alternative hypothesis is accepted according to the Lotka proposition. The percentage distribution of authors based on Lotka's theoretical value estimation differs significantly from that based on observations.

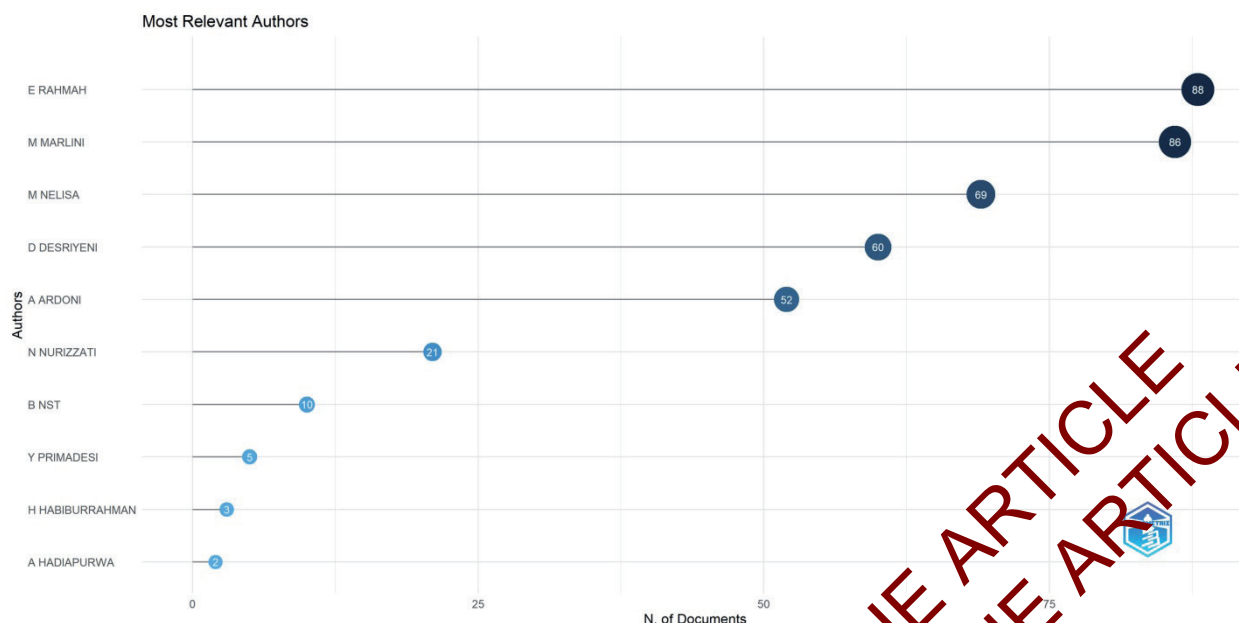


Figure 4. The most productive author based on complete counting

Source: Author's processed data with R biblioshiny (2024)

According to Figure 4, E. Rahmah is the most productive author in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan utilizing the complete count method. E Rahmah (88 scientific papers) was the most prolific author in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan, followed by M Marlini (86) and M Nelisa (69).

4.3 Proportional counting

The proportional count method is the third strategy to determining author productivity distribution. This method differs from previous studies, which only employed two methods to evaluate the performance of a journal: straight count and complete count. The proportionate count technique calculates an author's points based on their position, and the points are summed; all authors are worth 100% or one. In the procedure, explain the percentage of authors. This proportional count approach assigns a value to each author as a decimal fraction or percentage. The author did not test the Lotka and theorem K-S test, but assesses author productivity by manually calculating the cumulative percentage of articles published in journals. The author with the highest percent value is the most productive.

Table 9. The most productive authors

No	Name	Number of articles	Total
1	E Rahmah	88	2933.04%
2	M Marlini	86	2866.38%
3	M Nelisa	69	2309.78%
4	D Desriyeni	60	2149.81%
5	A Ardoni	52	1766.50%
6	N Nurizzati	21	699.93%
7	B Nst	10	333.30%
8	Y Primadesi	5	233.32%
9	N Putri	2	200.00%
10	F Rahayuningsih	2	200.00%
11	H Habiburrahman	3	146.67%

Source: Author's processed data (2024)

Table 9 lists the most productive authors based on proportional calculations. E Rahmah is the most productive author, accounting for 2933.04% of the author's position-based contribution. The total% is the sum of all articles published in the journal according to the author's status.

There is a difference between the Lotka test and the K-S test in research results using the straight count and complete count approaches. The straight count method is utilized, the null hypothesis is accepted, and the author's distribution in the journal corresponds to the Lotka assertion. While the methodology uses the complete count method, the alternative hypothesis is accepted, resulting in a distribution of authors in the journal that does not reflect the Lotka proposition. Previous research employed the Lotka proposition's straight count method to analyze articles (Naqvi & Fatima, 2017). However, the data utilized to analyze the journal was gathered over a relatively short period of time, between 2012 and 2014. While lotka postulate research takes a long time, lotka analysis is appropriate for huge data sets (Da Silva et al., 2018). Previous research using the straight count method to analyze journals in the United States and the United Kingdom over a decade (2007-2017) found data that refuted the lotka hypothesis (Bisaria, 2020).

D Desriyeni is the most productive author to employ the straight count method. While the most productive authors use both the complete count and the proportional count techniques, one author uses both strategies equally well: E Rahmah. has 88 scientific articles in the journal, with a total cumulative percentage of 2933.04%. The researcher use a scientometric approach to analyze the distribution of study subjects that the most productive authors commonly investigate.

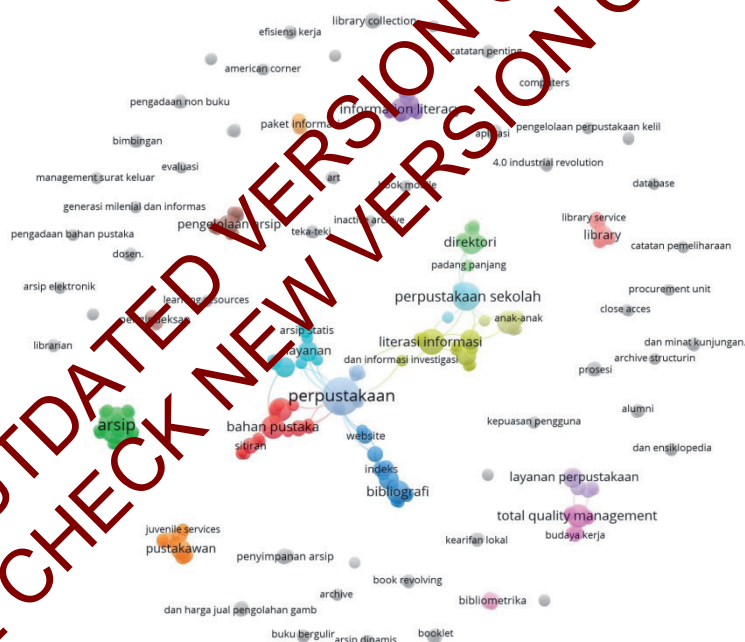


Figure 5. The Visualization of the subject of Elva Rahmah's scientific work

Source: Author's processed data with VOSViewer (2024)

Figure 5 shows that E Rahmah's research themes in the Jurnal Ilmu Informasi Perpustakaan dan Kearsipan publications are diverse and not narrowly focused. E Rahmah's research topic was not concentrated; hence the study was not in-depth or complete. As a result, the visibility of potential citations decreases. E Rahmah is a lecturer at Padang State University, which publishes the journal Jurnal Ilmu Informasi Perpustakaan dan Kearsipan. According to the conclusions of this study, the use of straight count, complete count, and proportional count methods to evaluate

journal performance is heavily influenced by the journal's condition. Professional journal indicators determined using the straight and complete count method and Lotka's law approach will be fit with Lotka's law. The use of straight count, complete count will be in compliance with the Lotka's law concept provided the journal administration is done correctly.

5. CONCLUSION

Lotka's law method is used to assess author productivity and professionalism in journals using straight count and complete count. This study finds the distribution of authors in Jurnal Ilmu Informasi Perpustakaan dan Kearsipan using the straight count method, demonstrating that it adheres to the Lotka test. The Lotka test does not apply to the results of a study on author distribution in the Jurnal Ilmu Informasi Perpustakaan dan Kearsipan that used the complete count approach. D Desriyeni is the most productive author in the Jurnal Ilmu Informasi Perpustakaan dan Kearsipan according to the straight count approach. E Rahmah, on the other hand, is the most productive author who employs the complete and proportional count methods. Based on the results of this study, this journal is not a professional journal. Professional journal indicators determined using the straight and complete count method and Lotka's law approach will be consistent with Lotka's law. Professional journal management can increase the effect (impact factor) over time. However, this study has numerous disadvantages. The lotka's law approach requires vast amounts of data. Therefore, the volume of data must be sufficient, and the time period must be longer. This research contributes scientifically, particularly for journal managers who publish articles; it should not be based solely on the author's popularity. However, it must prioritize the quality of research findings and conduct the review process fairly. Suggestions for further research Lotka's law approach, which uses straight and complete counts, can be used to quantify the professionalism of a journal in producing and disseminating papers.

DECLARATIONS

Data Availability

The dataset supporting the findings of this study is available in the RIN Dataverse repository: Cecep Ibrahim, Rahmat Fadhli, and Eka Suaib (2026), "Evaluating Author Productivity and Journal Professionalism Using Lotka's Law", <https://hdl.handle.net/20.500.12690/RIN/3PJZDF>

CRediT (Contributor Roles Taxonomy)

Cecep Ibrahim: Conceptualization, Methodology, Software. **Cecep Ibrahim:** Data Curation, Writing-Original Draft Preparation. **Rahmat Fadhli:** Visualization, Investigation. **Cecep Ibrahim:** Supervision. **Cecep Ibrahim:** Software, Validation. **Eka Suaib:** Writing-Review and Editing.

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I state that there are no known conflicts of interest linked with this publication, and that there has been no significant financial assistance for this work that could have influenced its outcome.

The use of AI or AI-assisted technologies

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