

# Authorship Analysis of JOI Articles (2007-2016)

G.S. Mahalakshmi\*, G. Muthu Selvi\*\*  
and S. Sendhilkumar\*\*\*

## ABSTRACT

Authors tend to collaborate with one another as co-authors in producing a research paper. This is another reason for the quality of article (ideally) and is also a factor for fetching more citations. However, as a single author, the quantity of citations earned definitely propagates the research strength of the author. But, this has to appear at the cost of coerciveness. Coercive citations earned may not be true to the purpose; As like self-citations which show the progress of continuing research, coercive citations too are an indicative of how a research article published in a journal is followed through research. Measuring coerciveness is unavoidable to substantiate such claims. This article presents a detailed analysis of authorship & citation patterns in JOI (Journal of Informetrics) over the decade.

**Keywords:** JOI, Authorship Analysis, Citation, Earned Citations, Productivity

## 1. INTRODUCTION

Scientific articles have to be analysed for measuring author collaborations across the globe [1]. This would help us to analyse how the research communities are evolving across continents [2][3]. Journal of Informetrics is a specialized journal that started its publication in 2007[4][5] for publishing articles in Bibliometrics. Earlier it was a playground for library and information science researchers; however, as text mining and AI research were matured, application of AI techniques to derive new insights into the publishing patterns were gaining the attention. This paper aims at analyzing the articles [6] published in Journal of Informetrics over the past ten years to obtain interesting insights over authorship behavior. The following objectives were assumed for the study: 1. To find the most promising contributing author 2. To find the most promising collaborating author.

## 2. PREVIOUS WORK

Upon analysing the share of international authorship patterns of JOI over the decade [6], we examine that China tops the contributions to Journal of Informetrics with 65 publications. The percentage share of China, USA, Germany, Italy, Netherlands, Belgium, Spain and UK are more significant in contributing towards the establishing of Journal of Informetrics. With China topping the country wise contribution of research articles to Journal of Informetrics, both USA and Germany are also equally competitive in terms of publication count. The total publications till date are 663 and the top 8 countries contribute to 436 publications. In other words, these eight countries contribute to the share of 65.8 % of the total publications of Journal of Informetrics.

\* Department of Computer Science & Engineering, Anna University, Chennai, Tamilnadu, INDIA, Email: [gsmaha@annauniv.edu](mailto:gsmaha@annauniv.edu)

\*\* Department of Computer Science & Engineering, Anna University, Chennai, Tamilnadu, INDIA, Email: [gmuthuselvi16@gmail.com](mailto:gmuthuselvi16@gmail.com)

\*\*\* Department of Information Science & Technology, Anna University, Chennai, Tamilnadu, INDIA, Email: [ssk\\_pdy@yahoo.co.in](mailto:ssk_pdy@yahoo.co.in)

### 3. AUTHORSHIP ANALYSIS

**Table 1**  
**Top 20 Country-wise citations & Total Impact**

<i>Country</i>	<i>Total Citations Received*</i>	<i>Total Impact = Total Citations/ Total Publications</i>	<i>Country</i>	<i>Total Citations Received*</i>	<i>Total Impact = Total Citations/ Total Publications</i>
The Netherlands	1468	27.19	Canada	263	13.8
USA	1136	17.75	Sweden	223	24.78
Spain	1012	20.24	Israel	192	38.4
Germany	767	12.37	Douglas	139	46.3
UK	686	20.79	Hungary	136	19.43
Italy	491	8.93	Taiwan	136	6.8
China	477	7.34	Portugal	118	19.67
Belgium	400	7.55	France	109	10.9
Switzerland	351	21.94	Poland	107	4.65
Australia	276	18.4	Denmark	101	12.6

\*October-November 2016

Table 1 discusses the top-20 countries who have managed to obtain more citations in JOI. Though China has topped the contributions and the share of international authorships [6], the citations earned is less and ranks 7<sup>th</sup> when compared to citations analysis. Netherlands tops the citations earned and thereby producing enough impact with their research articles through JOI. The discussion takes a different turn when we examine the authors who topped the publication count. Lutz Bornmann, a Germany researcher has published more articles in Journal of Informetrics till date. The impact created by author is yet to be studied over the global arena. The reason is that author name resolution is needed for 'Lutz Bornmann' as two different records, from Germany and Switzerland have the same name (refer Table 2).

**Table 2**  
**Number of papers published (Author-wise)**

<i>Author</i>	<i>Country</i>	<i>Papers Published</i>
Lutz Bornmann	Germany	33
Giovanni Abramo	Italy	26
Ronald Rousseau	Belgium	16
L. Egghe	Belgium	14
LudoWaltman	The Netherlands	13
Mike Thelwall	UK	13
LoetLeydesdorff	The Netherlands	12
Lutz Bornmann	Switzerland	12
MarekKosmulski	Poland	11
Michael Schreiber	Germany	11

As can be seen from the Table 3, the author 'Lutz Bornmann' from Germany, though has high productivity, and high citations earned, ranks 14<sup>th</sup> when analyzing the average citations earned. On the other hand, author 'P.chen' belonging to United States has got the lowest productivity but has gained fairly high number of citations and thereby the citation average. In fact, out of two papers published, author 'P.Chen' has achieved upto 209 citations till date. However, upon measuring the citation coerciveness over the total earned citations of every author, which means, citing to the articles published in the same parent journal or one of that

**Table 3**  
**Author-wise contribution to Journal of Informetrics**

<i>Author</i>	<i>Country</i>	<i>Papers Produced*</i>	<i>Citations Earned*</i>	<i>Total Impact = Total citations Earned / Total Publications</i>
Lutz Bornmann	Germany	33	507	15.36
LoetLeydesdorff	The Netherlands	12	343	28.58
LudoWaltman	The Netherlands	13	342	26.31
Lutz Bornmann	Switzerland	12	319	26.58
Henk F. Moed	The Netherlands	4	237	59.25
Giovanni Abramo	Italy	26	226	8.69
P. Chen	United States	2	209	104.5
Judit Bar-Ilan	Israel	3	192	64
Rudy Prabowo	UK	3	178	59.33
AlirezaAbbasi	Australia	4	153	38.25
Massimo Franceschet	Italy	4	144	36
Quentin L. Burrell	Douglas/Belgium	5	140	28
Ying Ding	USA	3	123	41
Michael Norris	UK	2	116	58
Andras Schubert	Hungary	2	112	56
Michael Schreiber	Germany	11	102	9.27
E.S. Vieira	Portugal	2	97	48.5
L. Egghe	Belgium	14	92	6.57

\*October-November 2016

belonging to the same publisher, author 'Lutz Bornmann' from Germany accounts to an earnings of 142 coercive citations out of the total 507 citations earned.

Author 'P.Chen' from United states, who has obtained the highest average citations, is one among the few authors (Table 4) who have earned citations from other publication amenities apart from the own publisher or journal of informetrics. The high impact created by 'P.Chen' could have benefited from the reference purity aka coerciveness factor, in the article produced to JOI. This does not mean that 'P.Chen' did not make an attempt to understand the earlier work of the JOI authors; instead, the author is capable of creating impact outside the coercive zone thereby carrying the journal quality on their shoulders.

**Table 4**  
**List of authors without coercion**

<i>Author</i>	<i>Country</i>	<i>Papers Produced</i>	<i>Citations Earned*</i>	<i>Citations Earned (Avg.)</i>
P. Chen	United States	2	209	104.5
Rudy Prabowo	UK	3	178	59.33
Andras Schubert	Hungary	2	112	56
Bo Jarneving	Sweden	2	43	21.5
Ronald N. Kostoff	USA	2	36	18
Kevin W. Boyack	USA	3	31	10.33

\*October-November 2016

Table 4 lists the authors of Journal of Informetrics who have achieved the citations outside the coercive zone. This has created the interest in mining more of author publication – citation patterns in Journal of Informetrics, as to deriving who is the best author till date. We tend to arrive at a solution for this question using machine learning algorithms by semantically analysing the author’s contributions.

Table 5 lists the top-cited research articles published by sole authors in JOI. It is well inferred that ‘Lutz Bornmann’ tops in the publication count (Table 3) whereas, author ‘P.Chen’ has the highest citation impact (Table 3) till date.

**Table 5**  
**List of top-cited articles with Single Authors (Top 20)**

<i>Top Cited Article</i>	<i>Citation*</i>
Moed, Henk F. “Measuring contextual citation impact of scientific journals.” <i>Journal of Informetrics</i> 4.3 (2010): 265-277.	398
Bar-Ilan, Judit. “Informetrics at the beginning of the 21st century—A review.” <i>Journal of informetrics</i> 2.1 (2008): 1-52.	291
Lundberg, Jonas. “Lifting the crown—citation z-score.” <i>Journal of informetrics</i> 1.2 (2007): 145-154.	207
Ding, Ying. “Scientific collaboration and endorsement: Network analysis of coauthorship and citation networks.” <i>Journal of informetrics</i> 5.1 (2011): 187-203.	122
Schreiber, Michael. “A modification of the h-index: The h m-index accounts for multi-authored manuscripts.” <i>Journal of Informetrics</i> 2.3 (2008): 211-216.	119
Burrell, Quentin L. “Hirsch’s h-index: A stochastic model.” <i>Journal of Informetrics</i> 1.1 (2007): 16-25.	104
Rousseau, Ronald. “The influence of missing publications on the Hirsch index.” <i>Journal of Informetrics</i> 1.1 (2007): 2-7.	86
Bornmann, Lutz. “Do altmetrics point to the broader impact of research? An overview of benefits and disadvantages of altmetrics.” <i>Journal of Informetrics</i> 8.4 (2014): 895-903.	85
Burrell, Quentin L. “On the h-index, the size of the Hirsch core and Jin’s A-index.” <i>Journal of Informetrics</i> 1.2 (2007): 170-177.	83
Jarneving, Bo. “Bibliographic coupling and its application to research-front and other core documents.” <i>Journal of Informetrics</i> 1.4 (2007): 287-307.	79
Tol, Richard SJ. “A rational, successive g-index applied to economics departments in Ireland.” <i>Journal of Informetrics</i> 2.2 (2008): 149-155.	78
Vanclay, Jerome K. “Ranking forestry journals using the h-index.” <i>Journal of informetrics</i> 2.4 (2008): 326-334.	77
Perc, Matjaž. “Growth and structure of Slovenia’s scientific collaboration network.” <i>Journal of Informetrics</i> 4.4 (2010): 475-482.	77
Woeginger, Gerhard J. “An axiomatic analysis of Egghe’s g-index.” <i>Journal of Informetrics</i> 2.4 (2008): 364-368.	73
Ding, Ying. “Community detection: Topological vs. topical.” <i>Journal of Informetrics</i> 5.4 (2011): 498-514.	71
Zitt, Michel. “Citing-side normalization of journal impact: A robust variant of the Audience Factor.” <i>Journal of Informetrics</i> 4.3 (2010): 392-406.	60
Glänzel, Wolfgang. “Characteristic scores and scales: A bibliometric analysis of subject characteristics based on long-term citation observation.” <i>Journal of Informetrics</i> 1.1 (2007): 92-102.	59
Waltman, Ludo. “An empirical analysis of the use of alphabetical authorship in scientific publishing.” <i>Journal of Informetrics</i> 6.4 (2012): 700-711.	56
Khreisat, Laila. “A machine learning approach for Arabic text classification using N-gram frequency statistics.” <i>Journal of Informetrics</i> 3.1 (2009): 72-77.	51
Bornmann, Lutz. “Towards an ideal method of measuring research performance: Some comments to the Opthof and Leydesdorff (2010) paper.” <i>Journal of Informetrics</i> 4.3 (2010): 441-443.	48

However, 'P.Chen' has failed to produce research impact via JOI, as a single author. Contributions of 'P.Chen' have achieved much acclaim due to the very nature of his collaborations with other authors; however. 'Lutz Bornmann' has managed to make a mark as a sole author as well (Table 5). This creates further interest to study the authorship contribution analysis of 'Lutz Bornmann' to analyse his role of authorship among the articles authored as co-author in JOI.

#### 4. CONCLUSION

The paper has made a detailed study on authorship behavior and citations earned, in Journal of Informetrics. However, the study has left behind many interesting problems for which solutions need to be addressed in the future. Popular investigations include: analyzing the citation coerciveness of authors & co-authors, citation relevance and purity, author collaboration behavior, and author quality analysis by semantic means.

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