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Citations and Readership: A Bibliometric Analysis of the *Athens Journal of Sports*

*By Gregory T. Papanikos**

The Athens Journal of Sports (AJSPO) first appeared in 2014 as an academic quarterly journal, fulfilling the mission of the Athens Institute, which was established in 1995. This paper presents bibliometric statistics on articles published from the journal's first volume in 2014 to its most recent volume in 2024. Knudson (2025) provided a comparative evaluation of AJSPO, and this study serves as a complement to his work. Key bibliometric statistics are analyzed, including the number of citations per published paper (as reported by Google Scholar and ResearchGate), the number of reads recorded by ResearchGate, and the year of publication. Over its first 11 years, AJSPO published 177 papers—an average of 16 per year—authored by 369 researchers from 48 different countries. A regression analysis indicates that the publication year positively associated the number of citations per paper, though notable exceptions exist. Additionally, as expected, the number of reads reported by ResearchGate has a positive association with citations. Surprisingly, the number of authors per paper has a negative association with the total number of citations per paper.

Keywords: *Athens Journal of Sports (AJSPO), Bibliometrics, number of authors, paper reads, Google Scholar, ResearchGate.*

Introduction

Independent open-access publishing has been increasing, mainly due to the role of technology (the internet), which has significantly reduced overall costs by eliminating the need for printed journals[1]. All academic journals now appear as e-journals, although some are still available in print. The Athens Institute, a global association of academics and researchers based in Athens, has capitalized on this technological advancement and began publishing a number of e-journals in 2014, with many more added in the following years. As of 2025, it publishes 20 scientific journals (https://www.athensjournals.gr/).

In addition, computing and internet technology has enabled an independent, almost automatic evaluation of visibility—specifically, how many academics access and read the journals articles—and contribution—how many academics cite papers published in the journal in their subsequent publications. These two metrics, now openly available for verification, are applied here to a specific journal published by the Athens Institute.

*President, The Athens Institute, Greece. The author has previously taught in many Canadian, Greek and U.K. Universities.

[1]This has drastically changed the private publishing industry, making competition very stiff to the point that some engage in unfair practices, including slandering independent publishers. These issues have been examined in Papanikos (2022a, 2022b) and Kumar (2022a, 2022b).

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The aim of this paper is to analyze the number of citations based on Google Scholar and ResearchGate and the numbers of reads as reported and explained by ResearchGate. This study was inspired by the work of Knudson (2025), who evaluated the Athens Journal of Sports (AJSPO) using available bibliometric statistics. He concluded that:

> These results indicate that AJSPO has good visibility and usage according to Google Scholar for a relatively new, 11-year-old journal in the kinesiology/exercise and sport science field.

This paper extends this discussion by examining (a) how the year of publication affects the number of citations and (b) how reads are related to citations. To achieve this, we develop a simple regression model in which the number of citations depends on the year of publication, the number of reads, and several other factors, such as the number of authors per paper, the paper length, and the national affiliations of the authors.

Including this introduction, the paper is organized into five sections. The next section provides a brief overview of the journal, its mission, and its history. Section three presents descriptive statistics for all relevant variables, except for reads and citations, which are discussed in section four. Section five reports the regression results, and the final section summarizes the main findings.

The History of the AJSPO

The AJSPO was one of the first academic journals published by the Athens Institute. The decision to launch the journal was made in 2010 during the two annual sports conferences organized by the Sports Unit of the Athens Institute. Members and friends of the institute suggested that, instead of publishing a book of proceedings, it would be more efficient and effective to start an academic journal on sports.

The first annual sports conference began in 2000 and has since been held every year in the second week of May in Athens. In 2005, a second sports conference was introduced, taking place during the last week of July.

In 2025, the institute will organize its 25th (https://www.atiner.gr/sports) and 21st (https://www.atiner.gr/fitness) annual conferences, respectively. Selected papers from these two conferences were previously published in a book of proceedings, with seven such books published by 2010 (https://www.atiner.gr/spo-books).

After 2010, papers presented at these conferences were considered for publication in AJSPO instead of the book of proceedings, which was discontinued. However, all conference participants are informed that acceptance of an abstract for presentation does not guarantee publication, as the journal follows a separate evaluation process, which is clearly stated on its website.

Around 2012, a series of working papers was introduced, along with a conference paper presentation series. A key development was that AJSPO also began accepting submissions from authors who had not presented at any of the Athens Institute's conferences.

Thus, AJSPO had a strong foundation to build upon. The two conferences, along with independent submissions, provided a substantial pool of papers for the editorial board to review. The acceptance rate was around 40%, though the actual number might have been lower, as many authors who presented at the conferences were discouraged from submitting due to their work not meeting the basic academic criteria of a scholarly paper. Instead, such papers were included in the working paper series or the conference presentation series, the latter of which is not peer-reviewed.

The Athens Institute is not a publishing house; its mission is different. Any academic activity should align with the institute's goal of bringing together scholars from various disciplines and countries to discuss academic issues. The journal publications support this mission. Thus, AJSPO had to cover a broad range of topics within the vast field of sports while also serving as a forum for scholars from diverse backgrounds to publish their work. The wide variety of topics has already been noted by Knudson (2025). In this paper, I will explore another aspect beyond the different fields of sports—namely, the mission to bring scholars together from different countries.

I want to comment on this point, as many academics view the journal's broad scope as a weakness rather than a strength. Both perspectives have merit. However, I believe that both academic approaches should be allowed to flourish, leaving the academic community to determine which is preferable. Based on my extensive experience in fostering academic collaboration since 1995, I argue that while academics may be highly specialized, they should still stay informed about developments in their broader research field—or even beyond.

Finally, I would like to highlight a unique aspect of AJSPO's blind review process. The journal follows an open review model. In addition to the standard desk review (accept/reject decision) and two blind peer reviews, a blind version of the paper is uploaded to the journal's website, where the global academic community is invited to provide feedback before publication. This approach has been highly successful, allowing for broader engagement, with many academics reading and commenting on papers before they are published. This might also explain why on average the AJSPO is doing better as was found by Knudson (2025). In fact, his paper was reviewed by the two editors of the journal, who provided comments, as well as six other reviewers coming from Canada, Colombia, Oman, Portugal, Qatar and USA. Reading his paper myself, I was inspired to write this one. This is what it means to bring together academics from different countries and disciplines.

Once published, the papers are uploaded to the "Forthcoming" section of the journal's website and are picked up by two widely used platforms that track bibliometric statistics: ResearchGate and Google Scholar. ResearchGate, a platform with over 20 million academics and researchers, provides data on the number of reads and citations for each paper. Google Scholar, on the other hand, tracks only citation counts. Artificial Intelligence (AI) powered database services like Dimension and OpenAlex are also finding AJSPO articles (Knudson, 2025).

In this paper, I analyze the selected citation metrics and altmetrics of 177 papers published in AJSPO between 2014 and 2024. Google Scholar provides citation data for all 177 papers. However, on ResearchGate, we were unable to retrieve citation metrics for five papers, leaving us with data for 172 papers.

Google Scholar and ResearchGate citations of AJSPO articles provide evidence of the journal's scholarly impact and usage. I also examine several additional variables, including (a) year of publication, (b) number of co-authors, (c) national affiliations of authors, and (d) number of pages per paper. All data were retrieved from AJSPO. The next section presents summary statistics for these variables.

Descriptive Statistics

This section presents descriptive statistics for the following variables: (a) paper length, (b) number of authors per paper, and (c) authors' national affiliations. These summary statistics are depicted in the following three tables.

Table 1 displays the page length of each paper. Although there is a policy limiting papers to 10,000 words, the inclusion of graphs and figures means that the number of pages does not always correspond to the word count. In the modern publishing landscape, shorter papers and books tend to be more appealing than longer ones. Does paper length influence readership and, consequently, citations? This question is addressed in the next two sections.

Table 1 also indicates that over 11 years (2014–2024), 177 papers were published, totaling 2,752 pages. Paper lengths range from 8 to 38 pages, with an average of 21 pages (not shown in the table). The most common length (mode) is 14 pages.

Table 1. *Page Length of AJSPO Papers*

Pages per Paper	Number of Papers	Total Pages
8	11	88
10	18	180
12	22	264
14	39	546
16	31	496
18	22	396
20	16	320
22	6	132
24	4	96
26	3	78
28	2	56
30	1	30
32	1	32
38	1	38
Total	**177**	**2752**

Table 2 presents the number of authors per paper. Of the total published papers, 67 (37.9%) were single-authored, followed by 59 papers (33.3%) co-authored by two scholars. Fewer than one-third of the papers had more than two authors.

Table 2. *Authors per AJSPO Paper*

Authors	Count	Percent	Cumulative Count	Cumulative Percent
1	67	37.9	67	37.9
2	59	33.3	126	71.2
3	30	16.9	156	88.1
4	14	7.9	170	96.0
5	5	2.8	175	98.9
6	1	0.6	176	99.4
7	1	0.6	177	100

If authors actively promote their work among peers and at conferences, a higher number of authors should correlate positively with readership and citations. The conclusion reached by Knudson (2025), cited earlier, may be explained by the fact that most of the published papers were presented at one of the two sports conferences sponsored by the journal. As a result, other participants became aware of their work, read it, and, in some cases, cited it.

One of the stated missions of the Athens Institute is to bring scholars from different countries together. This applies not only to conferences but also to publications. Table 3 reports statistics on the national affiliations of authors whose work appeared in the *AJSPO*.

The total number of authors is 369, representing 48 different countries. Authors from the USA accounted for 22.8% of the total, followed by Germany (9.7%), Canada (7.5%), and the UK (7.3%).

In the regression section of this paper, two dichotomous variables were created: one indicating whether an author is from the USA (1 = USA, 0 = otherwise) and another indicating whether an author is from a European country (1 = European country, 0 = otherwise). These categorical variables were used as controls for the number of citations per paper.

The next section presents descriptive statistics on the number of citations and reads per paper published in *AJSPO*. It also includes graphs illustrating correlations between reads, citations, and other control variables.

Reads and Citations

The number of citations of a paper is a proxy measure of the academic usage/ impact of the paper. The total citations of the papers published in a given journal is one of many proxy measures of the academic usage/impact of the journal (e.g., Wu et al. 2022). In addition, how many academics and researchers read a paper is one many alternative metrics (altmetrics) of the preliminary and societal usage of journal articles. However, the number of reads may not be a good, long-term usage/impact indicator because academics read the paper, but for a variety of reasons they do not cite it as important/relevant in their subsequent scholarly publications. Despite scholar variation in selection and use of citations, altmetric research has tested the hypothesis that these two are positive related (e.g., Peres et al 2022) and is also tested in the next section of this paper.

Table 3. *National Affiliations of Authors*

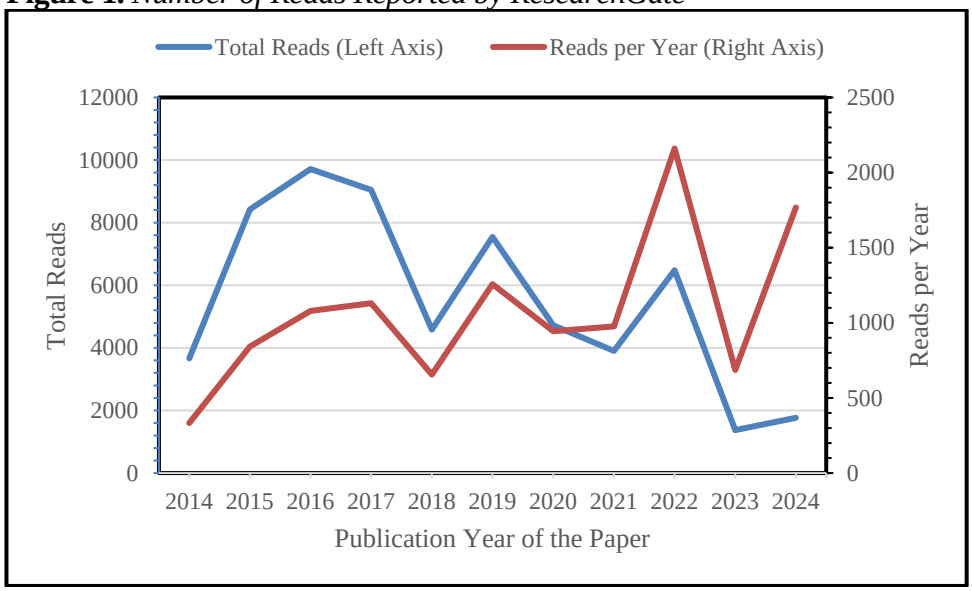
	Country	Count	%		Country	Count	%
1	USA	85	22.8%	25	Japan	3	0.8%
2	Germany	36	9.7%	26	Morocco	3	0.8%
3	Canada	28	7.5%	27	New Zealand	3	0.8%
4	UK	27	7.3%	28	Philippines	3	0.8%
5	France	17	4.6%	29	Romania	3	0.8%
6	Portugal	17	4.6%	30	Singapore	3	0.8%
7	Brazil	16	4.3%	31	Albania	2	0.5%
8	Türkiye	11	3.0%	32	China	2	0.5%
9	Spain	9	2.4%	33	Indonesia	2	0.5%
10	Nigeria	8	2.2%	34	Jamaica	2	0.5%
11	Taiwan	8	2.2%	35	Lithuania	2	0.5%
12	Greece	7	1.9%	36	Poland	2	0.5%
13	Hungary	7	1.9%	37	Russia	2	0.5%
14	Bulgaria	6	1.6%	38	Sweden	2	0.5%
15	Trinidad and Tobago	6	1.6%	39	Tunisia	2	0.5%
16	Finland	5	1.3%	40	Australia	1	0.3%
17	Iran	5	1.3%	41	Belgium	1	0.3%
18	Italy	5	1.3%	42	Cyprus	1	0.3%
19	South Korea	5	1.3%	43	Egypt	1	0.3%
20	Israel	4	1.1%	44	India	1	0.3%
21	Oman	4	1.1%	45	Iraq	1	0.3%
22	Slovenia	4	1.1%	46	Lebanon	1	0.3%
23	South Africa	4	1.1%	47	Mozambique	1	0.3%
24	Czech Republic	3	0.8%	48	Slovakia	1	0.3%

In this section we examine reads and citations as reported by ResearchGate and Google Scholar respectively (see Figures 1 & 2 below). The number of citations from both sources are very similar and any differences are due to the slightly different methodologies applied. Actually, ResearchGate gets most of its information from Google Scholar. In this section, I use only the citations from Google Scholar. In the next regression section, I use both sources.

The number of reads is reported in Figure 1. The data were collected on 31 January 2025. Figure 1 reports total reads and reads per year. For example, papers published in 2024 had 11 years of publications. The total reads were 3661 and the average after 11 years was 3661/11=333. Since the years of publications is an important variable, it is worth mentioning several important observations. First, the total number of reads decrease as the year of publication increases (the paper has fewer years of circulation). Second, the average number of reads shows a different trend. Relatively newer paper has higher reads per year as older papers. This might be an indication of the overall increase of the visibility of the journal. More and more people know about the journal and once they receive the information, they download the new papers to read them. It might also reflect the fact that the list of

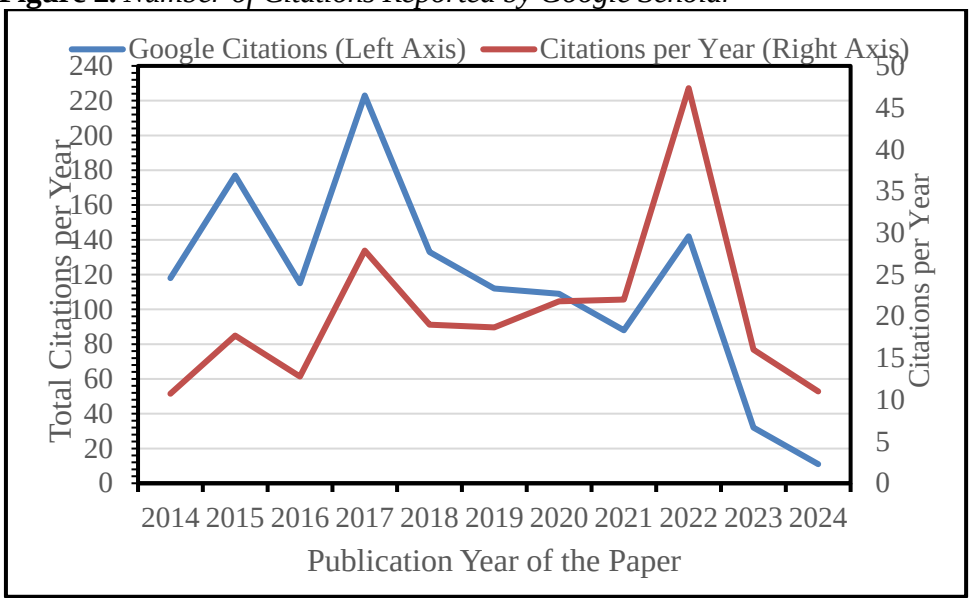
those who receive the journal is growing every year. It is important to note that actual reads of AJSPO articles are likely much higher than is documented by this one academic social networking site (ResearchGate).

Figure 1. *Number of Reads Reported by ResearchGate*



Note: Data were retrieved 31 January 2025

Figure 2. *Number of Citations Reported by Google Scholar*



Note: Data were retrieved 31 January 2025

Figure 2 reports data on citations as reported by Google Scholars. Not reported here are the number of citations recorded by ResearchGate because they are very similar to the Google Scholar citations. First, total citations increase with time. Older papers have more citations than new papers. Second, the citations per year are higher for the new papers relative to old papers and this may be interpreted in similar way

that was interpreted the same observation for the number of reads in Figure 1. It can be considered as the journal effect. Thirdly, both variables in Figure 2 show great variability resulted in very high values in 2017 and 2022. This is the result of specific papers which are not examined here as our purpose is not to look at variations between papers but general trends over years.

Regression Analysis

It is regularly observed in bibliometric research that the number of citations depends on the year of publication, with older publications tending to have a higher number of citations. We also consider citations as a function of the visibility of both the journal and the paper itself. Other researchers first read a paper and then decide whether to use it in their work, sometimes leading to citations. Thus, the number of reads, as reported by ResearchGate, is examined in altmetric research as an important, early indicator of potential scholarly impact measured by citations.

Additionally, a series of other variables were considered, as mentioned in the third section of the paper. Among these variables, only the number of authors had a statistically significant negative association with AJSPO citations. The number of pages and national affiliations did not have significant associations with AJSPO citations. Therefore, I report only the variables significantly associated with citations to AJSPO articles.

Regressions were applied to both the first ten years (2014–2023) and the entire dataset spanning 11 years (2014–2024). Since there were no differences in the results, I report only the findings for the full 11-year period.

Initially, regressions were applied using a simple linear model, but the residuals were not normally distributed, exhibiting a nonzero mean and non-constant standard deviation. To address this, the variables were transformed into logarithms. After this transformation, the normality test failed to reject the hypothesis that the residuals are normally distributed. Therefore, I report the results based on the logarithmic transformation of the variables. I report robust standard errors (White's heteroscedasticity-consistent standard errors), even though there are no significant differences from OLS estimates.

Table 4 presents the regression results. Seven estimations are provided: the first three use Google Scholar citations, while the last four use ResearchGate citations. The first six were estimated using ordinary least squares (OLS), and the last one was estimated using quantile regression (median). I follow a stepwise approach, adding one statistically significant variable at a time.

I began with the variable "years of publications." The estimated coefficient of this variable ranges from a minimum of 0.44 to a maximum of 0.67. All seven estimates are statistically significant at the 1% level. Thus, the conclusion that emerges is that older publications receive a higher number of citations. If we interpret the coefficients as elasticities, then a 10% increase in years since publication — approximately one additional year (1.1)—increases the number of citations by 4.4% to 6.7%, or an average of about 5.5% across all seven coefficients. The average number of citations per paper was 7.25, meaning that a 5.5% increase implies approximately one additional citation every two and a half years.

The negative sign of the number of authors is puzzling, as the reported citations are per paper, not per author. This variable is statistically significant at the 1% level in equations (2), (3), and (6) and at the 5% level in equations (5) and (7). The coefficient estimates range from an absolute minimum of -0.28 to an absolute maximum of -0.41. There were 369 authors across 177 papers, averaging 2.08 authors per paper. One could logically expect the sign to be positive, as more authors could increase the paper's visibility and dissemination, however scholarly usage/ impact is multidimensional and the addition of additional coauthor collaboration may not, automatically increase the quality and eventual impact of the paper.

Table 4. *Regression Results Predicting Citations from AJSPO Article Metrics* (All explanatory variables are in logarithms)

	Log(Google Citations+1)			Log(ResearchGate Citations+1)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant (|t-statistic|)	0.47* (2.7)	0.61* (3.6)	-0.75* (3.3)	0.43* (2.5)	0.58* (3.2)	-0.78* (3.6)	-1.20* (3.9)
Years (|t-statistic|)	0.63* (6.2)	0.67* (6.2)	0.56* (6.2)	0.54* (5.2)	0.57* (5.3)	0.47* (5.4)	0.44* (3.7)
Authors (|t-statistic|)		-0.34* (2.5)	-0.41* (3.8)		-0.28** (2.2)	-0.33* (3.5)	-0.29** (1.9)
Reads (|t-statistic|)			0.34* (8.0)			0.32* (7.6)	0.41* (7.9)
R^2	0.1564	0.1821	0.4003	0.1410	0.1632	0.4174	0.2599§
R^2-adjusted	0.1515	0.1727	0.3896	0.1360	0.1533	0.4070	0.2466§
F-Statistic (probability)	32.43 (0.00)	19.37 (0.00)	37.38 (0.00)	27.93 (0.00)	16.48 (0.00)	40.12 (0.00)	2.2# (0.00)
Jarque-Bera (probability)	1.63 (0.44)	1.29 (0.52)	0.41 (0.81)	5.15 (0.08)	4.49 (0.11)	5.07 (0.08)	3.27 (0.19)
N	177	177	177	172	172	172	172

Notes: I added one to the dependent variables because few papers had zero citations. *Significant at 1%. **Significant at 5%. §Pseudo R^2. #Sparcity Statistic (statistically significant if >1.96).

The final variable reported in Table 4 is the number of reads, as reported by ResearchGate. The coefficient has the expected sign: an increase in the number of reads leads to an increase in the number of citations. The coefficient ranges from 0.34 to 0.41 and has the highest t-statistic among all variables. The average number of reads per paper was 356. This implies that a 10% increase in the number of reads—equivalent to 35.6 additional reads per paper—would increase the number of citations by 14. Thus, the visibility of the journal, as measured by the number of reads, along with authors' efforts to promote their work through conferences and other means, tends to contribute to more citations.

The inclusion of the number of reads significantly increases the explanatory power of the model. When only the years since publication and the number of authors is included, the coefficient of determination (R^2) is less than 20%, ranging from 13.6% to a maximum of 17.3%. However, when the number of reads is added, the coefficient of determination more than doubles, reaching 39% in equation (3) and 40.7% in equation (6).

A key challenge in estimating such models is the presence of heteroscedasticity, i.e., the residuals violate the assumption of constant variance. Transforming the

variables into logarithms mitigated the problem of skewed observations. The Jarque-Bera statistic was used to test the normality of the residuals. The test fails to reject the hypothesis of non-normality in the first three equations, where Google Scholar citations are used as the dependent variable. However, when ResearchGate citations are used as the dependent variable, the hypothesis of non-normality is rejected at the 5% level. In this case, I estimated the regression equation using median quantile regression, which is less sensitive to extreme values and provides more reliable estimates than OLS, as it does not assume normally distributed errors. The sign of the coefficients remains the same, and the coefficient for the number of reads increases to 0.41.

Summarizing the above results: the number of years since publication increases the total number of citations, and the number of reads also positively affects citations. However, if we take these results at face value, writing a AJSPO paper with one or more co-authors, had a negative association with the number of citations—suggesting that single-authored papers tended to receive more citations. Perhaps a better interpretation of this result, is that this association is good evidence that AJSPO journal readers should not assume larger numbers of coauthors is positively associated with long-term scholarly usage/impact.

Conclusions

This paper builds on the work of Knudson (2025), which evaluated the first eleven years of AJSPO publications. The aim was to estimate the effect of publication years on the number of citations using two sources: Google Scholar and ResearchGate. As expected, the number of years since publication had a positive effect on the number of citations.

A potentially important altmetric variable for AJSPO was the number of reads, which was strongly positively associated with the number of citations. Surprisingly, the number of authors was found to have a negative effect on the number of citations. Other variables were included in the regression, but they were not found to be statistically significant, such as the national affiliation of the author, the number of authors, and the number of pages per paper.

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