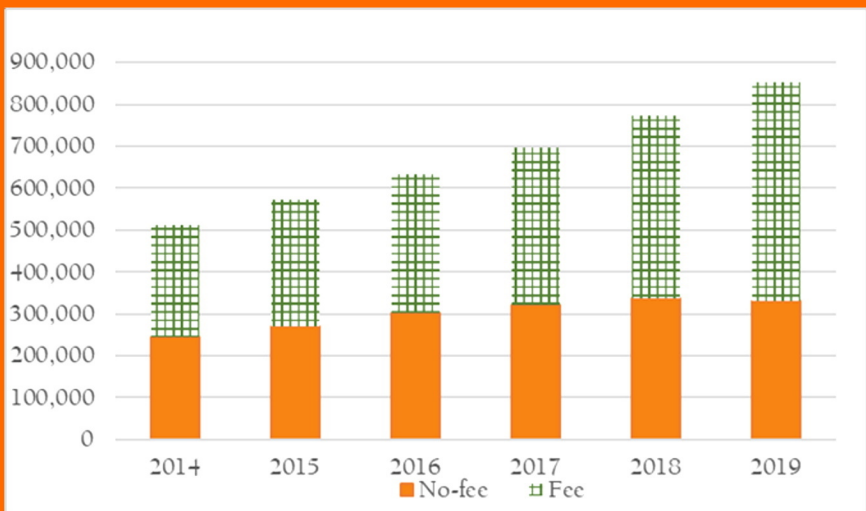


Gold Open Access 2014-2019

Articles in Journals (GOA5)



Walt Crawford

GOLD OPEN ACCESS
2014-2019
ARTICLES IN JOURNALS
(GOA5)

Walt Crawford

Cites & Insights Books
Livermore, California, 2020

Gold Open Access 2014-2019: Articles in Journals (GOA5)

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This book was prepared entirely in Word 2019, using the licensed typefaces Berkeley Book and Berkeley (bold) for text and Calibri for headings and subheadings. Excel 2019 was used for data gathering and to prepare tables and graphs. The template is a customized version of bk6pv.dotx (modified for different typefaces and slightly different heading practices), a template developed by the author, modified and improved with the cooperation Information Today, Inc. and freely available at waltcrawford.name/bk6pv.dotx. (The template named uses Palatino Linotype for body text and Verdana for headings.) For more about the template and using no-cost methods to produce professional-quality books, read *The Librarian's Guide to Micropublishing*.

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Preface

This book is the fifth full study of serious gold open access—open access articles in open access journals listed in the *Directory of Open Access Journals*. This and previous editions are available as free PDF ebooks or paperbacks priced to cover production costs.

Thanks to SPARC's continued support, I was able to update the database to include all journals in the *Directory of Open Access Journals* as of very early January 1, 2020 and to add 2019 counts and earlier counts as needed (and sometimes refine subject assignments).

This book follows the pattern of the previous versions but includes some changes. These changes are discussed in Chapter 1; the most obvious ones are the addition of subject chapters, the simplification of growth/shrinkage tables, and formatting changes that reduce redundancy and leave more space for commentary.

Gold Open Access by Country 2014-2019 will appear a few weeks after this book appears. There will be no third book.

Acknowledgments

Thanks first and foremost to SPARC. Without SPARC's sponsorship, this project would not have happened—and good advice and feedback from Raym Crow and Val Hollister improved the project.

The staff at DOAJ continues to be helpful, but fewer malware and other problems were corrected than last year, almost certainly due to COVID-19 related absences. Because of that, I've included those "xm" and "xx" cases where I was able to get adequate metadata from DOAJ and elsewhere.

Thanks to Linda Driver for tolerating and encouraging my ongoing obsession with getting the facts right about real-world open access.

Acknowledgments from previous editions still apply

The work is my responsibility, as are errors that may have crept in.

Links

The data used for this report is freely available, with a Creative Commons BY (attribution) license: you can do what you want with it as long as you properly credit the source. So, too, the PDF version of this book and of supplemental books are issued with CC BY licenses.

Links are at <http://waltcrawford.name/goaj.html>.

1.The Big Picture

This study attempts to answer questions about the state of serious gold OA publishing—its extent, the extent of fee-based and no-fee publishing, and the complexities of the picture. I define serious gold OA as journals in [*Directory of Open Access Journals*](#) (DOAJ).

The overall picture of serious gold OA in 2019:

- 854,018 articles in 2019, up from 774,427 in 2018; 697,390 in 2017; 631,977 in 2016; 571,627 in 2015; and 512,930 in 2014. The 2019 increase is 10.3%. My estimate (based on ISSN matching) is that around 2,300 journals were added during the year and around 600 were deleted.
- 13,938 fully-analyzed journals, of which 12,901 published articles in 2019 for an average of 66 articles per journal (up from 62 in last year's report).
- Although most gold OA journals (70% of those active in 2019) do not charge fees, most articles (61% in 2019) do involve fees.
- The average cost per article was no more than \$1,023 in 2019 and probably less, but that's up considerably from 2018.

Gold OA isn't one homogeneous field. The rest of this book provides more detail and ways of looking at gold OA and how it's done. The book is generally patterned after previous editions for comparability, with changes to improve usefulness and clarity.

While some discussions and tables involve the full 13,938, others—where 2019 article counts are fundamental—address only 12,901, ignoring 1,037 journals with no 2019 articles when checked.

Key Definitions

Gold Open Access

Gold OA articles are open access articles appearing in open access journals. This study is limited to those journals serious enough to be in DOAJ. “Hybrid” journals and “delayed access” journals are excluded. This definition includes so called “diamond” and “platinum” journals.

Other Terms and Data Sources

Journal names, publisher names, starting year and country of publication all come directly from the *Directory of Open Access Journals* as of 12:30 a.m. (UMT) January 1, 2020.

Subjects were assigned based on DOAJ subject and keyword fields, and in some cases refined based on scanning article titles. Subject segments were assigned based on subjects.

Regions were assigned based on country of publication.

Publisher categories were assigned based on publisher names and available online information.

Fees include normally-mandatory submission, processing and publishing fees (including required society membership), as they would be applied for two U.S. authors in the most expensive author category, for a 10-page article in the most expensive article category, in U.S. dollars in 2019 (either the median exchange rate for 1/1/2019-12/28/2019 or, for some currencies, the rate on 12/28/2019). For journals that only charge fees for in-country authors, that fee is used: most such journals appear to be predominantly local.

Articles per year were determined by direct observation augmented by DOAJ, using shortcuts where available and Find counts when feasible (e.g., when each article has “PDF” as a text tag or “doi.” in a DOI).

Revenue is the current fee times the 2019 article count and is always the maximum potential revenue, ignoring waivers, discounts and lower charges for some article or review types. Actual revenue may well be at least 15% lower.

Key Facts, Overall

2019	Journals	Articles	Art%	\$/Art
All	13,938	854,018		\$1,023
Fee	4,090	522,018	61%	\$1,673
No-fee	9,848	332,000	39%	
Biomed	3,387	298,675	35%	\$1,437
Fee	1,699	219,071	73%	\$1,959
No-fee	1,687	79,552	27%	
STEM	3,602	350,764	41%	\$1,186
Fee	1,412	255,098	73%	\$1,630
No-fee	2,190	95,666	27%	
H&SS	6,949	204,579	24%	\$137
Fee	978	47,797	23%	\$588
No-fee	5,971	156,782	77%	

\$/Art is a weighted figure based on multiplying each journal's article count by its fee, ignoring discounts and waivers. The percentages in the **Biomed**, **STEM** (science, technology, engineering and math) and **H&SS** (humanities and social sciences) rows are percentages of **All**.

Articles per Year and Special Codes

Code	Count	2019	2018	2017	2016	2015	2014
a	12,583	829,282	743,743	663,475	598,072	539,789	484,610
bi	348			3,557	5,852	7,849	7,509
bm	160	4,876	4,922	4,687	4,018	3,184	
bx	407	13,421	14,213	13,510	12,046	11,393	10,211
xm	373	6,261	10,557	10,823	10,166	7,702	6,509
xx	67	178	992	1,338	1,823	1,710	1,590
Total	13,938	854,018	774,427	697,390	631,977	571,627	512,930
		10.3%	11.0%	10.4%	10.6%	11.4%	

This table shows article counts for each of the past six years and also shows codes for special categories of journals within the overall serious OA universe.

Codes are as follows:

- **a** is for journals active in 2018 or 2019 with no special codes.
- **bi** (inactive) journals have articles after 2013 but none since 2017.

4 Gold Open Access 2014-2019: articles in journals (GOA5)

- **bm** (malware) journals have outbound calls trapped by Malwarebytes Pro as malware, but could be analyzed while preventing those calls from executing or via another route. Don't visit these journals without active strong security software.
- **bx** journals could not be reached using the URL downloaded from DOAJ but could be reached using a title search or another route.
- **xm** (malware) journals were trapped by Malwarebytes Pro, but fees and article counts were available elsewhere (usually DOAJ).
- **xx** (unavailable) journals could not be reached, but fees and article counts were available in DOAJ.

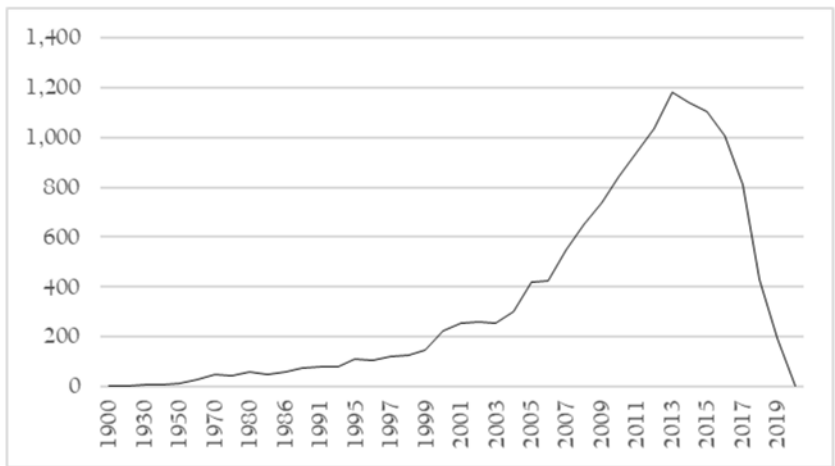
These codes are not used in the remainder of this book since—other than **bm** and **xm**—they do not imply anything negative about the journals. This year, **xm** and **xx** journals with full information *are* included (but see Chapter 2 for other cases) because it was assumed that the pandemic made it difficult to fix the reported problems.

Revenue and Costs for Latest Year in Each Study

	2019	2018	2017	2016	2015
Revenue	\$873,263K	\$649,415K	\$493,242K	\$419,887K	\$376,733K
Fee	522,018	413,826	316,836	298,448	315,968
\$/art	\$1,673	\$1,569	\$1,557	\$1,407	\$1,192
Tot.art.	854,018	711,670	563,147	523,205	566,922
\$/art	\$1,023	\$913	\$876	\$803	\$665
No-fee	38.9%	41.9%	43.7%	43.0%	44.3%

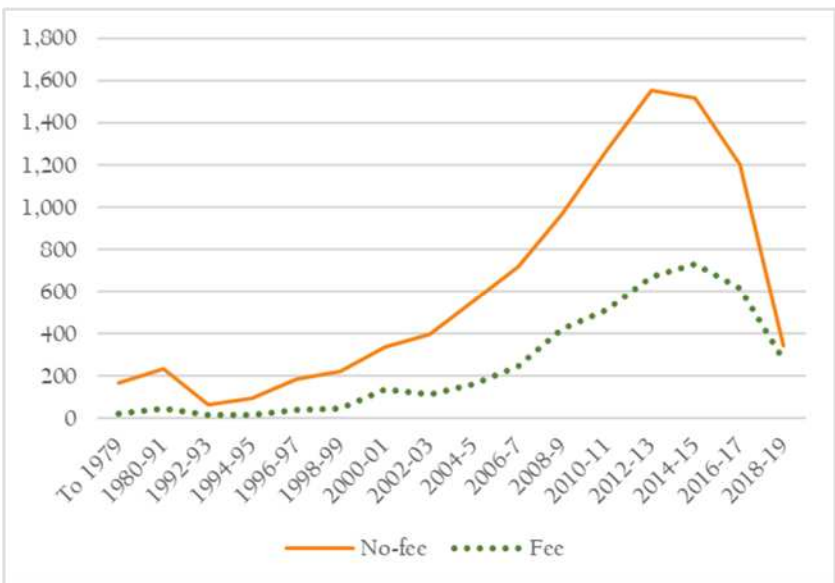
This table shows the final year in each of the five studies, with annual rises in per-article fees and generally shrinking no-fee article percentages. Note the substantial growth in possible revenues.

Journals by Starting Year, Overall



This figure shows starting dates for the 13,938 journals. Although only half the data points are labeled, there's a point for each year from 1996 on, every two years 1990-95, every three years 1981-89, every five years 1971-80, every decade 1921-1970, and at the far left one group on or before 1900 and one for 1901-1920.

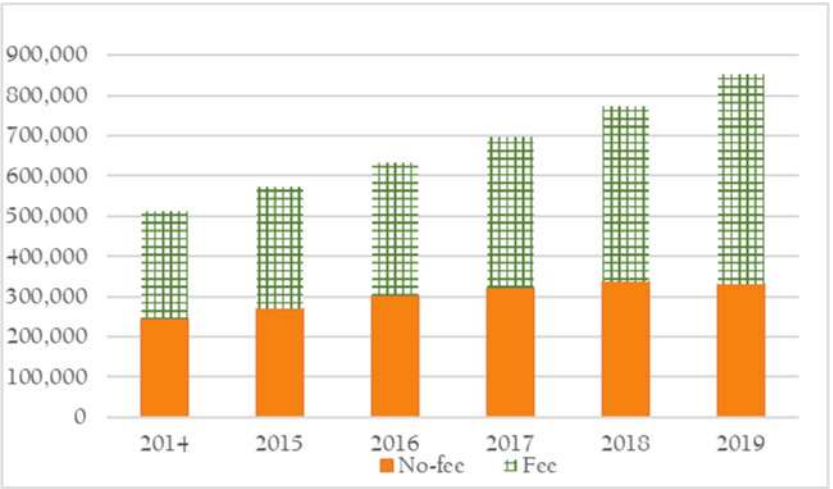
Starting Date, Overall



This table shows starting dates for fee and no-fee journals.

Journals are in two-year groups since 1992, and each data point is labeled.

Fee and No-Fee Articles by Year, Overall



This figure uses the template used for graphic fee and no-fee article comparisons throughout the book. It’s in chronological order rather than the newest-first order of some tables. The key fact is clear enough: while both categories have grown, fee-based publishing has grown faster: 65% versus 32% for no-fee publishing. There were more no-fee articles in 2019 than fee articles in 2017.

Journal Growth and Shrinkage, Overall

Change 2018-19	Count	Percent	Cum%
Grew 25%+	3,087	24.4%	
Even, ±24.99%	7,204	56.9%	81.3%
Shrank 25%+	2,372	18.7%	
Total	12,663		

This table shows how journals grew and shrank in number of articles from 2018 to 2019, including *only* journals with articles in both years. Most journals stay about even, and growing journals outnumber shrinking ones. Some 238 journals had articles in 2019 but not in 2018, including those first published in 2019.

Subjects, Overall

Subject	Journals	Articles	%No-fee	\$/article
Medicine	2,963	247,594	30%	\$1,348
Other Sciences	230	70,845	13%	\$1,876
Biology	424	51,081	11%	\$1,872
Engineering	535	50,375	25%	\$1,107
Ecology	367	39,854	29%	\$1,177
Chemistry	181	34,965	16%	\$1,295
Physics	171	34,284	27%	\$1,215
Agriculture	552	33,658	30%	\$848
Education	961	31,758	80%	\$79
Economics	926	25,862	58%	\$164
Earth Sciences	450	23,796	48%	\$778
Language & Literature	893	23,086	87%	\$29
Technology	250	21,807	45%	\$848
Sociology	640	21,247	70%	\$125
Anthropology	549	15,883	71%	\$136
Computer Science	324	14,640	48%	\$600
Zoology	276	14,585	27%	\$666
Mathematics	266	11,955	45%	\$782
History	395	10,952	94%	\$9
Law	441	10,629	90%	\$44
Arts & Architecture	369	10,304	76%	\$120
Miscellany	213	10,210	75%	\$153
Psychology	241	9,943	51%	\$1,009
Political Science	380	9,738	91%	\$43
Religion	288	8,108	67%	\$164
Media & Communications	245	6,659	88%	\$72
Philosophy	243	6,453	93%	\$23
Library Science	165	3,747	96%	\$26

Subjects are sorted by number of 2019 articles. Note that “Other Sciences” includes megajournals that cover many disciplines. Note also that \$/article (average cost per article) includes no-fee articles, which

helps explain the extremely low figures for History, Languages and Literature, and some others.

The \$2K Mark

Fee level brackets used in these reports have remained constant for some time to allow comparisons—and the top bracket starts at \$1,400. What happens if we look at a higher cutoff, say \$2,000 per article?

\$2,000 and Up Fees, Actual Numbers

Year	\$2K Journals	\$2K Articles	\$2K Revenue	\$/art
2015	384	68,016	\$163,126,524	\$2,398
2016	457	79,866	\$203,188,000	\$2,544
2017	514	94,361	\$252,410,897	\$2,675
2018	574	120,882	\$331,107,513	\$2,739
2019	728	193,842	\$513,804,536	\$2,651
Change	189.6%	285.0%	315.0%	

\$2,000 and Up Fees, Percentages of Total

Year	\$2K Jrnl%	\$2K Art%	\$2K Rev%
2015	3.5%	11.7%	43.2%
2016	5.1%	15.3%	48.4%
2017	5.0%	16.8%	51.2%
2018	4.7%	17.0%	51.0%
2019	5.2%	22.7%	58.8%

It's not just that there's been a big growth in very expensive journals; as the second table makes clear, it's also that those journals have been growing rapidly, changing from around 12% to around 23% of serious OA publishing over five years.

Changes from Previous Editions

The "Growth and Shrinkage" table has been simplified, and now includes only journals with articles in 2018 and 2019. Region chapters

appear before subject segment chapters, and subject chapters follow segment chapters. Some xx and xm journals, where fees and article counts were available (mostly from DOAJ), are included this time.

Data

The master spreadsheet for this project, including publishers and journal titles but omitting some calculated figures (e.g., revenue) to save space, is freely available with a CC BY license. For links to the data (and links to the supplements), go to waltcrawford.name/goaj.html.

Highlights and Key Points

- More than 330,000 articles appeared in 2019 in 9,848 journals funded through means other than author-side fees.
- More than 520,000 articles appeared in 4,090 journals charging author-side fees (including memberships), for a total of more than 854,000 serious gold OA articles.
- While more than 70% of OA journals are no-fee, most articles (61%) are in fee-charging journals.
- Serious gold OA is growing: for journals currently in DOAJ, by 10% to 11% more articles each year.
- Some 938 journals appear to have increased fees from 2018 to 2019 by at least 6% and \$10; some 283 appear to have *decreased* fees by at least 6% and \$10. Some of those changes may be accounted for by currency fluctuations (the dollar and percentage limits are to reduce the number of conversion-fluctuation “changes” in fees). Whether because of better information or actual changes, 317 journals *appear* to have switched from no-fee to fee, while 159 appear to have switched from fee to no-fee.
- Nearly 59% of all revenue goes to just over 5% of journals, those charging \$2,000 or more per article.

2. Exclusions and Special Cases

This chapter is, in essence, one long footnote. You can skip it if you like. Along with Appendix A, it provides transparency on methodology and tells why some journals in *DOAJ* are excluded from this report.

The Basics

I visited each journal's website at least once and sometimes up to four times. The first set of visits took place between January 1, 2020 and April 12, 2020. I marked some 2,476 journals—those flagged as exclusions and journals that might not yet have final 2019 issues posted—for revisits. I revisited those journals April 14-27, 2020. Journals flagged as X codes were visited a third and, for some, a fourth time, April 28-May 22, 2020.

All work was done using Chrome, copying-and-pasting URLs into Chrome and using the embedded Google language tools. At all times, I ran Malwarebytes Pro and Windows Defender.

Excluded Journals by Type

Code	Count
xd: Duplicate or empty since 2013	95
xm: Malware encountered	24
xn: Not open access	14
xx: Unreachable/unworkable	5
Total excluded	138

Note that the xm and xx figures do *not* include 373 xm journals that I could find information for (and 160 bm, where the malware didn't cause the journal to be blocked entirely) or the 67 xx journals I could find information for (and the 407 bx, where the journal was findable at

a different url). There are 557 journals with malware, a *terrible* figure that would require very little software vigilance to eliminate. (I believe that single files in four university base journal URLs account for almost half of these.)

Partial article counts for excluded journals

Code	Count	2018	2017	2016	2015	2014
xm	24	53	43	138	124	111
xx	5		72	102	94	141

Excluded journals don't significantly reduce the overall numbers—and that would be true even if xm and xx journals that *are* included weren't.

The following sections offer additional notes on excluded journals.

xd: Duplicate or empty

Some of these are superseded or merged journals where the original is still in *DOAJ*; some are cases where two different titles appear but resolve to the same journal (e.g., language differences); some are journals that haven't published articles since 2013.

xm: Malware encountered

Combining all xm and bm, most malware instances are from Indonesia (337 in all), with 95 from Brazil, 22 from Poland, 21 from Romania, 13 from Ukraine, 12 from Spain, seven each from Argentina and Turkey, and smaller numbers from several other countries. By far the most common issue was trojan software, with occurrences of several other types—including ransomware!

xn: Not open access

What few of these are left have an assortment of flaws. Nine require registration or login; two aren't journals at all; three are either hybrid or now require subscription.

xx: Unreachable/unworkable

This motley crew includes a mix of issues—404 and 403 errors, database failures, DNS lookup failures and others.

3. Looking Back: Continuing and New Journals

Setting aside excluded journals, the dataset for this year includes 11,821 journals that were in last year's study and 2,117 that are new to this year. It may be useful to compare profiles for the continuing and new journals. As always, "new" to *DOAJ* does not usually mean "started in 2019": 196 of the added journals show 2019 as a starting date, but 35 of those show articles earlier than 2019.

Key Facts, Continuing

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	11,821	776,017			\$1,082	6%
Fee	3,527	490,204	63%	3%	\$1,712	2%
No-fee	8,294	285,813	37%	-5%		
Biomed	2,936	275,283	35%	1%	\$1,495	4%
Fee	1,506	206,655	75%	2%	\$1,991	2%
No-fee	1,430	68,628	25%	-6%		
STEM	3,076	328,725	42%	3%	\$1,224	3%
Fee	1,212	243,891	74%	2%	\$1,649	1%
No-fee	1,864	84,834	26%	-5%		
H&SS	5,809	172,009	22%	-7%	\$148	8%
Fee	809	39,658	23%	-1%	\$643	9%
No-fee	5,000	132,351	77%	0%		

Key Facts, New

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	2,117	78,001			\$436	-57%
Fee	563	31,814	41%	-33%	\$1,068	-36%
No-fee	1,554	46,187	59%	52%		
Biomed	451	23,392	30%	-14%	\$759	-47%
Fee	194	12,468	53%	-27%	\$1,423	-27%
No-fee	257	10,924	47%	75%		
STEM	526	22,039	28%	-31%	\$620	-48%
Fee	200	11,207	51%	-30%	\$1,218	-25%
No-fee	326	10,832	49%	80%		
H&SS	1,140	32,570	42%	74%	\$80	-42%
Fee	169	8,139	25%	7%	\$318	-46%
No-fee	971	24,431	75%	-2%		

These tables introduce the full Key Facts table, adding two Rel% columns, which show relative percentages compared to overall figures. So, for example, STEM articles represent a 31% lower percentage of all articles in new journals than in all journals, and average cost of H&SS articles is 42% lower than for H&SS as a whole, \$80 compared to \$138.

Perhaps noteworthy: newly-added journals are mostly small and mostly no-fee even for articles; those with fees have lower fees on the whole than continuing journals.

Articles and Journals by Year, Continuing

	2019	2018	2017	2016	2015	2014
Journals	10,860	11,414	11,500	11,090	10,436	9,537
%No-fee	69%	70%	70%	71%	71%	71%
Articles	776,017	709,583	645,391	585,963	535,598	482,588
%No-fee	37%	41%	44%	46%	46%	46%
Growth	9%	10%	10%	9%	11%	

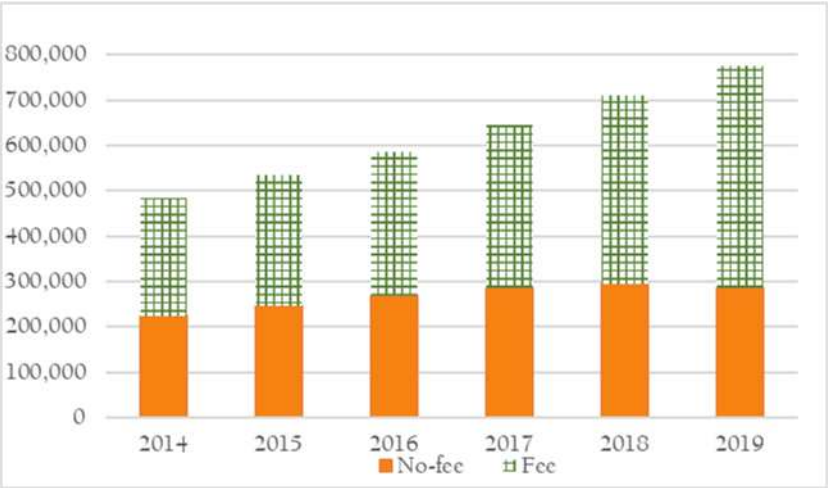
The percentage of no-fee articles in continuing journals keeps dropping.

Articles and Journals by Year, New

	2019	2018	2017	2016	2015	2014
Journals	2,041	1,880	1,597	1,319	1,067	897
%No-fee	74%	78%	79%	80%	80%	79%
Articles	78,001	64,844	51,999	46,014	36,029	30,342
%No-fee	59%	68%	70%	72%	73%	70%
Growth	20%	25%	13%	28%	19%	

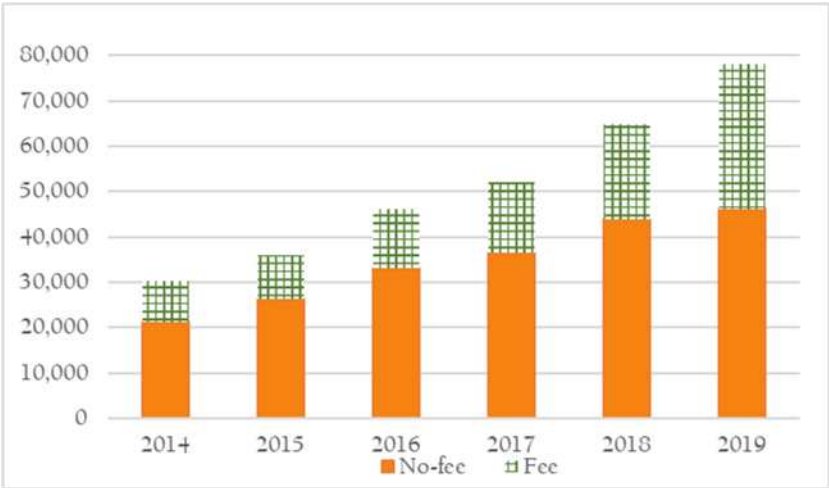
New journals are mostly fairly small but growing rapidly.

Fee and No-Fee Articles by Year, Continuing



Note particularly the difference in vertical axis between this and the following figure: it's an order of magnitude. The two figures are also quite different in that no-fee articles in newly-added journals are growing rapidly and remain a majority.

Fee and No-Fee Articles by Year, New



Article Volume, Continuing

See Chapter 5 for a discussion of article volume brackets.

	Journals	Articles	%No-fee	\$/article
Largest: 600+	187	297,793	11%	\$1,819
Large: 150-599	774	152,522	24%	\$1,222
Med.: 60-149	2,314	151,971	54%	\$512
Small: 20-59	6,205	153,378	76%	\$201
Smallest: 0-19	2,341	20,353	81%	\$125

Article Volume, New

	Journals	Articles	%No-fee	\$/article
Largest: 600+	7	4,406	23%	\$1,549
Large: 150-599	83	14,724	37%	\$647
Med.: 60-149	326	21,257	55%	\$421
Small: 20-59	1,158	31,557	73%	\$239
Smallest: 0-19	543	6,057	82%	\$188

Very few largest journals are new, and (not surprisingly) those journals published relatively fewer articles than for continuing journals

Fee Level, Continuing

See Chapter 6 for a discussion of these brackets and a finer breakdown.

	Jour.	%Fee	%All	Art.	%Fee	%All
\$1,400+	1,144	32%	10%	336,217	69%	43%
\$600-\$1.399	791	22%	7%	70,016	14%	9%
\$200-\$599	525	15%	4%	36,541	7%	5%
\$0.01-\$199	1,067	30%	9%	47,430	10%	6%
No fee	8,294		70%	285,813		37%

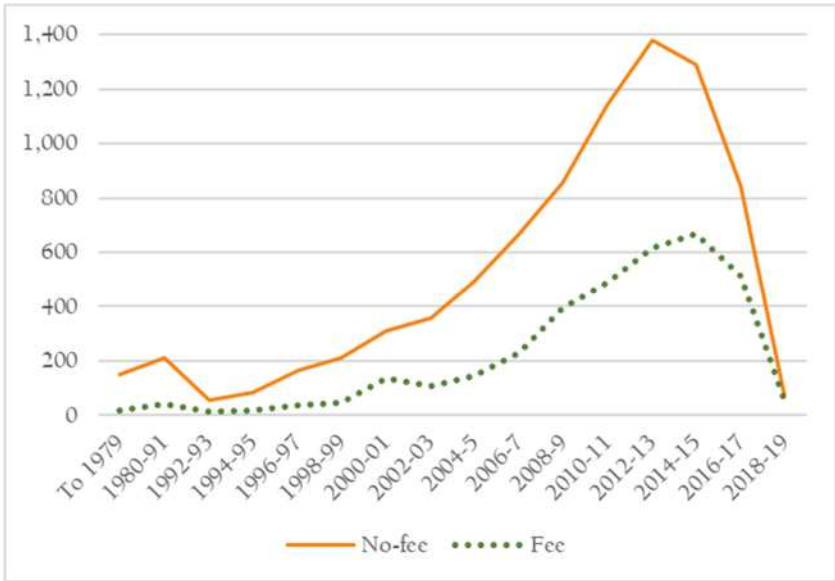
Quite a few journals have moved into the most expensive category.

Fee Level, New

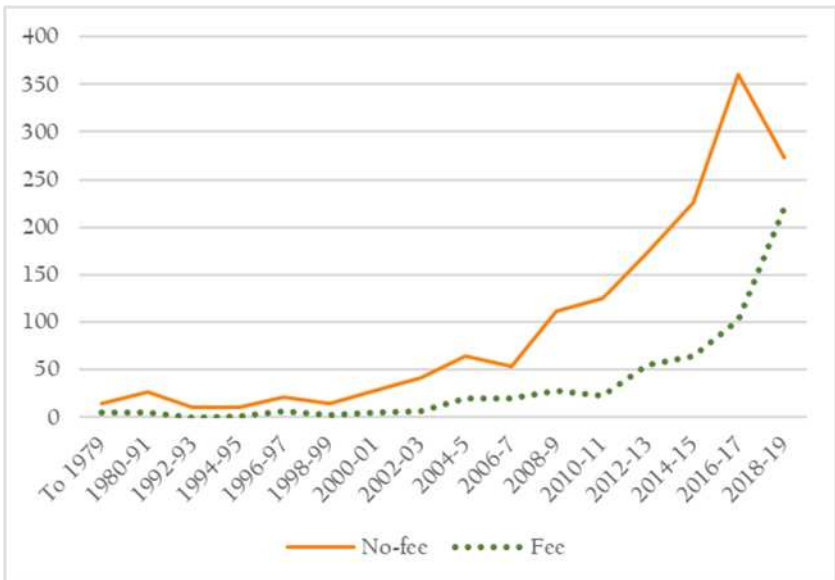
	Jour.	%Fee	%All	Art.	%Fee	%All
\$1,400+	154	27%	7%	11,807	37%	15%
\$600-\$1.399	95	17%	4%	4,910	15%	6%
\$200-\$599	69	12%	3%	4,098	13%	5%
\$0.01-\$199	245	44%	12%	10,999	35%	14%
No fee	1,554		73%	46,187		59%

Newly-added journals are much less likely to have very high fees and somewhat less likely to have moderately high fees, and a much smaller percentage of articles are published in the most expensive newly-added journals.

Starting Date, Continuing



Starting Date, New



Once again, notice the (less dramatic) difference in vertical axis.

It would seem obvious that newly-added journals are more likely to be newish journals—but starting dates still go back quite a long time. Note the dominance of no-fee newly-added journals but also the dramatic growth of fee journals in the last four years.

Fees and Revenue, Continuing

See Chapter 6 for more details and a discussion of the brackets.

	Articles	Revenue	\$/article
\$1,400+	336,217	\$753,972,410	\$2,243
\$600-\$1.399	70,016	\$68,319,309	\$976
\$200-\$599	36,541	\$12,932,319	\$354
\$0.20-\$199	47,430	\$4,050,641	\$85
No fee	285,813		
Total	776,017	\$839,274,679	\$1,082

Fees and Revenue, New

	Articles	Revenue	\$/article
\$1,400+	11,807	\$27,269,175	\$2,310
\$600-\$1.399	4,910	\$4,613,585	\$940
\$200-\$599	4,098	\$1,398,686	\$341
\$0.20-\$199	10,999	\$707,332	\$64
No fee	46,187		
Total	78,001	\$33,988,778	\$436

While newly-added expensive journals are slightly *more* expensive per article than continuing expensive journals, they represent a much smaller percentage of the articles.

Region, Continuing

See Chapter 8 for overall table and discussion of regions. “Pacific/English” is Australia, Canada, New Zealand and the United States.

Region	Journals	Articles	%No-fee	\$/article
Western Europe	3,730	402,095	20%	\$1,638
Pacific/English	884	102,741	19%	\$1,491
Latin America	2,279	87,652	84%	\$46
Eastern Europe	1,976	73,431	69%	\$93
Asia	1,970	67,322	52%	\$168
Middle East	829	36,012	69%	\$90
Africa	153	6,764	37%	\$271

As is usually the case for Region tables, rows are sorted by decreasing article count.

Region, New

Region	Journals	Articles	%No-fee	\$/article
Eastern Europe	441	18,803	65%	\$73
Western Europe	481	17,977	44%	\$1,012
Latin America	405	12,467	93%	\$11
Asia	408	12,333	53%	\$199
Middle East	214	8,185	73%	\$38
Pacific/English	141	7,267	23%	\$1,560
Africa	27	969	36%	\$210

Quite a bit of new activity in Eastern Europe, relatively little in Pacific/English.

Publisher Category, Continuing

See Chapter 7 for overall table and discussion of these categories.

Category	Journals	Articles	%No-fee	\$/article
Open Access	2,614	320,098	15%	\$1,577
Univ/college	6,986	235,445	74%	\$203
Traditional	979	132,252	23%	\$1,635
Society/govt	1,144	84,427	38%	\$830
Miscellaneous	98	3,795	51%	\$104

Publisher Category, New

Category	Journals	Articles	%No-fee	\$/article
Univ/college	1,371	42,413	74%	\$68
Open Access	324	13,841	49%	\$637
Traditional	209	12,026	18%	\$1,683
Society/govt	173	7,436	52%	\$267
Miscellaneous	40	2,285	93%	\$31

Journals published by universities and colleges not only dominate journal introductions but also account for a majority of all articles.

Growth and Shrinkage, Continuing

Change 2018-19	Count	Percent	Cum%
Grew 25%+	2,647	24.5%	
Even, $\pm 24.99\%$	6,153	56.9%	81.4%
Shrank 25%+	2,014	18.6%	
Total	10,814		

As already noted, only journals with articles in both 2018 and 2019 are included in this table. The two tables are nearly identical.

Growth and Shrinkage, New

Change 2018-19	Count	Percent	Cum%
Grew 25%+	440	23.8%	
Even, $\pm 24.99\%$	1,051	56.8%	80.6%
Shrank 25%+	358	19.4%	
Total	1,849		

Subjects, Continuing

Subject	Journ.	Articles	%No-fee	\$/article
Medicine	2,552	226,451	28%	\$1,405
Other Sciences	207	69,166	12%	\$1,899
Biology	384	48,832	10%	\$1,910
Engineering	415	45,431	22%	\$1,165
Ecology	309	36,986	30%	\$1,154
Physics	152	33,295	26%	\$1,237
Chemistry	148	32,895	14%	\$1,336
Agriculture	462	30,283	28%	\$917
Education	812	26,965	81%	\$80
Earth Sciences	399	22,588	47%	\$796
Technology	218	20,267	44%	\$892
Language & Literature	751	20,015	87%	\$32
Economics	769	19,817	62%	\$152
Sociology	521	18,427	67%	\$139
Anthropology	477	13,594	72%	\$138
Zoology	250	13,549	26%	\$704
Computer Science	285	13,349	49%	\$576
Mathematics	231	10,916	42%	\$840
Miscellany	205	10,071	74%	\$155
History	322	8,892	95%	\$10
Psychology	204	8,748	49%	\$1,138
Arts & Architecture	309	8,700	77%	\$128
Law	357	8,113	91%	\$23
Political Science	310	7,832	90%	\$44
Religion	199	6,283	61%	\$209
Media & Communications	223	6,175	89%	\$76
Philosophy	207	5,239	93%	\$28
Library Science	143	3,138	95%	\$31

Subjects, New

Subject	Jour.	Articles	%No-fee	\$/article
Medicine	411	21,143	49%	\$730
Economics	157	6,045	46%	\$202
Engineering	120	4,944	53%	\$576
Education	149	4,793	71%	\$75
Agriculture	90	3,375	46%	\$231
Language & Literature	142	3,071	87%	\$8
Ecology	58	2,868	21%	\$1,473
Sociology	119	2,820	89%	\$33
Law	84	2,516	88%	\$112
Anthropology	72	2,289	61%	\$128
Biology	40	2,249	28%	\$1,031
Chemistry	33	2,070	59%	\$648
History	73	2,060	89%	\$5
Political Science	70	1,906	94%	\$39
Religion	89	1,825	89%	\$7
Other Sciences	23	1,679	60%	\$943
Arts & Architecture	60	1,604	71%	\$76
Technology	32	1,540	62%	\$265
Computer Science	39	1,291	46%	\$856
Philosophy	36	1,214	92%	\$2
Earth Sciences	51	1,208	62%	\$444
Psychology	37	1,195	63%	\$68
Mathematics	35	1,039	72%	\$166
Zoology	26	1,036	49%	\$159
Physics	19	989	27%	\$497
Library Science	22	609	100%	\$0
Media & Communications	22	484	86%	\$22
Miscellany	8	139	100%	\$0

There's so much to compare in these two tables that it's difficult to note highlights, other than the obvious one that no megajournals were added, this dropping "Other Sciences" from second to 15th place.

There are many other striking differences, to be sure: newly-added medical journals and biology journals averaged about half the cost per article of continuing ones; newly-added language & literature journals have extremely low average fees per article—but religion, history, philosophy and—at \$0 average—library science are even lower (there are *no* single-digit average fees for continuing journals but five for new journals)...and so on.

Country of Publication

The last two tables in this chapter are partial ones, showing the countries with the most articles for continuing and new journals respectively. Complete tables would require several pages each, since 117 countries are represented. (See Chapter 8 for a complete list.)

I won't add comments on these tables. It should be clear that Switzerland's and the United Kingdom's positions in the continuing table are largely due to very large publishers headquartered there.

For the sake of brevity and clarity (and to avoid at least one political argument), country names are shorter common forms rather than the forms used in *DOAJ* in the following cases:

<i>DOAJ</i>	<i>GOA5</i>	Journals
Bolivia, Plurinational State of	Bolivia	6
Congo, the Democratic Republic of the	Dem. Rep. Congo	1
Iran, Islamic Republic of	Iran	432
Korea, Republic of	South Korea	88
Macedonia, the Former Yugoslav Republic of	North Macedonia	8
Moldova, Republic of	Moldova	28
Palestine, State of	Palestine	1
Russian Federation	Russia	290
Taiwan, Province of China	Taiwan	33
Venezuela, Bolivarian Republic of	Venezuela	29

Country of Publication, Continuing (partial)

Country	Journals	Articles	%No-fee	\$/article
United Kingdom	1,399	162,254	5%	\$2,118
Switzerland	287	141,107	2%	\$1,930
United States	635	92,719	16%	\$1,554
Brazil	1,255	58,268	79%	\$64
Indonesia	1,281	26,294	55%	\$41
Netherlands	200	20,118	30%	\$1,264
Germany	240	19,532	61%	\$589
Spain	665	19,023	92%	\$44
France	206	17,727	96%	\$39
India	242	17,079	55%	\$214
Russia	283	16,921	85%	\$26
Poland	511	15,984	60%	\$191
Iran	418	15,749	68%	\$48
Turkey	308	14,456	80%	\$47
Italy	327	11,797	80%	\$140
Ukraine	176	9,306	49%	\$38
China	81	8,841	40%	\$309
Romania	310	8,789	68%	\$39
Colombia	312	7,735	99%	\$1
Canada	142	5,262	58%	\$854
South Korea	88	4,956	56%	\$206
Serbia	152	4,736	69%	\$56
Mexico	114	4,723	92%	\$18
Australia	93	4,580	38%	\$992
Argentina	202	4,574	92%	\$6
South Africa	87	3,660	24%	\$428
Cuba	75	3,649	100%	\$0
Chile	107	3,089	74%	\$69
Croatia	109	3,075	84%	\$73
Portugal	93	2,640	78%	\$159
Bulgaria	51	2,502	33%	\$373

Country of Publication, New (partial)

Country	Journals	Articles	%No-fee	\$/article
United Kingdom	183	9,632	24%	\$1,534
Brazil	169	6,446	87%	\$19
United States	106	6,049	17%	\$1,727
Russia	88	5,985	93%	\$6
Indonesia	271	5,576	55%	\$20
Ukraine	105	5,530	29%	\$74
Turkey	95	3,813	98%	\$4
Iran	95	3,101	63%	\$60
Poland	97	2,919	79%	\$169
Spain	85	2,391	86%	\$98
India	40	2,045	71%	\$83
South Korea	29	1,865	27%	\$369
Italy	55	1,558	81%	\$77
China	21	1,326	48%	\$740
Romania	35	1,270	39%	\$84
Argentina	50	1,187	100%	\$0
Switzerland	29	1,049	18%	\$882
Netherlands	30	1,021	21%	\$1,664
Colombia	48	1,010	96%	\$8
Iraq	21	994	26%	\$73
Germany	21	796	55%	\$383
Cuba	18	698	100%	\$0
Australia	13	662	36%	\$969
Czech Republic	17	574	49%	\$279
France	23	567	91%	\$121
Japan	7	558	9%	\$843
Venezuela	6	537	100%	\$0
Lithuania	23	533	87%	\$46
Peru	23	513	95%	\$3
Mexico	18	498	100%	\$0
Canada	18	458	60%	\$534

4. Five-year Comparisons

Is it useful to compare the journal universe of *DOAJ* as it was at the very end of 2015 (*GOAJ*), 2016 (*GOAJ2*), 2017 (*GOAJ3*), 2018 (*GOAJ4*) and 2019 (*GOAJ5*)? Here's a brief attempt in four tables and ten graphs. The key facts are in chronological; the ten graphs show each report as a separate line. Graphs show journals *active* during each year.

Key Facts, *GOAJ* (2011-2015)

GOAJ	Journals	Articles	Art%	\$/Art
All	10,324	566,922		\$665
Fee	2,974	315,968	56%	\$1,192
No-fee	7,350	250,954	44%	
Biomed	2,876	207,062	37%	\$1,020
Fee	1,447	137,782	67%	\$1,533
No-fee	1,429	69,280	33%	
STEM	3,037	240,462	42%	\$644
Fee	1,130	152,036	63%	\$1,019
No-fee	1,907	88,426	37%	
H&SS	4,411	119,398	21%	\$89
Fee	397	26,150	22%	\$405
No-fee	4,014	93,248	78%	

Key Facts, GOAJ2 (2011-2016)

GOAJ2	Journals	Articles	Art%	\$/Art
All	8,992	523,205		\$803
Fee	2,837	298,448	57%	\$1,407
No-fee	6,155	224,757	43%	
Biomed	2,562	188,194	36%	\$1,149
Fee	1,406	130,993	70%	\$1,651
No-fee	1,156	57,201	30%	
STEM	2,566	225,591	43%	\$847
Fee	1,037	145,565	65%	\$1,313
No-fee	1,529	80,026	35%	
H&SS	3,864	109,420	21%	\$114
Fee	394	21,890	20%	\$572
No-fee	3,470	87,530	80%	

Key facts, GOAJ3 (2013-2017)

GOAJ3	Journals	Articles	Art%	\$/Art
All	10,293	563,146		\$876
Fee	3,122	316,836	56%	\$1,557
No-fee	7,171	246,310	44%	
Biomed	2,694	200,835	36%	\$1,240
Fee	1,438	139,983	70%	\$1,778
No-fee	1,256	60,852	30%	
STEM	2,814	225,666	40%	\$1,011
Fee	1,126	151,363	67%	\$1,507
No-fee	1,688	74,303	33%	
H&SS	4,785	136,645	24%	\$118
Fee	558	25,490	19%	\$634
No-fee	4,227	111,155	81%	

Key Facts, *GOA4* (2013-2018)

GOA4	Journals	Articles	Art%	\$/Art
All	12,180	711,670		\$913
Fee	3,506	413,826	58%	\$1,569
No-fee	8,674	297,844	42%	
Biomed	3,062	252,842	36%	\$1,296
Fee	1,519	177,287	70%	\$1,849
No-fee	1,543	75,555	30%	
STEM	3,181	289,522	41%	\$1,039
Fee	1,203	199,232	69%	\$1,510
No-fee	1,978	90,290	31%	
H&SS	5,937	169,306	24%	\$123
Fee	784	37,307	22%	\$558
No-fee	5,153	131,999	78%	

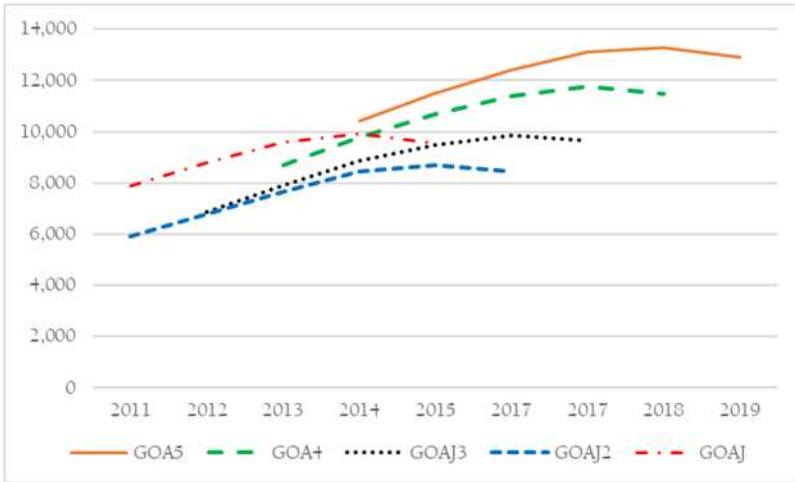
Key Facts, *GOA5* (2014-2019 (see page 3)

Other than steady slow increases in average fee per article (except for a decline among fee journals in H&SS), the patterns don't vary much.

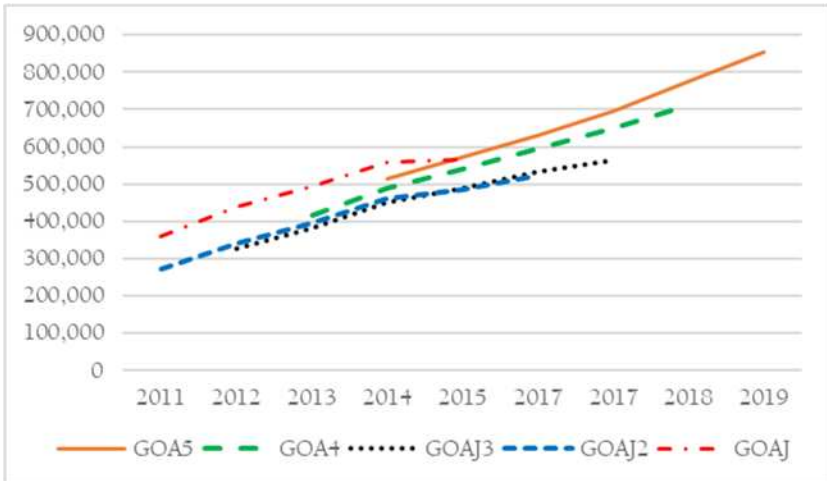
Nine-year Graphs

These graphs show all five reports in each graph.

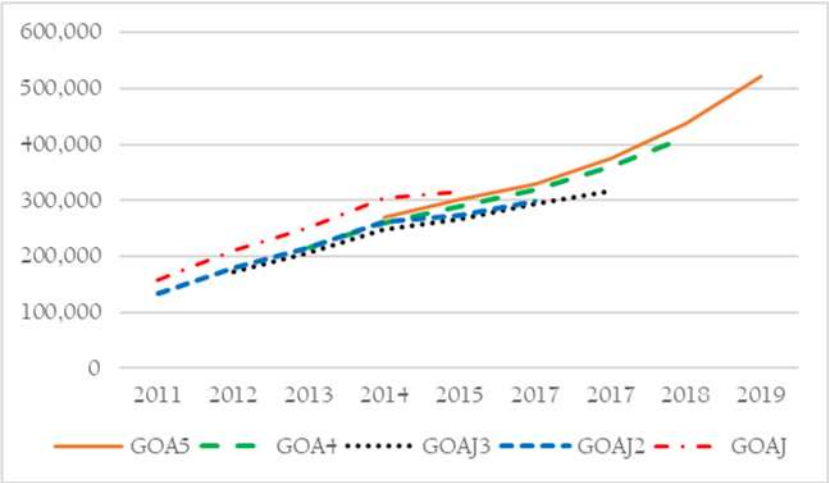
Active Journals, 2011-2019



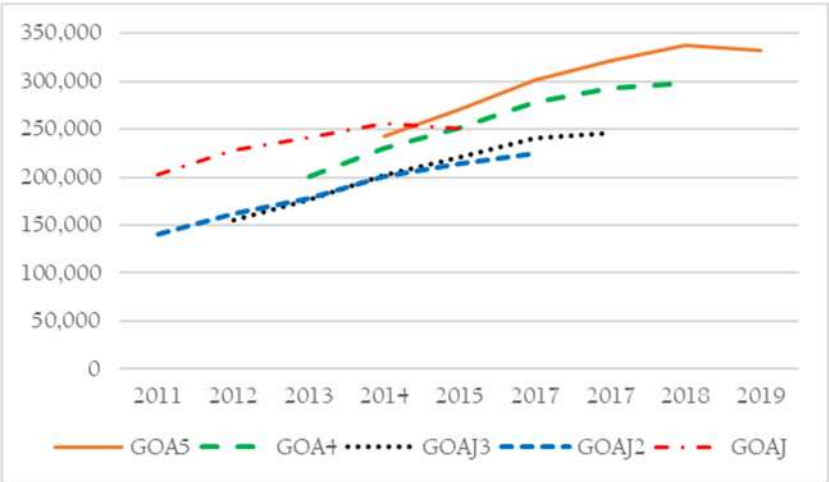
Articles, 2011-2019



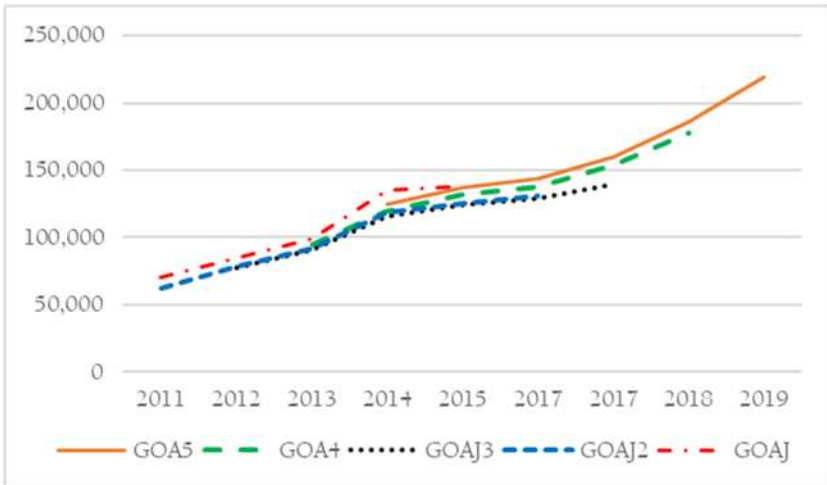
Fee Articles, 2011-2019



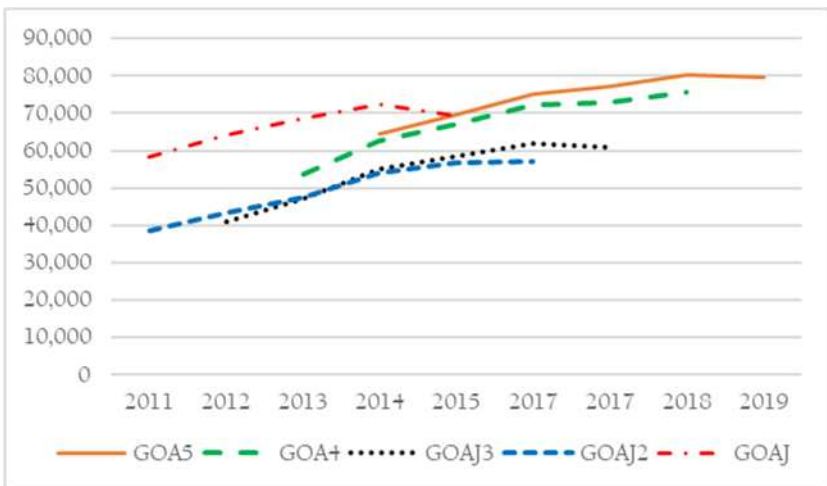
No-Fee Articles, 2011-2019



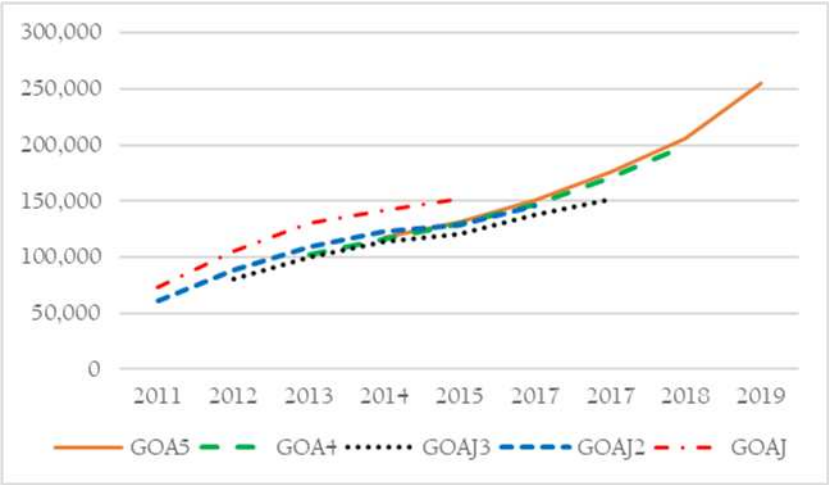
Fee Articles, Biomed, 2011-2019



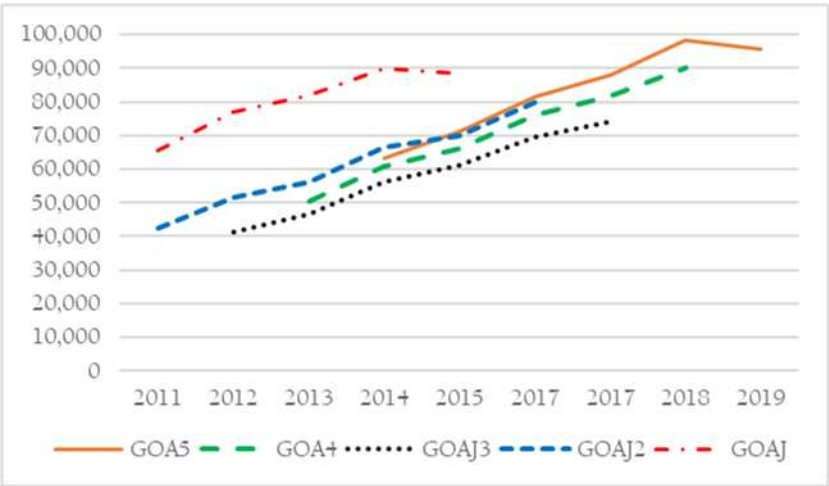
No-Fee Articles, Biomed, 2011-2019



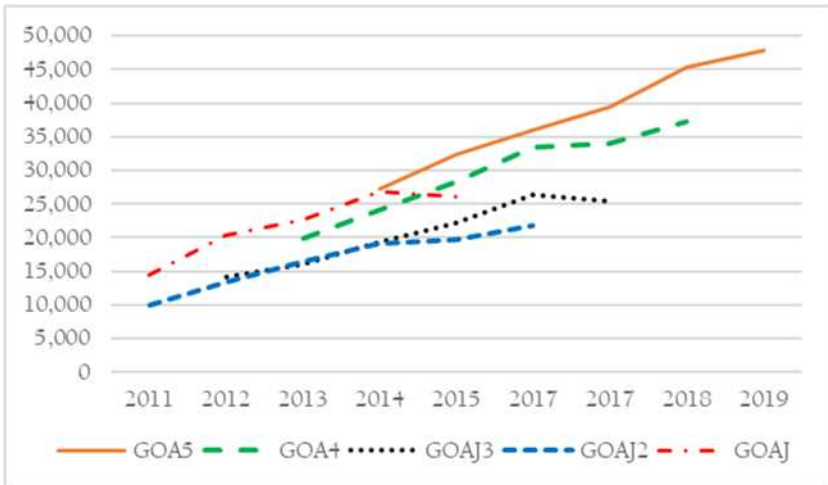
Fee Articles, STEM, 2011-2019



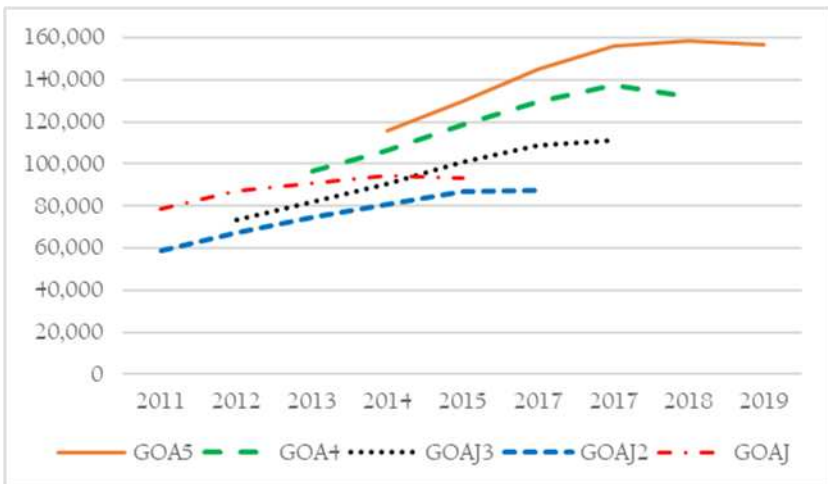
No-Fee Articles, STEM, 2011-2019



Fee Articles, H&SS, 2011-2019



No-Fee Articles, H&SS, 2011-2019



5. Journals by Article Volume

Journals, no matter how they’re funded, vary widely in number of articles per year. “Average articles per journal” is almost meaningless as an overall figure, becoming only slightly more meaningful as you narrow the frame of reference.

This chapter looks at journals by article volume, generally using the *peak* of the period 2014-2019. It should help clarify what’s out there and how pay-versus-free varies by article volume.

Gold Open Access Journals 2011-2015 discussed various ways to determine appropriate groups of journals by volume. There’s no “best” way, so for the sake of consistency this chapter (and the rest of the book) uses the same five-part breakdown as previous years: Largest (600 or more articles in peak year); Large (150 to 599 articles); Medium (60 to 149 articles); Small (20 to 59 articles); Smallest (1 to 19 articles). It also uses the same detailed breakdown as in the last two years.

Article Volume, Overall

	Journals	Articles	%No-fee	\$/article
Largest: 600+	194	302,199	11%	\$1,815
Large: 150-599	857	167,246	25%	\$1,171
Med.: 60-149	2,640	173,228	54%	\$501
Small: 20-59	7,363	184,935	76%	\$207
Smallest: 0-19	2,884	26,410	82%	\$140

As was also true last year, the larger the journal, the higher the article fees are likely to be and the lower the percentage of no-fee articles. The largest journals are also growing most rapidly, with 36% more articles in 2019 than in 2018.

The next table breaks down peak volume more narrowly, using the same breakdown as last year, but showing average cost per article for

each row rather than percent of all articles. In each row, the peak number is the lower limit.

Article Volume, Detailed

Peak	Journals	Act. 19	Articles	%No-fee	\$/article
20,000	2	2	36,650	0.0%	\$1,748.25
2,000	38	38	140,667	12.9%	\$1,875.40
1,000	59	59	66,907	12.9%	\$1,840.90
800	36	35	23,554	7.1%	\$1,824.51
600	59	59	34,421	17.3%	\$1,586.34
400	106	106	39,278	15.5%	\$1,476.85
300	140	137	35,142	22.1%	\$1,199.58
200	294	283	52,225	28.3%	\$1,134.17
150	317	310	40,601	32.8%	\$898.45
125	318	309	30,973	41.5%	\$747.51
100	523	512	41,830	48.7%	\$582.70
80	637	617	41,930	56.2%	\$421.29
60	1,162	1,123	58,495	64.2%	\$368.85
50	959	931	38,916	68.8%	\$303.77
40	1,409	1,345	45,523	75.1%	\$209.03
30	2,048	1,933	50,842	79.2%	\$184.49
20	2,947	2,672	49,654	77.8%	\$152.86
15	1,416	1,241	16,007	81.7%	\$128.50
10	1,087	919	8,921	81.5%	\$152.17
5	373	266	1,474	80.0%	\$184.81
1	8	4	8	100.0%	\$0.00

Journals with 800 to 19,999 peak articles all have average article costs of \$1,820-\$1,875, a surprisingly narrow range. This may be a good place to remind readers that \$/article *includes* no-fee articles unless fee and no-fee are specifically broken out. Thus, for journals with 5-9 articles in 2019, where 80% of the articles appear in no-fee journals, the average fee for those journals charging fees is actually \$923.40 (using full numbers, not the smaller number of displayed digits).

Profiles by Volume

The remainder of this chapter consists of brief profiles of each of the five volume categories. As always, Key Facts compares the smaller group to the overall universe.

Key Facts, Largest Journals (600+ Peak Articles)

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	194	302,199			\$1,815	78%
Fee	162	267,805	89%	45%	\$2,049	22%
No-fee	32	34,394	11%	-71%		
Biomed	93	97,650	32%	-8%	\$2,160	50%
Fee	83	91,152	93%	27%	\$2,314	18%
No-fee	10	6,498	7%	-75%		
STEM	85	191,373	63%	54%	\$1,709	44%
Fee	71	168,422	88%	21%	\$1,942	19%
No-fee	14	22,951	12%	-56%		
H&SS	16	13,176	4%	-82%	\$806	484%
Fee	8	8,231	62%	167%	\$1,291	119%
No-fee	8	4,945	38%	-51%		

Articles and Journals by Year, Largest

	2019	2018	2017	2016	2015	2014
Journals	193	192	189	182	178	172
%No-fee	16%	17%	16%	16%	16%	16%
Articles	302,199	239,990	193,735	162,177	145,868	127,212
%No-fee	11%	15%	12%	12%	11%	10%
Change	26%	24%	19%	11%	15%	

Key Facts shows *all* journals in a subset while some other tables show *active* journals. STEM has more than its share of largest journals, while H&SS has very few—and the few largest H&SS journals are *much* more expensive than most fee H&SS journals. For that matter, fees are higher than usual in all segments.

Key Facts, Large Journals (150-599 Peak Articles)

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	857	167,246			\$1,171	15%
Fee	583	125,298	75%	23%	\$1,563	-7%
No-fee	274	41,948	25%	-35%		
Biomed	452	91,405	55%	56%	\$1,542	7%
Fee	337	73,593	81%	10%	\$1,915	-2%
No-fee	115	17,812	19%	-27%		
STEM	259	53,689	32%	-22%	\$925	-22%
Fee	177	39,815	74%	2%	\$1,247	-24%
No-fee	82	13,874	26%	-5%		
H&SS	146	22,152	13%	-45%	\$238	72%
Fee	69	11,890	54%	130%	\$443	-25%
No-fee	77	10,262	46%	-40%		

Articles and Journals by Year, Large

	2019	2018	2017	2016	2015	2014
Journals	836	836	826	801	768	716
%No-fee	31%	32%	32%	32%	33%	32%
Articles	167,246	152,933	137,809	130,645	119,132	109,601
%No-fee	25%	27%	29%	32%	32%	32%
Change	9%	11%	5%	10%	9%	

Fee journals and articles still predominate, but to a much lesser extent—and while per-article costs are higher than usual overall and especially for all of H&SS, they're lower for STEM. (The H&SS situation is interesting: average fees for fee-charging journals are on the low side for H&SS, but fee articles are far more common than in smaller categories.) This volume segment is heavy on biomed, light on STEM and very light on H&SS. No-fee article percentages are declining over time. (Note that these are the same comments as last year.)

Key Facts, Medium-sized Journals (60-149 Peak Articles)

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	2,640	173,228			\$501	-51%
Fee	1,097	78,914	46%	-25%	\$1,100	-34%
No-fee	1,543	94,314	54%	40%		
Biomed	930	64,799	37%	7%	\$815	-43%
Fee	470	35,545	55%	-25%	\$1,486	-24%
No-fee	460	29,254	45%	70%		
STEM	822	54,986	32%	-23%	\$495	-58%
Fee	424	29,900	54%	-25%	\$910	-44%
No-fee	398	25,086	46%	67%		
H&SS	888	53,443	31%	29%	\$126	-8%
Fee	203	13,469	25%	8%	\$500	-15%
No-fee	685	39,974	75%	-2%		

Articles and Journals by Year, Medium-sized

	2019	2018	2017	2016	2015	2014
Journals	2,561	2,581	2,532	2,444	2,319	2,147
%No-fee	58%	59%	59%	61%	61%	61%
Articles	173,228	168,289	158,007	147,004	135,390	122,809
%No-fee	54%	56%	59%	60%	60%	61%
Change	3%	7%	7%	9%	10%	

The first group with thousands of journals, with roughly the same article counts as large and small journals. Relatively low per-article costs across the board.

These journals are relatively slow-growing, and while no-fee articles are still in the majority, that majority is shrinking slowly over time.

Key Facts, Small Journals (20 to 59 Peak Articles)

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	7,363	184,935			\$207	-80%
Fee	1,703	45,130	24%	-60%	\$849	-49%
No-fee	5,660	139,805	76%	94%		
Biomed	1,496	41,494	22%	-36%	\$548	-62%
Fee	622	17,424	42%	-43%	\$1,305	-33%
No-fee	874	24,070	58%	118%		
STEM	1,755	44,503	24%	-41%	\$244	-79%
Fee	568	15,372	35%	-53%	\$707	-57%
No-fee	1,187	29,131	65%	140%		
H&SS	4,112	98,938	53%	123%	\$48	-66%
Fee	513	12,334	12%	-47%	\$381	-35%
No-fee	3,599	86,604	88%	14%		

Articles and Journals by Year, Small

	2019	2018	2017	2016	2015	2014
Journals	6,881	7,092	7,008	6,647	6,160	5,578
%No-fee	76%	77%	78%	78%	79%	79%
Articles	184,935	184,879	180,010	166,868	148,951	133,788
%No-fee	76%	77%	78%	78%	79%	78%
Change	0%	3%	8%	12%	11%	

Almost half of all journals fall into this category—and more than three-quarters of the articles are in no-fee journals. Not surprisingly, H&SS is more than twice as large a portion as overall. These journals are, overall, publishing about the same number of articles as in 2018.

Key Facts, Smallest Journals (Fewer than 20 Peak Articles)

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	2,884	26,410			\$140	-86%
Fee	545	4,871	18%	-70%	\$757	-55%
No-fee	2,339	21,539	82%	110%		
Biomed	416	3,327	13%	-64%	\$557	-61%
Fee	188	1,409	42%	-42%	\$1,315	-33%
No-fee	228	1,918	58%	116%		
STEM	681	6,213	24%	-43%	\$170	-86%
Fee	172	1,589	26%	-65%	\$666	-59%
No-fee	509	4,624	74%	173%		
H&SS	1,787	16,870	64%	167%	\$46	-67%
Fee	185	1,873	11%	-53%	\$414	-30%
No-fee	1,602	14,997	89%	16%		

Articles and Journals by Year, Smallest

	2019	2018	2017	2016	2015	2014
Journals	2,430	2,593	2,542	2,335	2,078	1,821
%No-fee	81%	82%	82%	82%	83%	83%
Articles	26,410	28,336	27,829	25,283	22,286	19,520
%No-fee	82%	83%	83%	83%	83%	84%
Change	-7%	2%	10%	13%	14%	

Mostly H&SS, mostly no-fee, and fewer articles in 2019 than in 2018, presumably because journals gain enough articles to move up to the Small category.

6. Fees and Maximum Revenue

It takes money to publish even the smallest journal. For small open access journals run out of a university library or department the costs may be so small as to be trivial.

You can find long lists of all the things publishers may do and long discussions of what constitutes reasonable pricing. This book doesn't say "here's what an article *should* cost" but does offer some data on the maximum amount that journals are (or may be) getting from fees.

Fee Level, Overall

	Jour.	%Fee	%All	Articles	%Fee	%All
\$1,400+	1,298	32%	9%	348,024	67%	41%
\$600-\$1.399	886	22%	6%	74,926	14%	9%
\$200-\$599	594	15%	4%	40,639	8%	5%
\$0.01-\$199	1,312	32%	9%	58,429	11%	7%
No fee	9,848		71%	332,000		39%

The two "%Fee" columns show the level's percentage of all fee journals or articles. While two-thirds of fee journals charge less than \$1,400, two-thirds of fee *articles* appear in the most expensive group.

Revenue Ranges

The next table, which includes only journals with fees, shows the number of journals and articles in each of a fairly large range of revenue segments. Except for modifications at the top of ranges to reflect reality, revenue brackets are the same as in previous years to provide comparability.

Revenue	Journals	Cum J	Articles	Art/J
\$10 to \$38.2 million	11	11	93,791	8,526
\$4 to \$9.4 million	25	36	67,844	2,714
\$2 to \$3.97 million	35	71	43,909	1,255
\$1 to \$1.99 million	90	161	58,524	650
\$750,000 to \$997,500	53	214	21,234	401
\$500,000 to \$745,000	70	284	20,161	288
\$400,000 to \$499,000	59	343	15,128	256
\$300,000 to \$397,000	90	433	15,054	167
\$250,000 to \$299,250	67	500	10,641	159
\$200,000 to \$247,650	84	584	12,020	143
\$150,000 to \$199,920	135	719	17,309	128
\$100,000 to \$149,940	238	957	22,834	96
\$75,000 to \$99,900	177	1,134	14,137	80
\$50,000 to \$74,800	275	1,409	16,320	59
\$40,000 to \$49,950	159	1,568	9,009	57
\$30,000 to \$39,978	191	1,759	11,449	60
\$25,000 to \$29,936	107	1,866	5,164	48
\$20,000 to \$24,969	137	2,003	6,722	49
\$15,000 to \$19,955	172	2,175	8,617	50
\$10,000 to \$14,960	204	2,379	8,205	40
\$7,500 to \$9,984	165	2,544	6,576	40
\$5,000 to \$7,472	182	2,726	5,705	31
\$2,500 to \$4,986	317	3,043	11,218	35
\$1,000 to \$2,486	436	3,479	12,178	28
\$0.19 to \$995	439	3,918	8,269	19
\$0 (fee but no 2019 articles)	172	4,090		

Perhaps noteworthy: Last year, four journals potentially brought in \$10 million or more. This year, eleven journals did.

Detailed Fee Breakdown

Fees range from less than \$0.01 (based on stated exchange rates, and this is probably an error) to an astonishing \$6,000, up from \$5,300 last year. Last year, I noted that “despite some alarmism, there are only two

journals with fees greater than \$5,000.” This year, there are ten such journals and another six at \$5,000 even.

Fee	Journals	Cum J	Articles	Art/J
\$4,000-\$6,000	26		11,297	435
\$3,000-\$3,990	115	141	22,187	193
\$2,500-\$2,990	185	326	49,764	269
\$2,250-\$2,495	178	504	37,437	210
\$2,000-\$2,249.	224	728	73,157	327
\$1,750-\$1,990	279	1,007	95,281	342
\$1,500-\$1,749	234	1,241	49,343	211
\$1,250-\$1,495	158	1,399	15,474	98
\$1,000-\$1,245	360	1,759	39,682	110
\$750-\$995	295	2,054	19,710	67
\$600-\$747	130	2,184	9,618	74
\$400-\$594	200	2,384	14,045	70
\$300-\$399	184	2,568	11,643	63
\$200-\$299	210	2,778	14,951	71
\$100-\$195	386	3,164	22,406	58
\$0.007-\$99	926	4,090	36,023	39

The remainder of this chapter, and the rest of the project, uses the same fee breakdown used in previous editions and in the first table in this chapter.

Journals by Segment and Fee Level

	Biomed	STEM	H&SS
\$1,400+	914	320	64
\$600-\$1,399	347	389	150
\$200-\$599	193	251	150
\$0.01-\$199	246	452	614
No fee	1,687	2,190	5,971

Biomed dominates the most expensive journals—and very few H&SS journals have more than nominal fees. STEM has roughly equal numbers of journals at the two highest fee levels and, unlike medicine, more with nominal fees.

Growth and Shrinkage, \$1,400+

Change 2018-19	Count	Percent	Cum%
Grew 25%+	418	35.5%	
Even, $\pm 24.99\%$	594	50.5%	86.1%
Shrank 25%+	164	13.9%	
Total	1,176		

This and the next four tables show only those journals that published articles in both 2018 and 2019.

Growth and Shrinkage, \$600-\$1,399

Change 2018-19	Count	Percent	Cum%
Grew 25%+	246	29.4%	
Even, $\pm 24.99\%$	363	43.3%	72.7%
Shrank 25%+	229	27.3%	
Total	838		

Where only one out of seven of the most expensive journals shrank significantly, more than a quarter of these did.

Growth and Shrinkage, \$200-\$599

Change 2018-19	Count	Percent	Cum%
Grew 25%+	140	25.0%	
Even, $\pm 24.99\%$	312	55.7%	80.7%
Shrank 25%+	108	19.3%	
Total	560		

A quarter growing substantially, a fifth shrinking.

Growth and Shrinkage, \$0.007-\$199

Change 2018-19	Count	Percent	Cum%
Grew 25%+	254	20.9%	
Even, $\pm 24.99\%$	748	61.6%	82.5%
Shrank 25%+	212	17.5%	
Total	1,214		

A fifth growing, more than a sixth shrinking.

Growth and Shrinkage, No-Fee

Change 2018-19	Count	Percent	Cum%
Grew 25%+	2,029	22.9%	
Even, $\pm 24.99\%$	5,187	58.4%	81.3%
Shrank 25%+	1,659	18.7%	
Total	8,875		

Like the two lowest-fee categories, mostly stable with more growth than shrinkage.

The Big Nine and The Rest

Looking at changing revenues and fees, one thing becomes clear: a few publishers dominate revenue. No, the dominant one isn't who you might assume (they're third): it's Holtzbrinck, including Springer Nature and Frontiers. There are nine publishers with potential 2019 OA fees of more than \$15 million each; combined, they represent 79% of the potential OA revenue with 42% of the articles.

The first three editions of this report split the OA universe into APCLand and OAWorld. I abandoned that split last year as being more distracting than helpful—but a brief look at the situation wouldn't hurt. In GOAJ3, APCLand involved 13 publisher names that collectively published 242,313 articles in 1,890 active journals in 2017 for an average of \$1,706 per article, yielding potential revenue of \$413,360,238: 84% of the total potential revenue for 43% of the articles. For 2019, the Big 9—a slightly different set that combines Springer Nature (including BMC) and Frontiers into Holtzbrinck, omits Wolters Kluwer/Medknow, and adds IEEE—published 358,311 articles in 1,784 active journals for an average of \$1,929 per article, yielding potential revenue of \$691,049,849: 79% of the total potential revenue for 42% of the articles. The slices of a much bigger pie are about the same, but that means an extra \$278 million spread among a slightly *smaller* number of active journals. (IEEE has five relatively expensive OA journals while Wolters Kluwer and Wolters Kluwer Medknow has more than 200, with all but around 20 either no-fee or low-fee.)

Oh, and where the cutoff revenue for 2017 was \$7.2 million, for 2019 it's \$16.6 million, more than twice as much.

The rest of this chapter uses this book's standard tables and graphs to compare the Big 9 and the rest.

The Big Nine

Name	Articles	Revenue	\$/art
Holtzbrinck	117,270	\$283,950,325	\$2,421.34
MDPI	106,409	\$180,014,480	\$1,691.72
Elsevier	44,795	\$56,205,216	\$1,254.72
Wiley	18,959	\$43,797,020	\$2,310.09
PLOS	19,632	\$34,073,070	\$1,735.59
Hindawi	16,759	\$29,852,900	\$1,781.31
IEEE	16,233	\$28,414,570	\$1,750.42
Dove	7,705	\$18,138,038	\$2,354.06
SAGE	10,549	\$16,604,231	\$1,574.01
Total	358,311	\$691,049,849	\$1,928.63

Key Facts, Big 9

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	1,839	358,311			\$1,929	89%
Fee	1,533	334,428	93%	53%	\$2,066	24%
No-fee	306	23,883	7%	-83%		
Biomed	1,090	146,647	41%	17%	\$2,174	51%
Fee	955	138,065	94%	28%	\$2,309	18%
No-fee	135	8,582	6%	-78%		
STEM	590	198,253	55%	35%	\$1,792	51%
Fee	479	186,266	94%	29%	\$1,907	17%
No-fee	111	11,987	6%	-78%		
H&SS	159	13,411	4%	-84%	\$1,266	822%
Fee	99	10,097	75%	222%	\$1,681	186%
No-fee	60	3,314	25%	-68%		

Very few no-fee articles and very few H&SS articles—and even there, three-quarters involve fees, with fee articles almost three times as expensive as the overall figure.

Key Facts, The Rest

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	12,099	495,707			\$368	-64%
Fee	2,557	187,590	38%	-38%	\$971	-42%
No-fee	9,542	308,117	62%	60%		
Biomed	2,297	152,028	31%	-12%	\$726	-49%
Fee	745	81,058	53%	-27%	\$1,362	-30%
No-fee	1,552	70,970	47%	75%		
STEM	3,012	152,511	31%	-25%	\$398	-66%
Fee	933	68,832	45%	-38%	\$881	-46%
No-fee	2,079	83,679	55%	101%		
H&SS	6,790	191,168	39%	61%	\$58	-58%
Fee	879	37,700	20%	-16%	\$295	-50%
No-fee	5,911	153,468	80%	5%		

More than 60% of articles are no-fee—and there are essentially the same number of biomed and STEM articles, with only fee biomed articles exceeding \$1,000 per article.

Articles and Journals by Year, Big 9

	2019	2018	2017	2016	2015	2014
Journals	1,784	1,712	1,655	1,574	1,458	1,313
%No-fee	16%	17%	16%	16%	15%	14%
Articles	358,311	281,653	228,853	200,913	183,857	167,774
%No-fee	7%	8%	8%	8%	8%	7%
Change	27%	23%	14%	9%	10%	

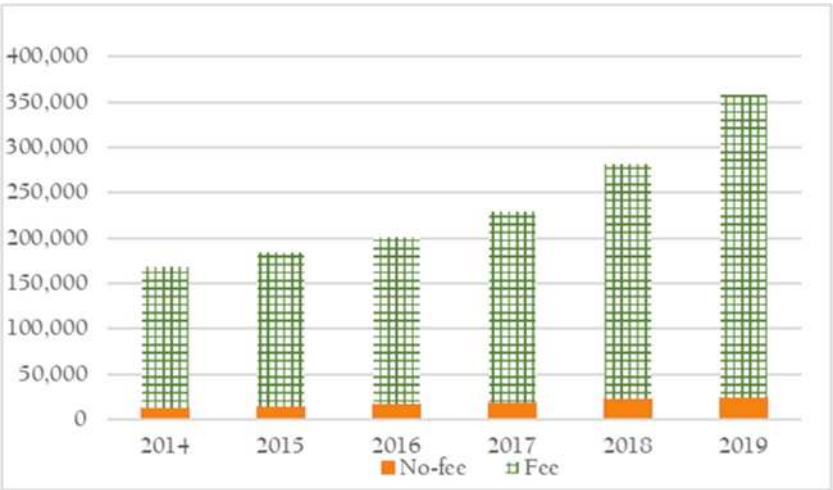
Rapid growth in the last two years, with relatively few new journals.

Articles and Journals by Year, The Rest

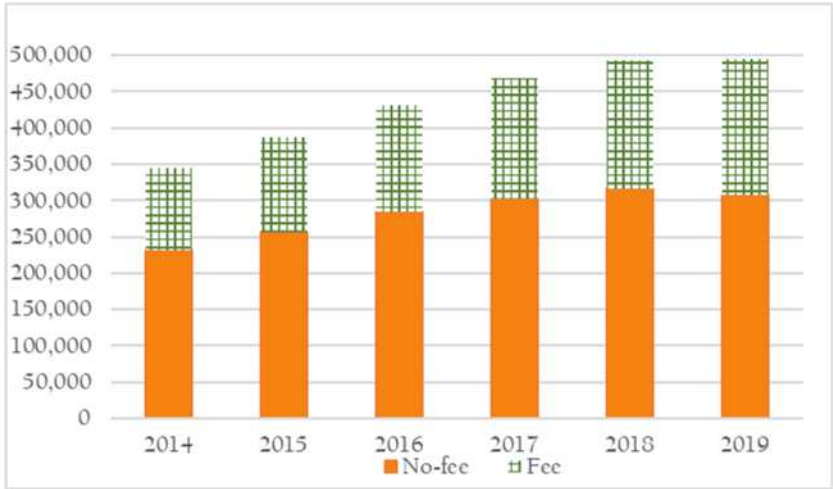
	2019	2018	2017	2016	2015	2014
Journals	11,117	11,582	11,442	10,835	10,045	9,121
%No-fee	78%	79%	79%	80%	80%	80%
Articles	495,707	492,774	468,537	431,064	387,770	345,156
%No-fee	62%	64%	65%	66%	66%	67%
Change	1%	5%	9%	11%	12%	

Growth has almost stalled.

Fee and No-Fee Articles by Year, Big 9



Fee and No-Fee Articles by Year, The Rest



I believe the two graphs speak eloquently for themselves.

Article Volume, Big 9

	Journals	Articles	%No-fee	\$/article
Largest: 600+	125	220,059	3%	\$2,074
Large: 150-599	329	77,299	7%	\$1,924
Med.: 60-149	497	39,929	20%	\$1,459
Small: 20-59	682	19,421	23%	\$1,311
Smallest: 0-19	206	1,603	17%	\$1,347

Three out of five articles are in the largest (and most expensive) journals, although those are only one-sixteenth of the journals.

Article Volume, The Rest

	Journals	Articles	%No-fee	\$/article
Largest: 600+	69	82,140	35%	\$1,123
Large: 150-599	528	89,947	40%	\$524
Med.: 60-149	2,143	133,299	65%	\$214
Small: 20-59	6,681	165,514	82%	\$78
Smallest: 0-19	2,678	24,807	86%	\$62

The largest journals are still most expensive, but represent one-200th of the journals and 16% of the articles.

Fee Level, Big 9

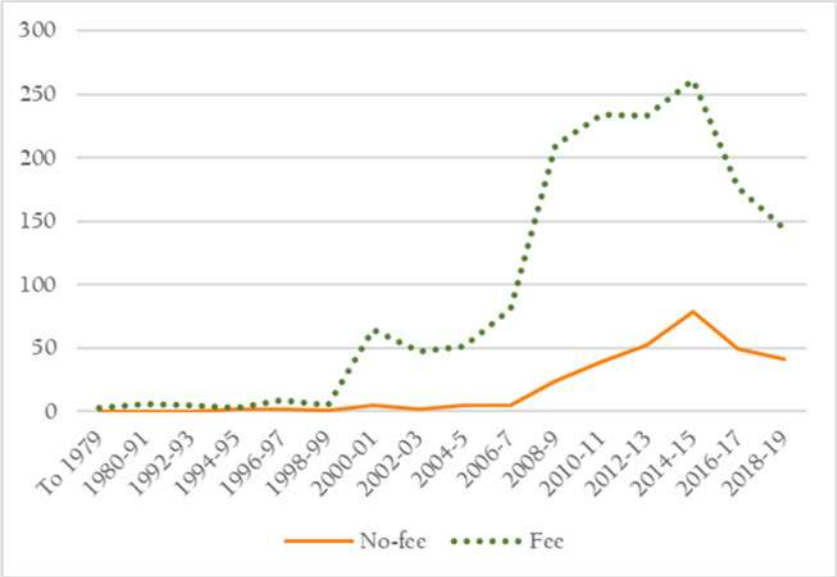
	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	972	63%	53%	290,940	87%	81%
\$600-\$1,399	527	34%	29%	40,111	12%	11%
\$200-\$599	31	2%	2%	3,223	1%	1%
\$0.01-\$199	3	0%	0%	154	0%	0%
No fee	306		17%	23,883		7%

The surprise here may be that only half of the journals charge \$1,400 or more—but those journals publish 81% of the articles.

Fee Level, The Rest

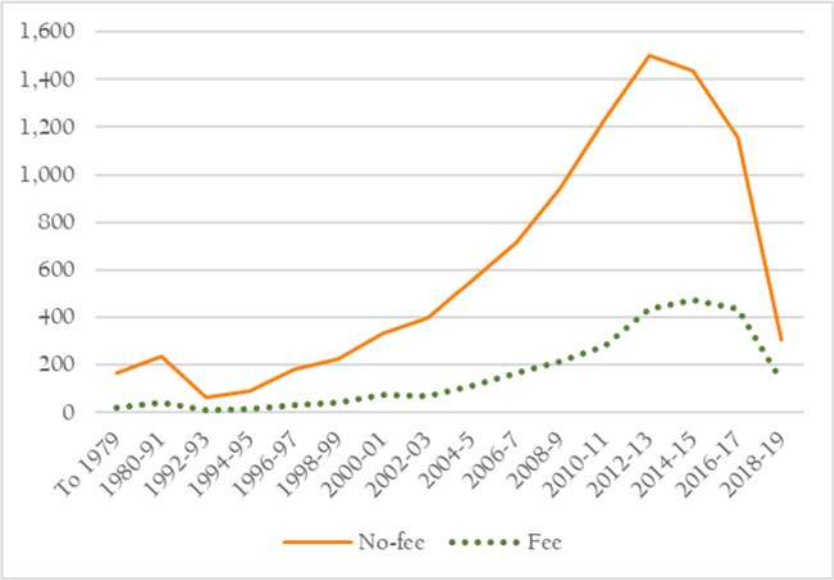
	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	326	13%	3%	57,084	30%	12%
\$600-\$1.399	359	14%	3%	34,815	19%	7%
\$200-\$599	563	22%	5%	37,416	20%	8%
\$0.01-\$199	1,309	51%	11%	58,275	31%	12%
No fee	9,542		79%	308,117		62%

Starting Date, Big 9



Again, the graph may speak for itself.

Starting Date, The Rest



Note very different vertical scales—and entirely different stories.

Fees and Revenue, Big 9

	Articles	Revenue	\$/article
\$1,400+	290,940	\$649,734,417	\$2,233
\$600-\$1,399	40,111	\$39,802,355	\$992
\$200-\$599	3,223	\$1,497,047	\$464
\$0.20-\$199	154	\$16,030	\$104
No fee	23,883		
Total	358,311	\$691,049,849	\$1,929

Here’s an interesting item: if the Big 9 eliminated fees on all of their journals that *don’t* charge \$1,400 or more, it would reduce their potential revenue by 6%. More likely: more journals will pass the \$1,400 point (and the \$2,000 point).

Fees and Revenue, The Rest

	Articles	Revenue	\$/article
\$1,400+	57,084	\$131,507,168	\$2,304
\$600-\$1.399	34,815	\$33,130,539	\$952
\$200-\$599	37,416	\$12,833,957	\$343
\$0.20-\$199	58,275	\$4,741,943	\$81
No fee	308,117		
Total	495,707	\$182,213,608	\$368

Curiously enough, the weighted average article fee for the most expensive journals among all other publishers is actually *higher* than among the Big 9—by \$71—but it's a much smaller group.

Region, Big 9

Region	Journals	Articles	%No-fee	\$/article
Western Europe	1,545	293,541	6%	\$2,009
Pacific/English	175	54,558	1%	\$1,766
Asia	88	7,274	63%	\$490
Middle East	27	2,843	51%	\$502
Eastern Europe	2	37	0%	\$1,600
Latin America	1	33	100%	\$0
Africa	1	25	0%	\$800

Region, The Rest

Region	Journals	Articles	%No-fee	\$/article
Western Europe	2,666	126,531	56%	\$690
Latin America	2,683	100,086	85%	\$42
Eastern Europe	2,415	92,197	68%	\$89
Asia	2,290	72,381	51%	\$141
Pacific/English	850	55,450	37%	\$1,229
Middle East	1,016	41,354	71%	\$51
Africa	179	7,708	37%	\$262

What's most interesting here is below the top line—where Latin America moves from next-to-last by article count to next-to-first.

Growth and Shrinkage, Big 9

Change 2018-19	Count	Percent	Cum%
Grew 25%+	599	35.5%	
Even, $\pm 24.99\%$	758	45.0%	80.5%
Shrank 25%+	329	19.5%	
Total	1,686		

The usual reminder: only journals with articles in both 2018 and 2019 are included here and below.

Growth and Shrinkage, The Rest

Change 2018-19	Count	Percent	Cum%
Grew 25%+	2,488	22.7%	
Even, $\pm 24.99\%$	6,446	58.7%	81.4%
Shrank 25%+	2,043	18.6%	
Total	10,977		

In both cases, fewer than one of five journals is shrinking substantially—but a considerably higher percentage of Big 9 journals are growing rapidly.

Subject Tables

The next two pages show subject tables for the two groups. As usual, subjects are arranged by decreasing article counts.

There are a lot of interesting differences. Although the Big 9 publishes slightly fewer medical articles than everybody else—about 14% fewer—the Big 9 charges more than three times as much per article. It's not the most expensive subject—that's psychology, where the Big 9 publish a bit more than half as many articles as the rest, and charge nearly 33 *times* as much per article. "Other Sciences," which includes megajournals, is also interesting, with the Big 9 publishing more than three times as many articles as everybody else and charging more than twice as much per article.

Four subjects average more than \$2,000 per article in the Big 9, with another 14 over \$1,000; *none* exceed \$1,107 for the rest, with only two over \$1,000.

Oh, and there don't appear to be any journals I tagged as history from the Big 9—but it's one of the largest H&SS fields for the rest.

Subjects, Big 9

Subject	Journals	Articles	%No-fee	\$/article
Medicine	930	115,516	7%	\$2,115
Other Sciences	29	54,601	1%	\$2,157
Biology	160	31,131	1%	\$2,392
Engineering	87	30,853	6%	\$1,672
Physics	62	21,934	22%	\$1,276
Ecology	62	21,754	3%	\$1,869
Chemistry	52	20,685	2%	\$1,853
Agriculture	57	12,621	7%	\$1,872
Earth Sciences	61	10,398	17%	\$1,486
Technology	44	9,690	5%	\$1,737
Computer Science	60	5,724	8%	\$1,356
Mathematics	38	5,674	5%	\$1,530
Zoology	38	4,319	6%	\$1,514
Psychology	10	3,443	0%	\$2,755
Miscellany	8	2,335	51%	\$511
Economics	36	1,390	34%	\$785
Anthropology	18	1,141	19%	\$978
Education	20	1,106	37%	\$684
Sociology	21	925	20%	\$1,020
Arts & Architecture	11	860	25%	\$815
Religion	3	761	12%	\$886
Political Science	9	407	100%	\$0
Law	7	346	20%	\$1,074
Media & Communications	5	329	11%	\$934
Language & Literature	5	156	3%	\$1,036
Library Science	2	109	0%	\$812
Philosophy	4	103	22%	\$853

Subjects, The Rest

Subject	Journals	Articles	%No-fee	\$/article
Medicine	2,033	132,078	50%	\$676
Education	941	30,652	81%	\$57
Economics	890	24,472	60%	\$129
Language & Literature	888	22,930	88%	\$22
Agriculture	495	21,037	44%	\$234
Sociology	619	20,322	72%	\$84
Biology	264	19,950	27%	\$1,059
Engineering	448	19,522	56%	\$213
Ecology	305	18,100	60%	\$345
Other Sciences	201	16,244	54%	\$933
Anthropology	531	14,742	75%	\$71
Chemistry	129	14,280	38%	\$486
Earth Sciences	389	13,398	72%	\$228
Physics	109	12,350	35%	\$1,107
Technology	206	12,117	77%	\$136
History	395	10,952	94%	\$9
Law	434	10,283	92%	\$9
Zoology	238	10,266	36%	\$309
Arts & Architecture	358	9,444	81%	\$56
Political Science	371	9,331	90%	\$45
Computer Science	264	8,916	74%	\$115
Miscellany	205	7,875	82%	\$47
Religion	285	7,347	73%	\$89
Psychology	231	6,500	78%	\$84
Philosophy	239	6,350	94%	\$10
Media & Communications	240	6,330	92%	\$27
Mathematics	228	6,281	80%	\$106
Library Science	163	3,638	99%	\$2

7. Publisher Category

Do the characteristics of open access journals vary depending on the type of publisher? This chapter explores that question, breaking serious gold OA journals down into five categories, based on the publisher name as it appears in *DOAJ*. The categories are:

- **Open access publishers:** Publishers that don't appear to publish subscription journals but do publish one or more OA journals.
- **University, college or institute:** Excluding (as much as possible) "institutes" that don't have educational or research functions. A university press falls into this category even if it seems to function as a traditional publisher.
- **Traditional publishers:** Companies (or publisher names) that publish subscription journals as well as OA journals.
- **Societies, associations and government agencies:** There aren't many government-published OA journals, not enough to create a separate category.
- **Miscellaneous:** Publisher names (frequently journal names) that I couldn't put into another category.

Publisher Category, Overall

Category	Journals	Articles	%No-fee	\$/article
Open Access	2,938	333,939	16%	\$1,539
Univ/college	8,357	277,858	74%	\$182
Traditional	1,188	144,278	23%	\$1,639
Society/govt	1,317	91,863	39%	\$784
Miscellaneous	138	6,080	67%	\$77

The difference between the two largest categories by article and journal count could hardly be starker. OA publishers predominantly charge fees, more so than traditional publishers, where only one of four university-published articles involves fees. And the average cost per article for OA publishers is over \$1,500, with traditional publishers even higher—more than eight times as much as for university publishers.

The rest of this chapter is profiles of each category.

Key Facts, OA Publishers

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	2,938	333,939			\$1,539	50%
Fee	1,584	280,345	84%	37%	\$1,833	10%
No-fee	1,354	53,594	16%	-59%		
Biomed	1,288	151,729	45%	30%	\$1,784	24%
Fee	824	127,859	84%	15%	\$2,117	8%
No-fee	464	23,870	16%	-41%		
STEM	886	151,891	45%	11%	\$1,482	25%
Fee	531	134,890	89%	22%	\$1,669	2%
No-fee	355	17,001	11%	-59%		
H&SS	764	30,319	9%	-62%	\$595	333%
Fee	229	17,596	58%	148%	\$1,025	74%
No-fee	535	12,723	42%	-45%		

Heavy on fees, biomed and STEM; light on H&SS—no surprises here. H&SS articles average more than *four times* as expensive as overall (a lower ratio than last year). This category is now much larger both because several hundred journals were moved here from Miscellaneous and because these journals have been growing rapidly.

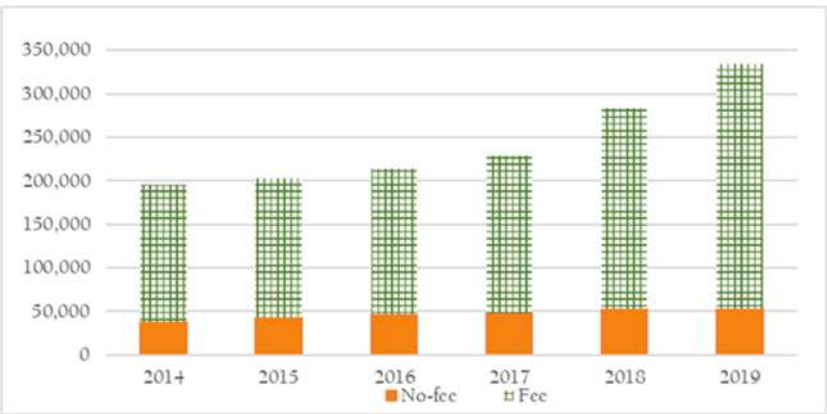
Recategorizing journals affects all data for those journals, so items such as rapid year-to-year growth are not affected by category changes.

Articles and Journals by Year, OA Publishers

	2019	2018	2017	2016	2015	2014
Journals	2,737	2,776	2,715	2,581	2,383	2,157
%No-fee	44%	46%	45%	44%	43%	42%
Articles	333,939	282,942	229,189	214,363	202,873	194,994
%No-fee	16%	19%	21%	22%	21%	20%
Change	18%	23%	7%	6%	4%	

Very rapid growth in 2018, slower but still rapid in 2019.

Fee and No-Fee Articles by Year, OA Publishers



Article Volume, OA Publishers

	Journals	Articles	%No-fee	\$/article
Largest: 600+	119	182,616	6%	\$1,872
Large: 150-599	329	72,529	12%	\$1,601
Med.: 60-149	618	42,563	31%	\$893
Small: 20-59	1,287	31,985	54%	\$511
Smallest: 0-19	585	4,246	68%	\$325

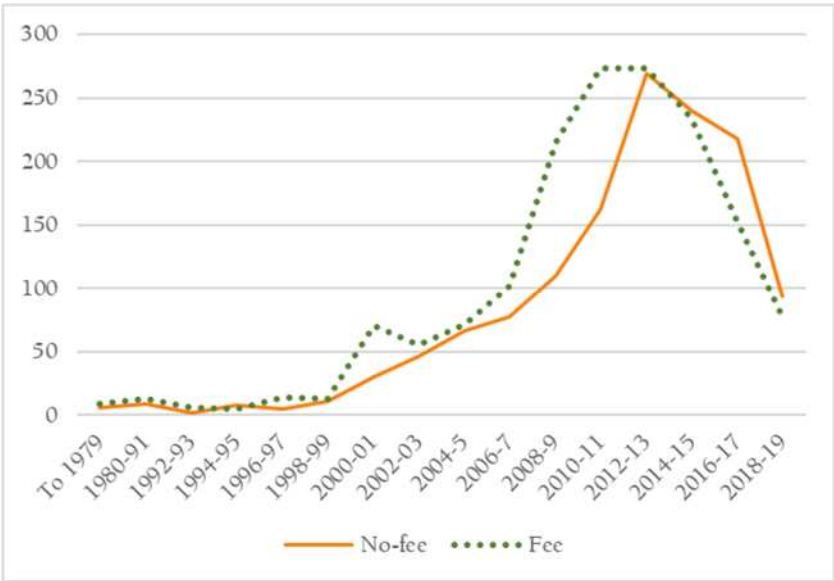
The largest journals dominate and charge very high fees (almost precisely the same average fee as in last year's report, but for another 59,000 articles).

Fee Level, OA Publishers

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	645	41%	22%	219,876	78%	66%
\$600-\$1.399	551	35%	19%	38,171	14%	11%
\$200-\$599	216	14%	7%	12,111	4%	4%
\$0.01-\$199	172	11%	6%	10,187	4%	3%
No fee	1,354		46%	53,594		16%

Still dominated by expensive journals.

Starting Date, OA Publishers.



Fees and Revenue, OA Publishers

	Articles	Revenue	\$/article
\$1,400+	219,876	\$470,282,559	\$2,139
\$600-\$1.399	38,171	\$38,134,686	\$999
\$200-\$599	12,111	\$4,168,470	\$344
\$0.20-\$199	10,187	\$1,182,446	\$116
No fee	53,594		
Total	333,939	\$513,768,161	\$1,539

Region, OA Publishers

Region	Journals	Articles	%No-fee	\$/article
Western Europe	1,526	238,821	7%	\$1,848
Pacific/English	228	41,333	17%	\$1,470
Asia	319	20,465	53%	\$242
Eastern Europe	599	20,250	55%	\$219
Middle East	151	6,368	78%	\$67
Latin America	53	3,928	34%	\$127
Africa	62	2,774	12%	\$531

Big OA publishers are mostly in Western Europe.

Growth and Shrinkage, OA Publishers

Change 2018-19	Count	Percent	Cum%
Grew 25%+	749	27.9%	
Even, $\pm 24.99\%$	1,365	50.9%	78.8%
Shrank 25%+	570	21.2%	
Total	2,684		

Overweighted Subjects, OA Publishers

Subject	Articles	\$/article	Weight
Biology	32,165	\$2,072	61.0%
Mathematics	7,193	\$1,261	53.9%
Chemistry	20,138	\$1,810	47.3%
Physics	19,691	\$1,273	46.9%
Earth Sciences	12,989	\$1,178	39.6%
Ecology	21,142	\$1,623	35.7%
Medicine	119,564	\$1,706	23.5%
Technology	9,857	\$1,601	15.6%

These are subjects that are more heavily represented in OA-publisher journals than in overall OA, sorted by the overweighting. (That is: if a subject was 2% of all OA articles but 3% of OA-publisher articles, that would be a 50% weight or overweighting.)

Country of Publication, OA Publishers, Partial

Country	Journals	Articles	%No-fee	\$/article
Switzerland	270	140,641	1%	\$1,934
United Kingdom	895	77,984	5%	\$2,083
United States	149	35,220	14%	\$1,501
India	215	15,704	58%	\$220
Germany	135	13,496	61%	\$357
Poland	345	9,255	60%	\$269
Turkey	120	5,571	81%	\$58
Russia	74	4,532	60%	\$43
Brazil	31	3,361	25%	\$138
Canada	47	3,077	34%	\$1,434
Australia	29	3,008	26%	\$1,161
South Africa	54	2,517	12%	\$570
Italy	80	2,402	47%	\$286
China	17	2,101	23%	\$412
Bulgaria	31	1,645	12%	\$565
Spain	49	1,259	76%	\$84
Romania	41	949	44%	\$116
South Korea	15	888	19%	\$599
Ukraine	26	817	51%	\$127
France	36	760	94%	\$7
North Macedonia	2	751	100%	\$0
Greece	10	737	36%	\$554
Portugal	11	558	26%	\$707
Indonesia	15	538	43%	\$59
Malaysia	22	531	75%	\$78

Of the 76 countries with OA-publisher journals, these 25 had at least 500 articles in 2019.

Key Facts, University Publishers

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	8,357	277,858			\$182	-82%
Fee	1,323	72,565	26%	-57%	\$697	-58%
No-fee	7,034	205,293	74%	90%		
Biomed	1,042	55,777	20%	-43%	\$594	-59%
Fee	268	24,872	45%	-39%	\$1,333	-32%
No-fee	774	30,905	55%	108%		
STEM	1,913	73,049	26%	-36%	\$186	-84%
Fee	455	24,345	33%	-54%	\$557	-66%
No-fee	1,458	48,704	67%	144%		
H&SS	5,402	149,032	54%	124%	\$26	-81%
Fee	600	23,348	16%	-33%	\$164	-72%
No-fee	4,802	125,684	84%	10%		

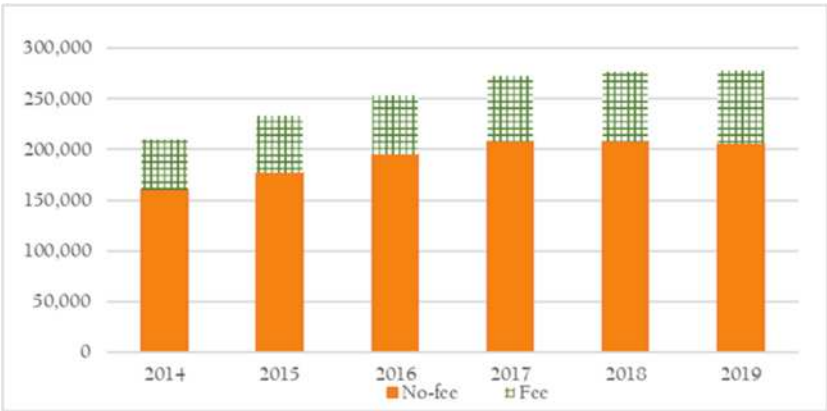
This category includes colleges and institutes, but *not* university-sponsored journals published by OA and traditional publishers. This second-largest category is home to most H&SS articles and most no-fee publishing: even in biomed a majority of articles did not involve fees, and *other than* in biomed, fees averaged less than \$600.

Articles and Journals by Year, University Publishers

	2019	2018	2017	2016	2015	2014
Journals	7,672	8,053	7,991	7,587	7,073	6,441
%No-fee	84%	84%	84%	85%	85%	85%
Articles	277,858	276,719	272,176	253,497	233,486	210,107
%No-fee	74%	75%	76%	77%	76%	76%
Change	0%	2%	7%	9%	11%	

Growth has been slowing year by year—and, as usual, hundreds of very small journals didn't post any current-year articles in time to be counted.

Fee and No-Fee Articles by Year, University Publishers



Article Volume, University Publishers

	Journals	Articles	%No-fee	\$/article
Largest: 600+	25	21,065	38%	\$1,415
Large: 150-599	257	39,700	51%	\$248
Med.: 60-149	1,324	79,294	75%	\$90
Small: 20-59	4,856	119,099	85%	\$29
Smallest: 0-19	1,895	18,700	88%	\$20

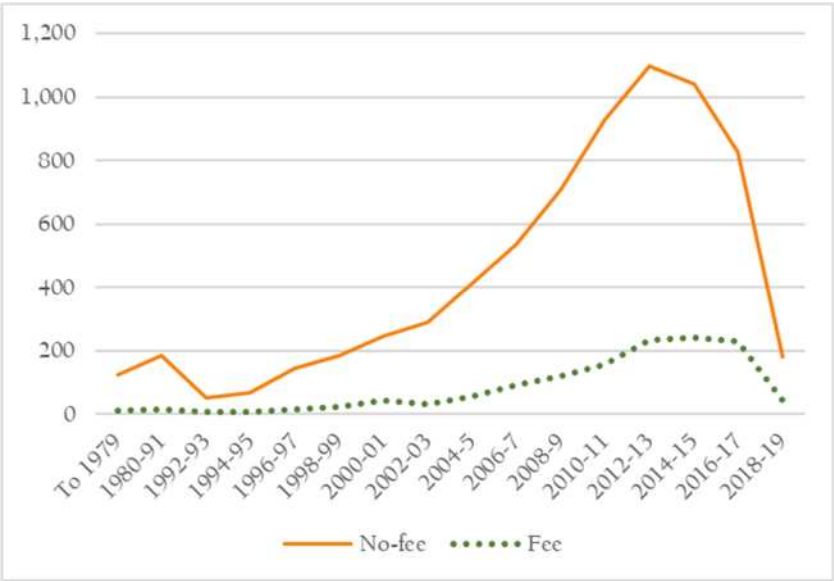
Very few very large journals—and those are the only ones with fees for most articles.

Fee Level, University Publishers

	Jour.	%Fee	%All	Art.	%Fee	%All
\$1,400+	60	5%	1%	12,436	17%	4%
\$600-\$1.399	63	5%	1%	6,724	9%	2%
\$200-\$599	221	17%	3%	15,467	21%	6%
\$0.01-\$199	979	74%	12%	37,938	52%	14%
No fee	7,034		84%	205,293		74%

What few fee journals there are mostly have low fees.

Starting Date, University Publishers



After fairly steady growth (noting that 1980-91 can't be compared to 1992-93), faster growth starting in 2002 peaked in 2010-11.

Fees and Revenue, University Publishers

	Articles	Revenue	\$/article
\$1,400+	12,436	\$36,567,367	\$2,940
\$600-\$1.399	6,724	\$6,227,702	\$926
\$200-\$599	15,467	\$5,242,776	\$339
\$0.20-\$199	37,938	\$2,526,529	\$67
No fee	205,293		
Total	277,858	\$50,564,374	\$182

Nearly doubled revenues and higher average fees from the most expensive journals.

Region, University Journals

Region	Journals	Articles	%No-fee	\$/article
Latin America	2,334	80,956	90%	\$27
Eastern Europe	1,510	58,320	72%	\$45
Western Europe	1,513	50,814	71%	\$567
Asia	1,731	40,868	54%	\$73
Middle East	747	29,084	73%	\$39
Pacific/English	437	14,649	63%	\$856
Africa	85	3,167	60%	\$95

Latin America does the most no-fee publishing in general, as evidenced here—and even in Pacific/English countries, most articles are no-fee.

Growth and Shrinkage, University Publishers

Change 2018-19	Count	Percent	Cum%
Grew 25%+	1,625	21.4%	
Even, $\pm 24.99\%$	4,563	60.1%	81.5%
Shrank 25%+	1,405	18.5%	
Total	7,593		

The usual large stable core, with slightly more growth than shrinkage.

Overweighted Subjects, University Publishers

The next table shows overweighted subjects—which, as you might expect, are pretty much all the subjects that are *not* overweighted among OA publishers: H&SS and some of STEM. Note that two of the three STEM subjects overweighted here are also the only ones averaging more than \$100 (or more than \$54) per article.

Subject	Articles	\$/article	Weight
History	9,289	\$10	160.7%
Philosophy	5,384	\$12	154.4%
Language & Literature	18,594	\$13	147.6%
Law	8,550	\$7	147.2%
Education	25,398	\$25	145.8%
Media & Communications	5,032	\$10	132.3%
Anthropology	11,592	\$54	124.3%
Political Science	6,980	\$12	120.3%
Arts & Architecture	7,130	\$40	112.7%
Miscellany	6,977	\$10	110.0%
Economics	17,426	\$43	107.1%
Library Science	2,471	\$1	102.7%
Sociology	13,996	\$43	102.5%
Religion	5,110	\$24	93.7%
Psychology	5,103	\$30	57.7%
Computer Science	5,998	\$51	25.9%
Agriculture	13,670	\$150	24.8%
Zoology	5,168	\$204	8.9%

Country of Publication, University Publishers

This table shows 32 countries with at least 1,300 2019 articles (all that will fit on one page, omitting another 80 countries with fewer articles).

Country	Journals	Articles	%no-fee	\$/article
Brazil	1,207	49,495	86%	\$38
Indonesia	1,479	30,179	55%	\$37
Iran	444	15,766	72%	\$34
Spain	565	14,395	96%	\$9
Russia	245	14,322	96%	\$12
United Kingdom	173	13,827	17%	\$1,987
Ukraine	229	12,953	41%	\$36
United States	293	12,026	55%	\$1,042
Turkey	227	10,046	87%	\$32
Italy	230	8,235	92%	\$17
Colombia	343	8,095	99%	\$1
Romania	261	7,484	69%	\$33
Poland	212	7,102	72%	\$79
Mexico	117	4,729	93%	\$16
Argentina	210	4,624	95%	\$3
Germany	82	4,136	82%	\$69
Cuba	76	3,723	100%	\$0
Serbia	132	3,641	76%	\$39
Chile	110	3,027	77%	\$55
China	23	2,945	31%	\$225
France	120	2,841	92%	\$67
Czech Republic	90	2,567	67%	\$140
Croatia	84	2,342	82%	\$88
Iraq	41	1,963	21%	\$94
Ecuador	58	1,781	100%	\$0
Costa Rica	63	1,732	100%	\$0
Peru	59	1,692	95%	\$10
Portugal	74	1,652	99%	\$2
Canada	84	1,584	99%	\$4
Lithuania	61	1,573	79%	\$94
Malaysia	41	1,515	57%	\$105
Pakistan	39	1,304	35%	\$250

Key Facts, Traditional Publishers

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	1,188	144,278			\$1,639	60%
Fee	834	111,421	77%	26%	\$2,122	27%
No-fee	354	32,857	23%	-41%		
Biomed	655	63,355	44%	26%	\$1,779	24%
Fee	494	53,058	84%	14%	\$2,124	8%
No-fee	161	10,297	16%	-39%		
STEM	345	73,212	51%	24%	\$1,618	36%
Fee	248	54,131	74%	2%	\$2,188	34%
No-fee	97	19,081	26%	-4%		
H&SS	188	7,711	5%	-78%	\$687	397%
Fee	92	4,232	55%	135%	\$1,251	112%
No-fee	96	3,479	45%	-41%		

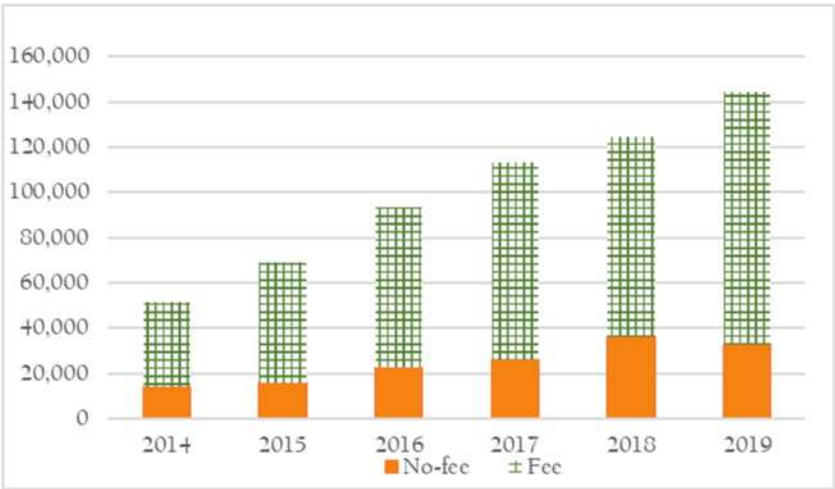
The similarities to OA publishers may say more about the former than the latter, but traditional publishers have even higher average prices (significantly higher for fee journals), with relatively more STEM and even fewer H&SS articles.

Articles and Journals by Year, Traditional Publishers

	2019	2018	2017	2016	2015	2014
Journals	1,141	1,073	1,008	913	810	687
%No-fee	29%	31%	31%	32%	33%	33%
Articles	144,278	124,550	112,979	93,457	69,189	51,302
%No-fee	23%	29%	23%	24%	23%	27%
Change	16%	10%	21%	35%	35%	

Article growth picked up again in 2019 after a relatively slow 2018. It's interesting that OA journals from traditional publishers have a *higher* percentage of no-fee articles than do those from pure OA publishers, albeit still very low.

Starting Date, Traditional Publishers



Article Volume, Traditional Publishers

	Journals	Articles	%No-fee	\$/article
Largest: 600+	34	63,723	21%	\$1,951
Large: 150-599	166	35,963	16%	\$1,579
Med.: 60-149	362	28,490	29%	\$1,280
Small: 20-59	481	14,763	36%	\$1,152
Smallest: 0-19	145	1,339	23%	\$1,387

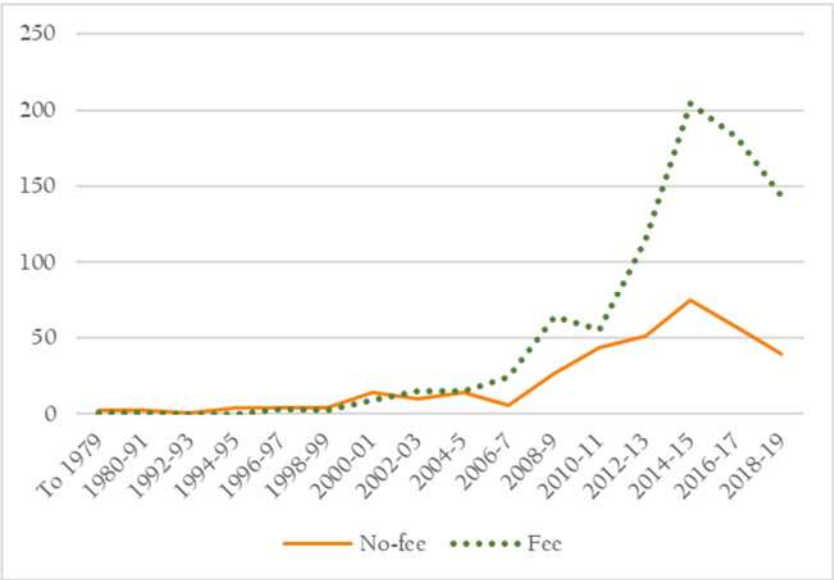
The largest journals are less dominant than among OA publishers—but the average charge in those journals is just a little higher.

Fee Level, Traditional Publishers

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	532	64%	45%	85,007	76%	59%
\$600-\$1.399	229	27%	19%	21,161	19%	15%
\$200-\$599	49	6%	4%	3,999	4%	3%
\$0.01-\$199	24	3%	2%	1,254	1%	1%
No fee	354		30%	32,857		23%

On the other hand, concentration of articles in the most expensive journals has increased (but is not quite as high as in OA publishers).

Starting Date, Traditional Publishers



The gold rush peaked around 2013-2014.

Fees and Revenue, Traditional Publishers

	Articles	Revenue	\$/article
\$1,400+	85,007	\$214,264,130	\$2,521
\$600-\$1.399	21,161	\$20,227,475	\$956
\$200-\$599	3,999	\$1,813,209	\$453
\$0.20-\$199	1,254	\$134,324	\$107
No fee	32,857		
Total	144,278	\$236,439,138	\$1,639

Average cost per article actually declined from 2018 for each fee level—but rapid growth at the two top levels meant almost a \$58 million revenue increase.

Region, Traditional Publishers

The purity of Pacific/English journals has increased: now 97% of the articles have fees, up from 96% in 2018 (and the average fee for those is \$150 higher).

Region	Journals	Articles	%No-fee	\$/article
Western Europe	794	110,234	21%	\$1,781
Pacific/English	180	19,190	3%	\$1,793
Asia	102	8,096	59%	\$454
Middle East	49	4,202	55%	\$362
Eastern Europe	53	2,199	57%	\$223
Latin America	6	276	100%	\$0
Africa	4	81	60%	\$377

Growth and Shrinkage, Traditional Publishers

Change 2018-19	Count	Percent	Cum%
Grew 25%+	400	38.1%	
Even, $\pm 24.99\%$	495	47.2%	85.3%
Shrank 25%+	154	14.7%	
Total	1,049		

Lots of growth, very little shrinkage.

Overweighted Subjects, Traditional Publishers

Subject	Articles	\$/article	Weight
Other Sciences	32,005	\$2,495	160.6%
Ecology	10,954	\$989	58.6%
Technology	5,441	\$259	44.0%
Computer Science	3,644	\$1,350	43.6%
Medicine	56,026	\$1,677	30.6%
Physics	6,247	\$734	5.1%

One word for the first row: megajournals.

Country of Publication, Traditional Publishers, Partial

This table shows 32 of the 37 countries for traditional publishers. None of the other five had 45 or more articles in 2019.

Country	Journals	Articles	%no-fee	\$/article
United Kingdom	468	69,497	2%	\$2,303
Netherlands	182	19,755	26%	\$1,360
United States	160	17,933	2%	\$1,823
France	33	13,466	97%	\$40
China	53	4,096	62%	\$417
Spain	29	2,852	80%	\$191
Germany	24	2,057	7%	\$3,212
Saudi Arabia	12	1,850	49%	\$634
Poland	25	1,219	58%	\$244
Australia	18	1,213	18%	\$1,396
Switzerland	24	1,139	25%	\$1,050
South Korea	12	1,105	80%	\$107
India	13	1,002	61%	\$243
Italy	19	925	93%	\$29
Turkey	14	889	100%	\$0
Egypt	12	772	42%	\$332
Hong Kong	5	643	15%	\$1,114
Iran	9	567	16%	\$74
Taiwan	5	534	79%	\$210
Russia	9	483	71%	\$44
Japan	4	355	18%	\$1,629
Singapore	8	320	36%	\$617
Ireland	3	308	0%	\$1,647
Ukraine	9	271	1%	\$632
Brazil	3	161	100%	\$0
Greece	1	133	100%	\$0
Romania	7	131	85%	\$5
Norway	7	102	100%	\$0
Jordan	1	98	100%	\$0
Croatia	2	95	100%	\$0
Colombia	2	82	100%	\$0
South Africa	4	81	60%	\$377

Key Facts, Society Journals

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	1,317	91,863			\$784	-23%
Fee	318	55,665	61%	-1%	\$1,294	-23%
No-fee	999	36,198	39%	1%		
Biomed	363	25,055	27%	-22%	\$503	-65%
Fee	107	12,474	50%	-32%	\$1,010	-48%
No-fee	256	12,581	50%	88%		
STEM	435	51,821	56%	37%	\$1,130	-5%
Fee	165	41,169	79%	9%	\$1,422	-13%
No-fee	270	10,652	21%	-25%		
H&SS	519	14,987	16%	-32%	\$58	-58%
Fee	46	2,022	13%	-42%	\$430	-27%
No-fee	473	12,965	87%	13%		

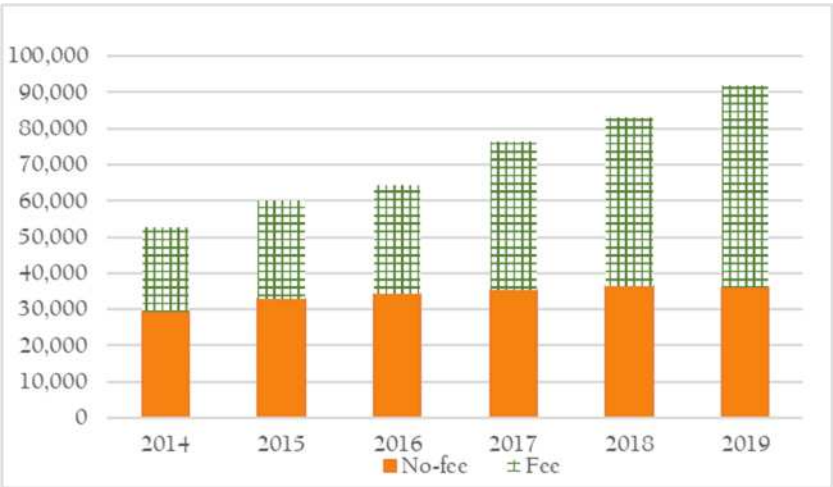
Strong in STEM, and unusual in that biomed is half no-fee. Includes a handful of government journals.

Articles and Journals by Year, Society Publishers

	2019	2018	2017	2016	2015	2014
Journals	1,226	1,265	1,258	1,213	1,137	1,060
%No-fee	75%	75%	76%	77%	77%	77%
Articles	91,863	83,231	76,304	64,254	60,194	52,580
%No-fee	39%	44%	46%	53%	55%	56%
Change	10%	9%	19%	7%	14%	

Active journals down a bit, article count up—and the tilt toward fee-based articles continues.

Fee and No-Fee Articles by Year, Society Publishers



Article Volume, Society Publishers

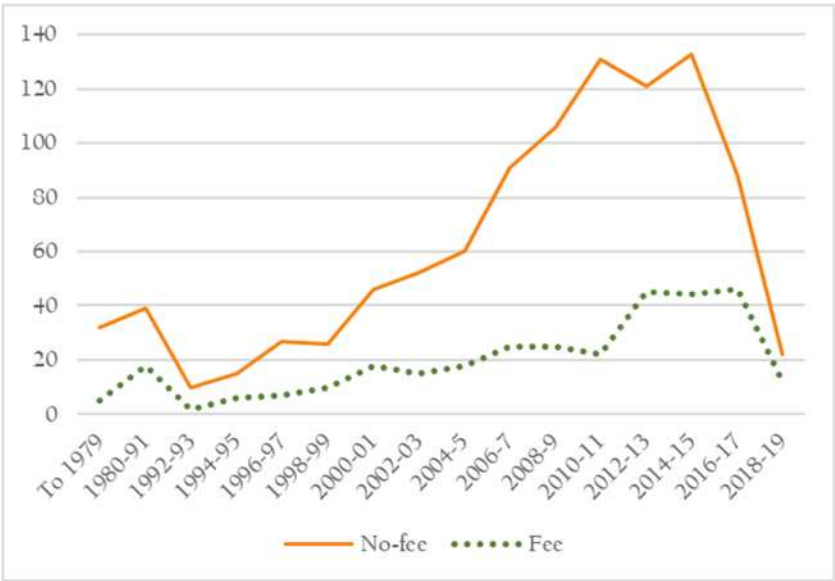
	Journals	Articles	%No-fee	\$/article
Largest: 600+	14	33,771	5%	\$1,554
Large: 150-599	98	17,728	33%	\$738
Med.: 60-149	303	21,126	61%	\$232
Small: 20-59	680	17,412	82%	\$86
Smallest: 0-19	222	1,826	89%	\$43

Fee Level, Society Publishers

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	60	19%	5%	30,670	55%	33%
\$600-\$1.399	37	12%	3%	8,735	16%	10%
\$200-\$599	100	31%	8%	8,648	16%	9%
\$0.01-\$199	121	38%	9%	7,612	14%	8%
No fee	999		76%	36,198		39%

While expensive journals have more articles than any other fee level, they're still outnumbered by no-fee articles—although the difference has dropped from more than 15,000 articles to fewer than 6,000.

Starting Date, Society Journals



Society journals started early and didn't have a single big peak.

Fees and Revenue, Society Publishers

	Articles	Revenue	\$/article
\$1,400+	30,670	\$60,075,402	\$1,959
\$600-\$1.399	8,735	\$8,228,654	\$942
\$200-\$599	8,648	\$2,961,925	\$342
\$0.20-\$199	7,612	\$758,992	\$100
No fee	36,198		
Total	91,863	\$72,024,973	\$784

A huge increase at the highest level (more than 13,000 articles) and a substantial revenue increase, although the average cost per article actually fell by more than \$250.

Region, Society Publishers

Region	Journals	Articles	%No-fee	\$/article
Pacific/English	177	34,804	13%	\$1,631
Western Europe	323	19,055	48%	\$547
Latin America	276	14,513	73%	\$104
Asia	217	9,324	42%	\$223
Eastern Europe	215	8,825	66%	\$67
Middle East	84	3,794	49%	\$109
Africa	25	1,548	35%	\$138

Growth and Shrinkage, Society Journals

Change 2018-19	Count	Percent	Cum%
Grew 25%+	287	23.6%	
Even, $\pm 24.99\%$	713	58.6%	82.2%
Shrank 25%+	216	17.8%	
Total	1,216		

Overweighted Subjects, Society Publishers

Subject	Articles	\$/article	Weight
Engineering	16,743	\$1,633	209.0%
Chemistry	10,322	\$585	174.4%
Physics	6,960	\$1,664	88.7%
Zoology	2,351	\$276	49.9%
Library Science	596	\$0	47.9%
Arts & Architecture	1,314	\$27	18.6%
Media & Communications	807	\$7	12.7%
Agriculture	3,825	\$311	5.7%

Country of Publication, Society Publishers

This table is squashed a bit in order to show all 36 countries (out of 84 total) with at least 300 society/government articles.

Country	Journals	Articles	%no-fee	\$/article
United States	137	33,569	10%	\$1,682
Brazil	178	11,546	68%	\$127
United Kingdom	41	10,464	24%	\$803
South Korea	65	3,748	47%	\$209
Spain	93	2,708	84%	\$102
Iran	43	1,975	49%	\$142
Russia	27	1,936	92%	\$10
Italy	39	1,486	56%	\$611
Romania	30	1,304	47%	\$71
Poland	24	1,301	41%	\$157
Serbia	39	1,292	58%	\$91
France	38	1,136	97%	\$2
Turkey	33	1,126	80%	\$6
Indonesia	55	1,097	56%	\$35
Canada	28	1,050	69%	\$291
Argentina	36	1,023	88%	\$13
China	8	973	16%	\$492
India	17	878	42%	\$55
Pakistan	10	875	22%	\$126
Croatia	30	832	91%	\$19
Uganda	1	765	0%	\$180
Sweden	7	688	52%	\$852
Cuba	16	619	100%	\$0
Portugal	18	601	74%	\$34
Egypt	7	522	0%	\$147
South Africa	13	486	68%	\$96
Japan	14	484	21%	\$870
Germany	16	456	79%	\$92
Ukraine	11	414	43%	\$21
Bulgaria	9	390	30%	\$83
Austria	12	351	77%	\$87
Slovenia	9	336	84%	\$37
Moldova	7	332	86%	\$33
Colombia	9	316	81%	\$19
Finland	14	316	89%	\$102
Mexico	8	300	80%	\$30

Key Facts, Miscellaneous

There's not a lot to say about this "group," less than 1% of OA journals or articles, which is notable only because the affiliation wasn't obvious. I doubt that even the partial profile is meaningful.

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	138	6,080			\$77	-92%
Fee	31	2,022	33%	-46%	\$231	-86%
No-fee	107	4,058	67%	72%		
Biomed	39	2,759	45%	30%	\$69	-95%
Fee	7	860	31%	-58%	\$221	-89%
No-fee	32	1,899	69%	158%		
STEM	23	791	13%	-68%	\$276	-77%
Fee	13	563	71%	-2%	\$388	-76%
No-fee	10	228	29%	6%		
H&SS	76	2,530	42%	74%	\$23	-83%
Fee	11	599	24%	1%	\$97	-84%
No-fee	65	1,931	76%	0%		

Articles and Journals by Year, Miscellaneous

	2019	2018	2017	2016	2015	2014
Journals	125	127	125	115	100	89
%No-fee	79%	79%	78%	77%	77%	74%
Articles	6,080	6,985	6,742	6,406	5,885	3,947
%No-fee	67%	58%	58%	52%	47%	56%
Change	-13%	4%	5%	9%	49%	

This shrinking group is itself shrinking.

Article Volume, Miscellaneous

	Journals	Articles	%No-fee	\$/article
Largest: 600+	2	1,024	0%	\$117
Large: 150-599	7	1,326	97%	\$1
Med.: 60-149	33	1,755	56%	\$161
Small: 20-59	59	1,676	91%	\$35
Smallest: 0-19	37	299	86%	\$14

Fees and Revenue, Miscellaneous

	Articles	Revenue	\$/article
\$1,400+	35	\$52,128	\$1,489
\$600-\$1,399	135	\$114,377	\$847
\$200-\$599	414	\$144,624	\$349
\$0.20-\$199	1,438	\$155,682	\$108
No fee	4,058		
Total	6,080	\$466,811	\$77

8. Country of Publication

The set of journals covered in this report comes from 121 different countries. A table of those countries takes up four pages, and one table doesn't provide much information. This book includes a chapter on each region (and "region"), following this chapter. The book *Gold Open Access by Country 2014-2019* goes into more detail on each country's gold OA publishing.

Region, Overall

Region	Journals	Articles	%No-fee	\$/article
Western Europe	4,211	420,072	21%	\$1,612
Pacific/English	1,025	110,008	19%	\$1,495
Latin America	2,684	100,119	85%	\$42
Eastern Europe	2,417	92,234	68%	\$89
Asia	2,378	79,655	52%	\$173
Middle East	1,043	44,197	69%	\$80
Africa	180	7,733	37%	\$264

The order of regions from most prolific to least hasn't changed from 2018. The average cost per article in Latin America and Eastern Europe, already very low, has actually decreased.

The remainder of this chapter is three multipage tables: the first consisting of all 121 countries in alphabetic order; the second and third in decreasing number of 2019 articles and increasing cost per article (with the 36 all-no-fee countries sorted by decreasing article count) respectively. The second and third tables omit Kuwait and Palestine, each of which has a single gold OA journal with no 2019 articles.

Countries, Alphabetic Order

Country	Journals	Articles	%No-fee	\$/article
Albania	5	96	43%	\$85
Algeria	21	514	100%	\$0
Angola	2	65	100%	\$0
Argentina	252	5,761	94%	\$5
Armenia	2	37	32%	\$270
Australia	106	5,242	38%	\$989
Austria	53	1,117	67%	\$201
Azerbaijan	2	64	100%	\$0
Bahamas	1	6	100%	\$0
Bangladesh	20	795	55%	\$34
Barbados	1	50	100%	\$0
Belarus	11	656	84%	\$24
Belgium	41	644	95%	\$27
Bolivia	5	72	100%	\$0
Bosnia and Herzegovina	23	778	79%	\$105
Brazil	1,424	64,714	80%	\$59
Bulgaria	60	2,719	37%	\$354
Cameroon	1	173	0%	\$170
Canada	160	5,720	58%	\$828
Chile	123	3,409	77%	\$63
China	102	10,167	41%	\$365
Colombia	360	8,745	99%	\$2
Costa Rica	65	1,780	100%	\$0
Croatia	121	3,388	86%	\$66
Cuba	93	4,347	100%	\$0
Cyprus	4	163	63%	\$147
Czech Republic	110	2,988	67%	\$123
Dem. Rep. Congo	1	50	100%	\$0
Denmark	29	462	94%	\$25
Dominican Republic	6	151	100%	\$0
Ecuador	59	1,799	100%	\$0

Country	Journals	Articles	%No-fee	\$/article
Egypt	32	1,635	26%	\$224
El Salvador	4	65	100%	\$0
Estonia	23	694	59%	\$161
Ethiopia	5	178	100%	\$0
Finland	31	969	76%	\$206
France	229	18,294	96%	\$42
Georgia	3	65	100%	\$0
Germany	261	20,328	61%	\$581
Ghana	6	84	68%	\$34
Greece	34	1,623	66%	\$259
Guam	1	5	0%	\$350
Guatemala	2	16	100%	\$0
Hong Kong	19	845	31%	\$862
Hungary	34	1,050	92%	\$73
Iceland	6	162	100%	\$0
India	282	19,124	57%	\$200
Indonesia	1,552	31,870	55%	\$38
Iran	513	18,850	68%	\$50
Iraq	42	2,017	21%	\$93
Ireland	16	568	46%	\$893
Israel	2	56	100%	\$0
Italy	382	13,355	80%	\$132
Jamaica	1	1	0%	\$1,000
Japan	33	1,401	28%	\$935
Jordan	4	198	61%	\$53
Kazakhstan	4	150	69%	\$83
Kenya	5	273	12%	\$223
Kuwait	1	0		
Kyrgyzstan	3	94	100%	\$0
Latvia	11	458	40%	\$356
Lebanon	1	34	100%	\$0
Libya	3	125	53%	\$47

Country	Journals	Articles	%No-fee	\$/article
Lithuania	74	2,101	63%	\$226
Luxembourg	3	29	100%	\$0
Malawi	1	45	100%	\$0
Malaysia	69	2,244	60%	\$98
Mali	1	20	0%	\$112
Malta	3	40	100%	\$0
Mexico	132	5,221	93%	\$17
Moldova	30	1,099	64%	\$16
Mongolia	4	74	57%	\$32
Montenegro	9	442	86%	\$29
Morocco	17	555	49%	\$68
Nepal	19	552	100%	\$0
Netherlands	230	21,139	30%	\$1,283
New Zealand	18	278	100%	\$0
Nicaragua	8	157	100%	\$0
Nigeria	8	716	68%	\$52
North Macedonia	11	904	96%	\$2
Norway	99	1,734	86%	\$113
Oman	7	272	100%	\$0
Pakistan	55	2,371	29%	\$187
Palestine	1	0		
Paraguay	17	364	100%	\$0
Peru	69	1,928	95%	\$9
Philippines	10	315	100%	\$0
Poland	608	18,903	63%	\$188
Portugal	105	2,860	79%	\$146
Puerto Rico	4	12	100%	\$0
Qatar	4	48	88%	\$124
Romania	345	10,059	65%	\$45
Russia	371	22,906	87%	\$21
Rwanda	1	29	100%	\$0
Saudi Arabia	18	2,165	49%	\$565

Country	Journals	Articles	%No-fee	\$/article
Serbia	175	5,055	70%	\$53
Singapore	16	480	56%	\$419
Slovakia	46	1,173	78%	\$49
Slovenia	53	1,441	83%	\$71
South Africa	100	4,039	23%	\$427
South Korea	117	6,821	48%	\$250
South Sudan	1	40	100%	\$0
Spain	750	21,414	91%	\$50
Sri Lanka	15	345	100%	\$0
Sweden	41	1,292	67%	\$579
Switzerland	316	142,156	2%	\$1,922
Taiwan	32	1,290	61%	\$274
Thailand	28	815	65%	\$60
Tunisia	5	37	84%	\$22
Turkey	403	18,269	84%	\$38
Turkmenistan	1	9	100%	\$0
Uganda	1	765	0%	\$180
Ukraine	281	14,836	42%	\$51
United Arab Emirates	10	567	24%	\$201
United Kingdom	1,582	171,886	6%	\$2,085
United States	741	98,768	16%	\$1,565
Uruguay	25	530	100%	\$0
Venezuela	32	986	98%	\$8
Viet Nam	2	52	100%	\$0
Yemen	5	86	77%	\$35
Zimbabwe	1	25	100%	\$0

Countries, Decreasing Number of 2019 Articles

Country	Journals	Articles	%No-fee	\$/article
United Kingdom	1,582	171,886	6%	\$2,085
Switzerland	316	142,156	2%	\$1,922
United States	741	98,768	16%	\$1,565
Brazil	1,424	64,714	80%	\$59
Indonesia	1,552	31,870	55%	\$38
Russia	371	22,906	87%	\$21
Spain	750	21,414	91%	\$50
Netherlands	230	21,139	30%	\$1,283
Germany	261	20,328	61%	\$581
India	282	19,124	57%	\$200
Poland	608	18,903	63%	\$188
Iran	513	18,850	68%	\$50
France	229	18,294	96%	\$42
Turkey	403	18,269	84%	\$38
Ukraine	281	14,836	42%	\$51
Italy	382	13,355	80%	\$132
China	102	10,167	41%	\$365
Romania	345	10,059	65%	\$45
Colombia	360	8,745	99%	\$2
South Korea	117	6,821	48%	\$250
Argentina	252	5,761	94%	\$5
Canada	160	5,720	58%	\$828
Australia	106	5,242	38%	\$989
Mexico	132	5,221	93%	\$17
Serbia	175	5,055	70%	\$53
Cuba	93	4,347	100%	\$0
South Africa	100	4,039	23%	\$427
Chile	123	3,409	77%	\$63
Croatia	121	3,388	86%	\$66
Czech Republic	110	2,988	67%	\$123
Portugal	105	2,860	79%	\$146

Country	Journals	Articles	%No-fee	\$/article
Bulgaria	60	2,719	37%	\$354
Pakistan	55	2,371	29%	\$187
Malaysia	69	2,244	60%	\$98
Saudi Arabia	18	2,165	49%	\$565
Lithuania	74	2,101	63%	\$226
Iraq	42	2,017	21%	\$93
Peru	69	1,928	95%	\$9
Ecuador	59	1,799	100%	\$0
Costa Rica	65	1,780	100%	\$0
Norway	99	1,734	86%	\$113
Egypt	32	1,635	26%	\$224
Greece	34	1,623	66%	\$259
Slovenia	53	1,441	83%	\$71
Japan	33	1,401	28%	\$935
Sweden	41	1,292	67%	\$579
Taiwan	32	1,290	61%	\$274
Slovakia	46	1,173	78%	\$49
Austria	53	1,117	67%	\$201
Moldova	30	1,099	64%	\$16
Hungary	34	1,050	92%	\$73
Venezuela	32	986	98%	\$8
Finland	31	969	76%	\$206
North Macedonia	11	904	96%	\$2
Hong Kong	19	845	31%	\$862
Thailand	28	815	65%	\$60
Bangladesh	20	795	55%	\$34
Bosnia and Herzegovina	23	778	79%	\$105
Uganda	1	765	0%	\$180
Nigeria	8	716	68%	\$52
Estonia	23	694	59%	\$161
Belarus	11	656	84%	\$24
Belgium	41	644	95%	\$27

Country	Journals	Articles	%No-fee	\$/article
Ireland	16	568	46%	\$893
United Arab Emirates	10	567	24%	\$201
Morocco	17	555	49%	\$68
Nepal	19	552	100%	\$0
Uruguay	25	530	100%	\$0
Algeria	21	514	100%	\$0
Singapore	16	480	56%	\$419
Denmark	29	462	94%	\$25
Latvia	11	458	40%	\$356
Montenegro	9	442	86%	\$29
Paraguay	17	364	100%	\$0
Sri Lanka	15	345	100%	\$0
Philippines	10	315	100%	\$0
New Zealand	18	278	100%	\$0
Kenya	5	273	12%	\$223
Oman	7	272	100%	\$0
Jordan	4	198	61%	\$53
Ethiopia	5	178	100%	\$0
Cameroon	1	173	0%	\$170
Cyprus	4	163	63%	\$147
Iceland	6	162	100%	\$0
Nicaragua	8	157	100%	\$0
Dominican Republic	6	151	100%	\$0
Kazakhstan	4	150	69%	\$83
Libya	3	125	53%	\$47
Albania	5	96	43%	\$85
Kyrgyzstan	3	94	100%	\$0
Yemen	5	86	77%	\$35
Ghana	6	84	68%	\$34
Mongolia	4	74	57%	\$32
Bolivia	5	72	100%	\$0
Angola	2	65	100%	\$0

Country	Journals	Articles	%No-fee	\$/article
El Salvador	4	65	100%	\$0
Georgia	3	65	100%	\$0
Azerbaijan	2	64	100%	\$0
Israel	2	56	100%	\$0
Viet Nam	2	52	100%	\$0
Barbados	1	50	100%	\$0
Dem. Rep. Congo	1	50	100%	\$0
Qatar	4	48	88%	\$124
Malawi	1	45	100%	\$0
Malta	3	40	100%	\$0
South Sudan	1	40	100%	\$0
Armenia	2	37	32%	\$270
Tunisia	5	37	84%	\$22
Lebanon	1	34	100%	\$0
Luxembourg	3	29	100%	\$0
Rwanda	1	29	100%	\$0
Zimbabwe	1	25	100%	\$0
Mali	1	20	0%	\$112
Guatemala	2	16	100%	\$0
Puerto Rico	4	12	100%	\$0
Turkmenistan	1	9	100%	\$0
Bahamas	1	6	100%	\$0
Guam	1	5	0%	\$350
Jamaica	1	1	0%	\$1,000

Countries, Increasing Average Fee per Article

Country	Journals	Articles	%No-fee	\$/article
Cuba	93	4,347	100%	\$0
Ecuador	59	1,799	100%	\$0
Costa Rica	65	1,780	100%	\$0
Nepal	19	552	100%	\$0
Uruguay	25	530	100%	\$0
Algeria	21	514	100%	\$0
Paraguay	17	364	100%	\$0
Sri Lanka	15	345	100%	\$0
Philippines	10	315	100%	\$0
New Zealand	18	278	100%	\$0
Oman	7	272	100%	\$0
Ethiopia	5	178	100%	\$0
Iceland	6	162	100%	\$0
Nicaragua	8	157	100%	\$0
Dominican Republic	6	151	100%	\$0
Kyrgyzstan	3	94	100%	\$0
Bolivia	5	72	100%	\$0
Angola	2	65	100%	\$0
El Salvador	4	65	100%	\$0
Georgia	3	65	100%	\$0
Azerbaijan	2	64	100%	\$0
Israel	2	56	100%	\$0
Viet Nam	2	52	100%	\$0
Barbados	1	50	100%	\$0
Dem. Rep. Congo	1	50	100%	\$0
Malawi	1	45	100%	\$0
Malta	3	40	100%	\$0
South Sudan	1	40	100%	\$0
Lebanon	1	34	100%	\$0
Luxembourg	3	29	100%	\$0
Rwanda	1	29	100%	\$0

Country	Journals	Articles	%No-fee	\$/article
Zimbabwe	1	25	100%	\$0
Guatemala	2	16	100%	\$0
Puerto Rico	4	12	100%	\$0
Turkmenistan	1	9	100%	\$0
Bahamas	1	6	100%	\$0
North Macedonia	11	904	96%	\$2
Colombia	360	8,745	99%	\$2
Argentina	252	5,761	94%	\$5
Venezuela	32	986	98%	\$8
Peru	69	1,928	95%	\$9
Moldova	30	1,099	64%	\$16
Mexico	132	5,221	93%	\$17
Russia	371	22,906	87%	\$21
Tunisia	5	37	84%	\$22
Belarus	11	656	84%	\$24
Denmark	29	462	94%	\$25
Belgium	41	644	95%	\$27
Montenegro	9	442	86%	\$29
Mongolia	4	74	57%	\$32
Bangladesh	20	795	55%	\$34
Ghana	6	84	68%	\$34
Yemen	5	86	77%	\$35
Turkey	403	18,269	84%	\$38
Indonesia	1,552	31,870	55%	\$38
France	229	18,294	96%	\$42
Romania	345	10,059	65%	\$45
Libya	3	125	53%	\$47
Slovakia	46	1,173	78%	\$49
Spain	750	21,414	91%	\$50
Iran	513	18,850	68%	\$50
Ukraine	281	14,836	42%	\$51
Nigeria	8	716	68%	\$52

Country	Journals	Articles	%No-fee	\$/article
Serbia	175	5,055	70%	\$53
Jordan	4	198	61%	\$53
Brazil	1,424	64,714	80%	\$59
Thailand	28	815	65%	\$60
Chile	123	3,409	77%	\$63
Croatia	121	3,388	86%	\$66
Morocco	17	555	49%	\$68
Slovenia	53	1,441	83%	\$71
Hungary	34	1,050	92%	\$73
Kazakhstan	4	150	69%	\$83
Albania	5	96	43%	\$85
Iraq	42	2,017	21%	\$93
Malaysia	69	2,244	60%	\$98
Bosnia and Herzegovina	23	778	79%	\$105
Mali	1	20	0%	\$112
Norway	99	1,734	86%	\$113
Czech Republic	110	2,988	67%	\$123
Qatar	4	48	88%	\$124
Italy	382	13,355	80%	\$132
Portugal	105	2,860	79%	\$146
Cyprus	4	163	63%	\$147
Estonia	23	694	59%	\$161
Cameroon	1	173	0%	\$170
Uganda	1	765	0%	\$180
Pakistan	55	2,371	29%	\$187
Poland	608	18,903	63%	\$188
India	282	19,124	57%	\$200
Austria	53	1,117	67%	\$201
United Arab Emirates	10	567	24%	\$201
Finland	31	969	76%	\$206
Kenya	5	273	12%	\$223
Egypt	32	1,635	26%	\$224

Country	Journals	Articles	%No-fee	\$/article
Lithuania	74	2,101	63%	\$226
South Korea	117	6,821	48%	\$250
Greece	34	1,623	66%	\$259
Armenia	2	37	32%	\$270
Taiwan	32	1,290	61%	\$274
Guam	1	5	0%	\$350
Bulgaria	60	2,719	37%	\$354
Latvia	11	458	40%	\$356
China	102	10,167	41%	\$365
Singapore	16	480	56%	\$419
South Africa	100	4,039	23%	\$427
Saudi Arabia	18	2,165	49%	\$565
Sweden	41	1,292	67%	\$579
Germany	261	20,328	61%	\$581
Canada	160	5,720	58%	\$828
Hong Kong	19	845	31%	\$862
Ireland	16	568	46%	\$893
Japan	33	1,401	28%	\$935
Australia	106	5,242	38%	\$989
Jamaica	1	1	0%	\$1,000
Netherlands	230	21,139	30%	\$1,283
United States	741	98,768	16%	\$1,565
Switzerland	316	142,156	2%	\$1,922
United Kingdom	1,582	171,886	6%	\$2,085

9. Africa

Key Facts, Africa

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	180	7,733			\$264	-74%
Fee	88	4,896	63%	4%	\$417	-75%
No-fee	92	2,837	37%	-6%		
Biomed	44	2,794	36%	3%	\$233	-84%
Fee	22	1,867	67%	-9%	\$348	-82%
No-fee	22	927	33%	25%		
STEM	63	2,025	26%	-36%	\$124	-90%
Fee	19	680	34%	-54%	\$369	-77%
No-fee	44	1,345	66%	144%		
H&SS	73	2,914	38%	57%	\$391	185%
Fee	47	2,349	81%	245%	\$485	-18%
No-fee	26	565	19%	-75%		

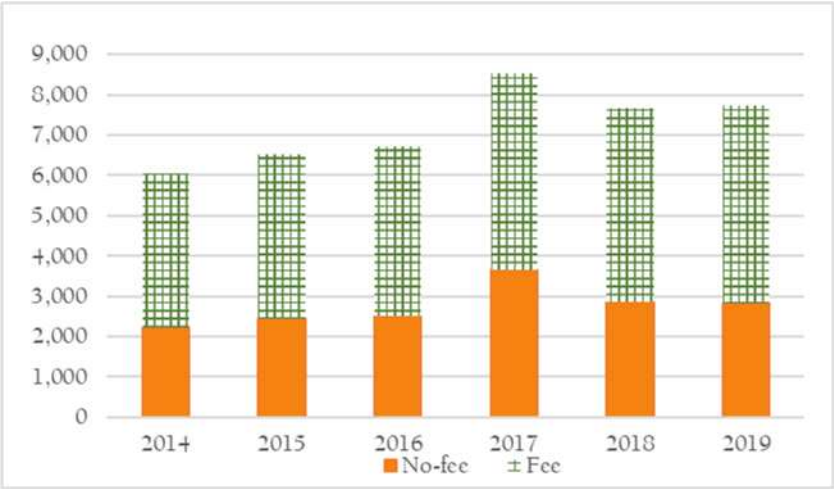
Relatively strong and expensive in H&SS, relatively light in STEM. Africa excludes the Middle East.

Articles and Journals by Year, Africa

	2019	2018	2017	2016	2015	2014
Journals	170	175	176	167	158	143
%No-fee	49%	50%	50%	50%	51%	50%
Articles	7,733	7,657	8,523	6,704	6,536	6,031
%No-fee	37%	37%	43%	37%	38%	37%
Change	1%	-10%	27%	3%	8%	

While there are slightly more no-fee than fee journals, fee-based articles are in the majority. Articles are still below 2017 levels.

Fee and No-Fee Articles by Year, Africa



Article Volume, Africa

	Journals	Articles	%No-fee	\$/article
Largest: 600+	2	857	11%	\$161
Large: 150-599	11	2,034	23%	\$280
Med.: 60-149	33	2,024	44%	\$279
Small: 20-59	95	2,455	46%	\$290
Smallest: 0-19	39	363	72%	\$158

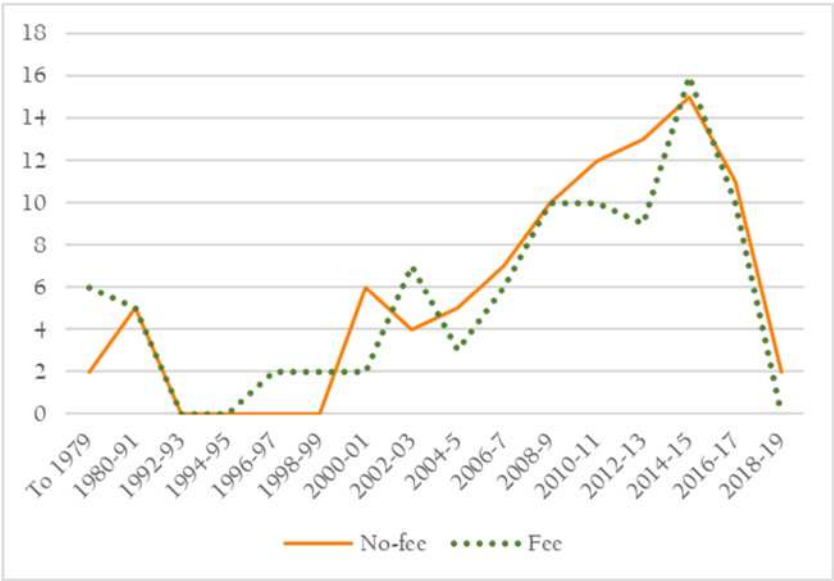
Very few large and largest journals—and a reminder that volume brackets are based on peak year volume, not 2019 volume.

Fee Level, Africa

	Jour.	%Fee	%All	Articles	%Fee	%All
\$1,400+	1	1%	1%	7	0%	0%
\$600-\$1,399	33	38%	18%	1,441	29%	19%
\$200-\$599	22	25%	12%	1,299	27%	17%
\$0.01-\$199	32	36%	18%	2,149	44%	28%
No fee	92		51%	2,837		37%

Only one expensive journal, and a very small one at that.

Starting Date, Africa



Fees and Revenue, Africa

	Articles	Revenue	\$/article
\$1,400+	7	\$10,500	\$1,500
\$600-\$1,399	1,441	\$1,246,655	\$865
\$200-\$599	1,299	\$452,844	\$349
\$0.20-\$199	2,149	\$329,636	\$153
No fee	2,837		
Total	7,733	2,039,635	\$719

Publisher Category, Africa

Category	Journals	Articles	%No-fee	\$/article
Univ/college	85	3,167	60%	\$95
Open Access	62	2,774	12%	\$531
Society/govt	25	1,548	35%	\$138
Miscellaneous	4	163	0%	\$139
Traditional	4	81	60%	\$377

Universities and colleges take the lead—and traditional publishers are basically absent.

Growth and Shrinkage, Africa

Change 2018-19	Count	Percent	Cum%
Grew 25%+	49	28.8%	
Even, $\pm 24.99\%$	86	50.6%	79.4%
Shrank 25%+	35	20.6%	
Total	170		

Country of Publication, Africa

Country	Journals	Articles	%no-fee	\$/article
South Africa	100	4,039	23%	\$427
Uganda	1	765	0%	\$180
Nigeria	8	716	68%	\$52
Morocco	17	555	49%	\$68
Algeria	21	514	100%	\$0
Kenya	5	273	12%	\$223
Ethiopia	5	178	100%	\$0
Cameroon	1	173	0%	\$170
Libya	3	125	53%	\$47
Ghana	6	84	68%	\$34
Angola	2	65	100%	\$0
Dem. Rep. Congo	1	50	100%	\$0
Malawi	1	45	100%	\$0
South Sudan	1	40	100%	\$0
Tunisia	5	37	84%	\$22
Rwanda	1	29	100%	\$0
Zimbabwe	1	25	100%	\$0
Mali	1	20	0%	\$112

Moved up so that all subjects would fit on one page.

Subjects, Africa

Subject	Jour.	Articles	%No-fee	\$/article
Medicine	39	2,608	34%	\$240
Sociology	8	563	22%	\$229
Religion	8	539	0%	\$716
Engineering	15	510	53%	\$153
Education	13	483	20%	\$389
Economics	10	453	21%	\$341
Agriculture	10	342	53%	\$141
Other Sciences	6	297	100%	\$0
Language & Literature	10	279	5%	\$309
Ecology	9	216	89%	\$65
Earth Sciences	4	190	86%	\$11
Biology	5	186	27%	\$130
Law	7	179	39%	\$64
Chemistry	4	174	56%	\$79
Miscellany	5	141	81%	\$160
Political Science	4	132	0%	\$777
Zoology	4	131	47%	\$402
Computer Science	4	63	14%	\$440
Technology	3	58	71%	\$129
Psychology	1	49	0%	\$791
Mathematics	3	38	61%	\$178
History	2	30	40%	\$91
Arts & Architecture	1	22	100%	\$0
Media & Communications	1	19	0%	\$877
Library Science	2	15	73%	\$37
Anthropology	1	10	100%	\$0
Physics	1	6	100%	\$0

There do not appear to be any *DOAJ*-listed philosophy journals in Africa. That the subjects with the highest average cost per article are in H&SS (media & communications, psychology, political science and religion) is unusual.

10. Asia

Key Facts, Asia

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	2,378	79,655			\$173	-83%
Fee	834	37,838	48%	-22%	\$364	-78%
No-fee	1,544	41,817	52%	35%		
Biomed	592	34,654	44%	24%	\$262	-82%
Fee	219	17,726	51%	-30%	\$511	-74%
No-fee	373	16,928	49%	83%		
STEM	678	22,402	28%	-32%	\$176	-85%
Fee	288	12,328	55%	-24%	\$321	-80%
No-fee	390	10,074	45%	65%		
H&SS	1,108	22,599	28%	18%	\$34	-75%
Fee	327	7,784	34%	47%	\$99	-83%
No-fee	781	14,815	66%	-14%		

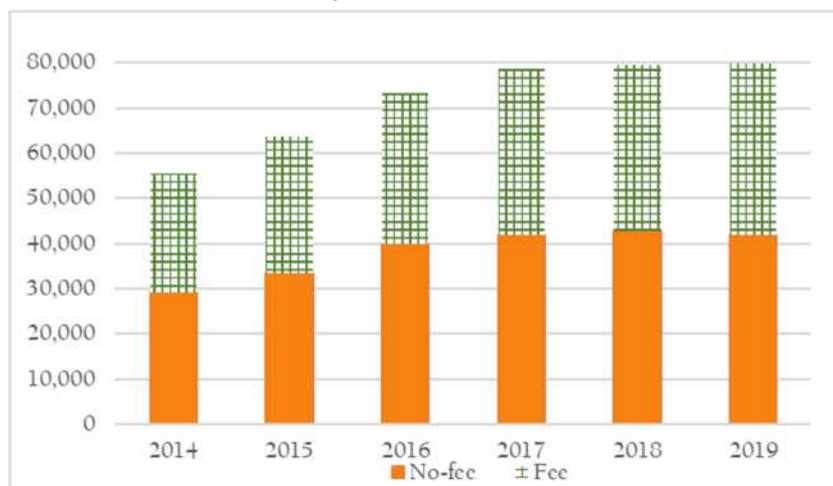
Very low costs across the board. Strong in biomed, weaker in STEM.

Articles and Journals by Year, Asia

	2019	2018	2017	2016	2015	2014
Journals	2,172	2,285	2,254	2,014	1,761	1,523
%No-fee	64%	65%	64%	64%	63%	63%
Articles	79,655	79,487	78,722	73,295	63,709	55,351
%No-fee	52%	54%	53%	54%	52%	53%
Change	0%	1%	7%	15%	15%	

Flat since 2017, but up considerably from earlier years. Mostly no-fee.

Fee and No-Fee Articles by Year, Asia



Article Volume, Asia

	Journals	Articles	%No-fee	\$/article
Largest: 600+	8	5,148	33%	\$330
Large: 150-599	111	18,946	37%	\$369
Med.: 60-149	307	18,822	54%	\$173
Small: 20-59	1,239	28,865	59%	\$59
Smallest: 0-19	713	7,874	76%	\$20

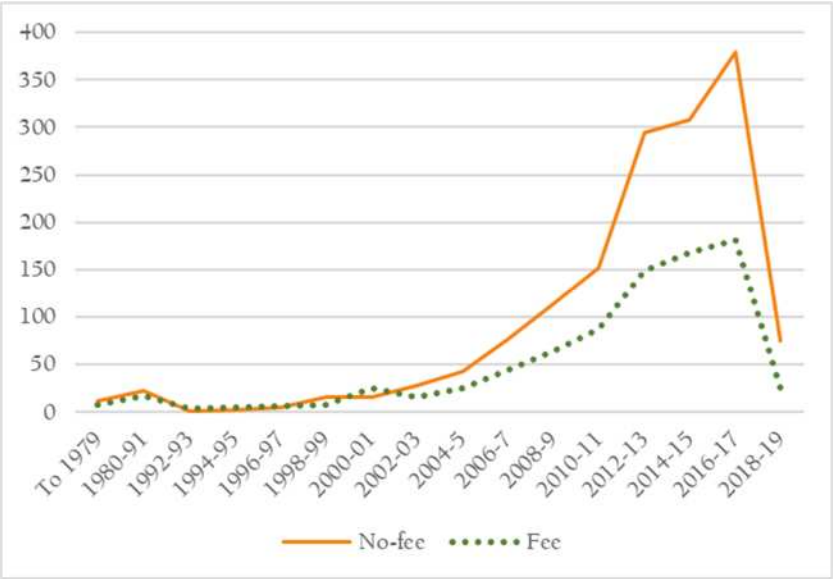
Large journals slightly more expensive than the largest—and fees only a majority in large and largest journals.

Fee Level, Asia

	Jour.	%Fee	%All	Articles	%Fee	%All
\$1,400+	20	2%	1%	2,456	6%	3%
\$600-\$1,399	42	5%	2%	4,707	12%	6%
\$200-\$599	119	14%	5%	11,307	30%	14%
\$0.01-\$199	653	78%	27%	19,368	51%	24%
No fee	1,544		65%	41,817		52%

Shrinkage from the previous report in the most expensive category—more journals but slightly fewer articles—and substantial growth in the next level down.

Starting Date, Asia



Significant growth started in 2004, increased rapidly from 2010 to 2017, and has dropped but not disappeared since.

Fees and Revenue, Asia

	Articles	Revenue	\$/article
\$1,400+	2,456	\$4,320,646	\$1,759
\$600-\$1,399	4,707	\$4,376,291	\$930
\$200-\$599	11,307	\$3,728,987	\$330
\$0.20-\$199	19,368	\$1,359,904	\$70
No fee	41,817		
Total	79,655	\$13,785,828	\$173

The rapid growth in \$600-\$1,399 fees resulted in them actually out-earning the most expensive journals, albeit not by much.

Publisher Category, Asia

Category	Journals	Articles	%No-fee	\$/article
Univ/college	1,731	40,868	54%	\$73
Open Access	319	20,465	53%	\$242
Society/govt	217	9,324	42%	\$223
Traditional	102	8,096	59%	\$454
Miscellaneous	9	902	23%	\$97

Very little change from the previous report, given that most Miscellaneous journals are now tagged as Open Access.

Growth and Shrinkage, Asia

Change 2018-19	Count	Percent	Cum%
Grew 25%+	437	20.4%	
Even, $\pm 24.99\%$	1,393	64.9%	85.3%
Shrank 25%+	316	14.7%	
Total	2,146		

Significantly more growth than shrinkage.

Subjects, Asia

Medicine is the largest subject, which is not at all unusual—and Technology is the most expensive, which is more unusual. Religion has moved up in the rankings (quite a few journals could be categorized as Religion or as something else such as Economics).

A silly statistic: the average cost of an article in Library Science has quadrupled—from \$1 to \$4. That's mostly because the percentage of articles with fees has increased from 3% to 9%.

Subject	Journ.	Articles	%No-fee	\$/article
Medicine	534	32,648	50%	\$260
Education	250	5,842	57%	\$42
Economics	223	4,874	65%	\$35
Engineering	116	4,446	55%	\$172
Agriculture	112	3,474	25%	\$214
Zoology	62	2,575	29%	\$185
Language & Literature	124	2,524	65%	\$32
Technology	58	2,490	41%	\$420
Religion	134	2,305	72%	\$37
Biology	58	2,006	33%	\$291
Earth Sciences	47	1,910	55%	\$170
Computer Science	82	1,702	60%	\$32
Ecology	42	1,627	34%	\$141
Law	74	1,369	73%	\$20
Other Sciences	48	1,282	54%	\$93
Mathematics	52	1,220	64%	\$28
Sociology	59	1,165	63%	\$22
Anthropology	45	1,005	73%	\$51
Chemistry	32	842	58%	\$65
Physics	27	834	44%	\$126
Miscellany	27	708	69%	\$15
Political Science	42	678	69%	\$29
Psychology	30	531	79%	\$39
Arts & Architecture	28	462	83%	\$12
Media & Communications	25	438	50%	\$42
Library Science	21	302	91%	\$4
History	16	247	87%	\$12
Philosophy	10	149	68%	\$15

Country of Publication, Asia

Country	Journals	Articles	%No-fee	\$/article
Indonesia	1,552	31,870	55%	\$38
India	282	19,124	57%	\$200
China	102	10,167	41%	\$365
South Korea	117	6,821	48%	\$250
Pakistan	55	2,371	29%	\$187
Malaysia	69	2,244	60%	\$98
Japan	33	1,401	28%	\$935
Taiwan	32	1,290	61%	\$274
Hong Kong	19	845	31%	\$862
Thailand	28	815	65%	\$60
Bangladesh	20	795	55%	\$34
Nepal	19	552	100%	\$0
Singapore	16	480	56%	\$419
Sri Lanka	15	345	100%	\$0
Philippines	10	315	100%	\$0
Kyrgyzstan	3	94	100%	\$0
Mongolia	4	74	57%	\$32
Viet Nam	2	52	100%	\$0

Indonesia excels at small, inexpensive journals, with almost two-thirds of all *DOAJ*-listed journals in the region (65.3%) but only 40% of the articles. Japan and Hong Kong stand out for relatively expensive articles (compared to other Asian countries, that is.

11. Eastern Europe

Key Facts, Eastern Europe

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	2,417	92,234			\$89	-91%
Fee	481	29,635	32%	-47%	\$278	-83%
No-fee	1,936	62,599	68%	75%		
Biomed	374	19,589	21%	-39%	\$95	-93%
Fee	93	6,173	32%	-57%	\$301	-85%
No-fee	281	13,416	68%	157%		
STEM	808	31,854	35%	-16%	\$143	-88%
Fee	190	11,723	37%	-49%	\$388	-76%
No-fee	618	20,131	63%	132%		
H&SS	1,235	40,791	44%	85%	\$45	-67%
Fee	198	11,739	29%	23%	\$155	-74%
No-fee	1,037	29,052	71%	-7%		

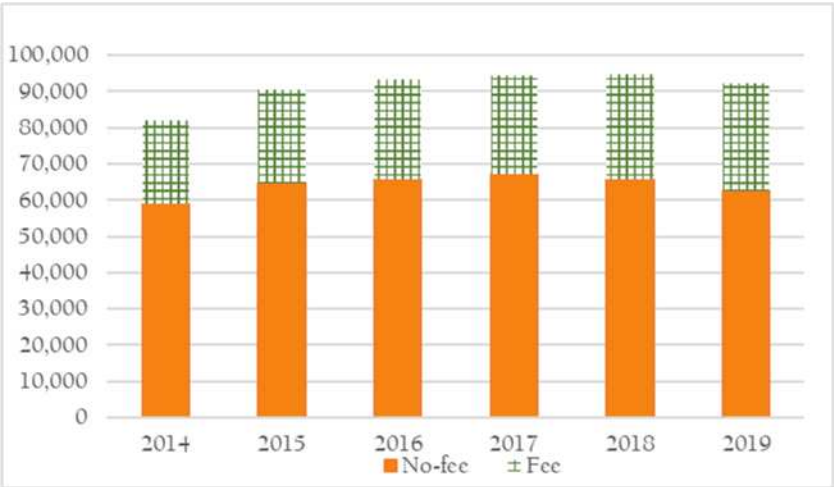
Relatively low fees, mostly no-fee publishing. Very strong in H&SS; somewhat lean in STEM and more so in biomed.

Articles and Journals by Year, Eastern Europe

	2019	2018	2017	2016	2015	2014
Journals	2,200	2,299	2,258	2,186	2,044	1,858
%No-fee	79%	80%	80%	81%	81%	81%
Articles	92,234	94,673	94,490	93,221	90,647	82,112
%No-fee	68%	69%	71%	71%	72%	72%
Change	-3%	0%	1%	3%	10%	

A lot more articles than in GOA4 because a lot of journals have been added; articles for *this* set of journals nearly flat since 2015.

Fee and No-Fee Articles by Year, Eastern Europe



Article Volume, Eastern Europe

	Journals	Articles	%No-fee	\$/article
Largest: 600+	11	4,523	52%	\$16
Large: 150-599	128	17,413	46%	\$164
Med.: 60-149	598	35,681	64%	\$109
Small: 20-59	1,261	31,151	84%	\$43
Smallest: 0-19	419	3,466	93%	\$18

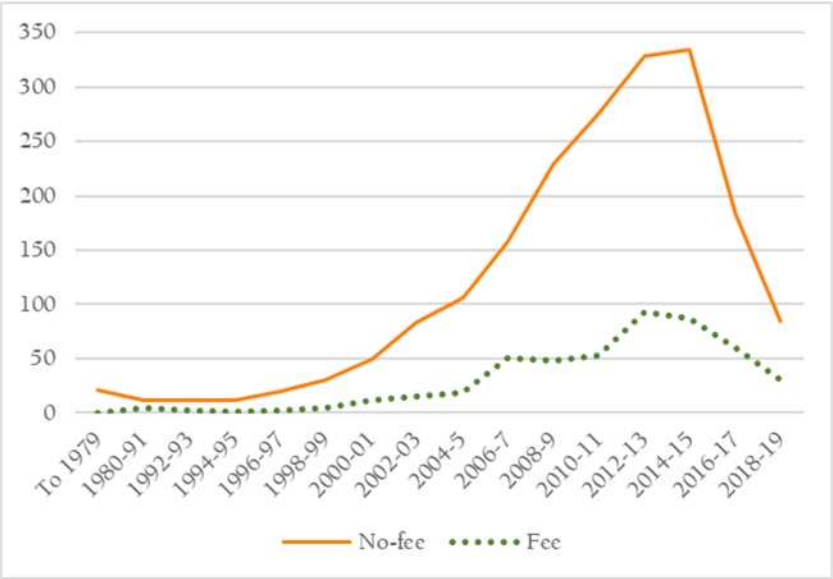
The largest journals are also the cheapest, which is unusual.

Fee Level, Eastern Europe

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	6	1%	0%	314	1%	0%
\$600-\$1.399	47	10%	2%	4,144	14%	4%
\$200-\$599	133	28%	6%	7,791	26%	8%
\$0.01-\$199	295	61%	12%	17,386	59%	19%
No fee	1,936		80%	62,599		68%

Almost no expensive articles; most fee articles cost nominal amounts.

Starting Date, Eastern Europe



Rapid growth starting 2004, broadly peaking 2012-2015.

Fees and Revenue, Eastern Europe

	Articles	Revenue	\$/article
\$1,400+	314	\$588,318	\$1,874
\$600-\$1.399	4,144	\$3,756,686	\$907
\$200-\$599	7,791	\$2,719,737	\$349
\$0.20-\$199	17,386	\$1,159,236	\$67
No fee	62,599		
Total	92,234	\$8,223,977	\$89

Very little revenue from expensive journals, most from the two mid-range categories. The biggest gains from the previous report are in the \$200-\$599 and no-fee categories.

Publisher Category, Eastern Europe

Category	Journals	Articles	%No-fee	\$/article
Univ/college	1,510	58,320	72%	\$45
Open Access	599	20,250	55%	\$219
Society/govt	215	8,825	66%	\$67
Miscellaneous	40	2,640	82%	\$41
Traditional	53	2,199	57%	\$223

Universities and colleges dominate, which isn't unusual.

Growth and Shrinkage, Eastern Europe

Change 2018-19	Count	Percent	Cum%
Grew 25%+	419	19.3%	
Even, $\pm 24.99\%$	1,381	63.5%	82.8%
Shrank 25%+	374	17.2%	
Total	2,174		

Even in this region, more journals grew substantially than shrank substantially, but the difference is small.

Subjects, Eastern Europe

As was also true in GOA4, even medicine is inexpensive—indeed, it's cheaper than last year. Only zoology and chemistry average more than \$200 per article. It's also unusual for economics articles to be slightly *more* expensive than medical articles, presumably because most economics articles have fees and more than seven of ten medical articles don't. The least expensive (and smallest) subjects are a tie: none of the active library science or media & communications journals have fees.

Subject	Jour.	Articles	%No-fee	\$/article
Medicine	311	15,811	71%	\$96
Economics	279	10,197	49%	\$97
Engineering	141	7,187	55%	\$127
Agriculture	124	6,083	51%	\$150
Language & Literature	159	4,627	91%	\$23
Anthropology	112	3,908	52%	\$60
Biology	63	3,778	56%	\$89
Sociology	98	3,603	70%	\$33
Political Science	104	3,568	92%	\$4
Computer Science	75	2,743	81%	\$48
Education	89	2,639	64%	\$37
Earth Sciences	109	2,598	86%	\$82
Technology	66	2,579	78%	\$47
History	69	2,404	81%	\$33
Ecology	72	2,300	52%	\$192
Mathematics	74	2,170	78%	\$183
Law	69	2,126	93%	\$5
Zoology	46	1,906	46%	\$322
Chemistry	43	1,776	61%	\$286
Philosophy	54	1,705	94%	\$9
Arts & Architecture	54	1,671	83%	\$29
Other Sciences	31	1,603	60%	\$105
Miscellany	38	1,379	73%	\$33
Psychology	37	1,311	65%	\$38
Physics	27	909	80%	\$136
Religion	26	716	90%	\$32
Library Science	22	503	100%	\$0
Media & Communications	25	434	100%	\$0

Country of Publication, Eastern Europe

Country	Journals	Articles	%No-fee	\$/article
Russia	371	22,906	87%	\$21
Poland	608	18,903	63%	\$188
Ukraine	281	14,836	42%	\$51
Romania	345	10,059	65%	\$45
Serbia	175	5,055	70%	\$53
Croatia	121	3,388	86%	\$66
Czech Republic	110	2,988	67%	\$123
Bulgaria	60	2,719	37%	\$354
Lithuania	74	2,101	63%	\$226
Slovenia	53	1,441	83%	\$71
Slovakia	46	1,173	78%	\$49
Moldova	30	1,099	64%	\$16
Hungary	34	1,050	92%	\$73
North Macedonia	11	904	96%	\$2
Bosnia and Herzegovina	23	778	79%	\$105
Estonia	23	694	59%	\$161
Belarus	11	656	84%	\$24
Latvia	11	458	40%	\$356
Montenegro	9	442	86%	\$29
Cyprus	4	163	63%	\$147
Kazakhstan	4	150	69%	\$83
Albania	5	96	43%	\$85
Georgia	3	65	100%	\$0
Azerbaijan	2	64	100%	\$0
Armenia	2	37	32%	\$270
Turkmenistan	1	9	100%	\$0

Only Bulgaria and Latvia average more than \$300 per article.

12. Latin America

Key Facts, Latin America

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	2,684	100,119			\$42	-96%
Fee	149	14,951	15%	-76%	\$281	-83%
No-fee	2,535	85,168	85%	119%		
Biomed	350	19,553	20%	-44%	\$100	-93%
Fee	50	4,754	24%	-67%	\$411	-79%
No-fee	300	14,799	76%	184%		
STEM	556	22,081	22%	-46%	\$76	-94%
Fee	83	6,745	31%	-58%	\$249	-85%
No-fee	473	15,336	69%	155%		
H&SS	1,778	58,485	58%	144%	\$10	-93%
Fee	16	3,452	6%	-75%	\$165	-72%
No-fee	1,762	55,033	94%	23%		

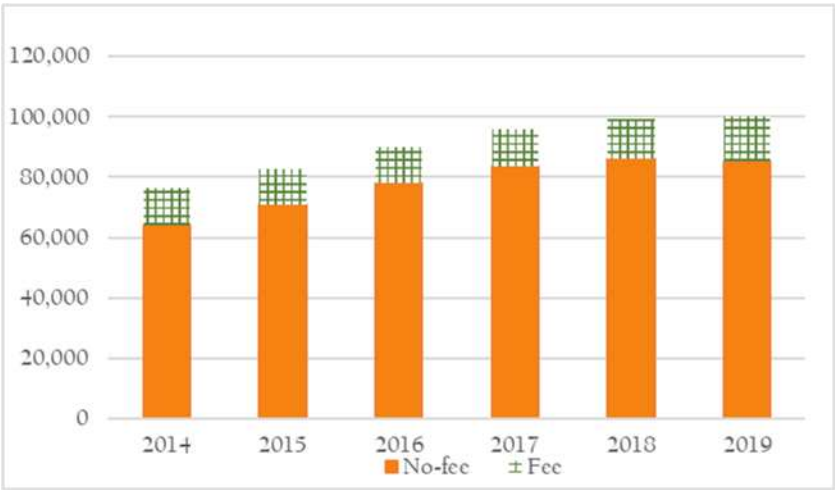
Very strong in H&SS, low elsewhere, with low costs throughout.

Articles and Journals by Year, Latin America

	2019	2018	2017	2016	2015	2014
Journals	2,475	2,608	2,618	2,564	2,445	2,277
%No-fee	94%	94%	94%	94%	94%	94%
Articles	100,119	99,282	96,049	89,916	82,910	76,174
%No-fee	85%	87%	87%	87%	86%	84%
Change	1%	3%	7%	8%	9%	

Slow growth the last two years.

Fee and No-Fee Articles by Year, Latin America



Article Volume, Latin America

	Journals	Articles	%No-fee	\$/article
Largest: 600+	3	4,017	42%	\$110
Large: 150-599	88	14,883	58%	\$154
Med.: 60-149	529	33,270	84%	\$39
Small: 20-59	1,700	44,449	98%	\$4
Smallest: 0-19	364	3,500	99%	\$2

There were *no* largest Latin America journals in GOA4. Now there are three, modestly-priced or no-fee.

Fee Level, Latin America

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	4	3%	0%	425	3%	0%
\$600-\$1.399	10	7%	0%	941	6%	1%
\$200-\$599	61	41%	2%	5,865	39%	6%
\$0.01-\$199	74	50%	3%	7,720	52%	8%
No fee	2,535		94%	85,168		85%

So little publishing at significant fees that little comment is needed.

Starting Date, Latin America



Fees and Revenue, Latin America

	Articles	Revenue	\$/article
\$1,400+	425	\$679,900	\$1,600
\$600-\$1,399	941	\$691,310	\$735
\$200-\$599	5,865	\$1,929,640	\$329
\$0.20-\$199	7,720	\$901,279	\$117
No fee	85,168		
Total	100,119	\$4,202,129	\$42

Most article growth has been no-fee (\$600-\$1,399 actually declined from GOA4 to this report, as did the average cost per article in that bracket). Average cost per article, not surprisingly, is much lower than for any other region.

Publisher Category, Latin America

Category	Journals	Articles	%No-fee	\$/article
Univ/college	2,334	80,956	90%	\$27
Society/govt	276	14,513	73%	\$104
Open Access	53	3,928	34%	\$127
Miscellaneous	15	446	100%	\$0
Traditional	6	276	100%	\$0

Very little done by OA publishers, even less by traditional publishers.

Growth and Shrinkage, Latin America

Change 2018-19	Count	Percent	Cum%
Grew 25%+	528	21.4%	
Even, \pm 24.99%	1,488	60.3%	81.7%
Shrank 25%+	453	18.3%	
Total	2,469		

Subjects, Latin America

A number of interesting items: low costs across the board, with only biology, chemistry and zoology breaking the \$200 mark and *nine* subjects—including two of the biggest—with no fees at all. If you're wondering about Economics and the seeming contradiction of 100% no-fee but \$1 average cost: six of the 3,847 articles—much less than 0.5%—had fees for total potential revenue of \$2,700. Similarly (in the other direction) for law and political science, both showing \$0 \$/article with 99% no-fee: law had 46 fee articles but a total revenue of \$1,749—or \$0.47 per article over 3,752 article, rounding to \$0; political science has 22 fee articles with total revenue of \$171 out of 2,347 articles, yielding an average of seven cents per article.

Subject	Jrn	Articles	%No-fee	\$/article
Medicine	321	17,849	77%	\$78
Education	246	11,807	100%	\$0
Sociology	203	7,885	70%	\$56
Language & Literature	186	6,281	100%	\$0
Agriculture	129	6,273	48%	\$116
Miscellany	81	4,289	87%	\$11
Anthropology	134	3,980	92%	\$16
Economics	184	3,847	100%	\$1
Law	166	3,752	99%	\$0
History	113	3,386	100%	\$0
Earth Sciences	91	2,747	98%	\$2
Engineering	82	2,638	94%	\$11
Arts & Architecture	81	2,497	100%	\$0
Zoology	48	2,495	36%	\$220
Psychology	74	2,359	94%	\$2
Political Science	100	2,347	99%	\$0
Ecology	69	2,317	78%	\$21
Media & Communications	74	2,279	100%	\$2
Other Sciences	50	2,239	92%	\$3
Philosophy	69	1,957	100%	\$0
Biology	29	1,704	59%	\$336
Technology	29	1,312	74%	\$53
Religion	31	910	96%	\$2
Library Science	36	909	100%	\$0
Chemistry	13	719	35%	\$258
Mathematics	19	567	100%	\$0
Computer Science	17	387	88%	\$9
Physics	9	387	68%	\$121

Country of Publication, Latin America

Country	Journals	Articles	%no-fee	\$/article
Brazil	1,424	64,714	80%	\$59
Colombia	360	8,745	99%	\$2
Argentina	252	5,761	94%	\$5
Mexico	132	5,221	93%	\$17
Cuba	93	4,347	100%	\$0
Chile	123	3,409	77%	\$63
Peru	69	1,928	95%	\$9
Ecuador	59	1,799	100%	\$0
Costa Rica	65	1,780	100%	\$0
Venezuela	32	986	98%	\$8
Uruguay	25	530	100%	\$0
Paraguay	17	364	100%	\$0
Nicaragua	8	157	100%	\$0
Dominican Republic	6	151	100%	\$0
Bolivia	5	72	100%	\$0
El Salvador	4	65	100%	\$0
Barbados	1	50	100%	\$0
Guatemala	2	16	100%	\$0
Puerto Rico	4	12	100%	\$0
Bahamas	1	6	100%	\$0
Guam	1	5	0%	\$350
Jamaica	1	1	0%	\$1,000

Brazil dominates; only one other country with more than five articles has less than 93% no-fee publishing—and, to be sure, fourteen are entirely no-fee. Jamaica's single journal, *WIMJ Open* with its \$1,000 fee, has fallen on hard times, with only one article in 2019 (from a 2015 high of 35). Guam's *Micronesica*, at \$350 (voluntary), has varied from three to eight articles per year.

13. Middle East

Key Facts, Middle East

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	1,043	44,197			\$80	-92%
Fee	222	13,525	31%	-50%	\$262	-84%
No-fee	821	30,672	69%	79%		
Biomed	376	18,660	42%	21%	\$85	-94%
Fee	55	4,421	24%	-68%	\$358	-82%
No-fee	321	14,239	76%	186%		
STEM	300	12,624	29%	-30%	\$89	-92%
Fee	86	4,521	36%	-51%	\$248	-85%
No-fee	214	8,103	64%	135%		
H&SS	367	12,913	29%	22%	\$65	-53%
Fee	81	4,583	35%	52%	\$183	-69%
No-fee	286	8,330	65%	-16%		

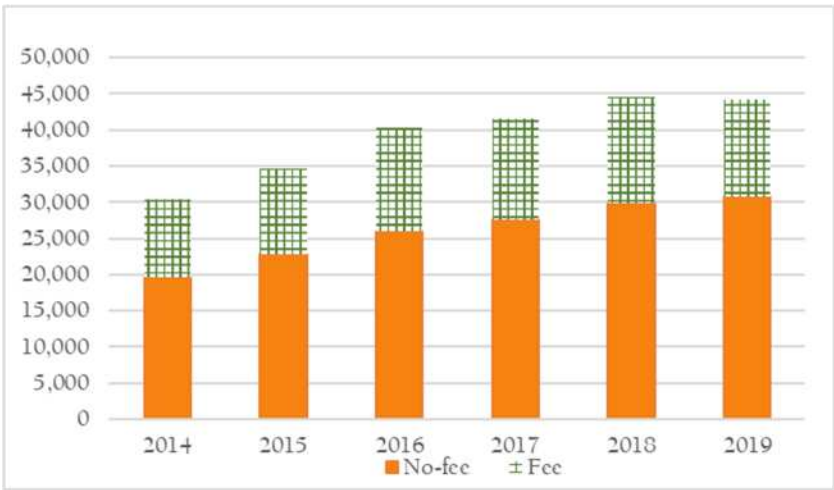
Two-thirds no-fee, low on STEM, biomed three-quarters no-fee.

Articles and Journals by Year, Middle East

	2019	2018	2017	2016	2015	2014
Journals	996	1,019	999	948	859	750
%No-fee	79%	78%	78%	78%	78%	76%
Articles	44,197	44,566	41,492	40,369	34,648	30,319
%No-fee	69%	67%	66%	65%	66%	65%
Change	-1%	7%	3%	17%	14%	

Slightly down in 2019. Tendency *toward* no-fee publishing.

Fee and No-Fee Articles by Year, Middle East



Article Volume, Middle East

	Journals	Articles	%No-fee	\$/article
Largest: 600+	5	1,572	45%	\$155
Large: 150-599	58	10,013	43%	\$213
Med.: 60-149	215	14,202	74%	\$57
Small: 20-59	634	16,988	81%	\$21
Smallest: 0-19	131	1,422	91%	\$9

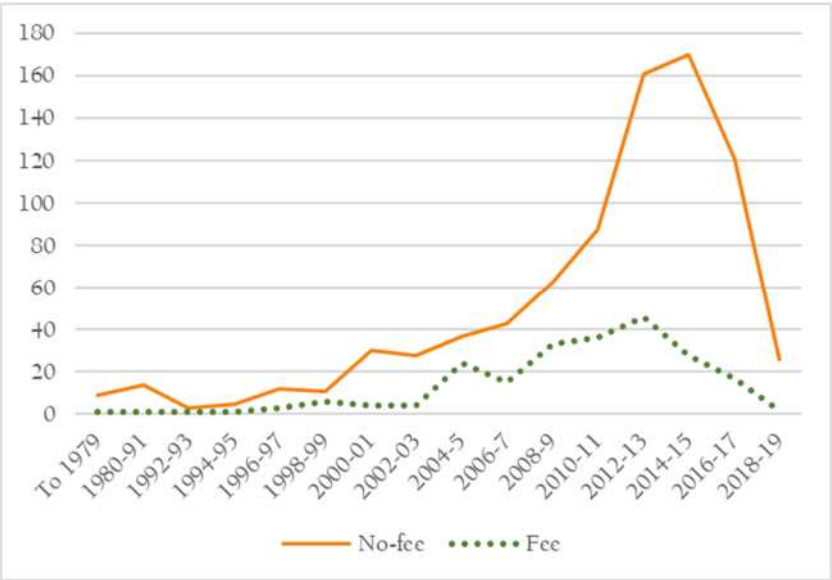
Another region where average cost in the few largest journals decreased.

Fee Level, Middle East

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	2	1%	0%	124	1%	0%
\$600-\$1,399	13	6%	1%	1,484	11%	3%
\$200-\$599	40	18%	4%	3,138	23%	7%
\$0.01-\$199	167	75%	16%	8,779	65%	20%
No fee	821		79%	30,672		69%

Very few very large or expensive journals.

Starting Date, Middle East



Slow to start and until 2000 or so, peaking in 2012-2015.

Fees and Revenue, Middle East

	Articles	Revenue	\$/article
\$1,400+	124	\$227,005	\$1,831
\$600-\$1.399	1,484	\$1,536,998	\$1,036
\$200-\$599	3,138	\$1,074,434	\$342
\$0.20-\$199	8,779	\$706,075	\$80
No fee	30,672		
Total	44,197	\$3,544,512	\$80

While the most expensive group didn't change much, the next group increased sharply—up 43% in article count, 46% in average cost, and 109%—more than doubling—in potential revenue. The third group, \$200-\$599, also increased substantially in article count, 35%, but because the average cost was only up 5% (from \$327 to \$342), revenue was up 42%.

Publisher Category, Middle East

Category	Journals	Articles	%No-fee	\$/article
Univ/college	747	29,084	73%	\$39
Open Access	151	6,368	78%	\$67
Traditional	49	4,202	55%	\$362
Society/govt	84	3,794	49%	\$109
Miscellaneous	12	749	45%	\$55

Predominantly universities and colleges, and even OA publishers offer mostly no-fee articles.

Growth and Shrinkage, Middle East

Change 2018-19	Count	Percent	Cum%
Grew 25%+	251	25.4%	
Even, $\pm 24.99\%$	548	55.4%	80.8%
Shrank 25%+	190	19.2%	
Total	989		

Country of Publication, Middle East

Country	Journals	Articles	%No-fee	\$/article
Iran	513	18,850	68%	\$50
Turkey	403	18,269	84%	\$38
Saudi Arabia	18	2,165	49%	\$565
Iraq	42	2,017	21%	\$93
Egypt	32	1,635	26%	\$224
United Arab Emirates	10	567	24%	\$201
Oman	7	272	100%	\$0
Jordan	4	198	61%	\$53
Yemen	5	86	77%	\$35
Israel	2	56	100%	\$0
Qatar	4	48	88%	\$124
Lebanon	1	34	100%	\$0
Kuwait	1	0		
Palestine	1	0		

Iran and Turkey have each added more than 70 journals since GOA4.

Subjects, Middle East

Subject	Journ.	Articles	%No-fee	\$/article
Medicine	350	17,619	78%	\$61
Engineering	56	2,792	69%	\$91
Education	66	2,595	85%	\$20
Agriculture	54	2,492	50%	\$32
Economics	67	2,255	39%	\$146
Zoology	28	1,405	33%	\$102
Other Sciences	26	1,394	59%	\$272
Sociology	40	1,342	70%	\$29
Language & Literature	36	1,270	63%	\$32
Arts & Architecture	14	1,074	19%	\$107
Biology	26	1,041	47%	\$487
Religion	34	1,016	92%	\$8
Earth Sciences	29	982	89%	\$5
Anthropology	26	858	50%	\$230
Chemistry	18	812	76%	\$223
Ecology	27	746	61%	\$43
Technology	14	668	87%	\$5
Mathematics	26	648	92%	\$5
Psychology	17	582	70%	\$16
Computer Science	18	568	77%	\$62
History	15	396	74%	\$20
Political Science	14	347	88%	\$5
Miscellany	8	339	79%	\$7
Law	11	308	89%	\$7
Philosophy	6	216	42%	\$149
Library Science	7	190	100%	\$0
Media & Communications	6	125	83%	\$12
Physics	4	117	79%	\$26

14. Pacific/English

Key Facts, Pacific/English

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	1,025	110,008			\$1,495	46%
Fee	374	88,911	81%	32%	\$1,850	11%
No-fee	651	21,097	19%	-51%		
Biomed	324	44,146	40%	15%	\$1,775	24%
Fee	223	37,606	85%	16%	\$2,084	6%
No-fee	101	6,540	15%	-44%		
STEM	190	53,144	48%	18%	\$1,588	34%
Fee	101	49,130	92%	27%	\$1,718	5%
No-fee	89	4,014	8%	-72%		
H&SS	511	12,718	12%	-52%	\$135	-2%
Fee	50	2,175	17%	-27%	\$790	34%
No-fee	461	10,543	83%	8%		

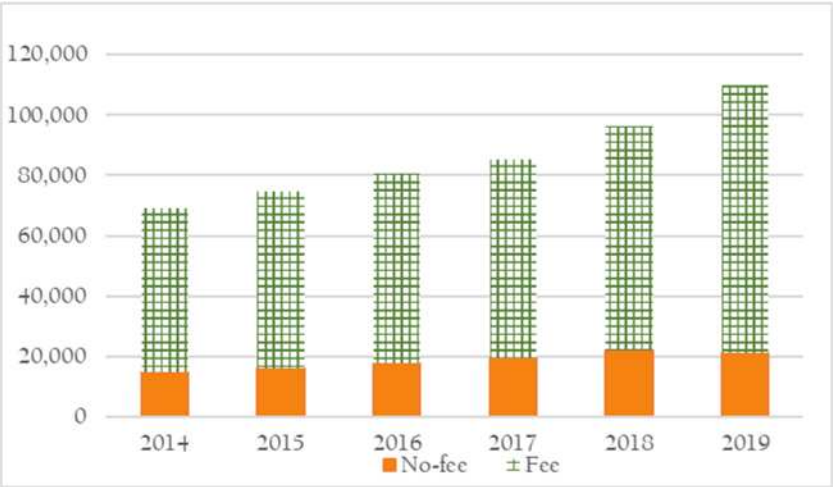
This “region” consists of Australia, Canada, New Zealand and the US.

Articles and Journals by Year, Pacific/English

	2019	2018	2017	2016	2015	2014
Journals	935	944	924	853	796	721
%No-fee	62%	64%	65%	67%	68%	70%
Articles	110,008	96,337	85,081	80,431	74,612	69,159
%No-fee	19%	23%	23%	22%	21%	21%
Change	14%	13%	6%	8%	8%	

The already-low no-fee percentage is decreasing as volume increases.

Fee and No-Fee Articles by Year, Pacific/English



Article Volume, Pacific/English

	Journals	Articles	%No-fee	\$/article
Largest: 600+	27	63,499	5%	\$1,773
Large: 150-599	83	19,533	21%	\$1,561
Med.: 60-149	194	14,285	34%	\$1,120
Small: 20-59	426	10,612	66%	\$481
Smallest: 0-19	295	2,079	85%	\$138

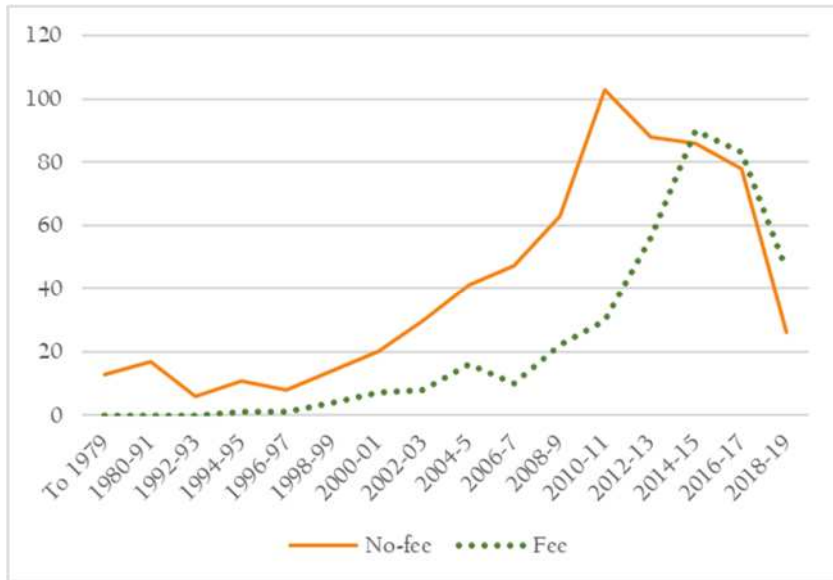
More than half of all articles are in largest journals.

Fee Level, Pacific/English

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	213	57%	21%	75,223	85%	68%
\$600-\$1.399	69	18%	7%	9,716	11%	9%
\$200-\$599	62	17%	6%	3,073	3%	3%
\$0.01-\$199	30	8%	3%	899	1%	1%
No fee	651		64%	21,097		19%

More than half of all fee-charging journals are at the highest fee levels, and those journals account for six out of seven fee articles. The three lower fee levels all had *fewer* articles than in GOA4.

Starting Date, Pacific/English



Fees and Revenue, Pacific/English

	Articles	Revenue	\$/article
\$1,400+	75,223	\$154,173,956	\$2,050
\$600-\$1,399	9,716	\$9,006,365	\$927
\$200-\$599	3,073	\$1,188,737	\$387
\$0.20-\$199	899	\$107,429	\$119
No fee	21,097		
Total	110,008	\$164,476,487	\$1,495

The average article cost in the most expensive journals isn't really up much (\$2,025 to \$2,050), but with nearly 19,000 more articles...

Publisher Category, Pacific/English

Category	Journals	Articles	%No-fee	\$/article
Open Access	228	41,333	17%	\$1,470
Society/govt	177	34,804	13%	\$1,631
Traditional	180	19,190	3%	\$1,793
Univ/college	437	14,649	63%	\$856
Miscellaneous	3	32	100%	\$0

Relatively little university publishing, but what there is, is more than 2.6 times as expensive per article as in G)A4. (OA prices are actually down, albeit not by much.)

Growth and Shrinkage, Pacific/English

Change 2018-19	Count	Percent	Cum%
Grew 25%+	259	28.8%	
Even, $\pm 24.99\%$	439	48.8%	77.6%
Shrank 25%+	201	22.4%	
Total	899		

A rare case where slightly less than half the journals stayed even.

Country of Publication, Pacific/English

Country	Journals	Articles	%No-fee	\$/article
United States	741	98,768	16%	\$1,565
Canada	160	5,720	58%	\$828
Australia	106	5,242	38%	\$989
New Zealand	18	278	100%	\$0

This pseudo-region is three or four very different stories: one very large set of journals, rapidly growing, with 84% fee-based articles at high prices; two modest sets at fairly typical prices with either a modest majority of no-fee articles or a modest majority of fee articles—and New Zealand, with very little publishing but no fees at all.

Subjects, Pacific/English

As usual, medicine is most prevalent—but the next four stand out for having very few no-fee articles (1% for engineering to 6% for biology and physics. Those four and medicine also have the highest average costs, more than \$1,700 per article. At the other extreme, history, library science, political science, media & communications, and religion are entirely no-fee.

Subject	Journ.	Articles	%No-fee	\$/article
Medicine	275	35,718	17%	\$1,756
Other Sciences	16	19,974	2%	\$1,771
Engineering	16	16,003	1%	\$1,724
Biology	49	8,428	6%	\$1,856
Physics	18	6,485	6%	\$1,764
Computer Science	22	2,737	33%	\$696
Education	99	2,548	80%	\$222
Chemistry	8	2,137	15%	\$857
Ecology	36	2,124	23%	\$1,151
Sociology	58	1,624	88%	\$183
Language & Literature	72	1,516	81%	\$46
History	29	1,135	100%	\$0
Mathematics	22	1,128	85%	\$115
Anthropology	34	930	79%	\$44
Agriculture	18	916	9%	\$1,634
Economics	35	861	82%	\$31
Arts & Architecture	27	682	77%	\$155
Library Science	32	672	100%	\$0
Zoology	7	589	13%	\$1,505
Philosophy	28	579	91%	\$2
Miscellany	14	563	30%	\$560
Technology	11	527	27%	\$1,271
Earth Sciences	16	524	17%	\$1,173
Political Science	20	468	100%	\$0
Media & Communications	19	440	100%	\$0
Psychology	15	396	48%	\$681
Law	17	168	86%	\$147
Religion	12	136	100%	\$0

15. Western Europe

Key Facts, Western Europe

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	4,211	420,072			\$1,612	58%
Fee	1,942	332,262	79%	29%	\$2,038	22%
No-fee	2,269	87,810	21%	-46%		
Biomed	1,327	159,279	38%	8%	\$2,108	47%
Fee	1,038	146,576	92%	25%	\$2,291	17%
No-fee	289	12,703	8%	-70%		
STEM	1,007	206,634	49%	20%	\$1,548	31%
Fee	645	169,971	82%	13%	\$1,882	15%
No-fee	362	36,663	18%	-35%		
H&SS	1,877	54,159	13%	-46%	\$395	186%
Fee	259	15,715	29%	24%	\$1,352	130%
No-fee	1,618	38,444	71%	-7%		

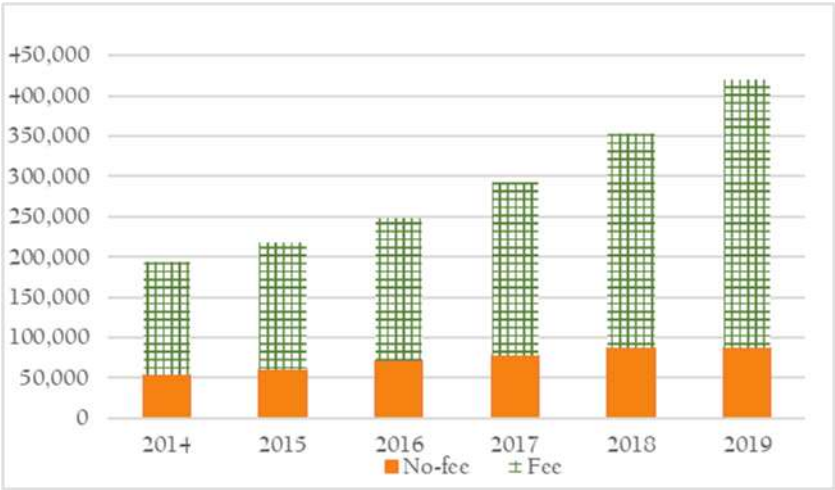
By far the most journals and just under half of all articles. Very lean (and expensive) in H&SS, somewhat rich in STEM. The only region with an *average* fee of more than \$2,000 for all fee articles.

Articles and Journals by Year, Western Europe

	2019	2018	2017	2016	2015	2014
Journals	3,953	3,964	3,868	3,677	3,440	3,162
%No-fee	52%	54%	54%	55%	55%	56%
Articles	420,072	352,425	293,033	248,041	218,565	193,784
%No-fee	21%	25%	27%	29%	28%	28%
Change	19%	20%	18%	13%	13%	

Strong growth each of the last three years, as no-fee percentages continue to decline (although no-fee *numbers* continue to grow).

Fee and No-Fee Articles by Year, Western Europe



Article Volume, Western Europe

	Journals	Articles	%No-fee	\$/article
Largest: 600+	138	222,583	11%	\$1,947
Large: 150-599	378	84,424	11%	\$1,783
Med.: 60-149	764	54,944	31%	\$1,109
Small: 20-59	2,008	50,415	61%	\$574
Smallest: 0-19	923	7,706	72%	\$403

By far the most growth is in the largest journals.

Fee Level, Western Europe

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	1,052	54%	25%	269,475	81%	64%
\$600-\$1.399	672	35%	16%	52,493	16%	12%
\$200-\$599	157	8%	4%	8,166	2%	2%
\$0.01-\$199	61	3%	1%	2,128	1%	1%
No fee	2,269		54%	87,810		21%

More than four-fifths of all fee articles and nearly two-thirds of all Western Europe articles are in the most expensive journals.

Starting Date, Western Europe



Fees and Revenue, Western Europe

	Articles	Revenue	\$/article
\$1,400+	269,475	\$621,241,260	\$2,305
\$600-\$1.399	52,493	\$52,318,590	\$997
\$200-\$599	8,166	\$3,236,625	\$396
\$0.20-\$199	2,128	\$194,414	\$91
No fee	87,810		
Total	420,072	\$676,990,890	\$1,612

While average cost per article in the most expensive journals only rose by \$46, there are now almost 70,000 more articles—and \$170 million more revenue.

Publisher Category, Western Europe

Category	Journals	Articles	%No-fee	\$/article
Open Access	1,526	238,821	7%	\$1,848
Traditional	794	110,234	21%	\$1,781
Univ/college	1,513	50,814	71%	\$567
Society/govt	323	19,055	48%	\$547
Miscellaneous	55	1,148	77%	\$181

OA publishers (with almost no no-fee articles) and traditional publishers (with somewhat more) dominate, with universities a distant third. All three saw substantial gains and had at least \$100 higher average fees.

Growth and Shrinkage, Western Europe

Change 2018-19	Count	Percent	Cum%
Grew 25%+	1,144	30.0%	
Even, $\pm 24.99\%$	1,869	49.0%	79.0%
Shrank 25%+	803	21.0%	
Total	3,816		

Another case with *slightly* less than half even, and much more growth than shrinkage,

Country of Publication, Western Europe

Two giants of essentially all-fee OA at the top, both with very high average costs—but then comes Spain, with low costs and predominantly no-fee OA publishing. Switzerland had by far the largest growth from GOA4's 2018 article count to this year's 2019 count: 46% more articles (around 45,000 more), compared to the UK's 17% growth. In addition to Spain's low costs and predominantly no-fee publishing, France (which had significantly fewer articles than in GOA4), Belgium and Denmark all stand out for low costs—and, of course, there are Iceland, Malta and Luxembourg, with no fees at all.

Country	Journals	Articles	%No-fee	\$/article
United Kingdom	1,582	171,886	6%	\$2,085
Switzerland	316	142,156	2%	\$1,922
Spain	750	21,414	91%	\$50
Netherlands	230	21,139	30%	\$1,283
Germany	261	20,328	61%	\$581
France	229	18,294	96%	\$42
Italy	382	13,355	80%	\$132
Portugal	105	2,860	79%	\$146
Norway	99	1,734	86%	\$113
Greece	34	1,623	66%	\$259
Sweden	41	1,292	67%	\$579
Austria	53	1,117	67%	\$201
Finland	31	969	76%	\$206
Belgium	41	644	95%	\$27
Ireland	16	568	46%	\$893
Denmark	29	462	94%	\$25
Iceland	6	162	100%	\$0
Malta	3	40	100%	\$0
Luxembourg	3	29	100%	\$0

Subjects, Western Europe

Three subjects with very little no-fee publishing and over \$2,000 average cost top the list: medicine (as usual), other sciences/megajournals, and biology. Looking further down the list, psychology stands out for its high average cost, history for single-digit average costs. Every STEM subject exceeds \$1,000 average cost.

Subject	Journ.	Articles	%No-fee	\$/article
Medicine	1,133	125,341	9%	\$2,057
Other Sciences	53	44,056	8%	\$2,198
Biology	194	33,938	3%	\$2,297
Ecology	112	30,524	22%	\$1,431
Chemistry	63	28,505	10%	\$1,491
Physics	85	25,546	28%	\$1,172
Engineering	109	16,799	9%	\$1,555
Earth Sciences	154	14,845	29%	\$1,169
Technology	69	14,173	36%	\$1,169
Agriculture	105	14,078	11%	\$1,742
Language & Literature	306	6,589	91%	\$43
Computer Science	106	6,440	34%	\$1,030
Mathematics	70	6,184	11%	\$1,419
Education	198	5,844	72%	\$233
Zoology	81	5,484	16%	\$1,275
Anthropology	197	5,192	70%	\$304
Sociology	174	5,065	71%	\$317
Psychology	67	4,715	21%	\$2,045
Arts & Architecture	164	3,896	72%	\$246
Economics	128	3,375	41%	\$761
History	151	3,354	97%	\$2
Media & Communications	95	2,924	83%	\$150
Miscellany	40	2,791	65%	\$401
Law	97	2,727	88%	\$144
Religion	43	2,486	48%	\$331
Political Science	96	2,198	90%	\$128
Philosophy	76	1,847	93%	\$54
Library Science	45	1,156	89%	\$82

16. Biology and Medicine

Key Facts, Biomed

	Journals	Articles	Art%	\$/Art
Biomed	3,387	298,675		\$1,437
Fee	1,700	219,123	73%	\$1,959
No-fee	1,687	79,552	27%	

Articles and Journals by Year, Biomed

	2019	2018	2017	2016	2015	2014
Journals	3,197	3,233	3,175	3,000	2,785	2,533
%No-fee	48%	50%	50%	51%	50%	50%
Articles	298,675	265,720	237,524	218,865	206,478	188,861
%No-fee	27%	30%	32%	34%	34%	34%
Change	12%	12%	9%	6%	9%	

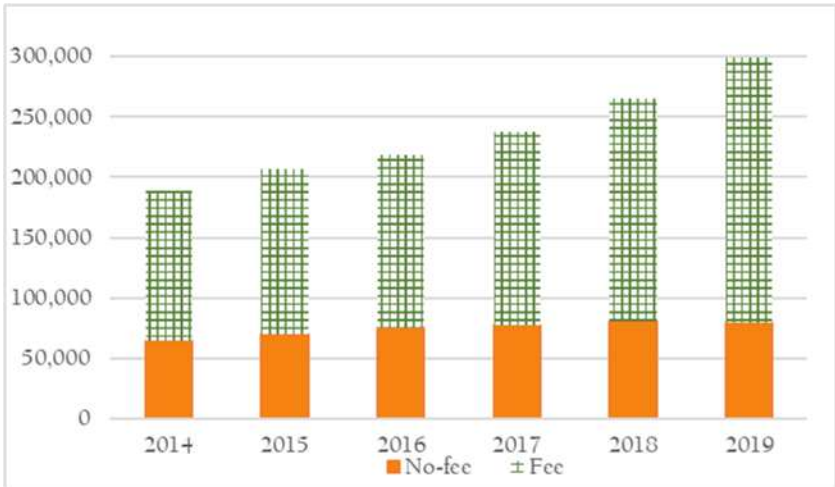
Brisk article growth continues and no-fee has now dropped below 30%.

Article Volume, Biomed

	Journals	Articles	%No-fee	\$/article
Largest: 600+	93	97,650	7%	\$2,160
Large: 150-599	452	91,405	19%	\$1,542
Med.: 60-149	930	64,799	45%	\$815
Small: 20-59	1,496	41,494	58%	\$548
Smallest: 0-19	416	3,327	58%	\$557

The largest journals published an astonishing 47% more articles in 2019 than the equivalent GOA4 group (66 journals) in 2018. A number of journals graduated to the largest category, but large journals still published 6% more articles. (The smallest journals lost ground.)

Fee and No-Fee Articles by Year, Biomed



Fee Level, Biomed

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	914	54%	27%	163,086	74%	55%
\$600-\$1.399	347	20%	10%	25,555	12%	9%
\$200-\$599	193	11%	6%	15,821	7%	5%
\$0.01-\$199	246	14%	7%	14,661	7%	5%
No fee	1,687		50%	79,552		27%

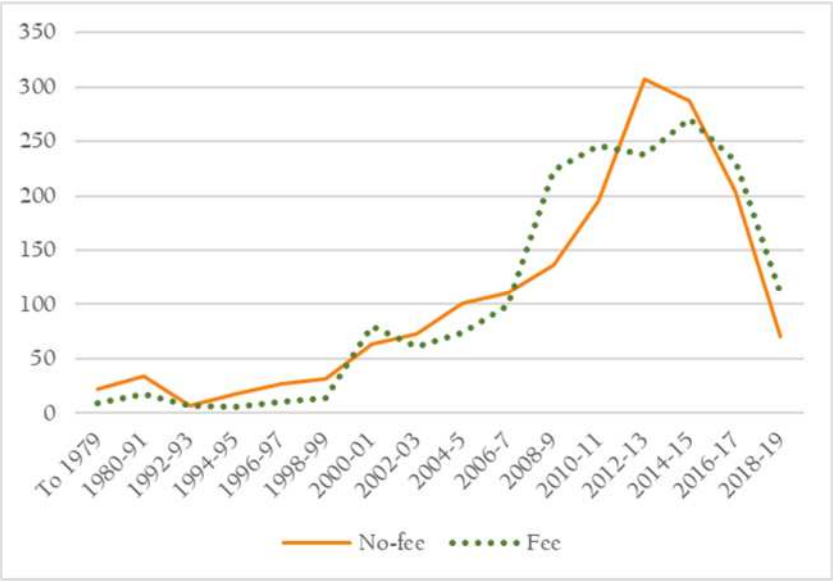
More than half of *all* articles are in the most expensive journals.

Fees and Revenue, Biomed

	Articles	Revenue	\$/article
\$1,400+	163,085	\$398,199,586	\$2,442
\$600-\$1.399	25,555	\$24,311,458	\$951
\$200-\$599	15,821	\$5,458,664	\$345
\$0.20-\$199	14,661	\$1,312,489	\$90
No fee	79,552		
Total	298,675	\$429,282,198	\$1,437

The top row's gone up just under \$100 million dollars.

Starting Date, Biomed



Region, Biomed

Region	Journals	Articles	%No-fee	\$/article
Western Europe	1,327	159,279	8%	\$2,108
Pacific/English	324	44,146	15%	\$1,775
Asia	592	34,654	49%	\$262
Eastern Europe	374	19,589	68%	\$95
Latin America	350	19,553	76%	\$100
Middle East	376	18,660	76%	\$85
Africa	44	2,794	33%	\$233

Publisher Category, Biomed

Category	Journals	Articles	%No-fee	\$/article
Open Access	1,288	151,729	16%	\$1,784
Traditional	655	63,355	16%	\$1,779
Univ/college	1,042	55,777	55%	\$594
Society/govt	363	25,055	50%	\$503
Miscellaneous	39	2,759	69%	\$69

OA and traditional publishers have very similar average cost per article, but OA publishers have by far the largest chunk of biomed articles. Note here also that no-fee articles are in the majority for other categories.

Growth and Shrinkage, Biomed

Change 2018-19	Count	Percent	Cum%
Grew 25%+	809	25.9%	
Even, $\pm 24.99\%$	1,773	56.7%	82.6%
Shrank 25%+	545	17.4%	
Total	3,126		

Subjects, Biomed

Subject	Journals	Articles	%No-fee	\$/article	Page
Biology	424	51,081	11%	\$1,872	157
Medicine	2,963	247,594	30%	\$1,348	199

Biology articles are much less likely to be no-fee and have much higher average fees. “Page” refers to the starting page of the subject chapter (subject chapters are in alphabetic order following Chapter 18).

Country of Publication, Biomed

This table shows the 31 countries with at least 700 biomed articles in 2019. (There are another 66 countries with fewer biomed articles.) Of this group, the UK stands out for article volume, although Switzerland manages to have even higher average costs; neither has enough no-fee articles to be significant.

At the other extreme, Russia, Turkey, Cuba, Colombia and North Macedonia all have single-digit cost averages, and for Cuba and North Macedonia that digit is zero.

Country	Journals	Articles	%No-fee	\$/article
United Kingdom	891	94,680	3%	\$2,239
Switzerland	116	42,965	2%	\$2,285
United States	255	38,353	14%	\$1,808
India	228	16,756	56%	\$221
Brazil	190	13,309	68%	\$136
Iran	236	10,415	70%	\$70
Netherlands	90	10,225	17%	\$1,869
Russia	91	6,146	97%	\$5
Turkey	104	6,016	95%	\$4
China	35	4,573	28%	\$473
South Korea	69	4,339	47%	\$259
Indonesia	173	4,126	47%	\$47
Spain	64	4,066	85%	\$122
Poland	97	3,756	59%	\$279
Ukraine	50	3,723	46%	\$25
Australia	35	3,430	16%	\$1,433
Canada	31	2,268	18%	\$1,809
Italy	61	2,218	31%	\$619
Romania	39	1,719	44%	\$104
Germany	36	1,648	36%	\$1,591
Cuba	31	1,614	100%	\$0
Colombia	43	1,548	96%	\$4
Saudi Arabia	9	1,281	45%	\$564
Pakistan	13	1,125	10%	\$315
South Africa	25	1,006	30%	\$443
North Macedonia	2	767	100%	\$0
Uganda	1	765	0%	\$180
Hong Kong	9	752	29%	\$929
Serbia	21	749	58%	\$43
France	11	744	67%	\$540
Greece	12	716	66%	\$479

17. Science, Technology, Engineering and Math

Key Facts, STEM

	Journals	Articles	Art%	\$/Art
STEM	3,602	350,764		\$1,186
Fee	1,412	255,098	73%	\$1,630
No-fee	2,190	95,666	27%	

Articles and Journals by Year, STEM

	2019	2018	2017	2016	2015	2014
Journals	3,372	3,401	3,347	3,163	2,933	2,668
%No-fee	60%	61%	62%	62%	63%	63%
Articles	350,764	304,507	264,107	232,170	202,613	181,207
%No-fee	27%	32%	33%	35%	35%	35%
Change	15%	15%	14%	15%	12%	

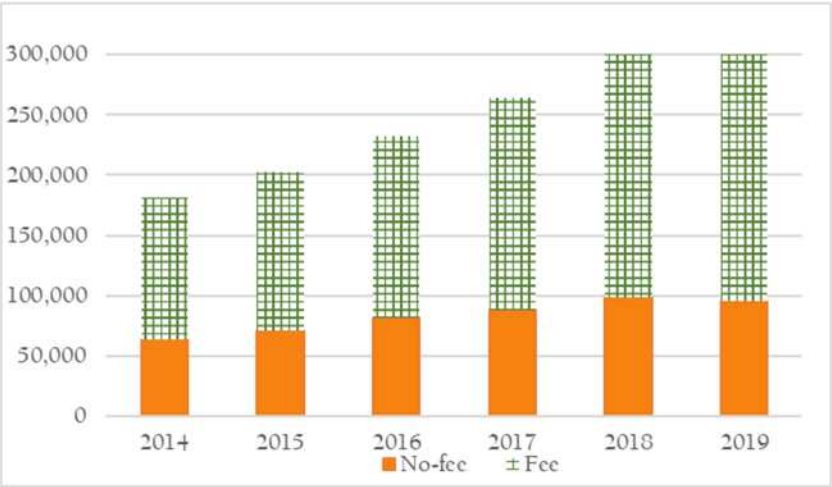
Robust growth every year, recent drop in no-fee percentages.

Article Volume, STEM

	Journals	Articles	%No-fee	\$/article
Largest: 600+	85	191,373	12%	\$1,709
Large: 150-599	259	53,689	26%	\$925
Med.: 60-149	822	54,986	46%	\$495
Small: 20-59	1,755	44,503	65%	\$244
Smallest: 0-19	681	6,213	74%	\$170

The largest journals have *by far* the most articles, more than all others combined, at least partly due to megajournals.

Fee and No-Fee Articles by Year, STEM



Fee Level, STEM

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	320	23%	9%	179,282	70%	51%
\$600-\$1.399	389	28%	11%	39,899	16%	11%
\$200-\$599	251	18%	7%	17,174	7%	5%
\$0.01-\$199	452	32%	13%	18,743	7%	5%
No fee	2,190		61%	95,666		27%

As with biomed, more than half of all articles are in expensive journals.

Fees and Revenue, STEM

	Articles	Revenue	\$/article
\$1,400+	179,282	\$368,564,830	\$2,056
\$600-\$1.399	39,899	\$39,583,329	\$992
\$200-\$599	17,174	\$6,260,157	\$365
\$0.20-\$199	18,743	\$1,472,848	\$79
No fee	95,666		
Total	350,764	\$415,881,164	\$1,186

While the average cost in very expensive journals has only gone up \$48, potential revenues are up \$108 million.

Starting Date, STEM



Region, STEM

Region	Journals	Articles	%No-fee	\$/article
Western Europe	1,007	206,634	18%	\$1,548
Pacific/English	190	53,144	8%	\$1,588
Eastern Europe	808	31,854	63%	\$143
Asia	678	22,402	45%	\$176
Latin America	556	22,081	69%	\$76
Middle East	300	12,624	64%	\$89
Africa	63	2,025	66%	\$124

This time, Pacific/English has lowest no-fee percentage.

Growth and Shrinkage, STEM

Change 2018-19	Count	Percent	Cum%
Grew 25%+	835	25.5%	
Even, $\pm 24.99\%$	1,823	55.6%	81.1%
Shrank 25%+	621	18.9%	
Total	3,279		

Table moved for layout reasons.

Publisher Category, STEM

Category	Journals	Articles	%No-fee	\$/article
Open Access	886	151,891	11%	\$1,482
Traditional	345	73,212	26%	\$1,618
Univ/college	1,913	73,049	67%	\$186
Society/govt	435	51,821	21%	\$1,130
Miscellaneous	23	791	29%	\$276

In a change from GOA4, traditional publishers charge more than OA.

Subjects, STEM

Subject	Journals	Articles	%No-fee	\$/article	Page
Agriculture	552	33,658	30%	\$848	148
Chemistry	181	34,965	16%	\$1,295	160
Computer Science	324	14,640	48%	\$600	163
Earth Sciences	450	23,796	48%	\$778	166
Ecology	367	39,854	29%	\$1,177	169
Engineering	535	50,375	25%	\$1,107	178
Mathematics	266	11,955	45%	\$782	193
Other Sciences	230	70,845	13%	\$1,876	206
Physics	171	34,284	27%	\$1,215	212
Technology	250	21,807	45%	\$848	227
Zoology	276	14,585	27%	\$666	230

Other sciences—read megajournals—has the most articles and highest costs, as well as the lowest no-fee percentage. Page numbers show where the subject chapters start.

Country of Publication, STEM

This table lists countries with more than 800 STEM articles in 2019; another 69 have at least one STEM article. The high costs and extremely low no-fee percentages for Switzerland, the United Kingdom and United States may not be surprising—but note France, with the sixth most articles, *very* low per-article cost, and 97% no-fee articles. And, once again, Columbia and Cuba are entirely fee-free (as are Hungary, Costa Rica, Venezuela, Ecuador, Belarus, Bosnia and Herzegovina, Montenegro and 24 others, but with fewer articles).

Country	Journals	Articles	%no-fee	\$/article
Switzerland	148	90,450	0%	\$1,790
United Kingdom	407	70,145	6%	\$2,004
United States	149	51,691	6%	\$1,620
Germany	120	15,015	62%	\$586
Brazil	279	14,595	59%	\$103
France	51	13,919	97%	\$23
Indonesia	447	9,851	42%	\$61
Netherlands	72	8,394	34%	\$855
Poland	225	7,059	53%	\$285
Russia	113	6,803	77%	\$29
China	57	5,140	47%	\$302
Iran	147	4,875	69%	\$23
Italy	58	4,329	87%	\$73
Turkey	88	4,234	87%	\$17
Ukraine	92	3,799	62%	\$14
Romania	97	2,960	76%	\$33
Spain	75	2,217	79%	\$123
Serbia	57	2,188	57%	\$98
Colombia	80	1,845	97%	\$5
Bulgaria	32	1,733	33%	\$486
India	31	1,719	55%	\$75
Croatia	37	1,497	69%	\$145
Iraq	28	1,463	23%	\$81
South Korea	21	1,451	37%	\$315
Czech Republic	39	1,413	54%	\$145
Mexico	30	1,299	73%	\$67
Malaysia	34	1,200	66%	\$100
Egypt	18	1,078	17%	\$288
Lithuania	20	950	39%	\$428
Cuba	28	892	100%	\$0
Saudi Arabia	6	844	53%	\$592
South Africa	22	801	62%	\$211

18. Humanities & Social Sciences

Key Facts, H&SS

	Journals	Articles	Art%	\$/Art
H&SS	6,949	204,579		\$137
Fee	978	47,797	23%	\$588
No-fee	5,971	156,782	77%	

Articles and Journals by Year, H&SS

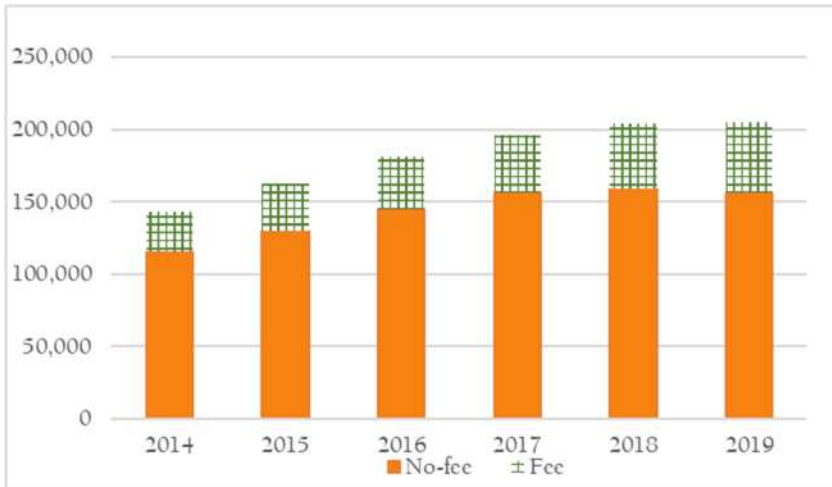
	2019	2018	2017	2016	2015	2014
Journals	6,332	6,660	6,575	6,246	5,785	5,233
%No-fee	86%	86%	86%	87%	87%	87%
Articles	204,579	204,200	195,759	180,942	162,536	142,862
%No-fee	77%	78%	80%	80%	80%	81%
Change	0%	4%	8%	11%	14%	

Article Volume, H&SS

	Journals	Articles	%No-fee	\$/article
Largest: 600+	16	13,176	38%	\$806
Large: 150-599	146	22,152	46%	\$238
Med.: 60-149	888	53,443	75%	\$126
Small: 20-59	4,112	98,938	88%	\$48
Smallest: 0-19	1,787	16,870	89%	\$46

Twice as many largest journals as in GOA4 and almost twice as many articles in them, but that's still a small fragment of H&SS—and only the two largest brackets are mostly fee-based.

Fee and No-Fee Articles by Year, H&SS



Fee Level, H&SS

	Journals	%Fee	%All	Articles	%Fee	%All
\$1,400+	64	7%	1%	5,656	12%	3%
\$600-\$1.399	150	15%	2%	9,472	20%	5%
\$200-\$599	150	15%	2%	7,644	16%	4%
\$0.01-\$199	614	63%	9%	25,025	52%	12%
No fee	5,971		86%	156,782		77%

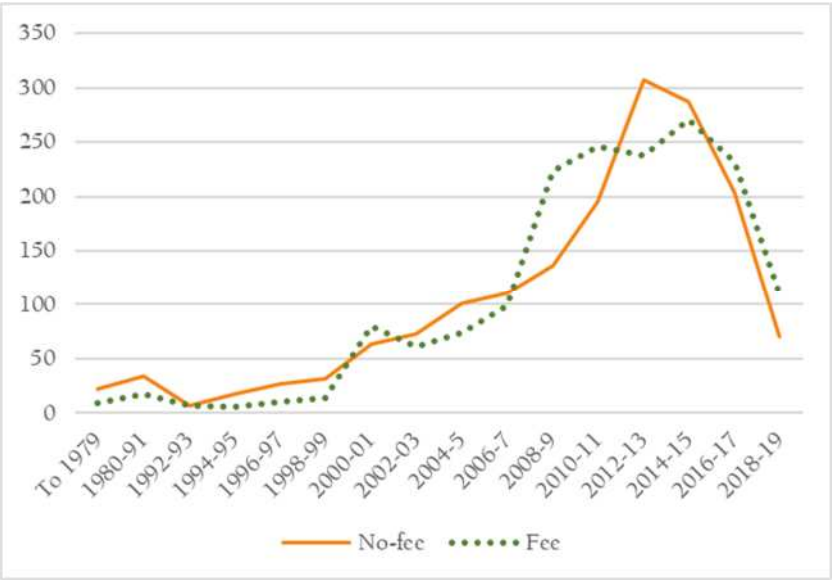
Not only do 77% of articles have no fee at all, half of those with fees have nominal fees.

Fees and Revenue, H&SS

	Articles	Revenue	\$/article
\$1,400+	5,656	\$14,477,170	\$2,560
\$600-\$1.399	9,472	\$9,038,106	\$954
\$200-\$599	7,644	\$2,612,183	\$342
\$0.20-\$199	25,025	\$1,972,636	\$79
No fee	156,782		
Total	204,631	\$28,264,935	\$138

Average cost in the most expensive journals is *higher* than in biomed or STEM—but *total* revenue is smaller than either of the top two journals.

Starting Date, H&SS



Region, H&SS

Region	Journals	Articles	%No-fee	\$/article
Latin America	1,778	58,485	94%	\$10
Western Europe	1,877	54,159	71%	\$392
Eastern Europe	1,235	40,791	71%	\$45
Asia	1,108	22,599	66%	\$34
Middle East	367	12,913	65%	\$65
Pacific/English	511	12,718	83%	\$135
Africa	73	2,914	19%	\$391

The lowest-cost region, Latin America, is now also the most productive region.

Publisher Category, H&SS

Category	Journals	Articles	%No-fee	\$/article
Univ/college	5,402	149,032	84%	\$26
Open Access	764	30,319	42%	\$595
Society/govt	519	14,987	87%	\$58
Miscellaneous	188	7,711	45%	\$687
Traditional	76	2,530	76%	\$23

University and college publishers continue to dominate H&SS publishing. Although the average cost is up \$5 from GOA4, it's still very low.

Growth and Shrinkage, H&SS

Change 2018-19	Count	Percent	Cum%
Grew 25%+	1,443	23.1%	
Even, \pm 24.99%	3,608	57.7%	80.7%
Shrank 25%+	1,206	19.3%	
Total	6,257		

Subjects, H&SS

Subject	Journ	Articles	%No-fee	\$/article	Page
Anthropology	549	15,883	71%	\$136	151
Arts & Architecture	369	10,304	76%	\$120	154
Economics	926	25,862	58%	\$164	172
Education	961	31,758	80%	\$79	175
History	395	10,952	94%	\$9	181
Language & Literature	893	23,086	87%	\$29	184
Law	441	10,629	90%	\$44	187
Library Science	165	3,747	96%	\$26	190
Media & Communications	245	6,659	88%	\$72	196
Miscellany	213	10,210	75%	\$153	203
Philosophy	243	6,453	93%	\$23	209
Political Science	380	9,738	91%	\$43	215
Psychology	241	9,943	51%	\$1,009	218
Religion	288	8,108	67%	\$164	221
Sociology	640	21,247	70%	\$125	224

As in Chapters 16 and 17, this table is alphabetic. Psychology stands out as the only H&SS subject with four-figure average article cost, while history has a single-digit average cost.

Country of Publication

This table includes the 33 countries with at least 1,000 H&SS articles in 2019 (another 74 have fewer articles).

Switzerland stands out for its high average costs—not a lot under twice as much as runner-up United Kingdom and more than three times as much as third-place South Africa.

Brazil continues to have the most journals and the most articles, and although the average cost more than tripled from *GOA4*, it's still lowest of the ten most productive countries.

Colombia, Cuba, Ecuador and Costa Rica stand out for having no fee-based H&SS articles at all (Mexico has a \$0 average cost, but it has one H&SS journal with fees), but that's also true of 43 other countries).

Country	Journals	Articles	%no-fee	\$/article
Brazil	955	36,810	92%	\$14
Indonesia	932	17,893	64%	\$23
Spain	611	15,131	95%	\$20
Russia	167	9,957	88%	\$25
Switzerland	52	8,741	18%	\$1,509
United States	337	8,724	80%	\$167
Poland	286	8,088	74%	\$60
Turkey	211	8,019	74%	\$73
Ukraine	139	7,314	29%	\$84
United Kingdom	284	7,061	40%	\$828
Italy	263	6,808	92%	\$11
Romania	209	5,380	65%	\$32
Colombia	237	5,352	100%	\$0
Argentina	199	4,360	99%	\$0
Germany	105	3,665	68%	\$104
France	167	3,631	97%	\$11
Iran	130	3,560	58%	\$29
Mexico	89	3,408	99%	\$0
Canada	103	2,699	96%	\$50
Netherlands	68	2,520	69%	\$333
Chile	87	2,312	78%	\$17
South Africa	53	2,232	7%	\$497
Serbia	97	2,118	89%	\$10
Portugal	79	1,936	74%	\$208
Cuba	34	1,841	100%	\$0
Norway	85	1,529	89%	\$90
Croatia	67	1,341	99%	\$5
Ecuador	36	1,227	100%	\$0
Czech Republic	62	1,212	94%	\$18
Australia	61	1,160	74%	\$112
Costa Rica	43	1,067	100%	\$0
Lithuania	49	1,061	82%	\$65
South Korea	27	1,031	69%	\$124

19. Agriculture

Key Facts, Agriculture

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	552	33,658			\$848	-17%
Fee	249	23,605	70%	15%	\$1,209	-28%
No-fee	303	10,053	30%	-23%		

Relatively inexpensive, somewhat heavy on fee-based articles.

Articles and Journals by Year, Agriculture

	2019	2018	2017	2016	2015	2014
Journals	520	529	528	503	473	443
%No-fee	54%	55%	55%	56%	56%	57%
Articles	33,658	29,608	27,617	25,092	21,593	18,906
%No-fee	30%	36%	40%	41%	43%	44%
Change	14%	7%	10%	16%	14%	

Strong growth every year except 2018, with rapid recent shift to fees.

Article Volume, Agriculture

	Journals	Articles	%No-fee	\$/article
Largest: 600+	7	8,877	0%	\$2,105
Large: 150-599	32	6,162	19%	\$726
Med.: 60-149	160	10,870	40%	\$367
Small: 20-59	275	7,026	58%	\$189
Smallest: 0-19	78	723	69%	\$79

The largest journals are *by far* the most expensive.

Fees and Revenue, Agriculture

	Journals	Articles	Revenue	\$/article
\$1,400+	37	11,321	\$24,387,650	\$2,154
\$600-\$1,399	41	2,630	\$2,505,659	\$953
\$200-\$599	48	3,490	\$1,160,655	\$333
\$0.20-\$199	123	6,164	\$482,940	\$78
No fee	303	10,053		
Total	552	33,658	\$28,536,903	\$848

Region, Agriculture

Region	Journals	Articles	%No-fee	\$/article
Western Europe	105	14,078	11%	\$1,742
Latin America	129	6,273	48%	\$116
Eastern Europe	124	6,083	51%	\$150
Asia	112	3,474	25%	\$214
Middle East	54	2,492	50%	\$32
Pacific/English	18	916	9%	\$1,634
Africa	10	342	53%	\$141

Typical: Western Europe is the largest and most expensive; Atypical: While Pacific/English is expensive, it's not very active in this field.

Publisher Category, Agriculture

Category	Journals	Articles	%No-fee	\$/article
Univ/college	341	13,670	53%	\$150
Open Access	103	13,163	9%	\$1,651
Society/govt	73	3,825	24%	\$311
Traditional	32	2,778	27%	\$1,259
Miscellaneous	3	222	11%	\$317

Universities publish slightly more articles than OA publishers at less than one-tenth the average cost per article.

Country of Publication, Agriculture, >200 articles in 2019

Country	Journals	Articles	%no-fee	\$/article
Switzerland	14	8,978	0%	\$1,999
Brazil	70	4,546	41%	\$131
United Kingdom	41	3,108	7%	\$1,914
Indonesia	84	1,751	28%	\$48
Russia	15	1,356	42%	\$69
Turkey	20	1,268	69%	\$11
Romania	18	1,062	75%	\$24
Iran	28	930	29%	\$34
United States	16	905	8%	\$1,654
Poland	35	850	52%	\$375
Italy	14	779	77%	\$124
Ukraine	12	730	32%	\$28
Czech Republic	11	590	34%	\$221
China	6	565	33%	\$784
Netherlands	8	336	52%	\$830
Bulgaria	4	324	26%	\$651
Argentina	14	319	49%	\$46
Mexico	6	314	19%	\$194
Cuba	10	312	100%	\$0
South Korea	4	301	0%	\$470
Colombia	12	293	95%	\$2
India	4	290	8%	\$24
Spain	9	283	100%	\$0
Estonia	3	250	11%	\$298
Croatia	5	227	100%	\$0
Slovakia	5	210	32%	\$191

37 more countries with fewer articles. Three countries, all predictable, average more than \$1,500 per article; most others—including Brazil, the second most productive—average two-digit or very low three-digit prices. Spain, Cuba and Croatia are entirely no-fee; India's close

20. Anthropology

Key Facts, Anthropology

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	549	15,883			\$136	-87%
Fee	86	4,639	29%	-52%	\$467	-72%
No-fee	463	11,244	71%	82%		

Almost the flip side of agriculture, with 71% no-fee and very low costs. Includes archaeology and sports sciences.

Articles and Journals by Year, Anthropology

	2019	2018	2017	2016	2015	2014
Journals	514	527	520	504	474	438
%No-fee	83%	84%	85%	86%	86%	87%
Articles	15,883	15,466	15,357	13,854	13,194	11,143
%No-fee	71%	72%	75%	76%	74%	78%
Change	3%	1%	11%	5%	18%	

Slowing growth, and (as usual) the fee journals tend to be larger.

Article Volume, Anthropology

	Journals	Articles	%No-fee	\$/article
Largest: 600+	1	760	0%	\$52
Large: 150-599	7	1,205	14%	\$419
Med.: 60-149	74	4,469	68%	\$179
Small: 20-59	344	8,257	85%	\$90
Smallest: 0-19	123	1,192	89%	\$67

The single largest journal has very low fees; not so the large journals.

Fees and Revenue, Anthropology

	Journals	Articles	Revenue	\$/article
\$1,400+	9	361	\$794,056	\$2,200
\$600-\$1,399	14	857	\$845,987	\$987
\$200-\$599	24	1,323	\$394,330	\$298
\$0.20-\$199	39	2,098	\$131,699	\$63
No fee	463	11,244		
Total	549	15,883	\$2,166,073	\$136

It's mildly interesting that the most revenue is in the \$600-\$1,399 range.

Region, Anthropology

Region	Journals	Articles	%No-fee	\$/article
Western Europe	197	5,192	70%	\$304
Latin America	134	3,980	92%	\$16
Eastern Europe	112	3,908	52%	\$60
Asia	45	1,005	73%	\$51
Pacific/English	34	930	79%	\$44
Middle East	26	858	50%	\$230
Africa	1	10	100%	\$0

Unusual, with Pacific/English's low output and the Middle East having the second highest average fees. As usual, Latin America is low-cost.

Publisher Category, Anthropology

Category	Journals	Articles	%No-fee	\$/article
Univ/college	407	11,592	75%	\$54
Open Access	67	2,200	36%	\$532
Society/govt	56	1,409	89%	\$10
Traditional	13	462	55%	\$759
Miscellaneous	6	220	89%	\$4

Universities dominate, which isn't unusual for H&SS.

Country of Publication, Anthropology, >100 articles in 2019

Country	Journals	Articles	%no-fee	\$/article
Brazil	63	2,420	88%	\$27
Spain	71	1,790	81%	\$52
Poland	27	1,500	33%	\$71
Romania	21	869	34%	\$87
France	29	756	100%	\$0
Indonesia	34	665	70%	\$22
Switzerland	5	651	0%	\$1,006
United States	21	591	71%	\$62
Italy	25	566	100%	\$0
Argentina	26	558	95%	\$1
Turkey	13	435	69%	\$408
United Kingdom	24	430	15%	\$1,560
Iran	10	369	29%	\$38
Colombia	14	312	100%	\$0
Russia	7	291	69%	\$101
Ukraine	10	288	58%	\$26
Germany	9	260	74%	\$295
Mexico	10	247	100%	\$0
Norway	9	201	100%	\$0
Canada	7	185	97%	\$13
Serbia	11	183	96%	\$4
Australia	6	154	88%	\$14
Netherlands	4	146	42%	\$458
Finland	5	133	100%	\$0
China	1	128	100%	\$0
Cuba	5	126	100%	\$0
Montenegro	3	120	50%	\$106
Portugal	6	120	83%	\$29
Croatia	7	109	100%	\$0
Cyprus	1	101	100%	\$0

Thirty other counties with fewer articles.

21. Arts & Architecture

Key Facts, Arts & Architecture

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	369	10,304			\$120	-88%
Fee	42	2,467	24%	-61%	\$499	-70%
No-fee	327	7,837	76%	96%		

Three-quarters no-fee and moderate fees when they do exist.

Articles and Journals by Year, Art & Architecture

	2019	2018	2017	2016	2015	2014
Journals	334	349	339	321	281	259
%No-fee	88%	88%	88%	89%	90%	91%
Articles	10,304	10,566	9,320	8,408	6,992	6,408
%No-fee	76%	72%	80%	83%	84%	85%
Change	-2%	13%	11%	20%	9%	

Article Volume, Arts & Architecture

	Journals	Articles	%No-fee	\$/article
Large: 150-599	11	2,131	39%	\$304
Med.: 60-149	38	2,435	72%	\$138
Small: 20-59	212	4,727	92%	\$48
Smallest: 0-19	108	1,011	89%	\$22

No largest journals, but the usual size/expense correlation (that is, larger journals tend to have more and higher fees, despite economies of scale).

Fees and Revenue, Arts & Architecture

	Journals	Articles	Revenue	\$/article
\$1,400+	4	183	\$287,030	\$1,568
\$600-\$1,399	8	698	\$693,993	\$994
\$200-\$599	10	373	\$119,001	\$319
\$0.20-\$199	20	1,213	\$131,809	\$109
No fee	327	7,837		
Total	369	10,304	\$1,231,833	\$120

Few expensive journals, and they're only borderline expensive.

Region, Arts & Architecture

Region	Journals	Articles	%No-fee	\$/article
Western Europe	164	3,896	72%	\$246
Latin America	81	2,497	100%	\$0
Eastern Europe	54	1,671	83%	\$29
Middle East	14	1,074	19%	\$107
Pacific/English	27	682	77%	\$155
Asia	28	462	83%	\$12
Africa	1	22	100%	\$0

Latin America and Eastern Europe, with almost no fees, publish more articles combined than Western Europe (also mostly no-fee, to be sure).

Publisher Category, Arts & Humanities

Category	Journals	Articles	%No-fee	\$/article
Univ/college	284	7,130	83%	\$40
Society/govt	26	1,314	82%	\$27
Open Access	39	1,013	41%	\$454
Traditional	12	719	46%	\$626
Miscellaneous	8	128	87%	\$22

Dominated by university publishers, as you'd expect.

Country of Publication, Arts & Architecture, 50+ 2019 articles

Country	Journals	Articles	%no-fee	\$/article
Brazil	35	1,428	100%	\$0
Spain	56	1,146	98%	\$8
Italy	34	898	80%	\$41
Russia	8	529	71%	\$85
United Kingdom	23	455	55%	\$497
Switzerland	2	412	0%	\$1,006
United Arab Emirates	1	400	0%	\$150
Argentina	18	386	100%	\$0
United States	19	383	74%	\$53
Turkey	9	370	46%	\$45
Netherlands	10	361	46%	\$642
Indonesia	24	349	77%	\$16
Ukraine	8	327	72%	\$6
Colombia	9	262	100%	\$0
Egypt	1	240	0%	\$150
Canada	4	222	100%	\$0
France	9	221	100%	\$0
Moldova	3	214	79%	\$9
Serbia	10	150	100%	\$0
Poland	8	144	100%	\$0
Ecuador	5	143	100%	\$0
Chile	7	130	100%	\$0
Portugal	10	124	82%	\$10
Romania	5	123	100%	\$0
Norway	7	107	74%	\$275
Croatia	7	91	100%	\$0
Mexico	4	78	100%	\$0
Australia	3	68	16%	\$1,257
China	1	66	100%	\$0

Consider the four largest: free, \$8, \$41 and \$85 respectively. Another 20 countries publish fewer articles—all free except Germany and Iraq

22. Biology

Key Facts, Biology

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	424	51,081			\$1,872	83%
Fee	279	45,381	89%	45%	\$2,107	26%
No-fee	145	5,700	11%	-71%		

More expensive than medicine, with few no-fee articles,

Articles and Journals by Year, Biology

	2019	2018	2017	2016	2015	2014
Journals	393	408	402	374	353	330
%No-fee	33%	34%	34%	33%	33%	32%
Articles	51,081	43,105	38,445	33,986	33,293	30,004
%No-fee	11%	11%	13%	13%	14%	13%
Change	19%	12%	13%	2%	11%	

Healthy growth for four years, more rapid in 2019.

Article Volume, Biology

	Journals	Articles	%No-fee	\$/article
Largest: 600+	26	26,956	2%	\$2,156
Large: 150-599	66	13,644	11%	\$1,990
Med.: 60-149	81	5,269	24%	\$1,265
Small: 20-59	176	4,682	42%	\$718
Smallest: 0-19	75	530	53%	\$571

Largest journals dominate, with more than half of all articles in one-sixteenth of the active journals.

Fees and Revenue, Biology

	Journals	Articles	Revenue	\$/article
\$1,400+	160	37,749	\$90,436,664	\$2,396
\$600-\$1.399	47	4,284	\$4,530,642	\$1,058
\$200-\$599	29	1,229	\$482,154	\$392
\$0.20-\$199	43	2,119	\$156,787	\$74
No fee	145	5,700		
Total	424	51,081	\$95,606,247	\$1,872

The most expensive journals dominate the field, with very high fees.

Region, Biology

Region	Journals	Articles	%No-fee	\$/article
Western Europe	194	33,938	3%	\$2,297
Pacific/English	49	8,428	6%	\$1,856
Eastern Europe	63	3,778	56%	\$89
Asia	58	2,006	33%	\$291
Latin America	29	1,704	59%	\$336
Middle East	26	1,041	47%	\$487
Africa	5	186	27%	\$130

Not surprising: Western Europe, with by far the highest fees and almost no no-fee publishing, dominates the subject.

Publisher Category, Biology

Category	Journals	Articles	%No-fee	\$/article
Open Access	185	32,165	3%	\$2,072
Univ/college	131	7,532	48%	\$513
Traditional	67	7,329	7%	\$2,551
Society/govt	39	4,032	12%	\$1,589
Miscellaneous	2	23	13%	\$97

Traditional publishers charge even more, but OA publishers account for most of the articles.

Country of Publication, Biology, 70+ 2019 articles

Another 21 countries publish fewer articles. No surprises at the top.

Country	Journals	Articles	%no-fee	\$/article
United Kingdom	125	16,007	0%	\$2,292
Switzerland	28	14,518	0%	\$2,244
United States	41	7,988	4%	\$1,908
Netherlands	12	2,099	1%	\$3,735
Ukraine	14	1,902	43%	\$22
Brazil	16	1,112	46%	\$484
India	9	670	34%	\$334
Indonesia	33	564	31%	\$57
Iran	18	552	69%	\$74
Germany	10	516	49%	\$1,149
Russia	8	457	98%	\$2
France	3	409	100%	\$0
Saudi Arabia	1	372	0%	\$1,250
Poland	17	363	28%	\$562
Bulgaria	9	362	17%	\$242
Colombia	5	310	100%	\$0
Australia	4	284	9%	\$1,404
Slovakia	2	216	100%	\$0
China	3	202	76%	\$523
Pakistan	3	187	4%	\$279
Serbia	2	174	100%	\$0
Romania	6	168	100%	\$0
Italy	8	148	77%	\$83
Finland	2	146	0%	\$846
South Korea	2	139	0%	\$483
Kenya	1	115	0%	\$190
Turkey	5	103	100%	\$0
Chile	2	96	0%	\$350
Malaysia	2	85	29%	\$78
New Zealand	2	79	100%	\$0
Canada	2	77	100%	\$0
Austria	2	74	0%	\$1,333

23. Chemistry

Key Facts, Chemistry

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	181	34,965			\$1,295	27%
Fee	87	29,262	84%	37%	\$1,547	-8%
No-fee	94	5,703	16%	-58%		

The fees, where charged, are a bit lower than average overall.

Articles and Journals by Year, Chemistry

	2019	2018	2017	2016	2015	2014
Journals	169	166	165	156	144	126
%No-fee	51%	55%	55%	56%	56%	56%
Articles	34,965	28,088	23,211	13,690	12,005	9,004
%No-fee	16%	17%	18%	30%	33%	31%
Change	24%	21%	70%	14%	33%	

Solid growth every year, with extreme growth in 2017.

Article Volume, Chemistry

	Journals	Articles	%No-fee	\$/article
Largest: 600+	12	25,314	6%	\$1,546
Large: 150-599	16	3,710	37%	\$706
Med.: 60-149	53	3,746	35%	\$820
Small: 20-59	77	1,973	65%	\$202
Smallest: 0-19	23	222	77%	\$221

More than 70% of articles appear in a dozen very large journals.

Fees and Revenue, Chemistry

	Journals	Articles	Revenue	\$/article
\$1,400+	25	18,566	\$36,463,840	\$1,964
\$600-\$1.399	31	8,351	\$8,062,497	\$965
\$200-\$599	14	1,816	\$703,776	\$388
\$0.20-\$199	17	529	\$45,810	\$87
No fee	94	5,703		
Total	181	34,965	\$45,275,923	\$1,295

A majority of articles are in expensive journals.

Region, Chemistry

Region	Journals	Articles	%No-fee	\$/article
Western Europe	63	28,505	10%	\$1,491
Pacific/English	8	2,137	15%	\$857
Eastern Europe	43	1,776	61%	\$286
Asia	32	842	58%	\$65
Middle East	18	812	76%	\$223
Latin America	13	719	35%	\$258
Africa	4	174	56%	\$79

Western Europe dominates chemistry publishing...

Publisher Category, Chemistry

Category	Journals	Articles	%No-fee	\$/article
Open Access	59	20,138	2%	\$1,810
Society/govt	29	10,322	29%	\$585
Univ/college	69	2,408	78%	\$42
Traditional	23	2,021	23%	\$1,326
Miscellaneous	1	76	0%	\$180

...as do OA publishers, albeit not quite so thoroughly.

Country of Publication, Chemistry, 30+ 2019 articles

Switzerland alone publishes a majority of chemistry. Another six countries publish fewer articles.

Country	Journals	Articles	%no-fee	\$/article
Switzerland	23	17,755	0%	\$1,902
United Kingdom	24	8,707	25%	\$820
United States	6	2,083	13%	\$879
Germany	5	989	34%	\$678
Netherlands	6	817	20%	\$1,079
Indonesia	24	597	48%	\$87
Brazil	5	558	16%	\$333
Iran	13	546	100%	\$0
Poland	15	525	13%	\$875
Russia	5	304	100%	\$0
Croatia	5	221	100%	\$0
France	4	200	100%	\$0
Serbia	5	197	62%	\$46
Saudi Arabia	1	138	0%	\$1,250
Slovenia	1	114	100%	\$0
India	2	103	57%	\$26
Hungary	2	99	100%	\$0
Ukraine	4	98	69%	\$1
China	3	96	100%	\$0
Turkey	3	90	77%	\$70
Cuba	2	87	100%	\$0
Morocco	2	82	7%	\$167
Kazakhstan	2	65	28%	\$190
Ethiopia	1	58	100%	\$0
Canada	2	54	100%	\$0
Moldova	2	52	38%	\$9
Romania	1	51	100%	\$0
Czech Republic	1	50	0%	\$538
Iraq	1	38	0%	\$63
Italy	1	37	0%	\$1,064
Colombia	2	34	100%	\$0
South Africa	1	34	100%	\$0

24. Computer Science

Key Facts, Computer Science

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	324	14,640			\$600	-41%
Fee	125	7,545	52%	-16%	\$1,165	-30%
No-fee	199	7,095	48%	25%		

Relatively inexpensive for science, with almost half no-fee articles.

Articles and Journals by Year, Computer Science

	2019	2018	2017	2016	2015	2014
Journals	294	301	299	274	257	220
%No-fee	60%	62%	63%	62%	63%	65%
Articles	14,640	14,257	12,205	11,651	10,309	8,380
%No-fee	48%	50%	56%	54%	51%	54%
Change	3%	17%	5%	13%	23%	

Article Volume, Computer Science

	Journals	Articles	%No-fee	\$/article
Largest: 600+	3	2,744	42%	\$520
Large: 150-599	14	3,031	35%	\$1,139
Med.: 60-149	62	4,292	46%	\$606
Small: 20-59	172	3,943	62%	\$310
Smallest: 0-19	73	630	67%	\$143

Unusual pattern, with most articles in the three middle sizes and the largest journals less expensive than large or medium.

Fees and Revenue, Computer Science

	Journals	Articles	Revenue	\$/article
\$1,400+	21	2,486	\$5,653,982	\$2,274
\$600-\$1,399	40	3,149	\$2,762,190	\$877
\$200-\$599	22	789	\$319,959	\$406
\$0.20-\$199	42	1,121	\$53,841	\$48
No fee	199	7,095		
Total	324	14,640	\$8,789,971	\$600

The expensive journals average very expensive.

Region, Computer Science

Region	Journals	Articles	%No-fee	\$/article
Western Europe	106	6,440	34%	\$1,030
Eastern Europe	75	2,743	81%	\$48
Pacific/English	22	2,737	33%	\$696
Asia	82	1,702	60%	\$32
Middle East	18	568	77%	\$62
Latin America	17	387	88%	\$9
Africa	4	63	14%	\$440

Another case where Western Europe is considerably more expensive than Pacific/English (and, of course, everybody else).

Publisher Category, Computer Science

Category	Journals	Articles	%No-fee	\$/article
Univ/college	173	5,998	75%	\$51
Open Access	83	4,020	34%	\$874
Traditional	25	3,644	11%	\$1,350
Society/govt	43	978	83%	\$53

Universities publish more, but traditional publishers charge the most.

Country of Publication, Computer Science, 36+ 2019 articles

The US takes a slight lead; UK charges more than twice as much. Another 19 countries had fewer articles (all but five 100% no-fee).

Country	Journals	Articles	%no-fee	\$/article
United States	14	2,300	27%	\$700
United Kingdom	50	2,281	5%	\$1,624
Germany	15	1,871	78%	\$163
Indonesia	64	1,344	52%	\$26
Switzerland	11	1,082	0%	\$1,039
Russia	13	841	99%	\$0
Netherlands	6	785	21%	\$1,909
Ukraine	12	613	58%	\$10
Poland	13	453	91%	\$10
Romania	14	319	63%	\$179
Iran	11	272	69%	\$42
Australia	3	258	100%	\$0
Brazil	7	237	80%	\$15
Saudi Arabia	1	217	100%	\$0
Canada	4	177	12%	\$1,664
Spain	7	136	100%	\$0
China	3	123	100%	\$0
France	3	104	100%	\$0
Belarus	3	97	100%	\$0
Croatia	3	93	87%	\$65
Serbia	3	87	100%	\$0
Portugal	4	73	100%	\$0
India	3	65	100%	\$0
South Africa	3	63	14%	\$440
Latvia	2	62	37%	\$704
Belgium	6	60	100%	\$0
Colombia	3	57	100%	\$0
Czech Republic	4	57	53%	\$239
Singapore	2	52	100%	\$0
Pakistan	2	41	100%	\$0
Bulgaria	3	39	85%	\$9
Cuba	1	36	100%	\$0

25. Earth Sciences

Key Facts, Earth Sciences

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	450	23,796			\$778	-24%
Fee	127	12,453	52%	-14%	\$1,487	-11%
No-fee	323	11,343	48%	23%		

High percentage of no-fee articles for STEM; moderate fees.

Articles and Journals by Year, Earth Sciences

	2019	2018	2017	2016	2015	2014
Journals	423	429	429	412	387	361
%No-fee	71%	72%	73%	73%	74%	73%
Articles	23,796	21,571	18,139	17,632	15,172	13,368
%No-fee	48%	49%	56%	59%	59%	63%
Change	10%	19%	3%	16%	13%	

Article Volume, Earth Sciences

	Journals	Articles	%No-fee	\$/article
Largest: 600+	4	6,343	26%	\$1,492
Large: 150-599	25	4,958	22%	\$1,045
Med.: 60-149	84	5,555	56%	\$480
Small: 20-59	242	6,076	78%	\$186
Smallest: 0-19	95	864	85%	\$86

Typical price:size and no-fee:size correlation except that lowest percentage of no-fee is in large, not largest.

Fees and Revenue, Earth Sciences

	Journals	Articles	Revenue	\$/article
\$1,400+	31	6,924	\$14,093,623	\$2,035
\$600-\$1.399	47	4,098	\$4,139,061	\$1,010
\$200-\$599	20	547	\$220,454	\$403
\$0.20-\$199	29	884	\$61,045	\$69
No fee	323	11,343		
Total	450	23,796	\$18,514,182	\$778

Expensive journals tend to be *very* expensive.

Region, Earth Sciences

Region	Journals	Articles	%No-fee	\$/article
Western Europe	154	14,845	29%	\$1,169
Latin America	91	2,747	98%	\$2
Eastern Europe	109	2,598	86%	\$82
Asia	47	1,910	55%	\$170
Middle East	29	982	89%	\$5
Pacific/English	16	524	17%	\$1,173
Africa	4	190	86%	\$11

The cost variations among regions could scarcely be starker.

Publisher Category, Earth Sciences

Category	Journals	Articles	%No-fee	\$/article
Open Access	106	12,989	28%	\$1,178
Univ/college	240	6,477	87%	\$55
Traditional	41	2,249	51%	\$824
Society/govt	60	2,034	45%	\$470
Miscellaneous	3	47	26%	\$1,109

OA publishers charge 21 times as much as university publishers.

Country of Publication, Earth Sciences, 80+ 2019 articles

Note the startling contrasts among the top six countries. Another 23 countries with fewer articles, including 15 with no fees

Country	Journals	Articles	%no-fee	\$/article
Switzerland	16	7,305	0%	\$1,742
Germany	32	3,526	68%	\$319
Brazil	55	1,945	97%	\$3
United Kingdom	34	1,872	4%	\$1,619
China	8	989	80%	\$17
Russia	18	879	94%	\$6
Poland	27	692	72%	\$270
Spain	23	552	88%	\$162
Iran	18	536	81%	\$10
Indonesia	25	497	39%	\$75
United States	12	451	6%	\$1,362
France	10	436	87%	\$185
Netherlands	9	421	76%	\$417
Turkey	9	328	100%	\$0
Italy	9	273	85%	\$126
Mexico	6	214	100%	\$0
Romania	18	178	100%	\$0
Colombia	7	167	100%	\$0
Ukraine	8	162	56%	\$13
Serbia	9	158	100%	\$0
Japan	4	146	3%	\$1,429
Croatia	7	145	100%	\$0
Chile	6	134	100%	\$0
South Africa	1	133	100%	\$0
Portugal	4	121	100%	\$0
Cuba	4	119	100%	\$0
Egypt	2	118	100%	\$0
Hungary	2	106	100%	\$0
Argentina	7	90	100%	\$0
Austria	6	87	15%	\$456
Greece	2	87	100%	\$0
Finland	3	84	45%	\$526
South Korea	2	84	0%	\$394

26. Ecology

Key Facts, Ecology

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	367	39,854			\$1,177	15%
Fee	151	28,341	71%	16%	\$1,655	-1%
No-fee	216	11,513	29%	-26%		

Typical STEM profile in all respects.

Articles and Journals by Year, Ecology

	2019	2018	2017	2016	2015	2014
Journals	345	342	334	313	284	255
%No-fee	58%	61%	61%	61%	62%	62%
Articles	39,854	30,870	21,877	18,177	14,422	12,466
%No-fee	29%	34%	33%	36%	34%	37%
Change	29%	41%	20%	26%	16%	

Strong to very strong growth, more than tripling over six years.

Article Volume, Ecology

	Journals	Articles	%No-fee	\$/article
Largest: 600+	7	23,315	23%	\$1,453
Large: 150-599	27	5,973	10%	\$1,222
Med.: 60-149	75	5,018	38%	\$720
Small: 20-59	185	4,942	62%	\$398
Smallest: 0-19	73	606	77%	\$260

Another case where the lowest no-fee percentage is in large rather than largest journals.

Fees and Revenue, Ecology

	Journals	Articles	Revenue	\$/article
\$1,400+	50	21,605	\$42,520,111	\$1,968
\$600-\$1.399	43	3,678	\$3,818,824	\$1,038
\$200-\$599	25	1,656	\$475,280	\$287
\$0.20-\$199	33	1,402	\$88,470	\$63
No fee	216	11,513		
Total	367	39,854	\$46,902,684	\$1,177

The priciest journals yield more than half of articles and 91% of revenue.

Region, Ecology

Region	Journals	Articles	%No-fee	\$/article
Western Europe	112	30,524	22%	\$1,431
Latin America	69	2,317	78%	\$21
Eastern Europe	72	2,300	52%	\$192
Pacific/English	36	2,124	23%	\$1,151
Asia	42	1,627	34%	\$141
Middle East	27	746	61%	\$43
Africa	9	216	89%	\$65

Western Europe dominates, with three-quarters of all articles/

Publisher Category, Ecology

Category	Journals	Articles	%No-fee	\$/article
Open Access	98	21,142	7%	\$1,623
Traditional	51	10,954	53%	\$989
Univ/college	165	5,149	63%	\$126
Society/govt	47	2,427	41%	\$439
Miscellaneous	6	182	34%	\$205

Unusual: a majority of traditional-publisher articles are no-fee.

Country of Publication, Ecology, 50+ 2019 articles

Another set of extremes in the top six countries. 22 more countries with fewer articles, all but three of them with no fees at all,

Country	Journals	Articles	%no-fee	\$/article
Switzerland	13	16,677	0%	\$1,868
France	8	5,691	100%	\$5
United Kingdom	52	4,647	7%	\$2,059
Germany	14	2,441	15%	\$877
United States	29	1,800	22%	\$1,254
Brazil	42	1,604	70%	\$27
Indonesia	23	1,107	18%	\$138
Poland	24	925	40%	\$122
Iran	20	568	63%	\$41
Netherlands	7	544	23%	\$1,352
Russia	10	383	84%	\$86
Spain	8	276	72%	\$131
Canada	5	275	15%	\$686
Mexico	5	258	88%	\$23
Lithuania	3	226	3%	\$956
Ukraine	8	224	38%	\$44
China	5	183	68%	\$290
Costa Rica	3	176	100%	\$0
Bulgaria	7	168	48%	\$335
Italy	4	151	30%	\$182
South Africa	4	133	87%	\$99
Croatia	3	125	61%	\$110
Thailand	2	101	35%	\$196
Romania	5	98	100%	\$0
Cuba	2	96	100%	\$0
Turkey	4	85	100%	\$0
Colombia	6	78	100%	\$0
Malaysia	5	76	100%	\$0
Chile	4	64	100%	\$0
Morocco	3	61	100%	\$0
Iraq	1	56	0%	\$100
Denmark	1	54	100%	\$0

27. Economics

Key Facts, Economics

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	926	25,862			\$164	-84%
Fee	245	10,814	42%	-32%	\$392	-77%
No-fee	681	15,048	58%	50%		

More fee articles than most H&SS, but lower prices for fee articles,

Articles and Journals by Year, Economics

	2019	2018	2017	2016	2015	2014
Journals	841	888	881	823	746	651
%No-fee	73%	74%	74%	75%	75%	75%
Articles	25,862	25,284	25,059	23,868	21,197	18,812
%No-fee	58%	62%	65%	63%	66%	65%
Change	2%	1%	5%	13%	13%	

Fairly stable since 2017, bur with slow increase in fee percentage.

Article Volume, Economics

	Journals	Articles	%No-fee	\$/article
Largest: 600+	1	778	0%	\$23
Large: 150-599	30	4,582	25%	\$268
Med.: 60-149	107	6,041	50%	\$250
Small: 20-59	508	11,667	74%	\$105
Smallest: 0-19	280	2,794	82%	\$92

Unusual: the single largest journal has a lower average cost than the average of any other level, even those that are mostly no-fee.

Fees and Revenue, Economics

	Journals	Articles	Revenue	\$/article
\$1,400+	16	447	\$1,205,689	\$2,697
\$600-\$1,399	31	2,175	\$1,934,914	\$890
\$200-\$599	35	2,051	\$686,723	\$335
\$0.20-\$199	163	6,141	\$413,301	\$67
No fee	681	15,048		
Total	926	25,862	\$4,240,627	\$164

Also unusual, with more revenue from \$600-\$1,399 journals.

Region, Economics

Region	Journals	Articles	%No-fee	\$/article
Eastern Europe	279	10,197	49%	\$97
Asia	223	4,874	65%	\$35
Latin America	184	3,847	100%	\$1
Western Europe	128	3,375	41%	\$761
Middle East	67	2,255	39%	\$146
Pacific/English	35	861	82%	\$31
Africa	10	453	21%	\$341

Distinctive, with relatively few articles in higher-priced regions.

Publisher Category, Economics

Category	Journals	Articles	%No-fee	\$/article
Univ/college	679	17,426	64%	\$43
Open Access	136	4,782	39%	\$323
Traditional	43	1,601	20%	\$1,164
Society/govt	57	1,542	78%	\$48
Miscellaneous	11	511	89%	\$4

Mostly universities, but traditional publishers charge the most.

Country of Publication, Economics, 100+ 2019 articles

Low-cost or no-cost for the eight largest countries. Another 36 countries with fewer articles, 27 of them entirely no-fee.

Country	Journals	Articles	%no-fee	\$/article
Indonesia	192	3,871	62%	\$28
Ukraine	40	3,097	8%	\$145
Brazil	96	2,434	100%	\$0
Poland	63	1,695	61%	\$140
Romania	60	1,628	53%	\$31
Turkey	38	1,552	32%	\$193
Russia	32	1,520	94%	\$9
United Kingdom	43	1,356	14%	\$1,389
Switzerland	8	705	8%	\$925
Iran	26	614	62%	\$24
Colombia	36	595	100%	\$0
Serbia	23	548	68%	\$33
Canada	8	504	100%	\$0
Spain	29	456	97%	\$10
South Korea	9	400	73%	\$139
Lithuania	8	300	37%	\$229
United States	18	291	45%	\$93
Mexico	14	290	100%	\$0
Pakistan	10	290	48%	\$26
Croatia	15	266	93%	\$24
Italy	14	230	84%	\$22
Morocco	2	219	15%	\$96
Argentina	13	203	100%	\$0
Czech Republic	10	179	64%	\$110
Latvia	2	179	11%	\$577
South Africa	6	173	0%	\$772
Belarus	2	158	35%	\$98
Slovenia	7	144	100%	\$0
Montenegro	2	134	100%	\$0
India	4	127	100%	\$0
Netherlands	7	126	71%	\$69
Germany	5	125	100%	\$0

28. Education

Key Facts, Education

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	961	31,758			\$79	-92%
Fee	181	6,382	20%	-67%	\$393	-77%
No-fee	780	25,376	80%	106%		

Even more no-fee and lower priced than H&SS as a whole.

Articles and Journals by Year, Education

	2019	2018	2017	2016	2015	2014
Journals	883	931	923	861	792	712
%No-fee	81%	81%	81%	83%	84%	85%
Articles	31,758	31,041	28,838	26,282	22,065	19,375
%No-fee	80%	80%	81%	82%	82%	83%
Change	2%	8%	10%	19%	14%	

Almost no growth after four good years.

Article Volume, Education

	Journals	Articles	%No-fee	\$/article
Largest: 600+	2	1,735	100%	\$0
Large: 150-599	24	3,800	65%	\$210
Med.: 60-149	164	10,369	76%	\$93
Small: 20-59	554	13,651	83%	\$46
Smallest: 0-19	217	2,203	86%	\$54

No fees for the largest journals, mostly low fees elsewhere.

Fees and Revenue, Education

	Journals	Articles	Revenue	\$/article
\$1,400+	8	395	\$824,092	\$2,086
\$600-\$1,399	19	947	\$948,543	\$1,002
\$200-\$599	21	1,310	\$519,120	\$396
\$0.20-\$199	133	3,730	\$215,827	\$58
No fee	780	25,376		
Total	961	31,758	\$2,507,582	\$79

Some small journals with big fees,

Region, Education

Region	Journals	Articles	%No-fee	\$/article
Latin America	246	11,807	100%	\$0
Western Europe	198	5,844	72%	\$233
Asia	250	5,842	57%	\$42
Eastern Europe	89	2,639	64%	\$37
Middle East	66	2,595	85%	\$20
Pacific/English	99	2,548	80%	\$222
Africa	13	483	20%	\$389

Latin America doesn't charge fees for education OA. Period.

Publisher Category, Education

Category	Journals	Articles	%No-fee	\$/article
Univ/college	765	25,398	83%	\$25
Open Access	86	2,712	60%	\$280
Society/govt	79	2,501	81%	\$195
Traditional	20	757	47%	\$831
Miscellaneous	11	390	100%	\$0

Mostly universities, as you might expect.

Country of Publication, Education, 130+ 2019 articles

The US stands out among the seven largest because it has fees averaging more than \$22. (\$291 more, actually). Another 43 with fewer articles, including 35 with no fees.

Country	Journals	Articles	%no-fee	\$/article
Brazil	144	6,906	100%	\$0
Indonesia	217	5,010	56%	\$22
Spain	76	1,949	98%	\$7
Turkey	43	1,815	96%	\$12
United States	66	1,763	76%	\$313
Cuba	15	1,481	100%	\$0
Mexico	11	1,359	100%	\$0
Germany	18	914	39%	\$269
Ukraine	20	881	19%	\$29
United Kingdom	34	837	42%	\$688
Colombia	27	759	100%	\$0
Iran	17	557	68%	\$22
Canada	22	522	99%	\$9
Switzerland	3	504	9%	\$902
Italy	13	502	100%	\$0
Russia	8	487	84%	\$89
South Africa	11	423	9%	\$444
Argentina	14	323	100%	\$0
Norway	16	305	88%	\$140
Costa Rica	6	251	100%	\$0
Australia	9	212	67%	\$48
France	7	210	73%	\$105
Romania	11	204	90%	\$6
Czech Republic	8	183	92%	\$8
South Korea	5	165	55%	\$190
Portugal	9	161	100%	\$0
Serbia	8	157	100%	\$0
Poland	9	150	100%	\$0
Iraq	2	144	0%	\$123
Peru	5	141	100%	\$0
Chile	6	134	100%	\$0

29. Engineering

Key Facts, Engineering

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	535	50,375			\$1,107	8%
Fee	183	37,642	75%	22%	\$1,481	-11%
No-fee	352	12,733	25%	-35%		

Typical STEM profile, but less pricey than some.

Articles and Journals by Year, Engineering

	2019	2018	2017	2016	2015	2014
Journals	505	498	479	450	420	374
%No-fee	65%	67%	67%	68%	69%	69%
Articles	50,375	36,064	26,487	22,754	20,034	17,396
%No-fee	25%	35%	45%	50%	54%	55%
Change	40%	36%	16%	14%	15%	

Always strong growth, very strong in the past two years.

Article Volume, Engineering

	Journals	Articles	%No-fee	\$/article
Largest: 600+	11	26,962	0%	\$1,770
Large: 150-599	41	7,944	39%	\$443
Med.: 60-149	123	7,997	53%	\$332
Small: 20-59	249	6,372	68%	\$267
Smallest: 0-19	111	1,100	82%	\$139

Classic correlation of journal size to price and (inverse) no-fee percent.

Fees and Revenue, Engineering

	Journals	Articles	Revenue	\$/article
\$1,400+	41	26,692	\$49,554,740	\$1,857
\$600-\$1,399	43	4,667	\$4,696,177	\$1,006
\$200-\$599	37	2,972	\$1,196,964	\$403
\$0.20-\$199	62	3,311	\$306,251	\$92
No fee	352	12,733		
Total	535	50,375	\$55,754,132	\$1,107

8% of journals take in 89% of revenues, publish 53% of articles.

Region, Engineering

Region	Journals	Articles	%No-fee	\$/article
Western Europe	109	16,799	9%	\$1,555
Pacific/English	16	16,003	1%	\$1,724
Eastern Europe	141	7,187	55%	\$127
Asia	116	4,446	55%	\$172
Middle East	56	2,792	69%	\$91
Latin America	82	2,638	94%	\$11
Africa	15	510	53%	\$153

Typical STEM profile, but perhaps extreme in fee differentials.

Publisher Category, Engineering

Category	Journals	Articles	%No-fee	\$/article
Society/govt	41	16,743	5%	\$1,633
Univ/college	322	14,400	62%	\$186
Open Access	111	13,248	12%	\$1,427
Traditional	58	5,907	23%	\$1,155
Miscellaneous	3	77	79%	\$7

Societies stand out as even more expensive than OA publishers.

Country of Publication, Engineering, 120+ 2019 articles

The top three stand in stark contrast to #4. Another 32 with fewer articles, 26 with no fees, one (Australia) with the highest costs. Table compressed vertically to allow extra rows.

Country	Journals	Articles	%no-fee	\$/article
United States	10	15,906	1%	\$1,726
Switzerland	12	7,480	0%	\$1,901
United Kingdom	58	6,462	7%	\$1,594
Russia	18	1,595	74%	\$23
Netherlands	9	1,473	16%	\$857
China	13	1,444	30%	\$432
Indonesia	72	1,408	65%	\$14
Brazil	23	1,209	86%	\$25
Poland	38	1,189	49%	\$259
Iran	26	1,067	88%	\$10
Serbia	13	872	27%	\$123
Turkey	14	844	100%	\$0
Malaysia	12	737	59%	\$112
Colombia	28	727	100%	\$0
Ukraine	17	697	57%	\$18
Romania	16	616	66%	\$13
South Korea	6	583	89%	\$55
Croatia	7	552	26%	\$357
Germany	11	435	54%	\$249
Iraq	8	423	3%	\$74
Lithuania	6	416	19%	\$435
Greece	2	383	33%	\$189
Czech Republic	7	347	70%	\$13
Egypt	3	335	2%	\$634
Italy	2	263	100%	\$0
Bosnia and Herzegovina	3	229	100%	\$0
Nigeria	2	207	34%	\$122
Belarus	3	173	100%	\$0
Slovenia	2	161	0%	\$315
South Africa	5	153	37%	\$342
Hungary	3	147	100%	\$0
Spain	5	133	43%	\$415
Costa Rica	2	124	100%	\$0
France	6	122	0%	\$896
Algeria	5	120	100%	\$0

30. History

Key Facts, History

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	395	10,952			\$9	-99%
Fee	16	694	6%	-90%	\$143	-91%
No-fee	379	10,258	94%	141%		

Extremely low costs and high no-fee percentage, even for H&SS.

Articles and Journals by Year, History

	2019	2018	2017	2016	2015	2014
Journals	358	380	376	352	332	306
%No-fee	96%	96%	96%	97%	96%	96%
Articles	10,952	11,223	10,785	10,306	10,340	9,222
%No-fee	94%	93%	95%	95%	95%	96%
Change	-2%	4%	5%	0%	12%	

Steady: very little change since 2015.

Article Volume, History

	Journals	Articles	%No-fee	\$/article
Largest: 600+	2	832	100%	\$0
Large: 150-599	5	429	57%	\$165
Med.: 60-149	42	2,387	86%	\$6
Small: 20-59	252	6,546	98%	\$2
Smallest: 0-19	94	758	99%	\$3

Another H&SS field where the largest journals are entirely no-fee.

Fees and Revenue, History

	Journals	Articles	Revenue	\$/article
\$200-\$599	2	189	\$73,005	\$386
\$0.20-\$199	14	505	\$26,287	\$52
No fee	379	10,258	\$0	\$0
Total	395	10,952	\$99,292	\$9

There are no pricey OA history journals, with one at \$386 and one at \$383 being the only ones higher than \$152.

Region, History

Region	Journals	Articles	%No-fee	\$/article
Latin America	113	3,386	100%	\$0
Western Europe	151	3,354	97%	\$2
Eastern Europe	69	2,404	81%	\$33
Pacific/English	29	1,135	100%	\$0
Middle East	15	396	74%	\$20
Asia	16	247	87%	\$12
Africa	2	30	40%	\$91

Another H&SS subject where Latin America publishes the most and has no fees—but also look at Western Europe (\$2) and Pacific/English (\$0).

Publisher Category, History

Category	Journals	Articles	%No-fee	\$/article
Univ/college	334	9,289	95%	\$10
Society/govt	33	974	100%	\$0
Open Access	23	555	61%	\$18
Miscellaneous	2	69	100%	\$0
Traditional	3	65	100%	\$0

Universities dominate; societies don't charge fees.

Country of Publication, History, 50+ 2019 articles

This time, Russia's the first with *any* fees—and the highest fees of any country. Fourteen other countries with fewer articles, only one (South Africa) with any fees.

Country	Journals	Articles	%no-fee	\$/article
Brazil	55	1,921	100%	\$0
Spain	63	1,554	100%	\$0
United States	17	1,021	100%	\$0
Russia	14	855	69%	\$86
Argentina	26	649	100%	\$0
Italy	28	568	84%	\$9
Ukraine	8	310	59%	\$13
France	16	291	100%	\$0
Turkey	11	281	100%	\$0
Netherlands	7	268	100%	\$0
Colombia	11	265	100%	\$0
Romania	11	250	100%	\$0
Poland	10	236	100%	\$0
Mexico	5	211	100%	\$0
Chile	10	201	100%	\$0
Portugal	7	165	100%	\$0
Indonesia	12	164	81%	\$18
Moldova	3	128	55%	\$6
Serbia	8	128	100%	\$0
United Kingdom	7	127	95%	\$18
Hungary	2	120	100%	\$0
Norway	4	98	100%	\$0
Croatia	4	92	100%	\$0
Canada	7	83	100%	\$0
Germany	6	81	100%	\$0
Bosnia and Herzegovina	1	69	100%	\$0
Austria	4	68	100%	\$0
Belarus	1	64	100%	\$0
Greece	3	60	100%	\$0
Iraq	1	60	0%	\$76
Czech Republic	3	57	100%	\$0
Peru	2	56	100%	\$0
Iran	3	55	24%	\$58

31. Language & Literature

Key Facts, Language & Literature

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	893	23,086			\$29	-97%
Fee	87	2,922	13%	-79%	\$227	-86%
No-fee	806	20,164	87%	125%		

Low-cost and mostly no-fee even by H&SS standards.

Articles and Journals by Year, Language & Literature

	2019	2018	2017	2016	2015	2014
Journals	819	859	847	804	768	699
%No-fee	90%	90%	90%	90%	91%	92%
Articles	23,086	24,381	24,382	22,271	19,835	16,888
%No-fee	87%	83%	84%	85%	85%	87%
Change	-5%	0%	9%	12%	17%	

Declining slightly after good growth 2015-2017.

Article Volume, Language & Literature

	Journals	Articles	%No-fee	\$/article
Largest: 600+	1	337	0%	\$100
Large: 150-599	11	1,221	79%	\$56
Med.: 60-149	109	6,551	86%	\$54
Small: 20-59	510	12,602	90%	\$13
Smallest: 0-19	262	2,375	93%	\$17

The usual correlations, albeit at very low average costs.

Fees and Revenue, Language & Literature

	Journals	Articles	Revenue	\$/article
\$600-\$1,399	8	304	\$289,988	\$954
\$200-\$599	13	689	\$236,690	\$344
\$0.20-\$199	66	1,929	\$136,344	\$71
No fee	806	20,164	\$0	\$0
Total	893	23,086	\$663,023	\$29

No really expensive journals, and very little revenue overall.

Region, Language & Literature

Region	Journals	Articles	%No-fee	\$/article
Western Europe	306	6,589	91%	\$43
Latin America	186	6,281	100%	\$0
Eastern Europe	159	4,627	91%	\$23
Asia	124	2,524	65%	\$32
Pacific/English	72	1,516	81%	\$46
Middle East	36	1,270	63%	\$32
Africa	10	279	5%	\$309

Oddest here: Africa as the most expensive region—but very few articles.

Publisher Category, Language & Literature

Category	Journals	Articles	%No-fee	\$/article
Univ/college	712	18,594	91%	\$13
Open Access	104	1,992	69%	\$156
Society/govt	54	1,511	87%	\$28
Traditional	16	504	76%	\$54
Miscellaneous	7	485	18%	\$82

Universities dominate, which is frequently the case in H&SS.

Country of Publication, Language & Literature, 100+ 2019 articles

Brazil far ahead of others with no fees; South Africa and Switzerland have the only average costs above \$290. Another 26 countries with fewer articles, 23 of them fee-free.

Country	Journals	Articles	%no-fee	\$/article
Brazil	121	4,616	100%	\$0
Spain	98	1,957	100%	\$0
Italy	58	1,860	87%	\$15
Indonesia	104	1,797	62%	\$22
Russia	23	1,587	98%	\$0
United States	50	1,029	87%	\$36
Turkey	19	939	64%	\$36
France	52	894	100%	\$0
Poland	41	863	97%	\$18
Argentina	23	636	100%	\$0
Romania	25	533	89%	\$10
United Kingdom	27	529	53%	\$286
Ukraine	10	378	21%	\$221
Germany	15	351	100%	\$0
Colombia	15	341	100%	\$0
Australia	9	309	48%	\$105
Iran	16	303	58%	\$21
South Korea	3	250	100%	\$0
Slovenia	10	229	100%	\$0
Czech Republic	9	220	100%	\$0
Mexico	9	214	100%	\$0
India	6	212	75%	\$37
South Africa	6	207	0%	\$389
Norway	14	206	100%	\$0
Serbia	6	196	100%	\$0
Switzerland	5	190	50%	\$503
Lithuania	10	189	100%	\$0
Belgium	7	178	100%	\$0
Canada	13	178	100%	\$0
Chile	7	171	100%	\$0
Croatia	8	166	100%	\$0
Malaysia	4	159	40%	\$181
Portugal	8	126	100%	\$0
Costa Rica	4	116	100%	\$0
Peru	4	101	100%	\$0

32. Law

Key Facts, Law

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	441	10,629			\$44	-96%
Fee	37	1,060	10%	-84%	\$442	-74%
No-fee	404	9,569	90%	132%		

Very few fee articles, and the fees are lower than average for H&SS.

Articles and Journals by Year, Law

	2019	2018	2017	2016	2015	2014
Journals	372	424	419	397	364	301
%No-fee	91%	92%	92%	93%	93%	91%
Articles	10,629	11,484	11,126	10,521	9,009	7,791
%No-fee	90%	91%	91%	91%	90%	89%
Change	-7%	3%	6%	17%	16%	

Good growth slowing recently to a dip in 2019.

Article Volume, Law

	Journals	Articles	%No-fee	\$/article
Large: 150-599	5	616	100%	\$0
Med.: 60-149	50	3,054	85%	\$91
Small: 20-59	275	5,914	92%	\$30
Smallest: 0-19	111	1,045	90%	\$12

No very large journals and the few large ones are all no-fee.

Fees and Revenue, Law

	Journals	Articles	Revenue	\$/article
\$1,400+	3	157	\$263,442	\$1,678
\$600-\$1,399	6	147	\$139,349	\$948
\$200-\$599	4	60	\$17,340	\$289
\$0.20-\$199	24	696	\$48,625	\$70
No fee	404	9,569		
Total	441	10,629	\$468,757	\$44

Three expensive journals with 1.4% of articles earn most of the revenue.

Region, Law

Region	Journals	Articles	%No-fee	\$/article
Latin America	166	3,752	99%	\$0
Western Europe	97	2,727	88%	\$144
Eastern Europe	69	2,126	93%	\$5
Asia	74	1,369	73%	\$20
Middle East	11	308	89%	\$7
Africa	7	179	39%	\$64
Pacific/English	17	168	86%	\$147

Publisher Category, Law

Category	Journals	Articles	%No-fee	\$/article
Univ/college	360	8,550	92%	\$7
Society/govt	27	807	95%	\$17
Open Access	41	652	81%	\$188
Traditional	8	346	46%	\$784
Miscellaneous	5	274	100%	\$0

Unsurprisingly, universities dominate.

Country of Publication, Law, 50+ 2019 articles

Four of the top five countries have essentially no fees. Netherlands stands out as the only four-digit average cost. Seventeen more countries with fewer articles, none of them with any fees.

Country	Journals	Articles	%no-fee	\$/article
Brazil	107	2,448	98%	\$1
Indonesia	68	1,270	71%	\$21
Spain	31	1,130	100%	\$0
Russia	14	672	100%	\$0
Colombia	32	582	100%	\$0
United Kingdom	20	492	91%	\$108
Italy	17	419	100%	\$0
Poland	18	340	90%	\$16
Netherlands	6	242	22%	\$1,121
Serbia	8	233	100%	\$0
Argentina	7	227	100%	\$0
Ukraine	5	222	51%	\$12
Croatia	7	209	100%	\$0
South Africa	6	162	33%	\$70
Romania	6	161	94%	\$10
Iran	6	138	75%	\$15
Germany	4	130	100%	\$0
Chile	6	118	100%	\$0
Lithuania	4	107	100%	\$0
Turkey	3	107	100%	\$0
Peru	5	104	100%	\$0
Czech Republic	2	88	100%	\$0
Switzerland	5	86	59%	\$410
United States	8	80	71%	\$309
Australia	6	72	100%	\$0
Costa Rica	2	69	100%	\$0
Norway	5	67	81%	\$276
France	3	65	100%	\$0
India	2	63	100%	\$0
Mexico	2	59	100%	\$0
Uruguay	2	56	100%	\$0
Austria	2	51	14%	\$271

33. Library Science

Key Facts, Library Science

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	165	3,747			\$26	-97%
Fee	7	157	4%	-93%	\$615	-63%
No-fee	158	3,590	96%	146%		

Fee costs are typical of H&SS—but there are very few fee articles.

Articles and Journals by Year, Library Science

	2019	2018	2017	2016	2015	2014
Journals	151	157	154	148	143	135
%No-fee	95%	96%	95%	95%	95%	96%
Articles	3,747	4,058	3,996	3,607	3,293	3,035
%No-fee	96%	96%	97%	96%	97%	98%
Change	-8%	2%	11%	10%	9%	

Two years flat or shrinking after three good growth years.

Article Volume, Library Science

	Journals	Articles	%No-fee	\$/article
Med.: 60-149	23	1,355	95%	\$50
Small: 20-59	95	2,014	96%	\$13
Smallest: 0-19	47	378	97%	\$8

There are no larger OA library science journals, and few medium.

Fees and Revenue, Library Science

	Journals	Articles	Revenue	\$/article
\$600-\$1.399	1	67	\$67,418	\$1,006
\$200-\$599	3	60	\$27,257	\$454
\$0.20-\$199	3	30	\$1,861	\$62
No fee	158	3,590		
Total	165	3,747	\$96,536	\$26

There are also no expensive OA library science journals, and only one moderately pricey one. Also almost no revenue.

Region, Library Science

Region	Journals	Articles	%No-fee	\$/article
Western Europe	45	1,156	89%	\$82
Latin America	36	909	100%	\$0
Pacific/English	32	672	100%	\$0
Eastern Europe	22	503	100%	\$0
Asia	21	302	91%	\$4
Middle East	7	190	100%	\$0
Africa	2	15	73%	\$37

Even Pacific/English is entirely no-fee, as are three other regions.

Publisher Category, Library Science

Category	Journals	Articles	%No-fee	\$/article
Univ/college	114	2,471	99%	\$1
Open Access	28	680	81%	\$139
Society/govt	22	596	100%	\$0
Miscellaneous	1	0		

No offerings from traditional publishers, and the only significant fees are from OA publishers.

Country of Publication, Library Science, 18+ 2019 articles

Brazil being tops in an H&SS subject with no fees isn't unusual. The US being second, *also* with no fees: that's unusual. A dozen more countries with fewer articles, two of them with fees.

Country	Journals	Articles	%no-fee	\$/article
Brazil	25	709	100%	\$0
United States	29	551	100%	\$0
Ukraine	6	215	100%	\$0
United Kingdom	10	207	91%	\$30
Poland	8	170	100%	\$0
Netherlands	3	153	100%	\$0
Spain	10	151	100%	\$0
Germany	4	143	100%	\$0
Indonesia	10	140	86%	\$5
Italy	4	123	100%	\$0
Canada	3	121	100%	\$0
Switzerland	3	113	4%	\$784
Iran	3	92	100%	\$0
Turkey	3	84	100%	\$0
Portugal	4	75	100%	\$0
Sweden	1	68	100%	\$0
Austria	1	59	100%	\$0
Argentina	2	40	100%	\$0
Mexico	1	40	100%	\$0
South Korea	2	40	100%	\$0
Cuba	2	36	100%	\$0
Taiwan	3	35	100%	\$0
Slovakia	1	32	100%	\$0
China	1	31	100%	\$0
Costa Rica	2	29	100%	\$0
Belgium	1	25	100%	\$0
India	1	25	100%	\$0
Lithuania	1	23	100%	\$0
Finland	1	20	100%	\$0
Russia	1	20	100%	\$0
Colombia	1	19	100%	\$0
Norway	3	19	100%	\$0
Peru	1	19	100%	\$0

34. Mathematics

Key Facts, Mathematics

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	266	11,955			\$782	-24%
Fee	81	6,625	55%	-9%	\$1,410	-16%
No-fee	185	5,330	45%	15%		

More no-fee articles than is typical for STEM.

Articles and Journals by Year, Mathematics

	2019	2018	2017	2016	2015	2014
Journals	252	258	249	233	207	191
%No-fee	69%	70%	71%	71%	71%	70%
Articles	11,955	11,104	9,520	8,747	9,873	11,837
%No-fee	45%	47%	55%	53%	44%	35%
Change	8%	17%	9%	-11%	-17%	

Two years of decline and three years to recover.

Article Volume, Mathematics

	Journals	Articles	%No-fee	\$/article
Largest: 600+	5	3,156	0%	\$1,787
Large: 150-599	10	1,918	24%	\$1,134
Med.: 60-149	38	2,673	66%	\$349
Small: 20-59	130	3,390	74%	\$145
Smallest: 0-19	83	818	72%	\$132

Back to the classic STEM correlation: the larger the journal, the higher the cost per article and the lower the no-fee percentage.

Fees and Revenue, Mathematics

	Journals	Articles	Revenue	\$/article
\$1,400+	10	3,109	\$6,142,258	\$1,976
\$600-\$1.399	36	2,788	\$3,092,719	\$1,109
\$200-\$599	8	176	\$75,092	\$427
\$0.20-\$199	27	552	\$34,189	\$62
No fee	185	5,330		
Total	266	11,955	\$9,344,259	\$782

Region, Mathematics

Region	Journals	Articles	%No-fee	\$/article
Western Europe	70	6,184	11%	\$1,419
Eastern Europe	74	2,170	78%	\$183
Asia	52	1,220	64%	\$28
Pacific/English	22	1,128	85%	\$115
Middle East	26	648	92%	\$5
Latin America	19	567	100%	\$0
Africa	3	38	61%	\$178

Western Europe average cost nearly eight times second highest region.

Publisher Category, Mathematics

Category	Journals	Articles	%No-fee	\$/article
Open Access	82	7,193	18%	\$1,261
Univ/college	147	3,851	87%	\$21
Traditional	15	444	56%	\$396
Society/govt	20	436	91%	\$30
Miscellaneous	2	31	94%	\$30

OA publishers more than three times average cost of Traditional.

Country of Publication, Mathematics, xx+ 2019 articles

Two expensive countries at the top, but most other countries are fee-free. Twelve countries with fewer articles, ten of them fee-free.

Country	Journals	Articles	%no-fee	\$/article
United Kingdom	33	3,637	3%	\$1,806
Switzerland	9	1,933	1%	\$1,134
Indonesia	42	844	51%	\$38
Poland	27	819	49%	\$483
United States	17	741	77%	\$175
Brazil	11	448	100%	\$0
Ukraine	12	355	87%	\$2
Russia	9	348	100%	\$0
Turkey	10	309	100%	\$0
Iran	13	276	89%	\$5
Australia	1	267	100%	\$0
India	3	239	89%	\$7
Romania	9	155	100%	\$0
Lithuania	4	146	100%	\$0
Germany	7	145	92%	\$8
Italy	8	131	89%	\$8
Czech Republic	4	128	100%	\$0
Spain	6	116	100%	\$0
Hungary	1	99	100%	\$0
Canada	2	94	100%	\$0
Serbia	4	93	100%	\$0
Netherlands	2	83	100%	\$0
Finland	1	69	100%	\$0
Pakistan	2	68	100%	\$0
France	3	50	86%	\$235
Saudi Arabia	1	43	100%	\$0
Colombia	4	42	100%	\$0
Peru	1	35	100%	\$0
New Zealand	2	26	100%	\$0
Mexico	1	23	100%	\$0
Austria	1	20	100%	\$0
Jordan	1	20	0%	\$100
Morocco	1	20	100%	\$0

35. Media & Communications

Key Facts, Media & Communications

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	245	6,659			\$72	-93%
Fee	19	771	12%	-81%	\$622	-63%
No-fee	226	5,888	88%	127%		

Higher no-fee percentage than H&SS average and lower average cost.

Articles and Journals by Year, Media & Communications

	2019	2018	2017	2016	2015	2014
Journals	223	229	235	231	217	196
%No-fee	92%	92%	92%	92%	93%	93%
Articles	6,659	6,777	6,672	6,316	5,679	4,647
%No-fee	88%	89%	92%	92%	93%	95%
Change	-2%	2%	6%	11%	22%	

Essentially flat since 2017.

Article Volume, Media & Communications

	Journals	Articles	%No-fee	\$/article
Large: 150-599	4	477	100%	\$0
Med.: 60-149	25	1,708	69%	\$245
Small: 20-59	169	4,027	94%	\$13
Smallest: 0-19	47	447	94%	\$20

No fees in large journals, no largest journals.

Fees and Revenue, Media & Communications

	Journals	Articles	Revenue	\$/article
\$1,400+	1	82	\$172,200	\$2,100
\$600-\$1,399	5	236	\$224,163	\$950
\$200-\$599	2	128	\$51,750	\$404
\$0.20-\$199	11	325	\$31,261	\$96
No fee	226	5,888		
Total	245	6,659	\$479,374	\$72

The single expensive journal is *very* expensive for H&SS.

Region, Media & Communications

Region	Journals	Articles	%No-fee	\$/article
Western Europe	95	2,924	83%	\$150
Latin America	74	2,279	100%	\$2
Pacific/English	19	440	100%	\$0
Asia	25	438	50%	\$42
Eastern Europe	25	434	100%	\$0
Middle East	6	125	83%	\$12
Africa	1	19	0%	\$877

Latin America's very low-cost—but Pacific/English has no fees at all!

Publisher Category, Media & Communications

Category	Journals	Articles	%No-fee	\$/article
Univ/college	194	5,032	94%	\$10
Society/govt	26	807	90%	\$7
Open Access	20	525	60%	\$388
Traditional	4	263	24%	\$833
Miscellaneous	1	32	100%	\$0

Predominantly university publishers; the few traditional are highest-cost.

Country of Publication, Media & Communications. 30+ 2019

Brazil and Spain are tops; only Netherlands has four-digit costs. Fourteen more with fewer articles, three of them with fees.

Country	Journals	Articles	%no-fee	\$/article
Brazil	42	1,459	100%	\$0
Spain	36	1,185	94%	\$9
Portugal	11	392	75%	\$252
Indonesia	22	374	51%	\$42
Argentina	10	257	100%	\$0
United Kingdom	11	242	48%	\$229
United States	10	226	100%	\$0
France	8	192	93%	\$3
Austria	3	167	100%	\$0
Netherlands	4	166	51%	\$1,037
Canada	5	144	100%	\$0
Chile	4	143	100%	\$0
Colombia	6	143	100%	\$0
Germany	5	135	81%	\$151
Italy	6	133	100%	\$0
Poland	6	112	100%	\$0
Peru	4	110	100%	\$0
Turkey	5	104	100%	\$0
Romania	6	97	100%	\$0
Switzerland	1	84	0%	\$950
Ireland	2	83	100%	\$0
Australia	4	70	100%	\$0
Russia	3	69	100%	\$0
Croatia	3	61	100%	\$0
Uruguay	2	61	100%	\$0
Norway	3	42	100%	\$0
Mexico	2	40	100%	\$0
Sweden	1	40	100%	\$0
South Korea	1	38	0%	\$70
Denmark	3	36	100%	\$0
Dominican Republic	1	30	100%	\$0

36. Medicine

Key Facts, Medicine

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	2,963	247,594			\$1,348	32%
Fee	1,421	173,742	70%	15%	\$1,921	15%
No-fee	1,542	73,852	30%	-23%		

By far the largest subject, and a bit lower-priced than biology.

Articles and Journals by Year, Medicine

	2019	2018	2017	2016	2015	2014
Journals	2,804	2,825	2,773	2,626	2,432	2,203
%No-fee	51%	52%	52%	53%	53%	53%
Articles	247,594	222,615	199,079	184,879	173,185	158,857
%No-fee	30%	34%	36%	38%	38%	38%
Change	11%	12%	8%	7%	9%	

Fairly strong growth; very likely to pass a quarter- million in 2020.

Article Volume, Medicine

	Journals	Articles	%No-fee	\$/article
Largest: 600+	67	70,694	8%	\$2,161
Large: 150-599	386	77,761	21%	\$1,464
Med.: 60-149	849	59,530	47%	\$775
Small: 20-59	1,320	36,812	60%	\$526
Smallest: 0-19	341	2,797	59%	\$554

Typical correlations—and the biggest journals are very expensive.

Fees and Revenue, Medicine

	Journals	Articles	Revenue	\$/article
\$1,400+	754	125,337	\$307,762,922	\$2,455
\$600-\$1,399	300	21,271	\$19,780,816	\$930
\$200-\$599	164	14,592	\$4,976,510	\$341
\$0.20-\$199	203	12,542	\$1,155,702	\$92
No fee	1,542	73,852		
Total	2,963	247,594	\$333,675,951	\$1,348

The high-priced journals are a quarter of journals, publish half of articles, and account for 92% of revenue.

Region, Medicine

Region	Journals	Articles	%No-fee	\$/article
Western Europe	1,133	125,341	9%	\$2,057
Pacific/English	275	35,718	17%	\$1,756
Asia	534	32,648	50%	\$260
Latin America	321	17,849	77%	\$78
Middle East	350	17,619	78%	\$61
Eastern Europe	311	15,811	71%	\$96
Africa	39	2,608	34%	\$240

Pretty much what you'd expect.

Publisher Category, Medicine

Category	Journals	Articles	%No-fee	\$/article
Open Access	1,103	119,564	19%	\$1,706
Traditional	588	56,026	17%	\$1,677
Univ/college	911	48,245	56%	\$607
Society/govt	324	21,023	58%	\$294
Miscellaneous	37	2,736	69%	\$69

OA and traditional have essentially the same average cost.

Country of Publication, Medicine, 100+ 2019 articles

A two-page list that's still far from complete (28 *more* countries, six with fees). The top group are as expected.

Country	Journals	Articles	%no-fee	\$/article
United Kingdom	766	78,673	4%	\$2,229
United States	214	30,365	17%	\$1,782
Switzerland	88	28,447	4%	\$2,306
India	219	16,086	57%	\$216
Brazil	174	12,197	69%	\$104
Iran	218	9,863	70%	\$70
Netherlands	78	8,126	21%	\$1,387
Turkey	99	5,913	95%	\$4
Russia	83	5,689	97%	\$5
China	32	4,371	26%	\$470
South Korea	67	4,200	48%	\$251
Spain	61	4,050	85%	\$122
Indonesia	140	3,562	50%	\$45
Poland	80	3,393	62%	\$248
Australia	31	3,146	16%	\$1,436
Canada	29	2,191	15%	\$1,873
Italy	53	2,070	28%	\$657
Ukraine	36	1,821	49%	\$27
Cuba	30	1,609	100%	\$0
Romania	33	1,551	38%	\$116
Colombia	38	1,238	95%	\$5
Germany	26	1,132	30%	\$1,792
South Africa	24	971	27%	\$459
Pakistan	10	938	11%	\$322
Saudi Arabia	8	909	63%	\$283
North Macedonia	2	767	100%	\$0
Uganda	1	765	0%	\$180
Hong Kong	8	744	29%	\$935
Greece	11	711	67%	\$476
Argentina	13	655	79%	\$13
Sweden	5	652	50%	\$899
Taiwan	7	620	66%	\$379
Portugal	14	589	100%	\$0

Country	Journals	Articles	%no-fee	\$/article
Serbia	19	575	45%	\$56
Peru	11	495	100%	\$0
Mexico	12	486	100%	\$0
Croatia	15	481	100%	\$0
Nepal	12	458	100%	\$0
Nigeria	3	432	84%	\$23
Chile	13	429	68%	\$225
Bangladesh	8	344	100%	\$0
Czech Republic	8	336	27%	\$424
France	8	335	26%	\$1,199
Japan	6	328	21%	\$993
Ireland	4	305	18%	\$1,382
Bulgaria	5	277	16%	\$112
Malaysia	7	267	33%	\$79
Egypt	8	255	83%	\$51
Bosnia and Herzegovina	8	240	43%	\$336
Sri Lanka	6	218	100%	\$0
Iraq	7	214	0%	\$181
Paraguay	8	191	100%	\$0
Singapore	3	183	8%	\$833
Oman	2	175	100%	\$0
Cameroon	1	173	0%	\$170
Ecuador	6	168	100%	\$0
Costa Rica	6	160	100%	\$0
Slovenia	4	158	63%	\$293
Thailand	4	145	78%	\$22
United Arab Emirates	3	140	81%	\$361
Slovakia	5	111	100%	\$0
Uruguay	4	105	100%	\$0
Hungary	3	103	22%	\$739
Belarus	1	102	100%	\$0
Norway	7	102	80%	\$88

37. Miscellany

Key Facts, Miscellany

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	213	10,210			\$153	-85%
Fee	30	2,603	25%	-58%	\$600	-64%
No-fee	183	7,607	75%	92%		

Typical H&SS. Little to say about this mixed lot.

Articles and Journals by Year, Miscellany

	2019	2018	2017	2016	2015	2014
Journals	196	208	211	206	191	177
%No-fee	85%	86%	86%	85%	85%	86%
Articles	10,210	9,224	8,933	7,308	6,960	6,084
%No-fee	75%	76%	78%	71%	64%	68%
Change	11%	3%	22%	5%	14%	

Article Volume, Miscellany

	Journals	Articles	%No-fee	\$/article
Largest: 600+	3	1,877	95%	\$3
Large: 150-599	14	2,469	27%	\$472
Med.: 60-149	42	2,774	87%	\$85
Small: 20-59	118	2,743	88%	\$57
Smallest: 0-19	36	347	91%	\$1

Seems like a frequent H&SS pattern: the largest journals are free or very close to free.

Fees and Revenue, Miscellany

	Journals	Articles	Revenue	\$/article
\$1,400+	3	149	\$268,530	\$1,802
\$600-\$1,399	7	1,243	\$1,189,834	\$957
\$200-\$599	1	40	\$11,198	\$280
\$0.20-\$199	19	1,171	\$93,370	\$80
No fee	183	7,607		
Total	213	10,210	\$1,562,932	\$153

Region, Miscellany

Region	Journals	Articles	%No-fee	\$/article
Latin America	81	4,289	87%	\$11
Western Europe	40	2,791	65%	\$401
Eastern Europe	38	1,379	73%	\$33
Asia	27	708	69%	\$15
Pacific/English	14	563	30%	\$560
Middle East	8	339	79%	\$7
Africa	5	141	81%	\$160

Publisher Category, Miscellany

Category	Journals	Articles	%No-fee	\$/article
Univ/college	178	6,977	86%	\$10
Open Access	21	2,358	60%	\$389
Traditional	6	704	13%	\$792
Society/govt	7	127	37%	\$136
Miscellaneous	1	44	100%	\$0

Country of Publication, Miscellany, xx+ 2019 articles

Brazil largest, the usual trio most expensive. Fifteen more with fewer articles, including one with fees.

Country	Journals	Articles	%no-fee	\$/article
Brazil	42	2,569	98%	\$2
Switzerland	6	1,812	65%	\$364
Chile	4	546	8%	\$74
United States	9	512	23%	\$616
United Kingdom	10	491	30%	\$939
Ecuador	7	409	100%	\$0
Russia	7	367	69%	\$33
Indonesia	16	336	48%	\$31
Poland	7	289	62%	\$72
Romania	8	257	74%	\$29
Colombia	12	248	100%	\$0
Turkey	5	230	100%	\$0
Philippines	3	174	100%	\$0
Ukraine	3	152	43%	\$32
Mexico	5	137	100%	\$0
Spain	7	132	100%	\$0
Venezuela	3	129	100%	\$0
Costa Rica	3	115	100%	\$0
Iran	3	109	36%	\$21
Malaysia	3	93	100%	\$0
Serbia	2	89	100%	\$0
Italy	4	70	100%	\$0
Bulgaria	3	64	100%	\$0
Germany	3	64	100%	\$0
Ethiopia	1	63	100%	\$0
Netherlands	1	62	100%	\$0
Slovenia	2	59	100%	\$0
Portugal	2	56	100%	\$0
Norway	2	52	100%	\$0
France	4	51	100%	\$0
India	2	47	0%	\$8
Peru	2	47	100%	\$0
Slovakia	1	41	100%	\$0

38. Other Sciences

Key Facts, Other Sciences

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	230	70,845			\$1,876	83%
Fee	79	61,857	87%	43%	\$2,149	28%
No-fee	151	8,988	13%	-67%		

Includes megajournals. The most expensive STEM “subject.”

Articles and Journals by Year, Other Sciences

	2019	2018	2017	2016	2015	2014
Journals	209	221	215	207	185	171
%No-fee	63%	65%	67%	66%	66%	67%
Articles	70,845	63,444	68,702	65,887	56,820	52,217
%No-fee	13%	12%	10%	9%	11%	10%
Change	12%	-8%	4%	16%	9%	

Strong growth even though the two true megajournals are flat: some other very large journals have grown rapidly.

Article Volume, Other Sciences

	Journals	Articles	%No-fee	\$/article
Largest: 600+	17	60,348	5%	\$2,122
Large: 150-599	24	4,696	41%	\$708
Med.: 60-149	46	3,059	59%	\$304
Small: 20-59	109	2,442	69%	\$212
Smallest: 0-19	34	300	82%	\$224

Articles in the largest journals average more than *three times* the cost of large journals and almost seven times that of medium-sized journals.

Fees and Revenue, Other Sciences

	Journals	Articles	Revenue	\$/article
\$1,400+	19	56,868	\$129,492,727	\$2,277
\$600-\$1.399	21	2,705	\$2,866,106	\$1,060
\$200-\$599	13	1,164	\$459,882	\$395
\$0.20-\$199	26	1,120	\$85,298	\$76
No fee	151	8,988		
Total	230	70,845	\$132,904,013	\$1,876

\$1,400+: 8% of the journals, 80% of the articles, 97% of the revenue...

Region, Other Sciences

Region	Journals	Articles	%No-fee	\$/article
Western Europe	53	44,056	8%	\$2,198
Pacific/English	16	19,974	2%	\$1,771
Latin America	50	2,239	92%	\$3
Eastern Europe	31	1,603	60%	\$105
Middle East	26	1,394	59%	\$272
Asia	48	1,282	54%	\$93
Africa	6	297	100%	\$0

No real surprises here.

Publisher Category, Other Sciences

Category	Journals	Articles	%No-fee	\$/article
Traditional	21	32,005	3%	\$2,495
Open Access	32	24,946	3%	\$1,554
Univ/college	156	9,587	72%	\$564
Society/govt	19	4,293	11%	\$2,070
Miscellaneous	2	14	0%	\$280

No additional comment required. (AAAS is a society.)

Country of Publication, Other Sciences, 70+ 2019 articles

No surprises here (except maybe Germany). Another 27 countries with fewer articles; eight of those countries have fee-charging journals.

Country	Journals	Articles	%no-fee	\$/article
United Kingdom	19	31,955	1%	\$2,531
United States	12	19,944	2%	\$1,774
Switzerland	8	7,120	0%	\$1,691
Italy	4	2,329	99%	\$2
Brazil	21	987	82%	\$6
France	2	962	100%	\$0
Germany	7	784	2%	\$4,596
Turkey	11	669	100%	\$0
Netherlands	4	653	3%	\$414
Venezuela	2	450	100%	\$0
Russia	8	385	64%	\$31
Iraq	8	362	21%	\$96
Indonesia	24	356	52%	\$31
Thailand	8	314	70%	\$44
Mexico	7	312	100%	\$0
Serbia	5	301	22%	\$323
Ukraine	4	267	100%	\$0
Saudi Arabia	1	262	0%	\$1,250
Bulgaria	2	249	86%	\$47
Colombia	8	197	100%	\$0
Spain	5	185	100%	\$0
Taiwan	1	180	0%	\$487
China	2	173	54%	\$7
South Africa	2	150	100%	\$0
Romania	4	99	34%	\$29
Argentina	3	96	100%	\$0
India	3	93	76%	\$14
Algeria	2	92	100%	\$0
Costa Rica	2	88	100%	\$0
Bangladesh	2	80	56%	\$44
Latvia	1	79	0%	\$202

39. Philosophy

Key Facts, Philosophy

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	243	6,453			\$23	-98%
Fee	17	457	7%	-88%	\$329	-80%
No-fee	226	5,996	93%	139%		

Very low costs, very few fee-based articles and journals.

Articles and Journals by Year, Philosophy

	2019	2018	2017	2016	2015	2014
Journals	219	230	229	224	213	199
%No-fee	93%	93%	93%	92%	93%	92%
Articles	6,453	6,421	6,572	6,672	5,742	5,013
%No-fee	93%	93%	93%	93%	92%	92%
Change	0%	-2%	-1%	16%	15%	

Largely flat since 2016.

Article Volume, Philosophy

	Journals	Articles	%No-fee	\$/article
Large: 150-599	3	195	100%	\$0
Med.: 60-149	29	1,788	94%	\$17
Small: 20-59	151	4,002	92%	\$27
Smallest: 0-19	60	468	94%	\$28

No largest, and no fees in large.

Fees and Revenue, Philosophy

	Journals	Articles	Revenue	\$/article
\$600-\$1.399	5	95	\$96,876	\$1,020
\$200-\$599	2	89	\$38,800	\$436
\$0.20-\$199	10	273	\$14,520	\$53
No fee	226	5,996		
Total	243	6,453	\$150,197	\$23

Region, Philosophy

Region	Journals	Articles	%No-fee	\$/article
Latin America	69	1,957	100%	\$0
Western Europe	76	1,847	93%	\$54
Eastern Europe	54	1,705	94%	\$9
Pacific/English	28	579	91%	\$2
Middle East	6	216	42%	\$149
Asia	10	149	68%	\$15

No African journals, and only Middle East exceeds \$54/article.

Publisher Category, Philosophy

Category	Journals	Articles	%No-fee	\$/article
Univ/college	194	5,384	94%	\$12
Society/govt	21	549	100%	\$0
Open Access	23	446	74%	\$193
Miscellaneous	3	41	100%	\$0
Traditional	2	33	100%	\$0

Country of Publication, Philosophy, 30+ 2019 articles

Another seven with fewer articles, including two with fees.

Country	Journals	Articles	%no-fee	\$/article
Brazil	33	1,141	100%	\$0
Spain	27	862	100%	\$0
Italy	22	514	94%	\$5
Poland	17	456	100%	\$0
United States	17	387	86%	\$3
Russia	7	329	100%	\$0
Colombia	12	311	100%	\$0
Ukraine	6	284	83%	\$4
Romania	9	233	86%	\$18
Chile	8	220	100%	\$0
Canada	8	154	100%	\$0
Iran	4	142	57%	\$24
France	7	131	100%	\$0
Mexico	5	129	100%	\$0
Serbia	3	109	100%	\$0
Croatia	3	99	100%	\$0
Indonesia	5	83	100%	\$0
Turkey	2	74	14%	\$389
United Kingdom	6	70	70%	\$378
Argentina	6	62	100%	\$0
Slovakia	2	60	100%	\$0
Switzerland	1	59	0%	\$1,006
Ecuador	2	50	100%	\$0
Denmark	3	49	100%	\$0
Austria	3	47	100%	\$0
Costa Rica	2	44	100%	\$0
Bulgaria	2	41	100%	\$0
Australia	3	38	100%	\$0
Sweden	1	37	100%	\$0
India	1	36	0%	\$10
Norway	2	36	58%	\$308
Lithuania	1	35	100%	\$0

40. Physics

Key Facts, Physics

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	171	34,284			\$1,215	19%
Fee	104	25,192	73%	20%	\$1,654	-1%
No-fee	67	9,092	27%	-32%		

Typical STEM profile.

Articles and Journals by Year, Physics

	2019	2018	2017	2016	2015	2014
Journals	161	155	153	143	137	123
%No-fee	37%	37%	39%	41%	42%	41%
Articles	34,284	29,367	24,742	20,594	19,384	17,281
%No-fee	27%	30%	37%	39%	39%	40%
Change	17%	19%	20%	6%	12%	

Strong growth since 2016, moving away from no-fee.

Article Volume, Physics

	Journals	Articles	%No-fee	\$/article
Largest: 600+	16	24,244	26%	\$1,266
Large: 150-599	22	4,916	15%	\$1,533
Med.: 60-149	43	3,137	33%	\$828
Small: 20-59	68	1,864	47%	\$413
Smallest: 0-19	22	123	53%	\$626

Large journals *more* expensive than largest. SCOAP³ effect?

Fees and Revenue, Physics

	Journals	Articles	Revenue	\$/article
\$1,400+	44	20,903	\$38,220,125	\$1,828
\$600-\$1,399	33	3,029	\$3,195,617	\$1,055
\$200-\$599	9	486	\$169,752	\$349
\$0.20-\$199	18	774	\$81,271	\$105
No fee	67	9,092		
Total	171	34,284	\$41,666,765	\$1,215

Region, Physics

Region	Journals	Articles	%No-fee	\$/article
Western Europe	85	25,546	28%	\$1,172
Pacific/English	18	6,485	6%	\$1,764
Eastern Europe	27	909	80%	\$136
Asia	27	834	44%	\$126
Latin America	9	387	68%	\$121
Middle East	4	117	79%	\$26
Africa	1	6	100%	\$0

Unusual in that Pacific/English averages much *more* expensive per article than Western Europe.

Publisher Category, Physics

Category	Journals	Articles	%No-fee	\$/article
Open Access	73	19,691	21%	\$1,273
Society/govt	24	6,960	10%	\$1,664
Traditional	31	6,247	55%	\$734
Univ/college	42	1,358	60%	\$301
Miscellaneous	1	28	0%	\$766

Societies charge more than OA publishers: unusual.

Country of Publication, Physics

A complete list. The UK stands out for high fees—and even Brazil has significant fees.

Country	Journals	Articles	%no-fee	\$/article
Switzerland	24	13,034	0%	\$1,573
United States	18	6,485	6%	\$1,764
United Kingdom	37	3,832	2%	\$2,027
Germany	10	3,792	96%	\$103
Netherlands	7	2,436	55%	\$478
France	5	2,293	97%	\$8
Brazil	5	319	69%	\$138
Poland	9	300	48%	\$392
China	4	280	22%	\$208
Ukraine	6	264	100%	\$0
Indonesia	15	241	24%	\$47
Romania	4	127	100%	\$0
India	3	121	100%	\$0
Russia	3	105	100%	\$0
Austria	1	102	0%	\$224
Iran	3	92	100%	\$0
Singapore	2	76	74%	\$276
Ireland	1	57	0%	\$1,500
Malaysia	1	48	100%	\$0
Kazakhstan	1	45	100%	\$0
South Korea	1	43	0%	\$343
Latvia	1	35	100%	\$0
Argentina	2	25	0%	\$123
Egypt	1	25	0%	\$120
Japan	1	25	100%	\$0
Slovenia	1	25	0%	\$224
Cuba	1	22	100%	\$0
Colombia	1	21	100%	\$0
Bulgaria	1	8	100%	\$0
Algeria	1	6	100%	\$0

41. Political Science

Key Facts, Political Science

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	380	9,738			\$43	-96%
Fee	37	916	9%	-85%	\$458	-73%
No-fee	343	8,822	91%	133%		

Low-cost even by H&SS standards.

Articles and Journals by Year, Political Science

	2019	2018	2017	2016	2015	2014
Journals	345	361	348	332	316	290
%No-fee	90%	90%	90%	90%	90%	90%
Articles	9,738	10,865	10,014	9,573	9,388	8,691
%No-fee	91%	91%	89%	87%	87%	87%
Change	-10%	8%	5%	2%	8%	

Down in 2019 after years of modest growth.

Article Volume, Political Science

	Journals	Articles	%No-fee	\$/article
Largest: 600+	2	587	100%	\$0
Large: 150-599	9	875	81%	\$5
Med.: 60-149	34	1,774	86%	\$97
Small: 20-59	234	5,631	93%	\$30
Smallest: 0-19	101	871	91%	\$86

Another H&SS case where largest (and most large) journals are no-fee.

Fees and Revenue, Political Science

	Journals	Articles	Revenue	\$/article
\$1,400+	3	46	\$113,840	\$2,475
\$600-\$1,399	8	288	\$266,304	\$925
\$200-\$599	6	53	\$15,570	\$294
\$0.20-\$199	20	529	\$23,665	\$45
No fee	343	8,822		
Total	380	9,738	\$419,379	\$43

A handful of very expensive journals.

Region, Political Science

Region	Journals	Articles	%No-fee	\$/article
Eastern Europe	104	3,568	92%	\$4
Latin America	100	2,347	99%	\$0
Western Europe	96	2,198	90%	\$128
Asia	42	678	69%	\$29
Pacific/English	20	468	100%	\$0
Middle East	14	347	88%	\$5
Africa	4	132	0%	\$777

Two oddities here: Africa is pricey and Pacific/English is 100% no-fee.

Publisher Category, Political Science

Category	Journals	Articles	%No-fee	\$/article
Univ/college	283	6,980	92%	\$12
Open Access	44	1,260	81%	\$165
Traditional	22	760	91%	\$170
Society/govt	26	594	100%	\$0
Miscellaneous	5	144	50%	\$14

Universities dominate.

Country of Publication, Political Science, 30+ 2019 articles

No fees for the top three—and Portugal has the highest average costs. Another 19 with fewer articles, two of which have fees.

Country	Journals	Articles	%no-fee	\$/article
Russia	15	1,385	100%	\$0
Brazil	51	1,345	100%	\$0
Spain	25	740	100%	\$0
Poland	26	701	98%	\$4
Romania	29	601	84%	\$4
Indonesia	33	505	62%	\$27
Ukraine	11	471	68%	\$13
Colombia	15	367	100%	\$0
Netherlands	5	352	81%	\$180
United States	13	305	100%	\$0
Turkey	9	243	100%	\$0
United Kingdom	20	241	76%	\$490
Italy	11	208	100%	\$0
Mexico	7	190	88%	\$1
Argentina	11	184	100%	\$0
Czech Republic	10	171	100%	\$0
Chile	7	142	100%	\$0
Canada	5	136	100%	\$0
South Africa	4	132	0%	\$777
Portugal	3	119	16%	\$847
France	6	113	100%	\$0
Germany	7	110	100%	\$0
Iran	5	104	59%	\$17
Austria	6	89	100%	\$0
Norway	4	80	100%	\$0
Croatia	3	59	100%	\$0
Taiwan	1	52	100%	\$0
Moldova	1	47	100%	\$0
India	1	45	100%	\$0
Iceland	2	43	100%	\$0
Lithuania	2	36	100%	\$0
Costa Rica	2	33	100%	\$0
Denmark	2	32	100%	\$0

42. Psychology

Key Facts, Psychology

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	241	9,943			\$1,009	-1%
Fee	48	4,877	49%	-20%	\$2,057	23%
No-fee	193	5,066	51%	31%		

Some psychology journals may belong in medicine, and the charges reflect that: much more expensive than most H&SS fields.

Articles and Journals by Year, Psychology

	2019	2018	2017	2016	2015	2014
Journals	225	231	227	218	209	191
%No-fee	80%	80%	80%	81%	82%	82%
Articles	9,943	9,704	8,785	8,182	7,957	6,901
%No-fee	51%	53%	56%	58%	61%	63%
Change	2%	10%	7%	3%	15%	

Article Volume, Psychology

	Journals	Articles	%No-fee	\$/article
Largest: 600+	1	3,062	0%	\$2,950
Large: 150-599	5	613	71%	\$16
Med.: 60-149	35	2,006	58%	\$204
Small: 20-59	141	3,734	81%	\$148
Smallest: 0-19	59	528	85%	\$55

One very expensive very large journal.

Fees and Revenue, Psychology

	Journals	Articles	Revenue	\$/article
\$1,400+	8	3,260	\$9,413,658	\$2,888
\$600-\$1.399	12	478	\$482,634	\$1,010
\$200-\$599	7	269	\$81,564	\$303
\$0.20-\$199	21	870	\$55,436	\$64
No fee	193	5,066		
Total	241	9,943	\$10,033,293	\$1,009

Note that the other seven expensive journals published a *total* of 198 articles in 2019. One journal accounts for 90% of revenue.

Region, Psychology

Region	Journals	Articles	%No-fee	\$/article
Western Europe	67	4,715	21%	\$2,045
Latin America	74	2,359	94%	\$2
Eastern Europe	37	1,311	65%	\$38
Middle East	17	582	70%	\$16
Asia	30	531	79%	\$39
Pacific/English	15	396	48%	\$681
Africa	1	49	0%	\$791

Publisher Category, Psychology

Category	Journals	Articles	%No-fee	\$/article
Univ/college	177	5,103	82%	\$30
Open Access	31	3,898	9%	\$2,452
Society/govt	20	591	70%	\$246
Traditional	9	261	23%	\$633
Miscellaneous	4	90	60%	\$123

Country of Publication, Psychology, 20+ 2019 articles

Twelve more countries with fewer articles, none of them with fees.

Country	Journals	Articles	%no-fee	\$/article
Switzerland	1	3,062	0%	\$2,950
Brazil	37	1,604	91%	\$2
Spain	22	612	63%	\$259
Russia	11	553	77%	\$37
Indonesia	26	458	86%	\$7
Iran	11	447	61%	\$20
United Kingdom	15	423	14%	\$1,045
Ukraine	4	299	0%	\$64
Colombia	13	277	100%	\$0
United States	10	271	56%	\$520
Italy	13	265	100%	\$0
Germany	8	216	91%	\$15
Poland	6	178	83%	\$57
Argentina	8	120	100%	\$0
Peru	4	120	100%	\$0
Turkey	5	119	100%	\$0
Canada	4	102	16%	\$1,261
Chile	4	94	100%	\$0
Portugal	3	91	27%	\$61
Uruguay	2	74	100%	\$0
Serbia	4	55	100%	\$0
Czech Republic	3	53	100%	\$0
South Korea	1	51	0%	\$343
South Africa	1	49	0%	\$791
Costa Rica	3	44	100%	\$0
Georgia	1	36	100%	\$0
Moldova	2	36	100%	\$0
Croatia	1	33	100%	\$0
Lithuania	2	29	100%	\$0
Mexico	1	23	100%	\$0
New Zealand	1	23	100%	\$0
Slovakia	1	20	100%	\$0

43. Religion

Key Facts, Religion

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	288	8,108			\$164	-84%
Fee	46	2,667	33%	-46%	\$497	-70%
No-fee	242	5,441	67%	73%		

Slightly more fee articles and lower fees than H&SS average. Some religion journals could be elsewhere, e.g. religion-related economics.

Articles and Journals by Year, Religion

	2019	2018	2017	2016	2015	2014
Journals	270	274	267	253	219	198
%No-fee	83%	84%	84%	84%	83%	82%
Articles	8,108	6,844	6,585	6,277	5,631	4,892
%No-fee	67%	73%	76%	75%	73%	75%
Change	18%	4%	5%	11%	15%	

Always growing, more strongly in 2019.

Article Volume, Religion

	Journals	Articles	%No-fee	\$/article
Largest: 600+	1	670	0%	\$1,006
Large: 150-599	4	1,205	21%	\$247
Med.: 60-149	25	1,420	75%	\$119
Small: 20-59	158	3,706	85%	\$47
Smallest: 0-19	100	1,107	87%	\$12

Typical correlation of size, cost, no-fee percentage.

Fees and Revenue, Religion

	Journals	Articles	Revenue	\$/article
\$1,400+	2	22	\$67,056	\$3,048
\$600-\$1,399	5	1,121	\$1,070,768	\$955
\$200-\$599	10	289	\$106,766	\$369
\$0.20-\$199	29	1,235	\$81,709	\$66
No fee	242	5,441		
Total	288	8,108	\$1,326,299	\$164

A little calculation shows that most of that second row, and about half of all the revenue, comes from that one largest journal.

Region, Religion

Region	Journals	Articles	%No-fee	\$/article
Western Europe	43	2,486	48%	\$331
Asia	134	2,305	72%	\$37
Middle East	34	1,016	92%	\$8
Latin America	31	910	96%	\$2
Eastern Europe	26	716	90%	\$32
Africa	8	539	0%	\$716
Pacific/English	12	136	100%	\$0

Unusual, with Africa the most expensive and Pacific/English all no-fee.

Publisher Category, Religion

Category	Journals	Articles	%No-fee	\$/article
Univ/college	230	5,110	85%	\$24
Open Access	29	2,255	24%	\$492
Society/govt	20	389	64%	\$28
Traditional	7	324	83%	\$263
Miscellaneous	2	30	100%	\$0

Country of Publication, Religion, 20+ 2019 articles

Unusual distribution in many ways—except that UK and Switzerland have high fees. Six more with fewer articles, none with fees.

Country	Journals	Articles	%no-fee	\$/article
Indonesia	123	1,860	78%	\$17
Germany	5	813	37%	\$35
Turkey	21	730	100%	\$0
Switzerland	3	697	4%	\$967
Brazil	20	691	95%	\$3
South Africa	8	539	0%	\$716
Poland	14	359	89%	\$59
Iran	12	286	72%	\$30
Spain	6	244	100%	\$0
Pakistan	6	189	49%	\$58
Italy	3	169	100%	\$0
Malaysia	3	143	0%	\$302
Netherlands	2	133	100%	\$0
Russia	2	113	100%	\$0
China	1	91	100%	\$0
United States	8	89	100%	\$0
Norway	4	86	58%	\$333
Argentina	4	78	100%	\$0
Ukraine	3	78	56%	\$17
United Kingdom	5	78	18%	\$1,157
Austria	3	76	100%	\$0
Ireland	1	58	100%	\$0
Chile	3	57	100%	\$0
Colombia	3	55	100%	\$0
Finland	5	52	100%	\$0
Czech Republic	2	50	100%	\$0
Serbia	2	48	100%	\$0
Australia	2	42	100%	\$0
Croatia	1	34	100%	\$0
Costa Rica	1	29	100%	\$0
Denmark	1	23	100%	\$0
Japan	1	22	100%	\$0
France	2	21	100%	\$0

44. Sociology

Key Facts, Sociology

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	640	21,247			\$125	-88%
Fee	80	6,371	30%	-51%	\$417	-75%
No-fee	560	14,876	70%	80%		

Lower costs but slightly more fee articles than H&SS average.

Articles and Journals by Year, Sociology

	2019	2018	2017	2016	2015	2014
Journals	582	612	599	572	520	481
%No-fee	87%	88%	88%	88%	88%	89%
Articles	21,247	20,862	19,335	17,497	15,254	13,960
%No-fee	70%	75%	78%	80%	80%	80%
Change	2%	8%	11%	15%	9%	

Slowing growth but still growing every year.

Article Volume, Sociology

	Journals	Articles	%No-fee	\$/article
Largest: 600+	2	2,538	0%	\$323
Large: 150-599	14	2,334	46%	\$202
Med.: 60-149	91	5,312	70%	\$184
Small: 20-59	391	9,717	91%	\$29
Smallest: 0-19	142	1,346	91%	\$74

The typical correlation holds true here, albeit at very low levels.

Fees and Revenue, Sociology

	Journals	Articles	Revenue	\$/article
\$1,400+	7	554	\$1,067,576	\$1,927
\$600-\$1.399	21	816	\$787,335	\$965
\$200-\$599	10	721	\$233,067	\$323
\$0.20-\$199	42	4,280	\$566,922	\$132
No fee	560	14,876		
Total	640	21,247	\$2,654,899	\$125

There are some pricey sociology OA journals.

Region, Sociology

Region	Journals	Articles	%No-fee	\$/article
Latin America	203	7,885	70%	\$56
Western Europe	174	5,065	71%	\$317
Eastern Europe	98	3,603	70%	\$33
Pacific/English	58	1,624	88%	\$183
Middle East	40	1,342	70%	\$29
Asia	59	1,165	63%	\$22
Africa	8	563	22%	\$229

Latin America has the most articles and very low fees.

Publisher Category, Sociology

Category	Journals	Articles	%No-fee	\$/article
Univ/college	491	13,996	86%	\$43
Open Access	72	4,991	25%	\$297
Society/govt	45	1,276	91%	\$17
Traditional	23	912	43%	\$601
Miscellaneous	9	72	100%	\$0

Universities predominate, common for H&SS.

Country of Publication, Sociology, 90+ 2019 articles

Brazil biggest, UK most expensive. 33 other countries with fewer articles; six of them have fees,

Country	Journals	Articles	%no-fee	\$/article
Brazil	84	5,119	54%	\$86
United States	42	1,225	84%	\$243
Spain	54	1,223	94%	\$5
Russia	15	1,180	83%	\$8
United Kingdom	29	1,083	31%	\$999
Indonesia	46	1,011	57%	\$25
Turkey	25	936	75%	\$11
Poland	26	895	79%	\$75
Colombia	31	816	100%	\$0
Argentina	30	598	100%	\$0
France	20	597	97%	\$12
South Africa	4	433	3%	\$292
Romania	15	399	38%	\$61
Mexico	13	391	100%	\$0
Portugal	10	385	50%	\$503
Switzerland	7	343	14%	\$836
Netherlands	7	309	66%	\$34
Iran	12	305	51%	\$82
Canada	10	302	100%	\$0
Ukraine	4	298	6%	\$22
Ecuador	8	285	100%	\$0
Italy	11	283	100%	\$0
Germany	11	268	100%	\$0
Chile	12	224	100%	\$0
Norway	10	213	85%	\$34
Greece	2	201	100%	\$0
Serbia	7	171	66%	\$16
Costa Rica	7	166	100%	\$0
Lithuania	10	135	100%	\$0
Venezuela	6	96	100%	\$0
Sweden	5	91	100%	\$0

45. Technology

Key Facts, Technology

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	250	21,807			\$848	-17%
Fee	84	11,990	55%	-10%	\$1,542	-8%
No-fee	166	9,817	45%	16%		

The average fee is just a bit low for STEM—but the overall average is considerably low because of the high (for STEM) no-fee percentage.

Articles and Journals by Year, Technology

	2019	2018	2017	2016	2015	2014
Journals	231	236	233	215	200	182
%No-fee	65%	65%	66%	67%	66%	68%
Articles	21,807	26,767	19,267	16,505	12,256	10,283
%No-fee	45%	60%	57%	59%	54%	55%
Change	-19%	39%	17%	35%	19%	

Down sharply after four strong growth years. At the same time, 2019 is the first time most articles involved fees.

Article Volume, Technology

	Journals	Articles	%No-fee	\$/article
Largest: 600+	2	8,905	37%	\$1,261
Large: 150-599	26	5,445	38%	\$852
Med.: 60-149	65	4,220	47%	\$506
Small: 20-59	116	2,901	76%	\$140
Smallest: 0-19	41	336	76%	\$211

The typical correlation.

Fees and Revenue, Technology

	Journals	Articles	Revenue	\$/article
\$1,400+	16	7,773	\$16,033,348	\$2,063
\$600-\$1.399	27	1,868	\$1,795,967	\$961
\$200-\$599	22	1,722	\$611,201	\$355
\$0.20-\$199	19	627	\$42,507	\$68
No fee	166	9,817		
Total	250	21,807	\$18,483,024	\$848

Most fee-based articles are in a few expensive journals.

Region, Technology

Region	Journals	Articles	%No-fee	\$/article
Western Europe	69	14,173	36%	\$1,169
Eastern Europe	66	2,579	78%	\$47
Asia	58	2,490	41%	\$420
Latin America	29	1,312	74%	\$53
Middle East	14	668	87%	\$5
Pacific/English	11	527	27%	\$1,271
Africa	3	58	71%	\$129

Western Europe has two-thirds of the articles, but Pacific/English has the highest cost per article.

Publisher Category, Technology

Category	Journals	Articles	%No-fee	\$/article
Open Access	71	9,857	9%	\$1,601
Traditional	26	5,441	79%	\$259
Univ/college	123	4,983	80%	\$96
Society/govt	29	1,452	44%	\$549
Miscellaneous	1	74	0%	\$250

Country of Publication, Technology, 50+ 2019 articles

The curiosity here is low-cost high-volume France. Eighteen countries with fewer articles, including five with fees.

Country	Journals	Articles	%no-fee	\$/article
Switzerland	13	6,801	0%	\$1,917
France	3	3,785	99%	\$12
United Kingdom	22	1,695	14%	\$1,534
China	9	1,024	33%	\$311
Brazil	15	990	66%	\$71
Poland	21	945	63%	\$92
Indonesia	30	657	54%	\$150
Germany	7	653	82%	\$205
Netherlands	9	543	29%	\$1,004
Japan	4	512	13%	\$1,209
Russia	11	511	86%	\$36
United States	9	492	22%	\$1,360
Ukraine	7	319	66%	\$9
Iraq	4	301	82%	\$8
Spain	4	233	13%	\$379
Turkey	5	216	100%	\$0
Serbia	5	202	100%	\$0
Finland	1	195	100%	\$0
Italy	3	162	4%	\$690
Iran	5	151	77%	\$8
Romania	4	135	100%	\$0
India	5	123	80%	\$59
Croatia	4	110	100%	\$0
Hungary	2	101	100%	\$0
Colombia	4	87	100%	\$0
Belgium	6	80	100%	\$0
Malaysia	3	78	100%	\$0
Taiwan	4	77	100%	\$0
Ecuador	3	66	100%	\$0
Moldova	1	61	100%	\$0
Cuba	2	53	100%	\$0

46. Zoology

Key Facts, Zoology

	Journals	Articles	Art%	Rel%	\$/Art	Rel%
All	276	14,585			\$666	-35%
Fee	142	10,586	73%	19%	\$917	-45%
No-fee	134	3,999	27%	-29%		

On the low side for STEM. Includes marine biology, veterinary medicine.

Articles and Journals by Year, Zoology

	2019	2018	2017	2016	2015	2014
Journals	263	266	263	257	239	222
%No-fee	49%	49%	49%	50%	50%	50%
Articles	14,585	13,367	12,340	11,441	10,745	10,069
%No-fee	27%	31%	32%	32%	32%	31%
Change	9%	8%	8%	6%	7%	

Continuing steady annual growth.

Article Volume, Zoology

	Journals	Articles	%No-fee	\$/article
Largest: 600+	1	1,165	0%	\$1,006
Large: 150-599	22	4,936	5%	\$1,098
Med.: 60-149	73	4,419	36%	\$458
Small: 20-59	132	3,574	53%	\$262
Smallest: 0-19	48	491	57%	\$314

Large journals average slightly higher fees than largest ones.

Fees and Revenue, Zoology

	Journals	Articles	Revenue	\$/article
\$1,400+	26	3,035	\$6,002,427	\$1,978
\$600-\$1,399	27	2,936	\$2,648,512	\$902
\$200-\$599	33	2,356	\$867,142	\$368
\$0.20-\$199	56	2,259	\$191,225	\$85
No fee	134	3,999		
Total	276	14,585	\$9,709,306	\$666

Nothing unusual here.

Region, Zoology

Region	Journals	Articles	%No-fee	\$/article
Western Europe	81	5,484	16%	\$1,275
Asia	62	2,575	29%	\$185
Latin America	48	2,495	36%	\$220
Eastern Europe	46	1,906	46%	\$322
Middle East	28	1,405	33%	\$102
Pacific/English	7	589	13%	\$1,505
Africa	4	131	47%	\$402

Publisher Category, Zoology

Category	Journals	Articles	%No-fee	\$/article
Open Access	68	5,504	10%	\$1,119
Univ/college	135	5,168	43%	\$204
Society/govt	50	2,351	42%	\$276
Traditional	22	1,522	13%	\$1,211
Miscellaneous	1	40	100%	\$0

Interesting that OA and university publishers are about equal (but at very different price points).

Country of Publication, Zoology, 70+ 2019 articles

Twenty more countries with fewer articles, three of them with fees.

Country	Journals	Articles	%no-fee	\$/article
Switzerland	5	2,285	0%	\$1,413
United Kingdom	37	1,949	10%	\$1,565
Brazil	25	1,752	14%	\$297
Indonesia	44	1,049	31%	\$59
Bulgaria	11	883	10%	\$637
India	4	607	38%	\$179
United States	6	584	13%	\$1,516
Egypt	6	487	10%	\$115
Turkey	10	412	69%	\$128
Iran	9	408	32%	\$61
South Korea	4	387	0%	\$564
Poland	14	361	65%	\$69
Netherlands	5	303	21%	\$1,209
Spain	8	303	84%	\$16
Germany	6	257	19%	\$1,173
China	3	253	54%	\$146
Italy	11	172	93%	\$20
Peru	3	161	100%	\$0
Colombia	5	142	73%	\$54
Czech Republic	2	131	57%	\$153
France	3	127	100%	\$0
Pakistan	1	120	0%	\$300
Romania	4	120	56%	\$42
Mexico	2	116	41%	\$171
Iraq	3	98	0%	\$103
Russia	3	96	100%	\$0
Serbia	3	95	100%	\$0
Bangladesh	2	92	12%	\$88
Chile	1	91	100%	\$0
Argentina	4	70	100%	\$0
Cuba	2	70	100%	\$0
South Africa	3	70	0%	\$752
Ukraine	2	70	100%	\$0

Appendix A. Methods, Changes and Caveats

The Investigation

This research began with the master dataset prepared for *Gold Open Access 2013-2018: Articles in Journals (GOA4)* and proceeded somewhat differently than last year. I downloaded DOAJ metadata on December 20, 2019 in order to allow time to test matching techniques and other issues. Once again, it made sense to build the base spreadsheet, then add and delete rows as needed for adds and deletions through midnight, December 31, 2019 or shortly thereafter.

The 2018 dataset included 12,180 journals and 235 excluded journals. The December 20, 2019 download consisted of 14,087 journals—and deduping reduced the total to 14,080. (Further examination based on ISSNs yielded 27 duplicates within 2018 records, not including the xd records.)

This time around, since I *did* save ISSNs as part of the 2018 dataset and since DOAJ has seen to it that ISSNs are universal within DOAJ records, I used ISSNs for matching (and deduping)—hindered slightly by the fact that some journals have two ISSNs.

- The first match yielded an encouraging 11,813 records having the same ISSN in both years, with no duplications. Of those, 72 had title changes (mostly minor), 544 had new URLs (mostly changing `http://` to `https://`), 256 publisher changes (some textual, some actual changes), 77 starting-year changes and 1,144 country name changes (mostly differences between the short form I'm using and the longer form in DOAJ).
- A second pass using alternate ISSNs yielded another 100 matches, including a handful of changes.

- Checking the 242 excluded records from 2018, 186 had ISSN matches in the 2019 data. That brings the total to 12,099 records carried over from 2018.
- Checking the remaining 2018 records (241), 146 were in the DOAJ deletions list. That leaves 95 unaccounted for. Hand-matching yielded another two matches, leaving 93 unaccounted for.
- The base dataset for 2019, as of December 22, 2019 (after a day or two of checking), was 14,080 records. I took several days to normalize countries (and add regions to countries for new records), assign subjects and segments, and totally rebuild publisher category codes. I was also able to check all the “miscellaneous” publisher codes and reassign them as feasible, leaving 141 miscellaneous, roughly one-quarter as many as in 2018 although there are roughly 2,000 more journals.
- Shortly after midnight UCT on January 1, 2020 (that is, late in the afternoon on December 31, 2019 in California), I downloaded the DOAJ metadata once more, as well as the deletions-and-additions data¹. Adding and subtracting as appropriate (one reported deletion was not found, and there were 48 new rows), the final count was 14,128 journals.
- The first round of testing, with the spreadsheet arranged by publisher and journal, began January 1, 2020 and was completed on April 12, 2020.
- The second pass included 2,476 journals: all those that seemed likely to have additional articles for 2019 and, because time allowed, all those that either (a) had fewer than five articles in 2019 or (b) had less than two-thirds as many articles in 2019 as in 2018. This pass began on April 14, 2020 and ended on April 27, 2020. Of the 2,476 journals checked, 780 (32%) were modified during the pass. At this point, 12,649 journals were complete.

¹ Technically, that’s a lie. Observing in downloaded data that no journals have been added between 10 p.m. and midnight on December 31 (not unreasonably!), I actually downloaded the metadata at 10:10 pm UMT, December 31, 2019. A recheck shows that no journals were missed as a result.

- The remaining 1,479 journals include all problematic cases—all “x” codes. These were checked between April 28, 2020 and May 9, 2020, verifying the status of “xd” journals (nothing since 2012) and that all “xn” journals really aren’t OA journals at this point, and testing all “xm” (malware) and “xx” (missing/unworkable) journals. This pass cleared up 301 cases where a problem was transitory or resolved, found 371 cases where a journal could be reached successfully under a different address, and added details for 144 malware cases where the journal could still be reached safely. (A few other issues were also resolved.)
- That left a residue of 636 xm and xx cases for a final pass beginning May 15, 2020, along with a final verification check of the 144 partial-malware cases to see if any or all had been resolved. Note that the malware problem at this point was smaller than in 2019, but still far too large.
- The final pass took from May 15, 2020—a previously-stated deadline—to May 20, 2020. At that point, I also rechecked DOAJ for fee and article-count information on xx and xm journals—and, on May 22, checked xd, xm, xn, and xx journals against journals removed from DOAJ between January 1, 2020 and May 22, 2020, a process that removed 52 journals.
- Given that most xx and xm journals for which I could determine reasonably complete information could be fixed rapidly, and the special circumstance that Covid-19 related shutdowns have probably prevented most of those fixes from taking place, I have *included* most xx and xm journals in the overall analysis, excluding only xd and xn journals and cases where I could not locate good information or there were no reported articles from 2014 through 2019. That leaves 13,938 analyzed journals and 138 excluded journals. (Note that 13,938 and 138 add up to 14,076: the other 52 were removed from DOAJ.)

Changes

Changes in definitions and practice:

- For 31 non-USD currencies, the average conversion rate for 2019 (through December 28) was used. For ten where such an average

was not available (BDT, COP, IQD, IRR, MDL, NGN, RON, RSD, UAH and VEF), the spot rate for December 28, 2019 was used. Conversions were done to six decimal places (two for the ten special cases), stored as such, but rounded to two places for display. The non-rounded number is used to calculate revenue for 2019.

- For all journals with differential rates by country, the more expensive of U.S. authorship or in-country authorship was used (this is not a change). For journals with rates varying by number of authors, length of paper or other factors, a length of 10 pages (or 60,000 characters) and two authors was assumed. “Two authors” is a change. These journals are marked with “v” as a fee code.
- The new fee code “x” is used for journals with both submission and processing/publication fees. The code “q” is used when there’s a discrepancy in fee reporting or when the fee is so low that I suspect a decimal-place error.
- Growth-and-shrinkage codes are now limited to journals that had articles in both 2018 and 2019, with three values: G, grew by 25% or more; S, shrank by 25% or more, and E, roughly even.

Caveats

The same caveats apply as in *GOAJ3: Gold Open Access Journals 2012-2017*. Briefly, article counts are (generally) inclusive of reviews, short reports and (sometimes) editorials, especially when counting shortcuts were available. I used every counting shortcut I could find; and there are very few estimates (I have 11 journals marked as approximate counts, but only eight for 2019). I’m certain that some manual counts are off by one or two.

Some other caveats apply:

- I’ve assigned as many publishers as possible to categories other than “m”—including entities that only publish one journal (assigned “o”) and cases where the publisher name is, or is based on, the journal title (also “o”). Where the publisher is one or more personal names and the people are at a university, I assigned “o.”
- Subject assignments are always subjective to some extent.

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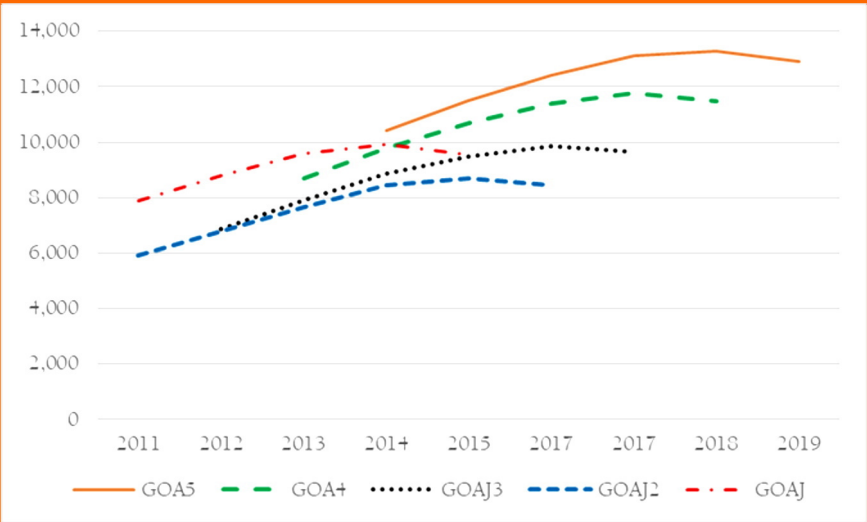
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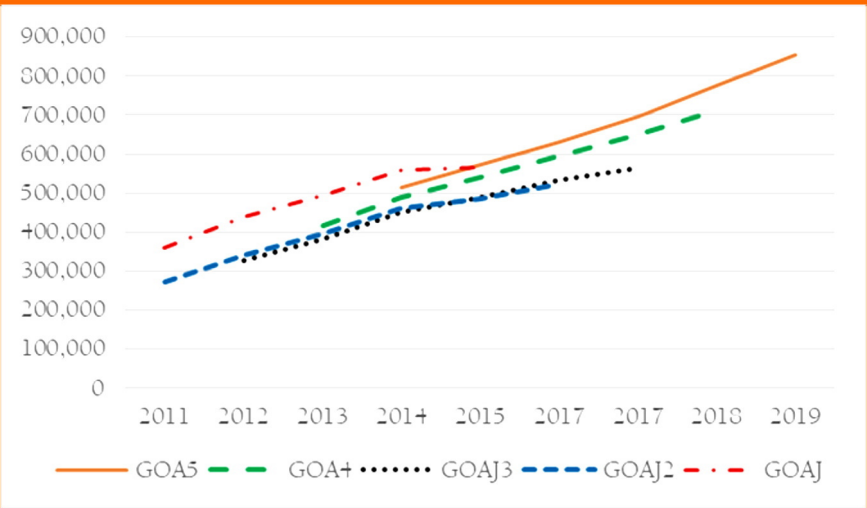
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