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This issue consists of the first seven chapters of *GOAJ3: Gold Open Access Journals 2012-2017*. Except for page headers and footers, these pages are *precisely* identical to those of the book—and thus slightly different than the usual *Cites & Insights* page (one pica or 12 points narrower and with a binding margin, for sticklers).

The complete book—free as a PDF ebook, $5 as a trade paperback—is available and includes Chapters 8-19, a preface (and acknowledgments), a table of contents and an index of tables and figures.

You'll find links to the ebook, the print book, and the dataset (freely available for downloading) at the ongoing Gold Open Access Journals project page, http://waltcrawford.name/goaj.html

That page will be updated when *Gold Open Access Journals by Country 2012-2017* becomes available. A future issue of *Cites & Insights* will feature (or consist of) subject chapters that supplement the single page on each subject in *GOAJ3*.

This project was sponsored by SPARC. The book, the dataset and this issue all carry Creative Commons Attribution Licenses (CC BY): Readers are free to make any use of the text as long as appropriate attribution is provided.

1. The Big Picture

This study attempts to answer factual questions about the state of serious gold OA publishing—its extent, the extent of fee-based and otherwise-funded ("free") publishing, and the complexities of the picture. I define serious gold OA based on the contents of the *Directory of Open Access Journals* (*DOAJ*).

The overall picture of serious gold OA in 2017:

- 563,146 articles in 2017, up from 533,496 in 2016; 487,469 in 2015; 450,222 in 2014; 383,125 in 2013; and 327,766 in 2012. Direct comparisons with previous editions are difficult because of changes in *DOAJ*: in this case, 2,538 journals added and more than 1,300 removed during the year.
- 10,293 fully-analyzed journals, of which 9,668 published articles in 2017 for an average of 58 articles per journal.
- 69.7% of those journals do not charge author-side fees (APCs). Free-to-publish journals published 43.7% of the 2017 articles—up slightly from the 2016 figure from last year's study and down slightly from the 2016 figure (45.1%) for the current universe.
- The average cost per article was no more than $876 in 2017 and probably less, but that's up from 2016.

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 deliberately patterned after the previous edition for comparability, with one chapter eliminated as useless and one new measure added.

Three key numbers for number of journals:

- **10,706**: Journals downloaded from *DOAJ*.

- **10,293**: Journals fully analyzed (excluding unreachable journals, malware, and some other cases: see Chapter 3).
- **9,668**: Journals with at least one 2017 article.

While some discussions and tables involve the full 10,293, others—where 2017 article counts are fundamental—address only the 9,668, ignoring 625 journals with no 2017 articles when checked (twice).

Key Definitions

Gold Open Access

A gold OA journal is one that makes all peer-reviewed articles freely available for anonymous online reading as soon as they're published—excluding "hybrid" journals and those with embargoes.

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, 2018.

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, except for the special "region" APCLand, assigned based on publisher characteristics (see Chapter 2).

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

APCs include normally-mandatory submission or publishing fees (including required society membership), as they would be applied for a U.S. author in the most expensive author category, for a 10-page article in the most expensive article category, in U.S. dollars in early 2018. 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, using shortcuts where available and Find counts when feasible (e.g., when each article has "PDF" as a text tag).

Revenue is simply the current fee times the 2017 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.

The Big Numbers

You've already seen the biggest numbers: 563,146 articles in 9,668 journals in 20176, with 69.7% of the journals free, those no-fee journals publishing 43.7% of the articles.

There are, to be sure, other article and journal counts, discussed in "The Biggest Numbers" near the end of this chapter.

Except for Chapter 3, this book is almost entirely about the biggest group, those coded A or B (discussed below). Table 1.1 shows the key figures for those journals, including the fact that some journals don't publish articles every year.

	Journals	Active 2017	Articles	Art/Jrnl
Free	7,171	6,791	246,310	36
Pay	3,122	2,877	316,836	110
Total	10,293	9,668	563,146	58
Free%	69.7%	70.2%	43.7%	

Table 1.1. Journals and articles, overall

Table 1.2 shows article counts for each of the past six years and also shows codes for some special categories of journals within the overall serious OA universe.

	Count	2017	2016	2015	2014	2013	2012
A	9,799	551,611	522,060	475,530	438,394	372,025	317,277
BI	234	0	0	1,779	3,470	3,595	3,076
BM	30	772	744	738	623	525	501
BR	26	4,985	4,546	3,576	2,750	2,763	2,714
BX	204	5,778	6,146	5,846	4,985	4,217	4,198
Tot.	10,293	563,146	533,496	487,469	450,222	383,125	327,766

Table 1.2. Articles per year and special codes

"A" is for journals active in 2016 or 2017 with no special codes.

"B" codes are as follows:

- **BI** (inactive) journals have at least one article during this period but none since 2015.
- **BM** (malware) journals have outbound calls trapped by Malwarebytes Pro as malware, but could be analyzed while preventing those calls from executing. Be wary about visiting these journals without active strong security software.
- **BR** (reports) journals consist of reviewed conference papers. Note that the largest conference-reports journals, with some 19,000 papers in 2016, are no longer in *DOAJ* (and are *not* included in "The Biggest Numbers" below).
- **BX** journals could not be reached (or were defective) using the URL downloaded from *DOAJ* but could be reached using a title search. The URL in the GOAJ3 spreadsheet is the one used to reach the journal, *not* the one downloaded from *DOAJ*.

These codes are not used in the remainder of this book since—other than BM—they do not imply anything negative about the journals.

Overall Growth

As you can see in Table 1.1 (and Figure 1.3 below), serious gold OA *is* growing, but not all that rapidly: 16.9% in 2013; 17.5% in 2014; 8.3% in 2015; 9.4% in 2016; and 5.6% in 2017.

Revenue and Costs

	2017	2016	2015	2014	2013
Revenue	$493,242K	$435,848K	$394,960K	$353,660K	$278,526K
Pay art.	316,836	293,035	266,783	248,629	206,847
$/art	$1,557	$1,487	$1,480	$1,422	$1,347
Tot.art.	563,146	533,496	487,469	450,222	383,125
$/art	$876	$817	$810	$786	$727
Free%	43.7%	45.1%	45.3%	44.8%	46.0%

Table 1.3. Revenue* and cost per article by year, 2012-2017

Table 1.3 shows overall revenue-related figures for each year in this report (with revenue in thousands of dollars and 2012 omitted to avoid very small type), but the asterisk in the table caption relates to caveats in this data:

- Revenue (Rev.) assumes no waivers, discounts or less-expensive categories. It's based on the APC as of early 2018 (or late 2017 if that's stated) and the fee status as of that date.
- Given that some journals raise APCs and some shift from free to pay (rarely the other way), it's likely that this table overstates not only the revenue but also the pay article counts and cost per article for earlier years.

Starting Dates

Figure 1.1 shows starting dates for all of the good 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 1901-1920.

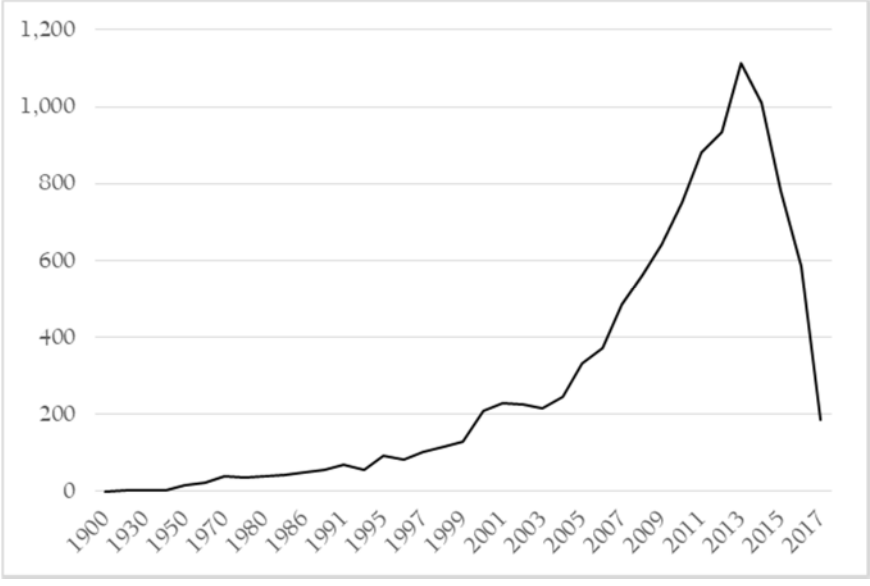

Figure 1.1. OA journals by starting year

While it's true that the rate of creation of new OA journals has slowed substantially since the peak years of 2011-2014, the drop-off for 2017 (and possibly 2016) may be misleading, since most journals don't show up in *DOAJ* until after several articles have been published.

The rest of this book shows starting dates for subsets of journals, grouped into two-year periods or longer and showing free and pay journals separately. Figure 1.2 shows that information for all the journals.

Figure 1.2. Free and pay journals by starting date, overall

Article Volume per Year, Free and Pay

Figure 1.3 uses the template used for graphic free-and-pay article comparisons throughout the book. It's in chronological order rather than the newest-first order of most tables, and it uses solid OA gold for no-fee articles and cross-hatched dollar green for articles in journals that currently charge fees. As elsewhere, this arrangement may slightly understate the free count in earlier years. The key fact is clear enough: while both categories have grown each year, APC-based publishing has grown faster—84% over the six years, as compared to 58% for free publishing. (That's an improvement over last year's report.)

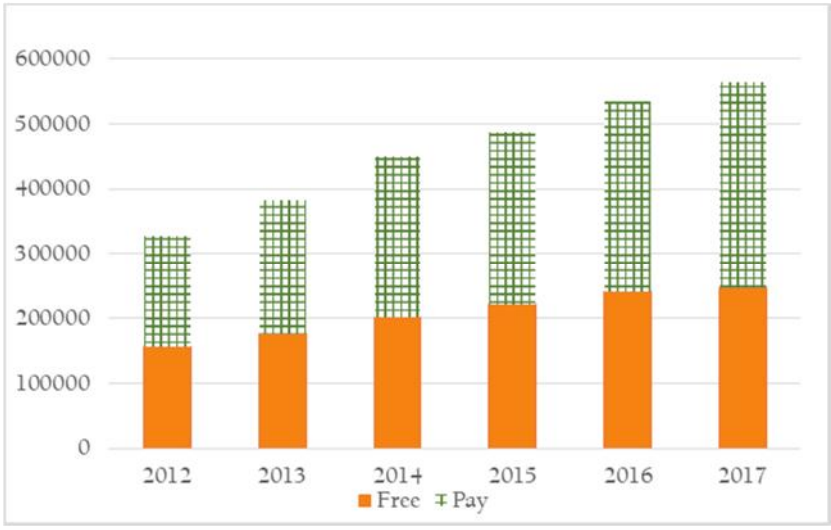

Figure 1.3. Free and pay articles by year, overall

Journal Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	1,697	16.5%	
Grew 25-49.9%	1,020	9.9%	26.4%
Grew 10-24.99%	1,157	11.2%	37.6%
Even, ±9.99%	2,658	25.8%	63.5%
Shrank 10-24.99%	1,236	12.0%	75.5%
Shrank 25-49.99%	1,207	11.7%	87.2%
Shrank 50%+	1,318	12.8%	
Total	10,293		

Table 1.4. Growth and shrinkage, overall

Table 1.4 shows how journals grew and shrank in number of articles from 2016 to 2017, noting that new 2017 journals appear as "Grew 50%+" and those with articles in 2016 but none in 2017 are in "Shrank 50%+."

The Biggest Numbers

There's a lot of gold OA publishing that's not in *DOAJ*, for any number of reasons. I had studied OA journals in former blacklists for 2016; I recounted them for the first half of 2017. Separately, I checked 2017 article counts for journals dropped from *DOAJ*.

Category	2017	2016	2015	2014	2013
Gray 1	54,191	58,984	55,208	55,690	52,285
Gray 2	156,706	149,663	135,870	121,179	87,719
Gray 3	138,944	147,893	146,273	113,349	76,584
	349,841	356,540	337,351	290,218	216,588
Excluded	3,361	6,458	6,451	6,260	5,282
DOAJ A-B	563,146	533,496	487,469	450,222	383,125
Total	916,348	896,494	831,271	746,700	604,995
DOAJ A-B %	61.5%	59.5%	58.6%	60.3%	63.3%

Table 1.5. All known gold OA articles 2013-2017

"Gray 3" is journals where a blacklist offered some evidence. "Gray 2" is where they were on a blacklist without evidence. "Gray 1" is journals formerly in *DOAJ*, and "X" is excluded journals—in *DOAJ* but not included in this report (see Chapter 3). The 2017 counts for Gray 2 and 3 are crude approximations, based on doubling the first six months. Both occurrences of "DOAJ" refer to codes A & B.

Visibility

Fee/APC	Free	%	Pay	%
Visible	5,982	83.5%	2,981	95.7%
Obscure	1,184	16.5%	133	4.3%

Table 1.6. Visibility, overall

Table 1.6 offers a crude measure of the transparency of a journal's fee status and amount (that is: is there a fee at all, and if so, how much?). "Visible" is perhaps too generous, including cases where the information is buried within a paragraph somewhere in journal information or requires linking out to a master table. "Obscure" means I was unable to

locate clear text (not saying there *is* a fee is not the same as saying there is no fee!) on the journal's site—and if there was a link back from *DOAJ*, checking the link did not yield clear text. There's an unfortunately high percentage of obscurity among free (no-fee) journals.

The Rest of the Book

The rest of this book offers a variety of ways to look at the current state of serious gold OA. My purpose here is to describe, not prescribe.

Chapter 2 discusses APCLand and OAWorld, the fundamental split between 13 publishers who publish lots of articles (at least 4,600 in 2017) and have APCs for at least 47% of them that could have yielded at least $7 million in 2017—and everybody else. It also introduces subject segments.

Chapter 3 covers exclusions in some detail: the *DOAJ*-listed journals *not* analyzed in the rest of the book.

Chapter 4 discusses the three broad subject segments and looks at journals by article volume.

Chapter 5 looks at journals and articles by APC and revenue.

Chapter 6 looks at journals and articles by type of publisher.

Chapter 7 looks at journals by country of publication (excluding journals in APCLand).

Chapters 8-11 look at journals and articles within each subject segment (Ch. 9-11), with a brief introduction in Chapter 8.

Chapters 12-19 look at journals and articles by geographic region (Ch. 12) and within each region (Ch. 13-19). *Gold Open Access by Country 2012-2017* provides an alternative and expanded view of OA journals by country and region.

Appendix A discusses the survey itself, some of the caveats, and some of the changes since the previous version.

Key points and highlights appear at the end of early chapters.

Data

The master spreadsheet for this project, including publishers and journal titles but omitting some calculated figures (e.g., revenue) to save space, will be 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 246,000 articles appeared in 2017 in 6,791 journals funded through means other than author-side fees.
- Nearly 317,000 articles appeared in 2,877 journals charging author-side fees (including memberships), for a total of more than 563,000 serious gold OA articles.
- While more than two-thirds of OA journals are free (funded by other means), a small majority of articles (56.3%) appears in fee-charging journals.
- Serious gold OA is growing, but slowly: for journals currently in DOAJ, 5.6% more articles in 2017 than in 2016.
- The "average article" (a meaningless construct) in fee-based journals cost $1,557, leading to an average of $876 including free journals.
- Some 1,034 journals show higher APCs in this report than in last year's, and some 569 show *lower* fees. Many of those, especially the reductions, may be currency exchange fluctuations.
- New journal creation peaked in 2013 (and more broadly in 2011-2014, the only years with more than 800 new journals per year), but new journals continue to emerge, including 586 in 2016 and 185—so far—in 2017.
- Slightly more journals grew than shrank from 2016 to 2017.
- While only 4% of fee-charging journals obscure the fact or amount of fees, 16% of no-fee journal fail to make that fact clear.

2. APCLand and OAWorld

It still seems sensible to split serious gold OA into two groups: APCLand, a small group of big publishers with mostly fee-based journals, and OA-World, everybody else. This time, there are 13 publisher *names* in the APCLand group (Springer, Nature and BioMed Central are listed separately in *DOAJ*) and one anomaly: because of its large stable of society-sponsored journals, Elsevier appears to have published more no-fee than fee 2017 articles in gold OA journals (a few more: 899 out of nearly 30,000). Dove Medical Press published slightly fewer than last year's cutoff of 5,000 articles but still seems to belong in this group.

APCLand

APCLand currently consists of 13 publisher names (as entered in *DOAJ*, normalizing only slightly), each with more than 4,600 articles in 2017 (more than 4,600 with APCs), each with potential 2017 gold OA revenue of at least $7.2 million, and—except for Elsevier's 48.4% and Springer's under-50% figure when viewed separately from Nature and BioMed Central—each with at least 58% fee-based articles.

In 2017, APCLand accounted for 19.5% of the active gold OA journals and published 43.0% of the gold OA articles. APCLand also accounted for **84%** of potential APC revenue.

APCLand currently includes BioMed Central, Dove Medical Press, Elsevier, Frontiers Media S.A., Hindawi Publishing Corporation, MDPI AG, Nature, Oxford University Press, Public Library of Science (PLoS), SAGE Publishing, Springer, Wiley, and Wolters Kluwer Medknow Publications.

If you're curious, these are the largest APCLand entities (treating Springer, Nature, and Biomed Central as a single entity and normalizing different forms of Elsevier and Wolters Kluwer Medknow): by journals active in 2017, SpringerNature, Elsevier, Hindawi and MDPI; by 2017 articles, SpringerNature, MDPI, Elsevier and PLoS; by potential OA APC revenue, SpringerNature, Frontiers, MDPI and PLoS.

For 2017, APCLand included 1,890 active gold OA journals publishing 242,313 articles, with a total potential APC revenue of $413,360,238.

Overall, 26% of APCLand gold OA journals publishing articles in 2017 did not have APCS (including journals funded through SCOAP[3]); those journals published 13% of the 2017 APCLand articles. Average cost per article in fee-charging journals was $1,955; including free journals brings that average down to $1,706. The average fee-charging journal in APCLand published 152 articles and the average free journal published 62 articles, for an overall average of 120 articles.

OAWorld

OAWorld includes more than four thousand named publishers, accounting for 80.5% of the active journals in 2017 and 57% of the articles—but only 16% of the revenue.

OAWorld accounts for 7,778 active journals in 2017 with 320,833 articles and a maximum revenue of $79,881,554. A full 81% of the active journals do not charge fees—and those journals account for 67% of the 2017 articles. In other words, two-thirds of OAWorld articles do not involve author-side fees.

For those articles that *did* involve fees, the weighted average cost per article was $750 in 2017, about 39% of the average APCLand cost. When no-fee articles are included, average cost per article in OAWorld drops to $249, less than 15% of APCLand's overall average cost.

Just as free journals tend to be smaller than fee-based journals, so do OAWorld journals tend to be smaller than APCLand journals. For 2017, the average fee-based OAWorld journal published 71 articles, the average free journal 34, for an overall average of 41 articles per journal.

APCLand and OAWorld in this book

The original *Gold Open Access Journals 2011-2015* discusses my discovery of APCLand as a significant concept and especially its impact on country ratings. This book uses the division as appropriate, which it turns out to be in portions of Chapter 4 and Chapters 7-19. When issued, the subject supplement will treat APCLand as a country.

Year-by-Year Comparison

	2017	2016	2015	2014	2013	2012
APCLand/jrnls	1,890	1,928	1,871	1,780	1,489	1,225
Growth	54%	57%	53%	45%	22%	
Articles	242,313	221,780	205,148	189,878	150,650	121,904
Growth	99%	82%	68%	56%	24%	
Art/J	128	115	110	107	101	100
OAWorld/Jrnls	7,778	7,909	7,610	7,096	6,410	5,648
Growth	38%	40%	35%	26%	13%	
Articles	320,833	311,716	282,321	260,344	232,475	205,862
Growth	56%	51%	37%	26%	13%	
Art/J	41	39	37	37	36	36

Table 2.1. Journals and articles by year, APCLand and OAWorld

Table 2.1 shows for each year the journals actually publishing articles, number of articles, growth *since 2012* (not year-to-year), and articles per journal. Note that article count nearly doubled over the six years for APCLand, while it grew by more than half for OAWorld.

Segment by Segment

Differences between APCLand and OAWorld are even more dramatic in broad subject segments.

Biomed

APCLand looms large in biomed, accounting for 46% of the journals and 58% of the articles. Only 21% of APCLand journals are free, accounting for 14% of the articles. Average cost per article among APC-charging journals in 2017 is $2,105, descending slightly to $1,810 when free journals are included. APCLand published 115,899 biomed articles, just slightly fewer than in STEM.

In OAWorld, 70% of active biomed journals in 2017 were free, and those journals published 53% of the articles: even in biomed, most OAWorld articles did not involve fees. Average cost per article in APC-based journals was $971, coming down to $461 when free journals are included. Biomed is the smallest segment in OAWorld, with 84,936 articles in 2017.

Science, Technology, Engineering and Mathematics (STEM)

STEM is the largest segment overall and for APCLand as well, although APCLand only accounts for 22% of journals. Those journals published 53% of all STEM OA articles in 2017. There's not a lot of free activity in APCLand: 28% of journals, publishing 10% of the 2017 articles. Average cost per article among APC-charging journals was $1,814; including free journals brings that down to $1,632. APCLand published 118,750 STEM articles in 2017.

STEM is the second-largest segment for OAWorld, with 106,916 articles in 2017; 78% of the journals didn't charge APCs, and those journals account for 58% of the articles. Average cost per article among APC-charging journals was $771; for all journals it was $321.

Humanities and Social Sciences (HSS)

APCLand is almost wholly uninterested in the humanities and social sciences: it accounts for 3% of the active journals and 6% of the articles. Although 58% of those journals don't charge APCs, only 36% of the 7,664 articles in 2017 appeared in free journals. Average cost per article among APC-charging journals was $1,981; including non-APC journals, the cost per article comes down to $1,275.

OAWorld published 128,981 HSS articles in 2017—the largest segment. Very little of that involved APCs: 89% of the journals, publishing

84% of the articles, didn't charge them. Among the journals that did charge, average cost per article was $311—but the overall average was $50.

There are considerably more active HSS journals than either biomed or STEM: 4,511 in all compared to 2,548 and 2,609 respectively. OA-World accounts for 4,363 of those 4,511 journals.

A Graphic View of Free and Pay

Figures 2.1 and 2.2, using the same colors and patterns (but different vertical scales), show the difference between APCLand and OAWorld on a year-by-year basis.

Figure 2.1. APCLand articles

The solid-gold Free area grows over the years, but is dominated by the more rapidly growing dollar-green crosshatched area.

Figure 2.2. OAWorld articles

Starting Dates

Figure 2.3. APCLand starting dates

Patterns of journal starting dates also differ between APCLand and OA-World, as shown in Figures 2.3 and 2.4 (different vertical scale).

Figure 2.4. OAWorld starting dates

These figures may not require much commentary. APCLand began adding gold OA journals rapidly beginning in 2008-09, with 358 total before 2008. Substantial growth in OAWorld began earlier, around the turn of the century, and there were 860 OAWorld journals introduced before 2000.

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	409	19.4%	
Grew 25-49.9%	179	8.5%	27.9%
Grew 10-24.99%	203	9.6%	37.6%
Even, ±9.99%	446	21.2%	58.8%
Shrank 10-24.99%	228	10.8%	69.6%
Shrank 25-49.99%	232	11.0%	80.6%
Shrank 50%+	408	19.4%	

Table 2.2. Growth and shrinkage, APCLand

Change 2015-16	Count	Percent	Cum%
Grew 50%+	1,288	15.7%	
Grew 25-49.9%	841	10.3%	26.0%
Grew 10-24.99%	954	11.7%	37.7%
Even, ±9.99%	2,212	27.0%	64.7%
Shrank 10-24.99%	1,008	12.3%	77.0%
Shrank 25-49.99%	975	11.9%	88.9%
Shrank 50%+	910	11.1%	

Table 2.3. Growth and shrinkage, OAWorld

No particularly interesting differences.

Visibility

Fee/APC	Free	%	Pay	%
Visible	482	95.3%	1,578	98.9%
Obscure	24	4.7%	17	1.1%

Table 2.4. Visibility, APCLand

Fee/APC	Free	%	Pay	%
Visible	5,500	82.6%	1,403	92.4%
Obscure	1,160	17.4%	116	7.6%

Table 2.5. Visibility, OAWorld

It's hardly surprising that APCLand tends to be clear about fees and free journals.

Highlights and Key Points

- APCLand published just under one-fifth of active gold OA journals in 2017 and a bit more than two-fifths of articles—but took in more than four-fifths of revenue.
- The average fee-based article in APCLand cost 2.6 times as much as fee-based articles in OAWorld—but the average cost per article for *all* articles was just under seven times as much in APCLand.
- APCLand journals averaged three times as many articles in 2017 as OAWorld journals.
- Biomed and STEM are mostly APCLand, with slight majorities of articles, while HSS is predominantly OAWorld, with more than nine out of ten articles.

3. Exclusions and Special Cases

This chapter is, in essence, one long footnote, and 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 three times while preparing this survey. The first set of visits took place between January 4, 2018 and March 29, 2018. I marked 1,983 journals—those flagged as exclusions and journals that might not yet have final 2017 issues posted—for revisits. I revisited those journals April 15-29, 2018. Journals flagged as X codes were visited a third time, May 1-4, 2018.

Some notes on what visits did and did *not* entail:

- While I began using Excel and Edge, double-clicking on URLs to activate them and a third time to link to the pages, instability in the Excel-Edge combination caused me to switch back to Chrome partway through—and at some point double-click-to-activate stopped working. For most of the survey, I copied URLs from Excel and pasted them into Chrome.
- At all times, I ran Malwarebytes Pro and Windows Defender. During an earlier investigation, at least one "journal" managed to hit me with a difficult-to-fix piece of malware and at least four others attempted to do so; this time, I wasn't taking any chances. Nor should readers or authors.
- *DOAJ* now requires that the presence or absence of a fee (APC) and its amount be visible *within DOAJ*, thus eliminating the former code CA—but the fee presence and amount isn't always visible on the

journal site. I added a "visibility" measure—initially with only two values: 1 for visible, 3 for obscure. If I could not determine the fee status and amount from any plausible location on a journal's site, I used *DOAJ* information and assigned code 3. (If there's another edition, I may refine that test: some "visible" information is remarkably difficult to find.) It's interesting that the Obscure count for fee-based journals, 133, is not much different than the 2015 CA count.

- I used Edge or Chrome "translate this page" and, in a few obstinate cases, copied-and-pasted text into a Google Translate window. This was overwhelmingly successful. As noted in the Preface, I was able to enlist human help to take care of the single remaining case.
- The total *percentage* of excluded journals has stayed about the same (declining from 4.0% to 3.9%), the *number* of excluded journals has risen slightly to 413, entirely because of more malware.

Codes XD through XX

Table 3.1 summarizes excluded journals by type

Code	Count
XD: Duplicate or empty since 2011	161
XI: Impossible to count articles by year	4
XM: Malware encountered	198
XN: Not open access	7
XX: Unreachable/unworkable	43
Total excluded	**413**

Table 3.1. Excluded journals

Compared to last year, XD (which, unlike the other codes, does not mean something's wrong with the journal—just that it doesn't have articles since 2012) is probably lower than last year's combination of XE and some of BC; XI is down one; XM is up, nearly tripled from 2016, and that's a problem (discussed later in this chapter); XN is down considerably,. Compared to the codes it replaces (XP, XU, XV and XX), XX is down enormously. Except for XM, these are excellent figures.

Figure 2.2 shows article counts in those cases where I could derive them, either from *DOAJ* or from previous years.

Code	2017	2016	2015	2014	2013	2012
XI		193	123	162	109	112
XM	2,928	5,250	5,016	4,335	3,698	2,546
XN	28	32	58	51	58	14
XX	405	983	1,254	1,712	1,417	618
Total	**3,361**	**6,458**	**6,451**	**6,260**	**5,282**	**3,290**

Table 3.2. Partial article counts for excluded journals

By definition, XD journals have no articles in 2012-2017, so that row is omitted. Fortunately, excluded journals are a small part of the OA field.

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 had articles since 2011 or before.

XI: Impossible to count articles by year

Two of these, one from India and one from Pakistan, consist of whole-issue PDFs without tables of contents; I was unwilling to page through each issue counting articles. One has no dates—even in article PDFs. (How would these articles be cited?) One made getting to articles or contents lists so difficult that I gave up.

XM: Malware encountered

There are far too many of these, largely due to insertion of malicious code into poorly-secured websites. I won't list the journals: there are too many. It is worth noting some characteristics of the journals and how Malwarebytes classifies the threat.

Country: While a dozen countries have malware cases, there are only four with more than four: Indonesia with 136, Brazil with 26, and Malaysia and Romania with nine each. Without Indonesia, there would be fewer XM cases than last year.

Publisher category: Nearly all of these—185—are from universities.

Free or pay: Surprisingly, 43 have APCs; the rest are free.

Nature of problem: Malwarebytes Pro says that 80 of these are riskware—behavior that *may* be malicious. Another 67 are phishing attempts, code designed to trick the visitor into providing confidential information. Two are bad security certificates, and 49 are malware—clearly malicious software.

XN: Not open access

What few of these are left have an assortment of flaws. One is admirable but not a journal at all; one has a 12-month embargo; one is no longer OA; one now requires login; one only provides abstracts; and one appears to be a subject-specific index with no way of finding original articles.

XX: Unreachable/unworkable

Another motley crew, including four persistent 403 errors (forbidden, an odd attribute for an OA journal!); 13 persistent 404s; seven persistent DNS failures; two persistent database failures; four persistent timeouts; and a handful of others.

The BX Saves

Journals changed to BX (because a title search yielded a workable URL that wasn't linked to in the original) include 81 "404" cases; 31 DNS failures; 22 timeouts; 16 XM or BM cases; 13 ad and parking pages; seven 500-502 codes; six database failures; four 400-403 errors; four that were XX; and 20 miscellaneous errors.

Highlights and Key Points

- In most areas, problems have been reduced from 2016.
- Malware has gotten *much* worse, primarily due to two countries (one of which has added more journals to *DOAJ* than any other).

4. 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, using either 2017 volume or the peak of the period 2012-2017. 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 last year.

Detailed Breakdown of Journals by Peak Volume

Table 4.1 offers a detailed breakdown of journals by peak article volume, showing for each range the number of journals, how many journals published articles in 2017, the percentage of those journals that don't charge APCs (%Free), the number of articles in 2017, the percentage of articles appearing in non-APC journals, and the percentage of all 2017 articles represented in this bracket. The peak number is the *lower* limit of the row—thus, the first row is 20,000 articles and up, while the second is 2,000 to 19,999.

Peak	Journals	Act. 17	%Free	Articles	%Free	% of articles
20,000	2	2	0.00%	46,491	0.00%	8.26%
2,000	20	20	15.00%	48,515	19.64%	8.61%
1,000	33	33	9.09%	33,301	9.38%	5.91%
800	28	28	28.57%	18,160	26.86%	3.22%
600	33	33	24.24%	17,016	17.54%	3.02%
400	74	74	16.22%	24,564	10.15%	4.36%
300	100	99	24.24%	24,600	21.00%	4.37%
200	211	210	33.33%	38,201	30.91%	6.78%
150	233	231	38.96%	29,985	37.02%	5.32%
125	201	198	52.53%	18,981	51.24%	3.37%
100	364	355	50.70%	29,599	49.55%	5.26%
80	487	481	56.13%	32,119	56.34%	5.70%
60	835	819	64.35%	42,880	66.04%	7.61%
50	652	638	71.00%	26,471	71.53%	4.70%
40	993	959	75.70%	32,891	76.95%	5.84%
30	1,545	1,504	77.99%	40,070	80.11%	7.12%
20	2,150	2,012	78.73%	37,405	80.94%	6.64%
15	1,084	979	79.16%	13,210	81.32%	2.35%
10	868	734	80.79%	7,242	82.57%	1.29%
5	369	251	72.91%	1,423	74.63%	0.25%
1	11	8	62.50%	22	81.82%	0.00%

Table 4.1. Journals and articles by detailed peak volume

Free (no-fee) journals tend to be smaller: that's clear and not surprising. For journals, note that less than one-third of journals with peak volumes of 300 articles or more are free, while a majority of those with fewer than 150 articles are free, including more than two-thirds of those with fewer than 60 articles.

The Three Segments

Chapter 2 introduced the three subject segments used throughout, but it's worth adding a few notes about each segment:

- **Biomed**: All of human biology and medicine, the segment with by far the most fee revenue.
- **STEM**: Journals in hard sciences (other than human biology), technology, engineering and mathematics, including multidisciplinary journals primarily dealing with science and medicine. The segment with the most articles.
- **HSS**: Humanities and social sciences, as well as multidisciplinary journals that include both scientific and other areas. Fewest articles but most journals of any segment.

Journals and Articles by Segment

To get a sense of the size of each segment, Table 4.2 breaks out the data in Table 1.1 into the three segments.

	Journals	Act. 2017	Articles	Art/Jrnl
Biomed	**2,694**	**2,548**	**200,835**	**79**
Free	1,256	1,216	60,852	50
Pay	1,438	1,332	139,983	105
Free%	47%	48%	30%	
STEM	**2,814**	**2,609**	**225,666**	**86**
Free	1,688	1,603	74,303	46
Pay	1,126	1,006	151,363	150
Free%	60%	61%	33%	
HSS	**4,785**	**4,511**	**136,645**	**30**
Free	4,227	3,972	111,155	28
Pay	558	539	25,490	47
Free%	88%	88%	81%	

Table 4.2. Journals and articles by segment

Biomed is the only segment with a slight majority of fee-charging journals, while STEM has the most articles per journal. The two megajournals are both included in STEM.

Journals by Segment

	Biomed	STEM	HSS	Total
Largest: 600+	52	55	9	116
Free%	10%	24%	44%	19%
Large: 150-599	351	185	78	614
Free%	28%	30%	56%	32%
Med.: 60-149	711	583	559	1,853
Free%	46%	52%	80%	58%
Small: 20-59	1,123	1,299	2,691	5,113
Free%	56%	68%	90%	77%
Smallest: 1-19	311	487	1,174	1,972
Free%	49%	72%	90%	79%

Table 4.3. Journals by segment, 2017

Bigger journals tend to have APCs—even in HSS, most of the largest journals charge. Close comparisons to last year's table show a growing percentage of free journals in almost all size categories for Biomed and STEM, but the overall picture hasn't changed much.

Article Volume by Segment

	Biomed	STEM	HSS	Total
Largest: 600+	48,229	108,789	6,465	163,483
Free%	4%	15%	35%	13%
Large: 150-599	68,308	38,048	10,994	117,350
Free%	22%	27%	49%	26%
Med.: 60-149	49,979	39,140	34,460	123,579
Free%	46%	52%	79%	57%
Small: 20-59	31,408	34,394	71,035	136,837
Free%	61%	69%	90%	78%
Smallest: 1-19	2,911	5,295	13,691	21,897
Free%	54%	74%	90%	81%

Table 4.4. Articles by segment, 2017

Table 4.4 translates Table 3.3 into articles. Perhaps worth noting: most articles (a bare majority) in large HSS journals involve charges even though most of the journals are free.

Small journals and, to a lesser extent, medium-sized journals dominate HSS, with more than six times as many articles as large and largest journals. By comparison, the large and largest biomed journals publish more than 40% *more* articles than small and medium-sized journals, and large and largest STEM journals publish nearly *twice* as many articles as small and medium-sized journals (99.7% more). Even if you remove the two megajournals, large and largest STEM journals would account for one-third more articles than small and medium-sized ones.

APCLand and OAWorld: Journals

Let's look at APCLand and OAWorld separately, using the same layout and data as for Tables 4.3 and 4.4.

	Biomed	STEM	HSS	Total
Largest: 600+	37	33	1	71
Free%	0%	12%	0%	6%
Large: 150-599	221	70	5	296
Free%	18%	13%	40%	17%
Med.: 60-149	332	134	20	486
Free%	25%	28%	40%	26%
Small: 20-59	451	281	85	817
Free%	26%	35%	64%	33%
Smallest: 1-19	119	64	37	220
Free%	8%	25%	59%	21%

Table 4.5. Journals by segment, APCLand

Even in OAWorld, most large and largest biomed and STEM journals have fees—but not the overwhelming dominance in APCLand.

	Biomed	STEM	HSS	Total
Largest: 600+	15	22	8	45
Free%	33%	41%	50%	40%
Large: 150-599	130	115	73	318
Free%	45%	40%	58%	46%
Med.: 60-149	379	449	539	1,367
Free%	65%	59%	82%	70%
Small: 20-59	672	1,018	2,606	4,296
Free%	77%	77%	91%	85%
Smallest: 1-19	192	423	1,137	1,752
Free%	74%	79%	91%	86%

Table 4.6. Journals by segment. OAWorld

APCLand and OAWorld: Articles

	Biomed	STEM	HSS	Total
Largest: 600+	34,705	85,483	2,319	122,507
Free%	0%	5%	0%	4%
Large: 150-599	45,274	15,982	1,211	62,467
Free%	13%	10%	35%	13%
Med.: 60-149	23,413	9,487	1,354	34,254
Free%	27%	28%	38%	28%
Small: 20-59	11,571	7,229	2,349	21,149
Free%	32%	43%	65%	39%
Smallest: 1-19	936	569	431	1,936
Free%	10%	31%	63%	28%

Table 4.7. Articles by segment, APCLand

	Biomed	STEM	HSS	Total
Largest: 600+	13,524	23,306	4,146	40,976
Free%	14%	51%	54%	39%
Large: 150-599	23,034	22,066	9,783	54,883
Free%	39%	39%	51%	41%
Med.: 60-149	26,566	29,653	33,106	89,325
Free%	63%	59%	81%	69%
Small: 20-59	19,837	27,165	68,686	115,688
Free%	78%	76%	91%	85%
Smallest: 1-19	1,975	4,726	13,260	19,961
Free%	75%	79%	91%	86%

Table 4.8. Articles by segment, OAWorld

Highlights and Key Points

- Larger journals tend to have fees, but not all of them.
- HSS articles are predominantly in small and medium-sized journals, while the large and largest STEM journals publish twice as many articles as the small and medium-sized journals.
- Very small journals are nearly irrelevant in biomed and STEM (about 1.4% and 2.3% respectively), but play a larger role in HSS (10% of all articles).

5. 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 be may be so small as to be trivial. Quite possibly, the only direct costs are hosting costs absorbed by the institution, DOI costs and a subdomain that doesn't require registration.

Normally, there are costs that require money from some source, even if most costs (managing peer review, editorial oversight, posting articles, maintaining the journal site, etc.) are absorbed by a parent institution or automated—and even if the journal handles layout and typesetting by requiring templates and doesn't do copyediting.

Larger journals almost certainly require more funding: it's hard to believe that a journal publishing hundreds of articles each year can survive entirely based on volunteer labor.

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 may be getting from APCs.

Revenue Ranges

Table 5.1, which includes only journals with fees, shows the number of journals and articles in each of a fairly large range of revenue segments—the only time we'll break out revenue for fee journals beyond four large segments. Except for slight modifications at the top of ranges to reflect reality, revenue brackets are the same as in *GOAJ2: Gold Open Access Journals 2011-2016* to provide some comparability.

Revenue	Journals	Cum J	Articles	Art/J
$23 to $44 million	3		51,030	17,010
$4 to $7.8 million	13	16	30,803	2,369
$2 to $3.98 million	19	35	23,699	1,247
$1 to $1.99 million	38	73	24,783	652
$750,000 to $956,670	35	108	14,785	422
$500,000 to $725,900	63	171	20,285	322
$400,000 to $499,785	41	212	10,157	248
$300,000 to $398,958	63	275	12,364	196
$250,000 to $295,260	48	323	6,786	141
$200,000 to $249,200	53	376	5,957	112
$150,000 to $199,962	82	458	9,985	122
$100,000 to $149,850	150	608	14,562	97
$75,000 to $99,680	119	727	10,473	88
$50,000 to $74,880	209	936	14,138	68
$40,000 to $49,728	114	1,050	7,928	70
$30,000 to $39,664	154	1,204	8,858	58
$25,000 to $29,900	87	1,291	4,338	50
$20,000 to $24,990	132	1,423	6,085	46
$15,000 to $19,872	142	1,565	5,045	36
$10,000 to $14,940	221	1,786	8,275	37
$7,500 to $9,950	107	1,893	3,071	29
$5,000 to $7,434	172	2,065	5,530	32
$2,500 to $4,950	219	2,284	6,397	29
$1,000 to $2,479	262	2,546	5,930	23
$4 to $999	331	2,877	5,572	17
$0 (no 2017 articles)	245	3,122	0	0

Table 5.1. Revenue by journal, detailed breakdown

What should be clear from Table 5.1 is that APC-based OA publishing isn't an easy get-rich-quick scheme. Only 608 journals could have brought in at least $100,000 in 2017, and only 936 are at the $50,000 mark. Barely more than half earned $20,000 or more.

Max. 2017 Revenue	Count	Total
APCLand: $7-$78M	13	
$2-$6.2 Million	11	$37,721,437
$1-$1.9 Million	6	$8,695,506
$500K-$960K	21	$14,784,502
$250K-$498K	10	$3,266,618
$100K-$249K	46	$7,320,326
$50K-$99K	63	$4,503,176
$25K-$49K	75	$2,673,807
$15K-$24K	74	$1,480,618
$10K-$14K	66	$807,870
$5K-$9K	115	$815,084
$2K-$4K	147	$480,764
$4-$1,999	243	$206,950
Zero	3000+	

Table 5.2. Maximum potential 2017 revenue by publishers, not normalized

To be sure, most fee-based publishers have more than one journal. Table 5.2 shows a rough picture of publisher revenue, although publishers weren't normalized or grouped. Still, only 30 publishers had at least $1 million in potential revenue, with another 21 over the half-million mark. (Unlike most of this chapter, Table 5.2 *does* include no-fee publishers, which represent more than three-quarters of the publishing entities.)

Detailed APC Breakdown

APCs range from $0.20 (yes, twenty cents) to $5,200. Table 5.3 offers a fairly detailed set of APC ranges.

APC	Journals	Cum J	Articles	Art/J
$4,000-$5,200	12		7,928	661
$3,000-$3,975	55	67	5,513	100
$2,500-$2,980	71	138	27,349	385
$2,250-$2,492	107	245	15,384	144
$2,000-$2,240	269	514	38,187	142
$1,750-$1,995	274	788	61,549	225
$1,500-$1,745	135	923	21,336	158
$1,250-$1,495	108	1,031	31,844	295
$1,000-$1,249	264	1,295	17,748	67
$750-$995	222	1,517	8,785	40
$600-$749	317	1,834	6,177	19
$400-$599	221	2,055	16,358	74
$300-$399	163	2,218	10,211	63
$200-$294	121	2,339	10,650	88
$100-$193	286	2,625	14,560	51
$0.20-$98	497	3,122	23,257	47

Table 5.3. APC levels, detailed breakdown

Unlike the reasonably good correlation between journal revenue and articles per journal in Table 5.1, there's no clear correlation in Table 5.3. The highest article-per-journal averages are in the most expensive journals and in priced journals charging $1,750 to $1,995. Journals charging $600 to $749 have *fewer* articles per journal than journals charging less than $600.

For consistency, the APC brackets in the remainder of this chapter and the rest of the book are the same as last year:

- High: $1,400 and up
- Medium: $600 to $1,399
- Low: $200 to $599
- Modest: $0.20 to $199
- Free (no author-side fee)

Fees and Revenue by Segment

	Biomed	STEM	HSS	
$1,400+	686	199	39	924
Articles	96,723	100,048	3,770	200,541
Revenue	$227,033,788	$197,032,148	$9,885,553	
$600-$1.399	298	331	77	706
Articles	14,528	23,412	3,319	41,259
Revenue	$13,989,701	$24,691,688	$3,461,025	
$200-$599	208	184	100	492
Articles	18,408	13,284	5,527	37,219
Revenue	$6,902,007	$5,228,685	$1,911,446	
$0.20-$199	140	292	323	755
Articles	10,324	14,619	12,874	37,817
Revenue	$1,015,337	$1,178,135	$912,279	
Free	1,216	1,603	3,972	6,791
Articles	60,852	74,303	111,155	246,310

Table 5.4. Articles and revenue by segment, overall

Table 5.4 shows *active* journals (those with articles in 2017). Across the board, the most expensive journals account for most of the revenue, with $1,400+ journals taking in 91% of all revenue for biomed, 86% for STEM, and 61% for HSS.

Growth and Shrinkage

Tables 5.5 through 5.9 show article change in each journal from 2016 to 2017 for the five price brackets. These tables *do* include journals with no 2017 articles, always in the "Shrank 50%+" row unless they didn't have 2016 articles either (making them "Even, ±9.99%").

Change 2016-17	Count	Percent	Cum%
Grew 50%+	204	21.5%	
Grew 25-49.9%	112	11.8%	33.3%
Grew 10-24.99%	119	12.5%	45.8%
Even, ±9.99%	206	21.7%	67.5%
Shrank 10-24.99%	115	12.1%	79.7%
Shrank 25-49.99%	110	11.6%	91.3%
Shrank 50%+	83	8.7%	
Total	949		

Table 5.5. Growth and shrinkage, APCs $1,400 and up

Change 2016-17	Count	Percent	Cum%
Grew 50%+	155	17.5%	
Grew 25-49.9%	53	6.0%	23.5%
Grew 10-24.99%	59	6.7%	30.2%
Even, ±9.99%	130	14.7%	44.9%
Shrank 10-24.99%	77	8.7%	53.6%
Shrank 25-49.99%	103	11.6%	65.2%
Shrank 50%+	308	34.8%	
Total	885		

Table 5.6. Growth and shrinkage, APCs $600-$1,399

More rapid and fairly rapid growth in high-fee journal articles than elsewhere—and more shrinkage at the worst level than at any other.

*

Change 2016-17	Count	Percent	Cum%
Grew 50%+	95	18.8%	
Grew 25-49.9%	60	11.9%	30.7%
Grew 10-24.99%	49	9.7%	40.4%
Even, ±9.99%	141	27.9%	68.3%
Shrank 10-24.99%	75	14.9%	83.2%
Shrank 25-49.99%	55	10.9%	94.1%
Shrank 50%+	30	5.9%	
Total	505		

Table 5.7. Growth and shrinkage, APCs $200 to $599

Change 2016-17	Count	Percent	Cum%
Grew 50%+	111	14.2%	
Grew 25-49.9%	66	8.4%	22.6%
Grew 10-24.99%	87	11.1%	33.7%
Even, ±9.99%	237	30.3%	64.0%
Shrank 10-24.99%	93	11.9%	75.9%
Shrank 25-49.99%	96	12.3%	88.1%
Shrank 50%+	93	11.9%	
Total	783		

Table 5.8. Growth and shrinkage, APCs $0.20 to $199

Change 2016-17	Count	Percent	Cum%
Grew 50%+	1,132	15.8%	
Grew 25-49.9%	729	10.2%	26.0%
Grew 10-24.99%	843	11.8%	37.7%
Even, ±9.99%	1,944	27.1%	64.8%
Shrank 10-24.99%	876	12.2%	77.0%
Shrank 25-49.99%	843	11.8%	88.8%
Shrank 50%+	804	11.2%	
Total	7,171		

Table 5.9. Growth and shrinkage, free (no-fee) journals

Highlights and Key Points

- Relatively few gold OA journals bring in large revenue; nearly half yielded less than $20,000 in 2017.
- Thirty publishers may have gained $1 million or more in 2017 gold OA fees; another 21 gained more than half a million.
- There's no clear correlation between APC level and articles per journal, except at the very top.
- Journals charging $1,400 and up account for 91% of 2017 gold OA revenue in biomed, 86% in STEM and 61% for HSS.
- Journals charging $1,400 and up were more likely to grow rapidly, with a full third publishing half again as many articles in 2017 as in 2016, and fewer than 10% falling by half or more.
- Journals charging $600 to $1,399 are more likely to have shrunk in 2017: the only price category (including free) where less than one-third grew significantly and a majority shrank significantly.

6. 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:

- **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.
- **Societies, associations and government agencies**: There aren't that many government-published OA journals, not enough to create a separate category.
- **Traditional publishers**: Companies (or publisher names) that publish subscription journals as well as multiple OA journals.
- **Open access publishers**: Publishers that don't appear to publish many subscription journals but do publish multiple OA journals.
- **Miscellaneous**: Publisher names (frequently journal names) that don't obviously fall into the other types and that only have one or two journals.

I searched for information on non-obvious publisher names with more than two journals and assigned categories appropriately. I'm sure there are quite a few miscellaneous journals that are from universities, colleges, societies, associations or government agencies but where the non-English publisher name didn't make that obvious—but never more than a couple for each publisher name.

Category	Journals	%Free	Articles	%Free
Open Access	2,089	35%	182,599	14%
Univ/college	5,273	87%	175,080	76%
Traditional	1,027	38%	112,474	30%
Society/govt	784	78%	46,543	53%
Miscellaneous	1,120	77%	46,450	62%

Table 6.1. Publisher category, overall

Table 6.1 (sorted by number of 2017 articles) shows overall figures—and, unlike the rest of this chapter, *does* include journals with no 2017 articles. OA publishers have an even lower percentage of free (no-fee) journals than traditional publishers—and a *much* lower percentage of no-fee articles. Most added journals are from universities; thanks partly to more searching, there are *fewer* miscellaneous journals than last year.

The rest of this chapter is subchapters in the order shown above, always ignoring journals with no 2017 articles.

Open Access Publishers

	2017	2016	2015	2014	2013	2012
Journals	1,846	1,895	1,886	1,843	1,657	1,342
%Free	37%	36%	34%	31%	30%	31%
Articles	182,599	174,311	166,782	167,231	144,525	120,797
%Free	14%	15%	15%	14%	15%	16%

Table 6.2. Journals and articles by year, open access publishers

This category is startlingly different from the others, with very few no-APC articles and very few new journals. The percentage of free journals is up from last year, but not the percentage of free articles. Except for a tiny drop in 2015, article count has grown every year.

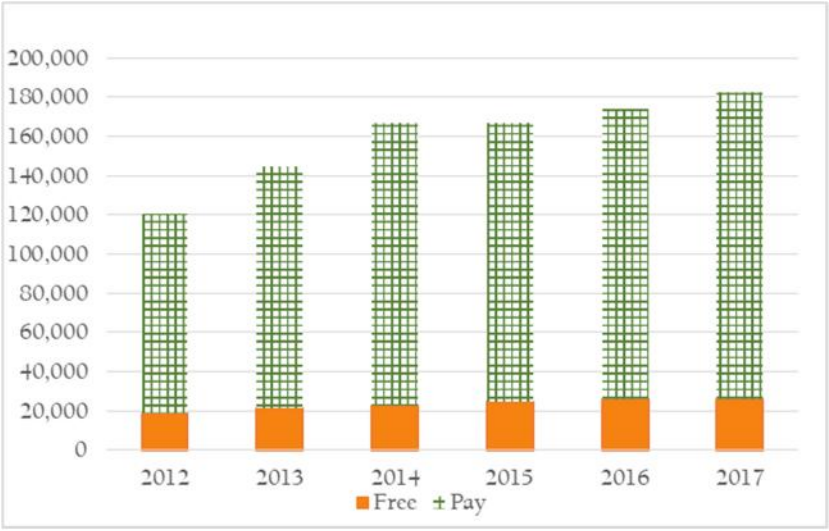

Figure 6.1. Free and pay articles by year, open access publishers

	Journals	%Free	Articles	%Free
Largest: 600+	60	3%	83,809	2%
Large: 150-599	233	15%	49,293	12%
Med.: 60-149	429	28%	27,398	29%
Small: 20-59	827	45%	19,423	51%
Smallest: 1-19	297	51%	2,676	57%

Table 6.3. Article volume, open access publishers

This year, a majority of articles in the smaller journals are in no-fee journals, but while most journals are smaller, the larger ones absolutely dominate article count.

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	520	38%	25%	123,279	79%	68%
$600-$1.399	545	40%	26%	16,810	11%	9%
$200-$599	230	17%	11%	14,138	9%	8%
$0.20-$199	69	5%	3%	2,046	1%	1%
Free	725		35%	26,326		14%

Table 6.4. APC levels, open access publishers

The shift toward high APCs continues. Average APC per article in fee-based journals is $1,760; overall average is $1,513.

Figure 6.2. Starting dates, open access publishers

	Biomed	STEM	HSS
$1,400+	407	80	21
Articles	66,095	54,054	3,130
Revenue	$150,875,630	$93,664,277	$8,401,204
$600-$1.399	186	163	29
Articles	5,103	10,451	1,256
Revenue	$5,060,614	$11,352,267	$1,204,001
$200-$599	105	75	44
Revenue	$2,913,172	$1,687,875	$861,220
$0.20-$199	33	12	16
Articles	1,619	124	303
Revenue	$182,072	$13,788	$33,701
Free	255	226	194
Articles	13,022	8,327	4,977

Table 6.5. Articles and revenue by segment, open access publishers

Figure 6.2 is distinctive in that there are so few pre-1998 journals and that APC-based startups have consistently outnumbered free ones. Table 6.5 is what you'd expect: lots of expensive biomed (that's where the money is), very little HSS (that's where the money is not).

Region	Journals	%Free	Articles	%Free
APCLand	1,077	16%	147,991	7%
Eastern Europe	369	86%	11,912	77%
Western Europe	243	50%	11,600	42%
Pacific/English	62	31%	4,360	13%
Asia	17	29%	2,438	7%
Middle East	28	64%	1,988	42%
Africa	45	38%	1,794	27%
Latin America	5	100%	516	100%

Table 6.6. Journals by region, open access publishers

Note that here as elsewhere, the region table is sorted by 2017 article count. APCLand dominates this category, not surprisingly.

Fee/APC	Free	%	Pay	%
Visible	672	92.7%	1,342	98.7%
Obscure	53	7.3%	18	1.3%

Table 6.7. Visibility, open access publishers

Universities, Colleges and Institutes

	2017	2016	2015	2014	2013	2012
Journals	5,003	5,078	4,881	4,559	4,177	3,708
%Free	86%	87%	87%	87%	87%	88%
Articles	175,080	171,035	162,064	149,559	131,569	118,069
%Free	76%	76%	76%	75%	77%	77%

Table 6.8. Journals and articles by year, university-published

Universities publish a large and growing number of OA journals, consistently mostly free. While article count has grown every year, many

university journals post online months after the issue date: I'd be surprised if the final 2017 article count was not at least a couple of thousand higher.

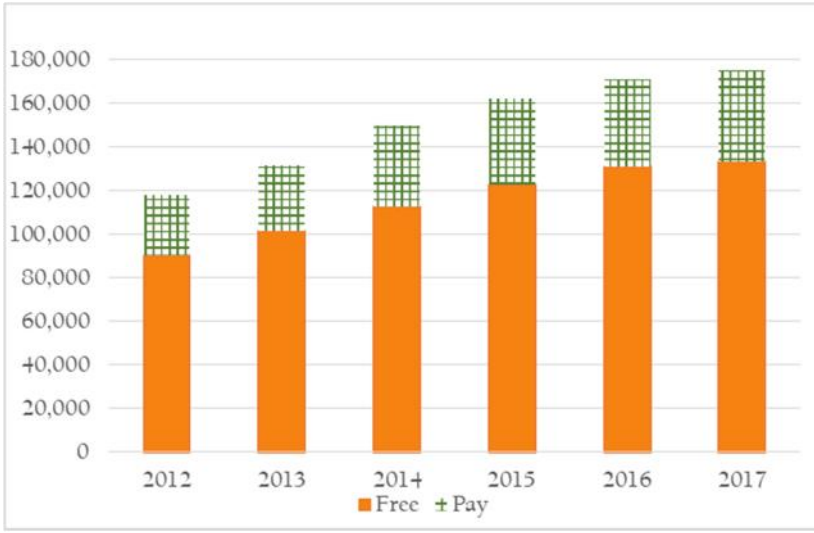

Figure 6.3. Free and pay articles by year, university-published

	Journals	%Free	Articles	%Free
Largest: 600+	13	31%	8,827	12%
Large: 150-599	157	56%	24,536	50%
Med.: 60-149	780	78%	50,195	77%
Small: 20-59	2,885	89%	77,444	89%
Smallest: 1-19	1,168	90%	14,078	89%

Table 6.9. Article volume, university-published

University journals tend to be small—and the few largest ones are the only area in which APC-charging journals outnumber free ones.

Table 6.10 shows that the handful of expensive journals publish far more articles per journal than the cheaper and free ones. Average cost per article among fee-charging journals is $543; among all journals, $130. Both of these figures are *lower* than in last year's study.

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	32	5%	1%	6,595	16%	4%
$600-$1.399	40	6%	1%	2,850	7%	2%
$200-$599	116	17%	2%	9,582	23%	5%
$0.20-$199	511	73%	10%	22,807	55%	13%
Free	4,574		87%	133,246		76%

Table 6.10. APC levels, university-published

Figure 6.4. Starting dates, university-published

There were quite a few early OA journals; steady growth accelerating after 2005; and a peak in 2012-2013 with continuing healthy growth since then—and fee journals always a small minority.

Table 6.11 is what you might expect: most journals and articles in no-fee HSS and STEM journals, with what little revenue there is mostly concentrated in high-priced biomed and STEM journals and, to a lesser extent, medium-priced journals in those segments.

	Biomed	STEM	HSS
$1,400+	17	11	4
Articles	4,143	2,298	154
Revenue	$9,244,270	$5,513,698	$278,841
$600-$1.399	10	20	7
Articles	670	1,955	225
Revenue	$585,990	$1,898,664	$194,039
$200-$599	38	47	30
Articles	3,934	4,015	1,633
Revenue	$1,369,079	$1,505,291	$550,937
$0.20-$199	67	198	234
Revenue	$303,217	$609,352	$658,257
Free	484	893	2,943
Articles	20,078	31,970	81,198

Table 6.11. Articles and revenue by segment, university-published

Region	Journals	%Free	Articles	%Free
Latin America	1,523	95%	55,993	89%
Eastern Europe	826	84%	34,996	72%
Asia	1,035	71%	25,978	60%
Western Europe	885	94%	25,550	86%
Middle East	402	85%	16,594	76%
Pacific/English	257	94%	6,685	92%
APCLand	32	13%	6,595	1%
Africa	43	65%	2,689	64%

Table 6.12. Journals by region, university-published

Latin America has the most university-published journals and articles; Asia has seen the fastest growth in *DOAJ* listings.

Fee/APC	Free	%	Pay	%
Visible	3,796	83.0%	642	92.2%
Obscure	776	17.0%	54	7.8%

Table 6.13. Visibility, university-published

Unfortunately, quite a few university journals fail to make their no-fee status clear—roughly two-thirds of all the obscure free cases.

Traditional Publishers

	2017	2016	2015	2014	2013	2012
Journals	997	1,003	917	783	566	476
%Free	39%	39%	39%	39%	39%	40%
Articles	107,935	97,674	75,186	56,298	39,777	29,337
%Free	31%	32%	32%	36%	34%	37%

Table 6.14. Journals and articles by year, traditional publishers

This group of mostly fee-based journals is also growing rapidly in *DOAJ* and shows constant, substantial but slowing growth in article count. Note that some of these journals (possibly most of the 39% free) are sponsored by societies or universities.

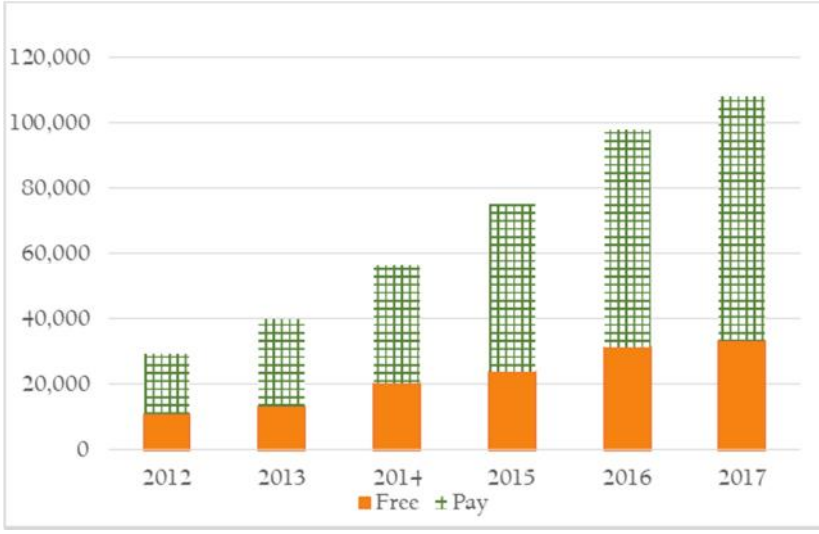

Figure 6.5. Free and pay articles by year, traditional publishers

	Journals	%Free	Articles	%Free
Largest: 600+	22	36%	49,605	27%
Large: 150-599	109	28%	22,402	22%
Med.: 60-149	267	42%	20,626	40%
Small: 20-59	451	42%	13,865	44%
Smallest: 1-19	148	30%	1,437	35%

Table 6.15. Article volume, traditional publishers

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	351	55%	34%	55,743	75%	52%
$600-$1.399	239	38%	23%	15,175	20%	14%
$200-$599	37	6%	4%	3,534	5%	3%
$0.20-$199	8	1%	1%	281	0%	0%
Free	392		38%	33,202		31%

Table 6.16. APC levels, traditional publishers

More than half of APC-charging journals are at the most expensive level—and the average cost per article in fee journals is $2,120, highest of any category, although including non-fee journals brings the average down to $1,473, just below open access publishers. (A reminder: all average costs are *weighted* averages, based on number of articles, not number of journals. If one journal charges $1,000 and has 100 articles and nine others charge $100 and have 11 articles each, the average charge is $552, not $190.)

Figure 6.6 is distinctive (even more so as more journals have entered *DOAJ*), with almost no traditional-publisher gold OA activity before 2004 and a sharp spike in 2014-2015.

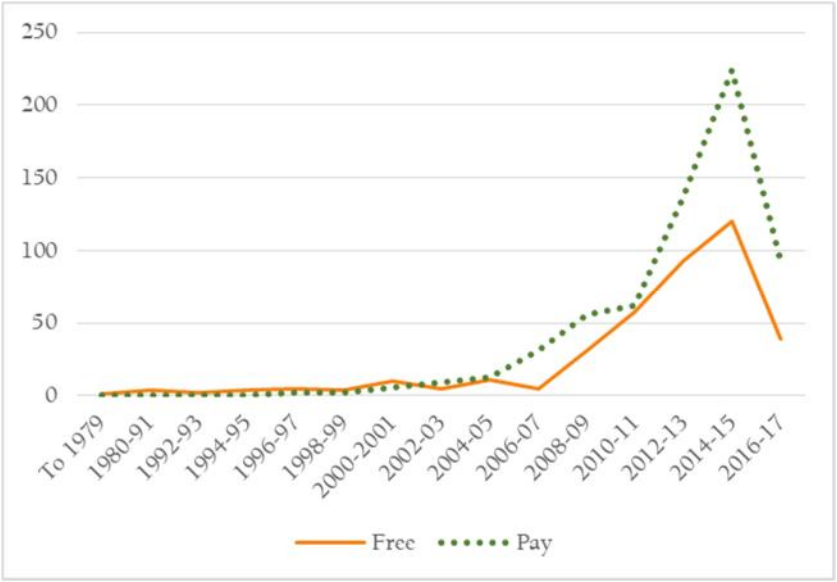

Figure 6.6. Starting dates, traditional publishers

	Biomed	STEM	HSS
$1,400+	235	91	12
Articles	21,311	34,148	284
Revenue	$55,300,358	$86,141,808	$542,415
$600-$1.399	78	119	35
Articles	7,394	6,086	1,695
Revenue	$7,025,276	$6,316,439	$1,955,079
$200-$599	20	13	3
Articles	1,761	1,390	383
Revenue	$876,132	$647,290	$160,900
$0.20-$199	2	3	2
Articles	99	160	22
Revenue	$8,588	$20,871	$1,192
Free	163	146	75
Articles	10,557	20,624	2,021

Table 6.17. Articles and revenue by segment, traditional publishers

While both biomed and STEM are top-heavy as expected (with expensive journals dominating article count and revenue), what's a little unusual is that STEM yielded substantially more revenue than biomed.

Region	Journals	%Free	Articles	%Free
APCLand	780	41%	87,707	24%
Western Europe	174	18%	22,554	47%
Eastern Europe	22	82%	1,098	75%
Asia	7	71%	445	57%
Pacific/English	9	22%	442	14%
Latin America	4	100%	164	100%
Middle East	1	100%	64	100%

Table 6.18. Journals by region, traditional publishers

APCLand dominates, followed by Western Europe and Pacific/English.

Fee/APC	Free	%	Pay	%
Visible	363	92.6%	623	98.1%
Obscure	29	7.4%	12	1.9%

Table 6.19. Visibility, traditional publishers

Only 41 obscure cases, but that's 41 too many, especially for traditional publishers—and most especially the 12 obscure fee cases.

Societies, Associations and Government Agencies

	2017	2016	2015	2014	2013	2012
Journals	759	772	747	707	645	591
%Free	78%	78%	79%	79%	80%	80%
Articles	46,543	43,502	41,496	39,489	35,280	32,006
%Free	53%	55%	57%	53%	52%	52%

Table 6.20. Journals and articles by year, society-published

The smallest number of journals and essentially tied with miscellaneous publishers for articles (93 or 0.2% more), this is a slow-growing category with consistently more than three-quarters free journals and just over half no-fee articles.

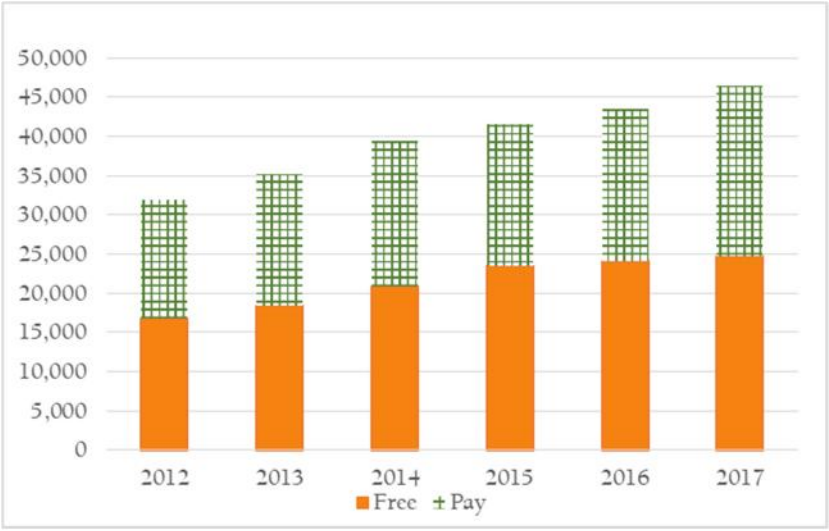

Figure 6.7. Free and pay articles by year, society-published

	Journals	%Free	Articles	%Free
Largest: 600+	10	10%	9,749	10%
Large: 150-599	59	37%	11,438	39%
Med.: 60-149	181	69%	13,104	67%
Small: 20-59	378	87%	10,826	86%
Smallest: 1-19	131	88%	1,426	90%

Table 6.21. Article volume, society-published

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	27	16%	3%	7,303	34%	16%
$600-$1.399	26	15%	3%	4,844	22%	10%
$200-$599	54	32%	7%	4,940	23%	11%
$0.20-$199	64	37%	8%	4,674	21%	10%
Free	613		78%	24,782		53%

Table 6.22. APC levels, society-published

Table 6.21 is a classic pattern: the smaller the journal, the more likely it is to be free. Pricey journals do not dominate society publishing.

Average charge per article in fee-based journals in 2017 was $1,116; for all journals, the average was $522. Both figures are up from last year's study.

Figure 6.8. Starting dates, society-published

Figure 6.8 is interesting because there are quite a few early OA journals and because the spike in new journals comes years earlier than in most other categories.

	Biomed	STEM	HSS
$1,400+	11	15	1
Articles	2,341	4,879	83
Revenue	$5,198,090	$11,516,515	$157,700
$600-$1.399	8	17	0
Articles	588	4,256	0
Revenue	$535,006	$4,587,037	$0
$200-$599	20	27	7
Articles	2,309	2,440	191
Revenue	$790,399	$825,311	$82,346
$0.20-$199	15	31	18
Articles	1,919	2,133	622
Revenue	$281,210	$251,939	$52,491
Free	165	166	258
Articles	9,685	7,103	7,994

Table 6.23. Articles and revenue by segment, society-published

Another category where STEM revenue outpace biomed revenue (more than doubling them in this case)—and as usual the most expensive journals get the lion's share of the relatively small revenue.

Region	Journals	%Free	Articles	%Free
Pacific/English	122	68%	13,581	28%
Latin America	185	82%	11,568	73%
Western Europe	179	88%	8,488	66%
Eastern Europe	115	81%	5,261	73%
Asia	111	63%	4,520	45%
Middle East	36	81%	1,889	48%
Africa	11	55%	1,236	16%

Table 6.24. Journals by region, society-published

Fee/APC	Free	%	Pay	%
Visible	477	77.9%	153	90.0%
Obscure	135	22.1%	17	10.0%

Table 6.25. Visibility, society-published

As with miscellaneous publishers, societies have a problem with obscurity: more than one out of five free journals lacks clarity on its status.

Miscellaneous

Since the only thing these publishers have in common is that they only publish one or two journals (and aren't obviously universities or societies), there's not much to say about them, but the usual set of tables and figures is here for the record.

	2017	2016	2015	2014	2013	2012
Journals	1,063	1,089	1,050	984	854	756
%Free	77%	77%	78%	79%	80%	80%
Articles	46,450	46,956	41,941	37,645	31,974	27,557
%Free	62%	60%	62%	65%	67%	68%

Table 6.26. Journals and articles by year, miscellaneous

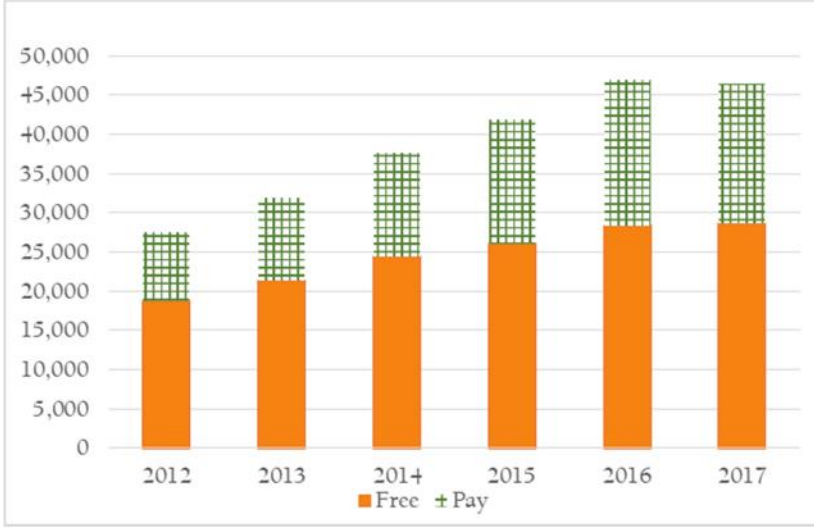

Figure 6.9. Free and pay articles by year, miscellaneous

	Journals	%Free	Articles	%Free
Largest: 600+	11	64%	6,954	52%
Large: 150-599	56	38%	9,681	34%
Med.: 60-149	196	62%	12,256	61%
Small: 20-59	572	83%	15,279	82%
Smallest: 1-19	228	87%	2,280	88%

Table 6.27. Article volume, miscellaneous

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	19	8%	2%	3,082	17%	7%
$600-$1.399	35	14%	3%	1,580	9%	3%
$200-$599	68	27%	6%	5,025	28%	11%
$0.20-$199	131	52%	12%	8,009	45%	17%
Free	867		77%	28,754		62%

Table 6.28. APC levels, miscellaneous

Average charge per article in fee-charging journals was $622 in 2017; across all journals, it averaged $237.

Figure 6.10. Starting dates, miscellaneous

	Biomed	STEM	HSS
$1,400+	16	2	1
Articles	2,833	130	119
Revenue	$6,415,440	$195,850	$505,393
$600-$1.399	16	12	6
Articles	773	664	143
Revenue	$782,815	$537,281	$107,906
$200-$599	25	22	16
Articles	2,640	1,531	854
Revenue	$953,225	$562,918	$256,043
$0.20-$199	23	48	53
Articles	2,587	3,450	1,972
Revenue	$240,250	$282,185	$166,638
Free	149	172	502
Articles	7,510	6,279	14,965

Table 6.29. Articles and revenue by segment, miscellaneous

Region	Journals	%Free	Articles	%Free
Western Europe	361	82%	13,211	65%
Eastern Europe	201	73%	8,756	61%
Asia	123	59%	8,070	31%
Pacific/English	143	83%	5,964	82%
Latin America	116	89%	4,777	76%
Middle East	96	79%	4,685	74%
Africa	22	50%	967	33%

Table 6.30. Journals by region, miscellaneous

Fee/APC	Free	%	Pay	%
Visible	674	77.9%	221	87.4%
Obscure	191	22.1%	32	12.6%

Table 6.31. Visibility, miscellaneous

Highlights and Key Points

- Universities and colleges publish far more journals than any other category, three-quarters of them free—but open access publishers publish the most articles, six-sevenths of them for fees.
- As a rule, the larger the journal, the more likely it is to have fees—and relatively expensive journals tend to publish more articles than those with lower fees.
- Biomed journals yield the most revenue, mostly for open access publishers; traditional and society publishers get more revenue from STEM than from biomed,
- Most journals lacking clear statements about existence of APCs and their size are from universities—but the percentage of obscure fee statements is highest in society and miscellaneous journals.

7. Country of Publication

The set of journals covered in this report comes from 110 different countries. A table of those countries takes up four or five pages, and one table doesn't provide much information.

It appears more useful to look at regions—and to split out APCLand, primarily international publishers, as a region all its own. That's what Chapters 12 through 19 do.

This chapter offers some partial lists: a list of countries in APCLand with 2017 journal and article counts, a table showing all countries in OAWorld alphabetically with 2017 journal and article counts, and partial lists of countries ranked in different ways.

When it appears, *Gold Open Access by Country 2012-2017* will offer details of OA journals in each region and country(with more than a few journals), *without* distinguishing APCLand from OAWorld.

Note that last year's report included journals from 116 countries (the book says "117," but Iran was inadvertently split into two forms of the country name). The differences: Palestine has one journal—but it has not published articles in 2016 or 2017; journals from Azerbaijan, British Virgin Islands, Brunei Darussalam, Kosova, Madagascar and Viet Nam have disappeared from *DOAJ;* and Puerto Rico is new to the list.

APCLand by Country

Table 7.1 shows the 29 countries represented in APCLand. Some APCLand publishers use the same country for most or all of their journals. Others distribute country names, possibly because the publishers operate in many countries. As compared to last year, Argentina, Greece, Jordan and Mexico now have APCLand journals; there are no longer

active APCLand journals from Chile, France, New Zealand, Peru, Poland or the Russian Federation.

As you'd expect, there are six primary countries in APCLand—ones with more than 10,000 (and more than 6,500) 2017 articles. In descending order by 2016 article volume, they are the United Kingdom, Switzerland, the United States, Egypt, Netherlands and India. Only two of the six countries, Netherlands and India, have a significant number of free journals.

Country	Journals	%Free	Articles	%Free
Argentina	1	100%	68	100%
Australia	4	50%	185	73%
China	37	84%	2,278	91%
Colombia	2	100%	40	100%
Egypt	377	12%	18,590	10%
Georgia	1	100%	80	100%
Germany	96	53%	6,459	73%
Greece	1	100%	92	100%
Hong Kong	6	50%	404	44%
India	130	71%	10,324	65%
Iran, Islamic Republic of	4	100%	132	100%
Ireland	2	0%	136	0%
Italy	3	67%	70	63%
Japan	4	25%	390	25%
Jordan	2	100%	86	100%
Korea, Republic of	13	85%	816	90%
Lithuania	1	100%	48	100%
Mexico	3	100%	173	100%
Netherlands	163	50%	14,535	40%
Qatar	1	100%	26	100%
Saudi Arabia	12	100%	1,191	100%
Singapore	4	75%	143	87%
South Africa	1	0%	22	0%
Spain	27	96%	1,618	96%
Switzerland	222	23%	56,179	4%

Country	Journals	%Free	Articles	%Free
Taiwan, Province of China	9	100%	944	100%
Thailand	2	0%	85	0%
United Kingdom	654	8%	87,542	2%
United States	108	5%	39,657	1%

Table 7.1. Countries in APCLand

OAWorld: The Complete List

Country	Jour.	%Free	Art.	%Free
Albania	2	100%	42	100%
Algeria	13	100%	1,165	100%
Argentina	150	95%	3,356	91%
Australia	62	87%	2,611	63%
Austria	38	84%	920	68%
Bahamas	1	100%	10	100%
Bangladesh	17	65%	607	69%
Barbados	1	100%	32	100%
Belarus	6	100%	328	100%
Belgium	32	94%	602	93%
Bolivia, Plurinational State of	4	100%	57	100%
Bosnia and Herzegovina	13	77%	323	76%
Brazil	1,059	92%	51,227	82%
Bulgaria	36	53%	1,891	37%
Cameroon	1	0%	124	0%
Canada	114	85%	4,197	64%
Chile	74	93%	2,031	83%
China	41	41%	4,836	16%
Colombia	247	99%	7,002	98%
Congo, the Democratic Republic of the	1	100%	138	100%
Costa Rica	46	100%	1,230	100%
Croatia	81	90%	2,604	75%
Cuba	44	100%	1,952	100%

Country	Jour.	%Free	Art.	%Free
Cyprus	4	75%	90	72%
Czech Republic	79	84%	2,624	71%
Denmark	15	93%	229	84%
Ecuador	35	100%	1,326	100%
Egypt	7	43%	158	49%
El Salvador	1	100%	26	100%
Estonia	14	100%	244	100%
Ethiopia	3	100%	156	100%
Finland	18	83%	532	72%
France	169	88%	14,480	95%
Georgia	1	100%	46	100%
Germany	164	69%	10,240	48%
Ghana	5	40%	85	48%
Greece	26	65%	1,079	64%
Guam	1	0%	5	0%
Guatemala	1	100%	15	100%
Hong Kong	14	43%	358	81%
Hungary	21	90%	684	82%
Iceland	6	100%	313	100%
India	59	54%	6,238	22%
Indonesia	970	70%	21,006	64%
Iran, Islamic Republic of	303	84%	12,364	72%
Iraq	17	12%	1,380	6%
Ireland	11	100%	205	100%
Israel	3	100%	82	100%
Italy	262	82%	7,950	78%
Jamaica	1	0%	5	0%
Japan	12	50%	565	28%
Kazakhstan	1	0%	13	0%
Kenya	3	0%	268	0%
Korea, Republic of	46	63%	2,357	53%
Kyrgyzstan	2	100%	38	100%

Country	Jour.	%Free	Art.	%Free
Latvia	10	80%	387	69%
Lebanon	1	100%	23	100%
Libya	3	67%	135	59%
Lithuania	32	78%	686	68%
Luxembourg	2	100%	16	100%
Macedonia, the Former Yugoslav Republic of	7	71%	354	34%
Malaysia	32	72%	1,241	53%
Malta	2	100%	25	100%
Mauritius	1	100%	11	100%
Mexico	92	88%	2,831	84%
Moldova, Republic of	22	64%	875	62%
Mongolia	3	67%	61	30%
Montenegro	6	67%	287	70%
Morocco	10	90%	215	89%
Nepal	15	100%	428	100%
Netherlands	46	83%	1,254	90%
New Zealand	12	92%	172	93%
Nicaragua	2	100%	20	100%
Nigeria	5	40%	500	8%
Norway	66	91%	1,216	93%
Oman	5	100%	191	100%
Pakistan	33	67%	1,673	33%
Paraguay	5	100%	100	100%
Peru	33	97%	1,096	96%
Philippines	5	80%	246	40%
Poland	430	86%	16,485	74%
Portugal	82	88%	2,485	74%
Puerto Rico	2	100%	19	100%
Qatar	4	75%	85	88%
Romania	255	80%	8,495	69%
Russian Federation	189	89%	12,229	83%

Country	Jour.	%Free	Art.	%Free
Saudi Arabia	2	50%	264	10%
Serbia	121	90%	4,005	73%
Singapore	4	25%	204	8%
Slovakia	38	76%	1,020	69%
Slovenia	48	96%	1,356	87%
South Africa	70	37%	2,860	30%
Spain	524	96%	14,714	94%
Sri Lanka	8	100%	213	100%
Sweden	45	58%	1,890	37%
Switzerland	44	52%	3,276	46%
Taiwan, Province of China	16	69%	643	30%
Thailand	16	81%	737	83%
Tunisia	5	60%	179	30%
Turkey	214	89%	10,393	80%
Turkmenistan	1	100%	10	100%
Uganda	1	0%	850	0%
Ukraine	116	61%	6,945	55%
United Arab Emirates	6	0%	268	0%
United Kingdom	290	39%	19,977	18%
United States	405	74%	24,052	46%
Uruguay	14	100%	307	100%
Venezuela, Bolivarian Republic of	20	85%	371	60%
Yemen	1	100%	12	100%

Table 7.2. Countries in OAWorld, alphabetic

This table includes only journals with 2017 articles.

Countries with the Most Journals and Articles

Table 7.3 shows OAWorld countries with at least four serious OA journals, from the most journals to the fewest. Table 7.4 shows the same data, arranged from highest to lowest percentage of free journals. Table 7.5 shows countries with more than 200 OA articles in 2016, from most

articles to fewest. Finally, Table 7.6 shows the same data as Table 7.5, but in order by percentage appearing in free journals.

Country	Journals	%Free
Brazil	1,059	92%
Indonesia	970	70%
Spain	524	96%
Poland	430	86%
United States	405	74%
Iran, Islamic Republic of	303	84%
United Kingdom	290	39%
Italy	262	82%
Romania	255	80%
Colombia	247	99%
Turkey	214	89%
Russian Federation	189	89%
France	169	88%
Germany	164	69%
Argentina	150	95%
Serbia	121	90%
Ukraine	116	61%
Canada	114	85%
Mexico	92	88%
Portugal	82	88%
Croatia	81	90%
Czech Republic	79	84%
Chile	74	93%
South Africa	70	37%
Norway	66	91%
Australia	62	87%
India	59	54%
Slovenia	48	96%
Costa Rica	46	100%
Korea, Republic of	46	63%

Country	Journals	%Free
Netherlands	46	83%
Sweden	45	58%
Cuba	44	100%
Switzerland	44	52%
China	41	41%
Austria	38	84%
Slovakia	38	76%
Bulgaria	36	53%
Ecuador	35	100%
Pakistan	33	67%
Peru	33	97%
Belgium	32	94%
Lithuania	32	78%
Malaysia	32	72%
Greece	26	65%
Moldova, Republic of	22	64%
Hungary	21	90%
Venezuela, Bolivarian Republic of	20	85%
Finland	18	83%
Bangladesh	17	65%
Iraq	17	12%
Taiwan, Province of China	16	69%
Thailand	16	81%
Denmark	15	93%
Nepal	15	100%
Estonia	14	100%
Hong Kong	14	43%
Uruguay	14	100%
Algeria	13	100%
Bosnia and Herzegovina	13	77%
Japan	12	50%
New Zealand	12	92%

Country	Journals	%Free
Ireland	11	100%
Latvia	10	80%
Morocco	10	90%
Sri Lanka	8	100%
Egypt	7	43%
Macedonia, the Former Yugoslav Republic of	7	71%
Belarus	6	100%
Iceland	6	100%
Montenegro	6	67%
United Arab Emirates	6	0%
Ghana	5	40%
Nigeria	5	40%
Oman	5	100%
Paraguay	5	100%
Philippines	5	80%
Tunisia	5	60%
Bolivia, Plurinational State of	4	100%
Cyprus	4	75%
Qatar	4	75%
Singapore	4	25%

Table 7.3. OAWorld countries with four or more journals, ranked by journals

Country	Journals	%Free
Costa Rica	46	100%
Cuba	44	100%
Ecuador	35	100%
Nepal	15	100%
Estonia	14	100%
Uruguay	14	100%
Algeria	13	100%
Ireland	11	100%
Sri Lanka	8	100%
Belarus	6	100%
Iceland	6	100%
Oman	5	100%
Paraguay	5	100%
Bolivia, Plurinational State of	4	100%
Colombia	247	99%
Peru	33	97%
Spain	524	96%
Slovenia	48	96%
Argentina	150	95%
Belgium	32	94%
Denmark	15	93%
Chile	74	93%
Brazil	1,059	92%
New Zealand	12	92%
Norway	66	91%
Hungary	21	90%
Croatia	81	90%
Serbia	121	90%
Morocco	10	90%
Turkey	214	89%
Russian Federation	189	89%
France	169	88%

Country	Journals	%Free
Mexico	92	88%
Portugal	82	88%
Australia	62	87%
Poland	430	86%
Canada	114	85%
Venezuela, Bolivarian Republic of	20	85%
Austria	38	84%
Iran, Islamic Republic of	303	84%
Czech Republic	79	84%
Finland	18	83%
Netherlands	46	83%
Italy	262	82%
Thailand	16	81%
Romania	255	80%
Latvia	10	80%
Philippines	5	80%
Lithuania	32	78%
Bosnia and Herzegovina	13	77%
Slovakia	38	76%
Cyprus	4	75%
Qatar	4	75%
United States	405	74%
Malaysia	32	72%
Macedonia, the Former Yugoslav Republic of	7	71%
Indonesia	970	70%
Germany	164	69%
Taiwan, Province of China	16	69%
Pakistan	33	67%
Montenegro	6	67%
Greece	26	65%
Bangladesh	17	65%
Moldova, Republic of	22	64%

Country	Journals	%Free
Korea, Republic of	46	63%
Ukraine	116	61%
Tunisia	5	60%
Sweden	45	58%
India	59	54%
Bulgaria	36	53%
Switzerland	44	52%
Japan	12	50%
Hong Kong	14	43%
Egypt	7	43%
China	41	41%
Ghana	5	40%
Nigeria	5	40%
United Kingdom	290	39%
South Africa	70	37%
Singapore	4	25%
Iraq	17	12%
United Arab Emirates	6	0%

Table 7.4. Countries with four or more OA journals ranked by free journal %

Country	Articles	%Free
Brazil	51,227	82%
United States	24,052	46%
Indonesia	21,006	64%
United Kingdom	19,977	18%
Poland	16,485	74%
Spain	14,714	94%
France	14,480	95%
Iran, Islamic Republic of	12,364	72%
Russian Federation	12,229	83%
Turkey	10,393	80%
Germany	10,240	48%
Romania	8,495	69%
Italy	7,950	78%
Colombia	7,002	98%
Ukraine	6,945	55%
India	6,238	22%
China	4,836	16%
Canada	4,197	64%
Serbia	4,005	73%
Argentina	3,356	91%
Switzerland	3,276	46%
South Africa	2,860	30%
Mexico	2,831	84%
Czech Republic	2,624	71%
Australia	2,611	63%
Croatia	2,604	75%
Portugal	2,485	74%
Korea, Republic of	2,357	53%
Chile	2,031	83%
Cuba	1,952	100%
Bulgaria	1,891	37%
Sweden	1,890	37%

Country	Articles	%Free
Pakistan	1,673	33%
Iraq	1,380	6%
Slovenia	1,356	87%
Ecuador	1,326	100%
Netherlands	1,254	90%
Malaysia	1,241	53%
Costa Rica	1,230	100%
Norway	1,216	93%
Algeria	1,165	100%
Peru	1,096	96%
Greece	1,079	64%
Slovakia	1,020	69%
Austria	920	68%
Moldova, Republic of	875	62%
Uganda	850	0%
Thailand	737	83%
Lithuania	686	68%
Hungary	684	82%
Taiwan, Province of China	643	30%
Bangladesh	607	69%
Belgium	602	93%
Japan	565	28%
Finland	532	72%
Nigeria	500	8%
Nepal	428	100%
Latvia	387	69%
Venezuela, Bolivarian Republic of	371	60%
Hong Kong	358	81%
Macedonia, the Former Yugoslav Republic of	354	34%
Belarus	328	100%
Bosnia and Herzegovina	323	76%
Iceland	313	100%

Country	Articles	%Free
Uruguay	307	100%
Montenegro	287	70%
Kenya	268	0%
United Arab Emirates	268	0%
Saudi Arabia	264	10%
Philippines	246	40%
Estonia	244	100%
Denmark	229	84%
Morocco	215	89%
Sri Lanka	213	100%
Ireland	205	100%
Singapore	204	8%

Table 7.5. OAWorld countries with 200+ 2017 articles, ranked by article count

Country	Articles	%Free
Cuba	1,952	100%
Ecuador	1,326	100%
Costa Rica	1,230	100%
Algeria	1,165	100%
Nepal	428	100%
Belarus	328	100%
Iceland	313	100%
Uruguay	307	100%
Estonia	244	100%
Sri Lanka	213	100%
Ireland	205	100%
Colombia	7,002	98%
Peru	1,096	96%
France	14,480	95%
Spain	14,714	94%
Norway	1,216	93%
Belgium	602	93%

Country	Articles	%Free
Argentina	3,356	91%
Netherlands	1,254	90%
Morocco	215	89%
Slovenia	1,356	87%
Mexico	2,831	84%
Denmark	229	84%
Russian Federation	12,229	83%
Chile	2,031	83%
Thailand	737	83%
Brazil	51,227	82%
Hungary	684	82%
Hong Kong	358	81%
Turkey	10,393	80%
Italy	7,950	78%
Bosnia and Herzegovina	323	76%
Croatia	2,604	75%
Portugal	2,485	74%
Poland	16,485	74%
Serbia	4,005	73%
Iran, Islamic Republic of	12,364	72%
Finland	532	72%
Czech Republic	2,624	71%
Montenegro	287	70%
Slovakia	1,020	69%
Bangladesh	607	69%
Latvia	387	69%
Romania	8,495	69%
Austria	920	68%
Lithuania	686	68%
Indonesia	21,006	64%
Canada	4,197	64%
Greece	1,079	64%

Country	Articles	%Free
Australia	2,611	63%
Moldova, Republic of	875	62%
Venezuela, Bolivarian Republic of	371	60%
Ukraine	6,945	55%
Korea, Republic of	2,357	53%
Malaysia	1,241	53%
Germany	10,240	48%
Switzerland	3,276	46%
United States	24,052	46%
Philippines	246	40%
Sweden	1,890	37%
Bulgaria	1,891	37%
Macedonia, the Former Yugoslav Republic of	354	34%
Pakistan	1,673	33%
Taiwan, Province of China	643	30%
South Africa	2,860	30%
Japan	565	28%
India	6,238	22%
United Kingdom	19,977	18%
China	4,836	16%
Saudi Arabia	264	10%
Singapore	204	8%
Nigeria	500	8%
Iraq	1,380	6%
Uganda	850	0%
Kenya	268	0%
United Arab Emirates	268	0%

Table 7.6. OAWorld countries with 200+ 2017 articles, ranked by free %

Highlights and Key Points

Note that these are not directly in the tables.

- Indonesia has *by far* the largest growth in *DOAJ* listings in 2017—and were it not for malware issues, Indonesia would pass Brazil for the largest number of journals (but not articles).
- Spain and Poland now have more OAWorld journals than the United States, which has fewer such journals than in 2016. The biggest drop in OAWorld journals is India, which moved from seventh place to 27th place, with more than three-quarters of its journals disappearing or moving to APCLand (that's at least partly due to Wolters Kluwer Medknow being added to APCLand).

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Masthead

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