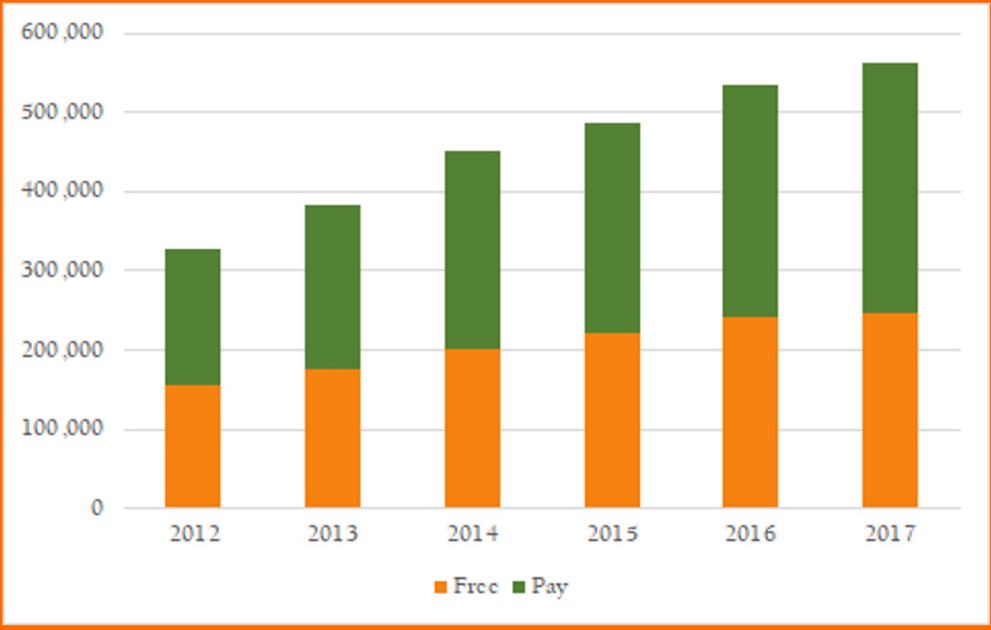
GOAJ3

Gold Open Access Journals 2012-2017



Walt Crawford

GOAJ3:
Gold Open Access Journals 2012-2017

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Cites & Insights Books
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This book was prepared entirely in Word 2013, using the licensed typefaces Berkeley Book and Berkeley (bold) for text and Calibri for headings and subheadings. Excel 2013 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*.

Contents

Preface

This book is the third full study of gold open access journals 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, 2018 and to add 2017 counts and earlier counts as needed (and sometimes refine subject assignments). As noted in "The Biggest Numbers" in Chapter 1, I also added 2017 article counts to most journals dropped from *DOAJ* in the past two years.

This book follows the pattern of the previous version, omitting Chapter 20 (since I've been unable to establish useful measures of viability) and adding one new metric: visibility of fee presence and amount. Early chapters now end with boxed highlights.

Gold Open Access by Country 2012-2017 will appear some weeks or months after this book appears. It differs in key ways from last year's *the Countries of OAWorld* and the region chapters in this book. A subject supplement, providing additional tables and commentary, will appear as an issue of *Cites & Insights*.

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 Shawn Daugherty improved the project.

Special thanks to Subramaniam Janakiraman, another Wednesday Ambler, who tackled the one "untranslatable" journal from the first two editions, recognized the script as Hindi, and passed it on to his friend Yogesh Nivas. Yogesh Nivas (a native Hindi speaker) provided me with the required information on the journal.

Thanks also to Patrick Hogan for publishing *Open-Access Journals: Idealism and Opportunism*, the August/September 2015 *Library Technology Reports* covering some two-thirds of *DOAJ* journals from 2011 through June 2014, which served as a precursor to this project.

Thanks to the good people at *DOAJ* for answering questions and improving the directory—and to Heather Morrison for pointing me to a way to get *DOAJ* metadata into Excel in full Unicode form.

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

Thanks to loads of LSW folks—John Dupuis, Dorothea Salo, Barbara Fister and many others—for encouraging this work, and to a fair number of people involved with OA who have helped along the way.

The work is my responsibility, as are errors that may have crept in. (See Appendix A for notes on why attempts to replicate this will probably yield different results.)

Links

The data used for this report will be made freely available, always 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 planned supplemental books are issued with CC BY licenses.

Links will be found at http://waltcrawford.name/goaj.html.

Availability will also be announced on *Walt at Random*, on my Twitter, Facebook, Google+ and Mokum accounts (I'm waltcrawford pretty much everywhere), and sooner or later in *Cites & Insights*.

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.

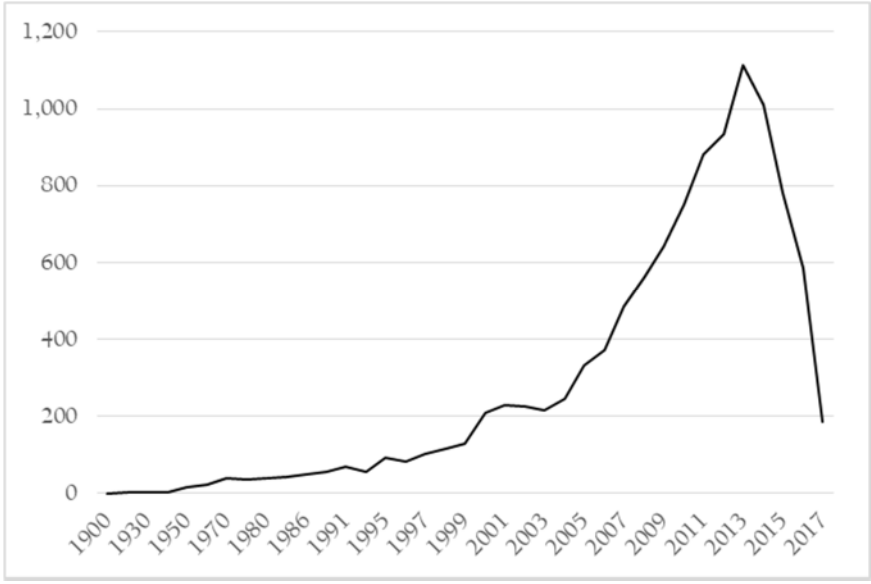

Figure 1.1. OA journals by starting year

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.)

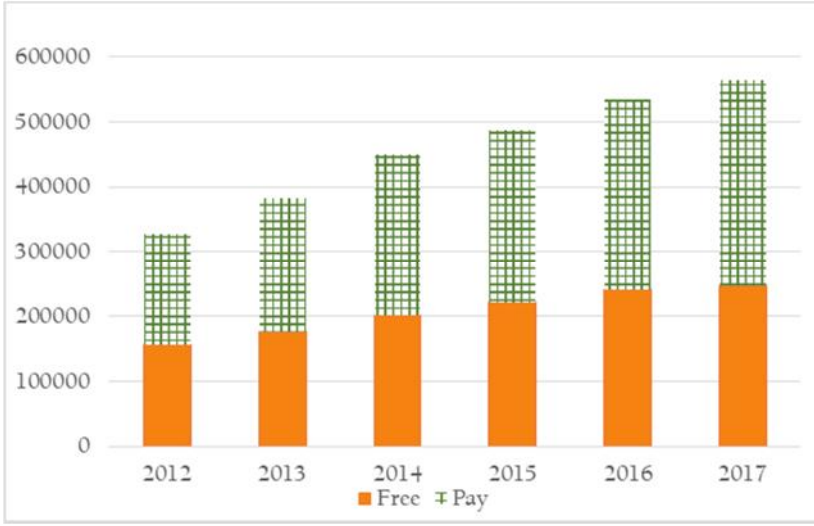

Figure 1.3. Free and pay articles by year, overall

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.

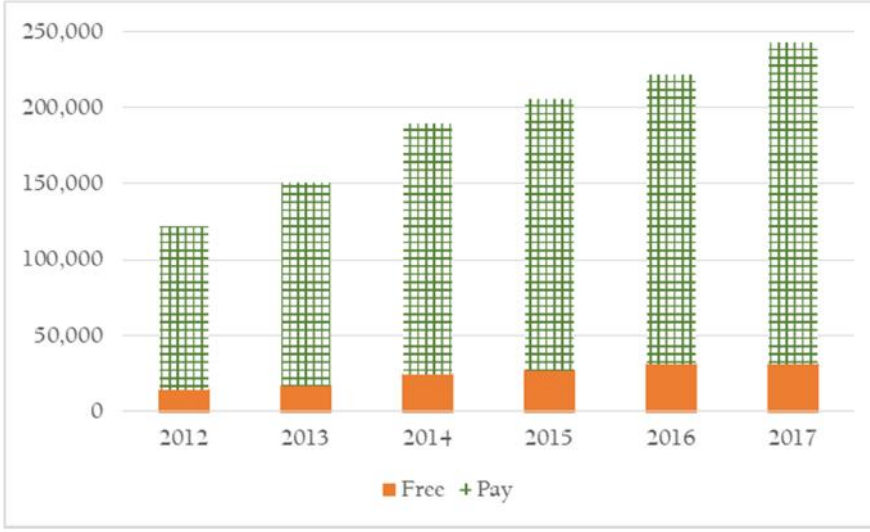

Figure 2.1. APCLand articles

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.

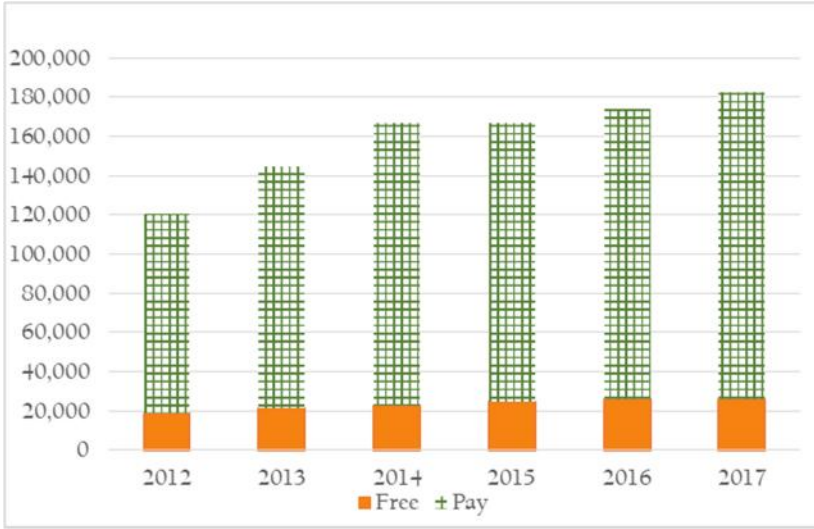

Figure 6.1. Free and pay articles by year, open access publishers

	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.

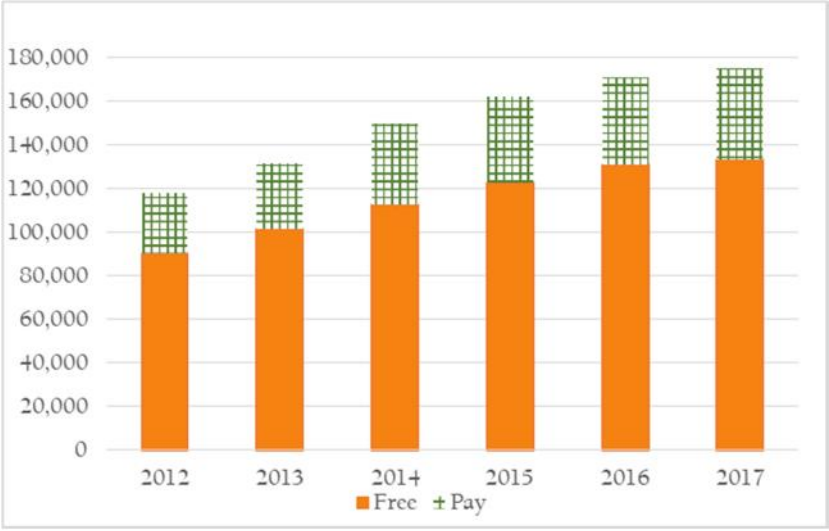

Figure 6.3. Free and pay articles by year, university-published

	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.

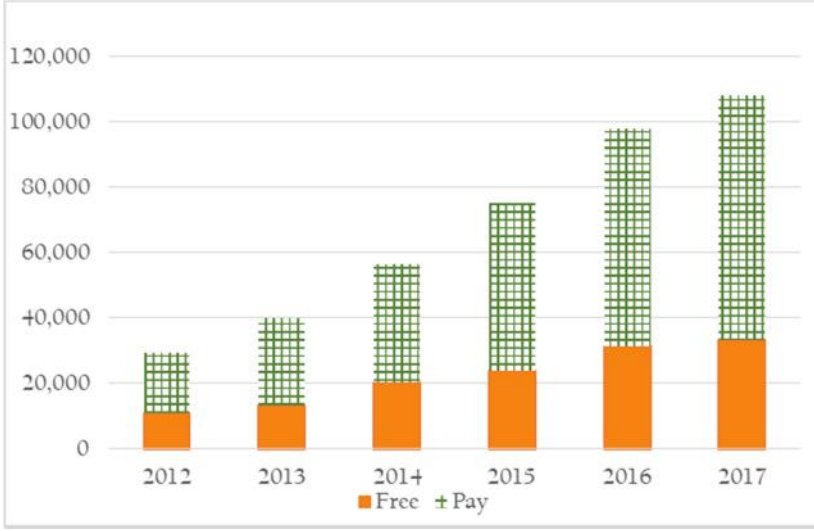

Figure 6.5. Free and pay articles by year, traditional publishers

	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.

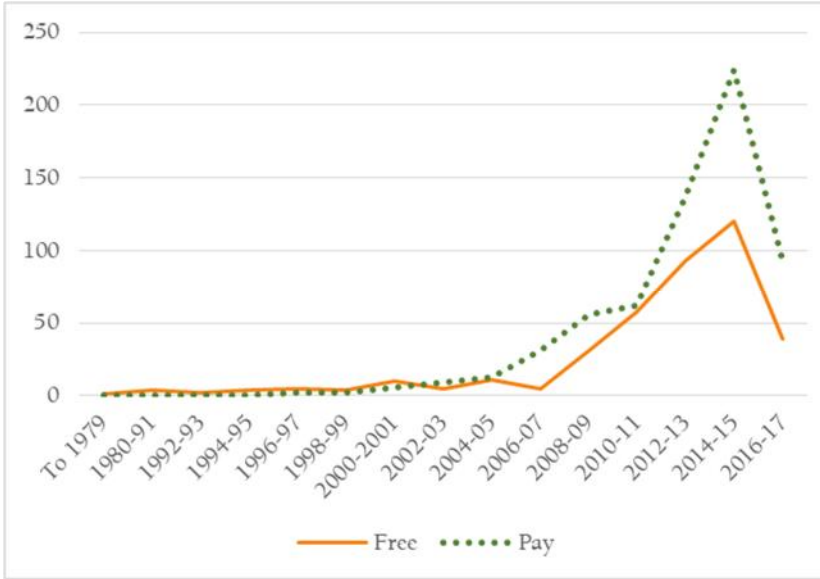

Figure 6.6. Starting dates, traditional publishers

	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.

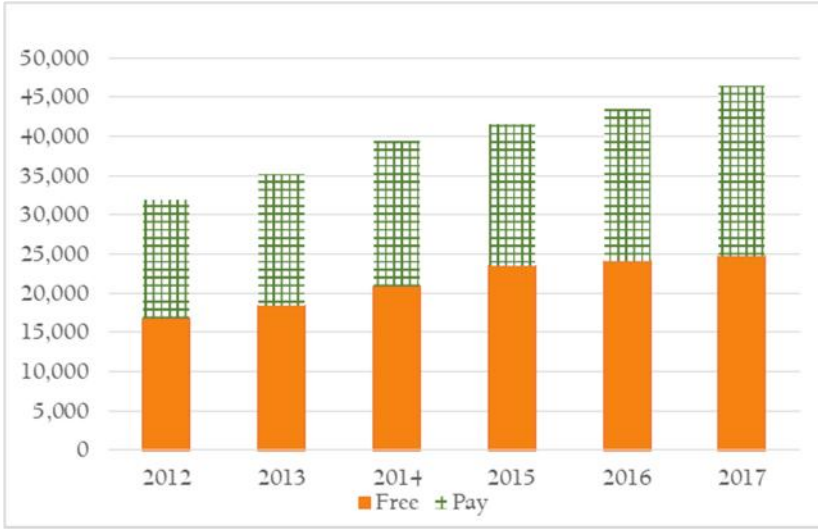

Figure 6.7. Free and pay articles by year, society-published

	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

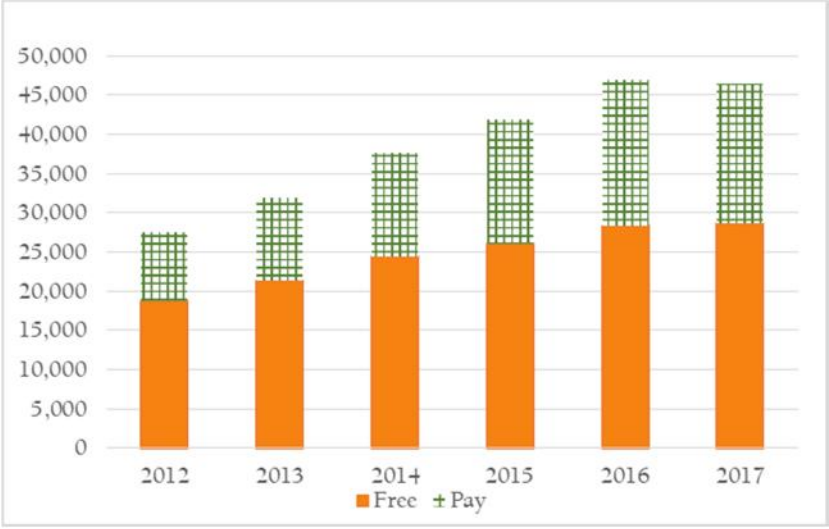

Figure 6.9. Free and pay articles by year, miscellaneous

	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).

8. Subject Segments

Since the three broad subject segments were introduced in Chapter 2 and play roles in Chapters 4, 5 and 6, there's no need to spend much space introducing them. A few notes:

- The subject segments came about while I was writing *Open-Access Journals: Idealism and Opportunism* (ALA, 2015), one of the partial-survey precursors to this report. It seemed like a meaningful way to show substantial differences in OA practice in different subject areas—differences that grew more distinct as the survey became more complete.
- Assignment of journals to one of 28 subjects is tricky and partly subjective. The subject summaries at the end of each chapter provide more information on what's included in each subject; you can also find that information in *Gold Open Access Journals 2011-2015: A Subject Approach*.
- Assignment of subjects to segments may also be arguable, at least in the cases of anthropology and psychology, which some might argue belong in STEM and biomed respectively.
- I've used a consistent set of tables and graphs in each of the next three chapters, based on tables and graphs used in earlier chapters. The hope is to provide varied perspectives without taking up too much space.
- Because there won't be a full subject-by-subject book, I've added subject pages to each chapter, providing three tables for each subject with minimal commentary. An issue of *Cites & Insights*, most probably July or August 2018, will contain additional tables and figures for each subject.

9. Biology and Medicine

Biomed—subjects related to human biology and the many subjects related to human medicine, including pharmacy, alternative medical practices and some aspects of nutrition—is where the money is. STEM has more articles, but biomed has more potential revenue. It's also the only segment where a majority of journals charge APCs.

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	1,256	1,216	60,852	50
Pay	1,438	1,332	139,983	105
Total	2,694	2,548	200,835	79
Free%	47%	48%	30%	

Table 9.1. Journals and articles, biomed

Just over half of biomed journals charge APCs, but those journals publish seven out of ten 2017 articles and average more than twice as many articles per journal as no-fee journals. Still: it's worth noting that there were nearly 61,000 no-fee biomed articles in 2017.

	2017	2016	2015	2014	2013	2012
Journals	2,548	2,571	2,480	2,334	2,034	1,768
%Free	48%	48%	47%	46%	46%	46%
Articles	200,835	191,466	182,895	170,622	137,994	118,365
%Free	30%	32%	32%	32%	34%	35%

Table 9.2. Journals and articles by year, biomed

The segment keeps growing, at roughly 9,000 articles per year since 2015 and much more rapidly from 2012 to 2014.

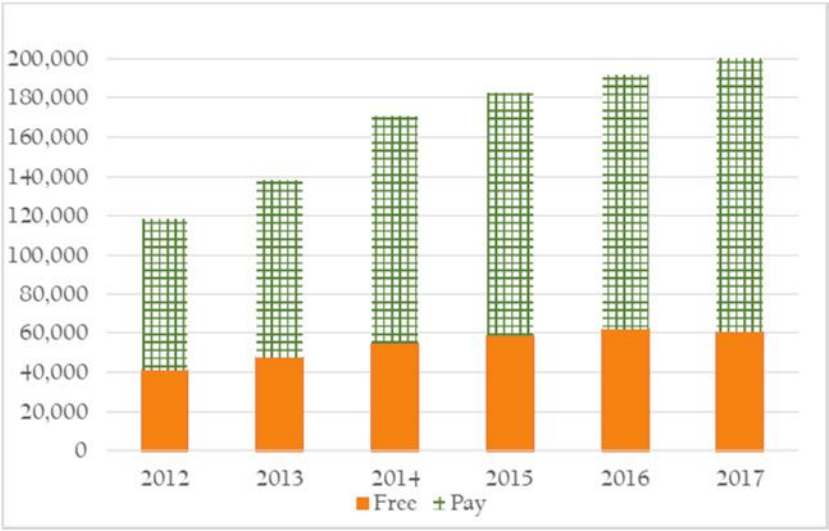

Figure 9.1. Free and pay articles by year, biomed

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	52	10%	48,229	4%
Large: 150-599	351	28%	68,308	22%
Med.: 60-149	711	46%	49,979	46%
Small: 20-59	1,123	56%	31,408	61%
Smallest: 1-19	311	49%	2,911	54%

Table 9.3. Article volume, biomed

Most articles are in larger journals (rarely free); most journals are small (mostly free). This may be the place to note that thousands of biomed articles may appear in the two megajournals, both in STEM.

APC Levels

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	710	49%	26%	96,723	69%	48%
$600-$1.399	371	26%	14%	14,528	10%	7%
$200-$599	210	15%	8%	18,408	13%	9%
$0.20-$199	147	10%	5%	10,324	7%	5%
Free	1,256		47%	60,852		30%

Table 9.4. APC levels, biomed

More than two-thirds of APC-paying articles are in the most expensive journals, as are just under half of all biomed articles. Average charge per article in fee-based journals in 2017 was $1,778; overall average was $1,240. Both figures are up roughly $100 (actually $127 and $91 respectively) from last year's study.

Starting Date

Figure 9.2. Starting dates, biomed

Most very early gold OA biomed journals were free, but after a fee-based burst in 2000-2003 and brief drop, the boom in fee-based journals since 2008 has outpaced the rapid growth of free journals in 2010-2015. Oddly, and obscured in the graph, new free journals outnumbered new fee-based ones in 2016-2017 (96 to 89).

Regions

Region	Journals	%Free	Articles	%Free
APCLand	1,160	21%	115,899	14%
Western Europe	274	46%	19,194	31%
Latin America	256	84%	16,750	74%
Asia	224	61%	13,626	36%
Eastern Europe	247	81%	12,322	69%
Middle East	237	89%	11,138	77%
Pacific/English	121	50%	9,376	37%
Africa	29	66%	2,530	27%

Table 9.5. Journals by region, biomed

APCLand dominates biomed publishing, with more than half of all articles. Western Europe is the only other "region" where most journals have fees.

Publisher Category

Category	Journals	%Free	Articles	%Free
Open Access	986	26%	93,603	14%
Traditional	498	33%	41,122	26%
Univ/college	616	79%	32,925	61%
Society/govt	219	75%	16,842	58%
Miscellaneous	229	65%	16,343	46%

Table 9.6. Publisher categories, biomed

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	407	15.1%	
Grew 25-49.9%	279	10.4%	25.5%
Grew 10-24.99%	283	10.5%	36.0%
Even, ±9.99%	724	26.9%	62.8%
Shrank 10-24.99%	335	12.4%	75.3%
Shrank 25-49.99%	319	11.8%	87.1%
Shrank 50%+	347	12.9%	

Table 9.7. Growth and shrinkage, biomed

Subjects

Subject	Journals	%Free	Articles	%Free
Biology	337	34%	34,882	13%
Medicine	2,211	50%	165,953	34%

Table 9.8. Subjects, biomed

I'm not equipped to prepare what could be a useful breakdown of medicine into, say, five or six topical areas. No other comment.

Visibility

Fee/APC	Free	%	Pay	%
Visible	1,094	87.1%	1,396	97.2%
Obscure	162	12.9%	40	2.8%

Table 9.9. Visibility, biomed

Note: here, as in later chapters, order of tables may change to save pages.

Countries in OAWorld (partial)

Table 9.10 shows the countries with the most 2017 biomed articles, arranged in descending order.

Country	Journals	%Free	Articles	%Free
Brazil	160	78%	12,812	70%
United Kingdom	94	22%	9,284	6%
Iran, Islamic Republic of	172	88%	8,069	74%
United States	90	46%	7,170	41%
India	32	50%	4,446	17%
Poland	89	74%	3,760	62%
Russian Federation	53	98%	3,237	98%
Indonesia	103	64%	2,877	60%
Switzerland	26	38%	2,869	42%
Turkey	54	100%	2,431	100%
Ukraine	25	72%	2,399	48%
China	14	43%	2,153	9%
Italy	50	40%	1,809	37%
Canada	21	71%	1,422	29%
Korea, Republic of	21	71%	1,325	63%
Colombia	29	100%	1,249	100%
Spain	31	94%	1,239	98%
Sweden	10	20%	1,154	22%
Germany	19	63%	982	68%
Pakistan	12	42%	981	12%
Uganda	1	0%	850	0%
Australia	8	50%	750	14%
South Africa	17	65%	713	52%
Cuba	16	100%	665	100%
Romania	21	86%	642	74%
Serbia	14	71%	617	49%

Table 9.10. Countries with more than 600 articles, biomed

Biology: Selected Tables

	2017	2016	2015	2014	2013	2012
Journals	337	342	336	326	284	246
%Free	34%	33%	33%	31%	30%	30%
Articles	34,882	31,506	31,541	28,384	22,297	18,693
%Free	13%	14%	14%	14%	15%	15%

Table 9.11. Journals and articles by year, biology

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	129	53%	36%	23,486	77%	67%
$600-$1.399	61	25%	17%	3,329	11%	10%
$200-$599	29	12%	8%	1,582	5%	5%
$0.20-$199	24	10%	7%	1,924	6%	6%
Free	120		33%	4,561		13%

Table 9.12. APC levels, biology

Region	Journals	%Free	Articles	%Free
APCLand	172	10%	22,203	4%
Western Europe	31	32%	4,140	11%
Pacific/English	21	38%	2,701	7%
Eastern Europe	40	83%	2,178	56%
Latin America	25	60%	2,104	45%
Asia	30	60%	1,000	43%
Middle East	15	73%	372	76%
Africa	3	67%	184	23%

Table 9.13. Journals by region, biology

Average cost per article: $1,995 in APC journals, $1,734 overall. Biology includes all aspects of human biology and biochemistry. Areas such as marine biology are included in zoology (STEM).

Medicine: Selected Tables

	2017	2016	2015	2014	2013	2012
Journals	2,211	2,229	2,144	2,008	1,750	1,522
%Free	50%	50%	49%	48%	48%	48%
Articles	165,953	159,960	151,354	142,238	115,697	99,672
%Free	34%	36%	36%	36%	38%	38%

Table 9.14. Journals and articles by year, medicine

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	581	49%	25%	73,237	67%	44%
$600-$1.399	310	26%	13%	11,199	10%	7%
$200-$599	181	15%	8%	16,826	15%	10%
$0.20-$199	123	10%	5%	8,400	8%	5%
Free	1,136		49%	56,291		34%

Table 9.15. APC levels, medicine

Region	Journals	%Free	Articles	%Free
APCLand	988	23%	93,696	16%
Western Europe	243	48%	15,054	37%
Latin America	231	87%	14,646	79%
Asia	194	61%	12,626	35%
Middle East	222	90%	10,766	77%
Eastern Europe	207	80%	10,144	71%
Pacific/English	100	53%	6,675	49%
Africa	26	65%	2,346	28%

Table 9.16. Journals by region, medicine

Average cost per article: $1,719 in fee-charging journals, $1,136 overall. Includes all aspects of human health (except that some exercise and sports-related journals are in anthropology, HSS), including alternative medical systems and portions of nutrition. Veterinary medicine is included in zoology (STEM).

10. Science, Technology, Engineering and Math

STEM—in this case, excluding human biology and medicine, as well as social sciences—includes slightly more gold OA journals than biomed, somewhat more 2017 articles, but somewhat less revenue. This chapter includes the two megajournals (in "Other Sciences").

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	1,688	1,603	74,303	46
Pay	1,126	1,006	151,363	150
Total	2,814	2,609	225,666	86
Free%	60%	61%	33%	

Table 10.1. Journals and articles, STEM

Six out of ten STEM journals don't charge fees, but two-thirds of articles appear in the fee journals, which average more than three times as many articles per journal as free ones.

	2017	2016	2015	2014	2013	2012
Journals	2,609	2,654	2,565	2,426	2,146	1,813
%Free	61%	61%	61%	60%	61%	63%
Articles	225,666	206,749	181,536	169,914	146,815	121,696
%Free	33%	34%	34%	33%	32%	34%

Table 10.2. Journals and articles by year, STEM

Article count keeps growing fairly rapidly in both free and pay journals, as is also shown in Figure 10.1.

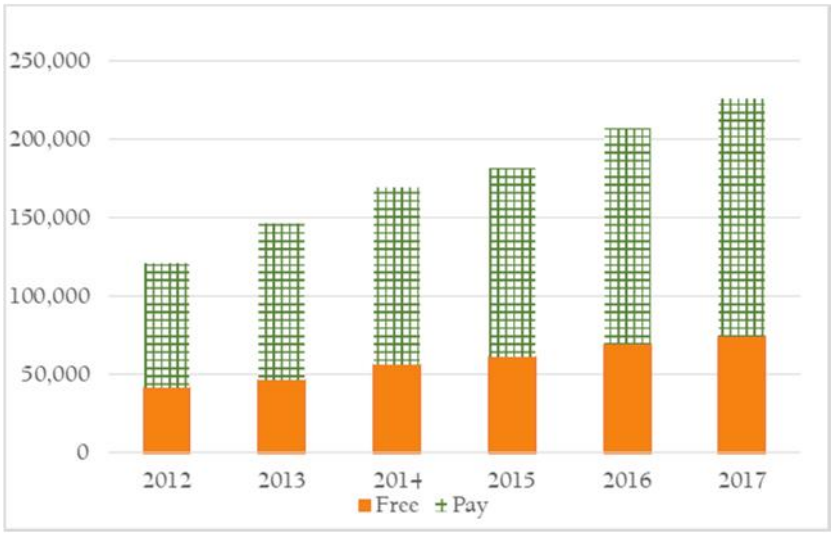

Figure 10.1. Free and pay articles by year, STEM

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	55	24%	108,789	15%
Large: 150-599	185	30%	38,048	27%
Med.: 60-149	583	52%	39,140	52%
Small: 20-59	1,299	68%	34,394	69%
Smallest: 1-19	487	72%	5,295	74%

Table 10.2. Article volume, STEM

The largest journals dominate, and most medium and smaller journals are free, as are most of their articles.

APC Levels

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	199	18%	7%	100,048	66%	44%
$600-$1.399	434	39%	15%	23,412	15%	10%
$200-$599	192	17%	7%	13,284	9%	6%
$0.20-$199	301	27%	11%	14,619	10%	6%
Free	1,688		60%	74,303		33%

Table 10.4. APC levels, STEM

Unlike biomed, STEM has relatively few expensive journals—but since those journals include the two megajournals, they account for two-thirds of all paid articles. Average cost per article has risen significantly, to $1,507 for fee journals (up from $1,303) and $1,011 across all journals (up from $847).

Starting Date

Figure 10.2. Starting dates, STEM

With more journals added (and removed), free journal startups always outnumbered pay journals, even during the 2012-2015 peak.

Regions

Region	Journals	%Free	Articles	%Free
APCLand	582	28%	118,750	10%
Western Europe	365	59%	30,572	59%
Eastern Europe	549	81%	23,053	70%
Latin America	393	83%	18,119	69%
Asia	415	60%	14,695	43%
Pacific/English	114	60%	12,119	28%
Middle East	149	74%	6,190	67%
Africa	42	62%	2,168	76%

Table 10.5. Journals by region, STEM

Eastern Europe has almost as many active journals as APCLand, predominantly free. But APCLand has more than twice as many articles as all of Europe, with slightly more than half of all STEM articles.

Publisher Category

Category	Journals	%Free	Articles	%Free
Open Access	556	41%	76,864	11%
Traditional	372	39%	66,947	31%
Univ/college	1,169	76%	48,990	65%
Society/govt	256	65%	20,811	34%
Miscellaneous	256	67%	12,054	52%

Table 10.6. Publisher categories, STEM

Universities publish the most STEM journals (mostly free) while OA publishers produce the most articles (predominantly paid).

Growth and Shrinkage

Change 2015-16	Count	Percent	Cum%
Grew 50%+	500	17.8%	
Grew 25-49.9%	264	9.4%	27.1%
Grew 10-24.99%	301	10.7%	37.8%
Even, ±9.99%	712	25.3%	63.1%
Shrank 10-24.99%	329	11.7%	74.8%
Shrank 25-49.99%	317	11.3%	86.1%
Shrank 50%+	391	13.9%	

Table 10.7. Growth and shrinkage, STEM

Subjects

Subject	Journals	%Free	Articles	%Free
Agriculture	379	58%	21,662	39%
Chemistry	139	51%	15,235	28%
Computer Science	239	60%	10,143	43%
Earth Sciences	329	68%	15,206	51%
Ecology	266	62%	19,178	31%
Engineering	342	64%	21,330	41%
Mathematics	211	69%	8,376	52%
Other Sciences	185	72%	67,122	10%
Physics	137	45%	19,553	47%
Technology	177	68%	17,832	64%
Zoology	205	48%	10,029	31%

Table 10.8 Subjects, STEM

Visibility

Fee/APC	Free	%	Pay	%
Visible	1,445	85.7%	1,064	95.0%
Obscure	242	14.3%	56	5.0%

Table 10.9. Visibility, STEM

Countries in OAWorld (partial)

Country	Journals	%Free	Articles	%Free
Brazil	213	79%	13,330	64%
France	42	64%	10,958	95%
United States	81	54%	10,472	21%
United Kingdom	81	21%	7,445	19%
Germany	74	51%	7,259	37%
Indonesia	296	61%	7,171	56%
Poland	184	87%	7,051	78%
Russian Federation	51	90%	3,020	79%
Iran, Islamic Republic of	79	75%	2,804	64%
Turkey	49	92%	2,763	81%
China	25	36%	2,610	18%
Romania	70	83%	2,457	79%
Ukraine	45	67%	1,994	69%
Serbia	46	91%	1,836	68%
Spain	62	92%	1,833	89%
Colombia	58	97%	1,703	96%
Czech Republic	36	67%	1,662	56%
India	17	59%	1,592	32%
Bulgaria	20	45%	1,292	30%
Italy	40	70%	1,264	65%
Croatia	26	73%	1,218	48%
Canada	24	63%	1,064	59%
Algeria	8	100%	1,014	100%
Mexico	22	59%	837	50%

Table 10.10. Countries in OAWorld (partial), STEM

Table 10.10 shows active journals and articles for countries with at least 600 STEM articles in 2017.

Agriculture: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	379	381	377	358	319	285
%Free	58%	58%	58%	58%	57%	58%
Articles	21,662	19,869	17,441	15,514	13,932	12,757
%Free	39%	40%	42%	43%	44%	45%

Table 10.11. Journals and articles by year, agriculture

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	23	14%	6%	5,623	42%	26%
$600-$1.399	37	22%	9%	1,591	12%	7%
$200-$599	31	19%	8%	1,955	15%	9%
$0.20-$199	74	45%	19%	4,101	31%	19%
Free	228		58%	8,392		39%

Table 10.12. APC levels, agriculture

Region	Journals	%Free	Articles	%Free
APCLand	52	25%	6,726	9%
Latin America	89	67%	5,281	52%
Eastern Europe	83	76%	4,104	63%
Asia	69	51%	1,813	40%
Middle East	28	54%	1,552	43%
Western Europe	36	69%	1,212	60%
Pacific/English	14	36%	671	21%
Africa	8	63%	303	54%

Table 10.13. Journals by region, agriculture

Average cost per article: $1,197 for fee journals, $733 overall. Includes some aspects of aquaculture (but not marine biology or fisheries), food processing and some aspects of nutrition.

Chemistry: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	139	146	143	135	122	93
%Free	51%	49%	48%	42%	42%	45%
Articles	15,235	13,734	12,001	12,537	12,582	11,458
%Free	28%	29%	29%	19%	17%	16%

Table 10.14. Journals and articles by year, chemistry

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	16	18%	10%	6,055	55%	40%
$600-$1.399	40	45%	25%	2,483	23%	16%
$200-$599	16	18%	10%	1,528	14%	10%
$0.20-$199	16	18%	10%	870	8%	6%
Free	73		45%	4,299		28%

Table 10.15. APC levels, chemistry

Region	Journals	%Free	Articles	%Free
APCLand	48	23%	8,685	13%
Western Europe	11	36%	2,343	57%
Pacific/English	4	50%	1,392	18%
Eastern Europe	29	72%	1,101	67%
Latin America	8	50%	644	13%
Asia	22	68%	506	53%
Middle East	14	86%	463	89%
Africa	3	67%	101	76%

Table 10.16. Journals by region, chemistry

Average cost per article: $1,340 for APC-charging journals, $962 across all journals, both up more than 13% from last time. Biochemistry is typically included in biology.

Computer Science: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	239	244	231	207	182	147
%Free	60%	60%	60%	62%	63%	63%
Articles	10,143	9,870	8,656	7,301	6,570	5,437
%Free	43%	43%	47%	55%	50%	51%

Table 10.17. Journals and articles by year, computer science

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	12	11%	5%	1,069	18%	11%
$600-$1.399	41	39%	16%	1,674	29%	17%
$200-$599	20	19%	8%	1,318	23%	13%
$0.20-$199	33	31%	13%	1,724	30%	17%
Free	156		60%	4,358		43%

Table 10.18. APC levels, computer science

Region	Journals	%Free	Articles	%Free
APCLand	56	14%	3,625	5%
Eastern Europe	51	82%	2,036	86%
Western Europe	36	69%	2,012	28%
Asia	61	67%	1,152	68%
Pacific/English	16	75%	825	84%
Latin America	9	100%	268	100%
Middle East	6	67%	147	63%
Africa	4	50%	78	15%

Table 10.19. Journals by region, computer science

Average cost per article: $770 across APC-charging journals, $439 across all journals—both up substantially from last year, but still the lowest charges in STEM. Includes software, data processing, AI, robotics and portions of information science.

Earth Sciences

	2017	2016	2015	2014	2013	2012
Journals	329	338	330	316	285	256
%Free	68%	69%	69%	68%	69%	71%
Articles	15,206	14,561	13,098	11,475	10,141	9,996
%Free	51%	54%	54%	58%	61%	66%

Table 10.20. Journals and articles by year, earth sciences

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	16	14%	5%	2,698	36%	18%
$600-$1.399	57	49%	16%	2,739	37%	18%
$200-$599	18	16%	5%	886	12%	6%
$0.20-$199	25	22%	7%	1,133	15%	7%
Free	235		67%	7,750		51%

Table 10.21. APC levels, earth sciences

Region	Journals	%Free	Articles	%Free
APCLand	62	39%	5,258	20%
Western Europe	90	61%	4,304	58%
Latin America	63	89%	2,191	84%
Eastern Europe	72	90%	1,941	87%
Asia	23	52%	813	37%
Middle East	10	60%	486	42%
Pacific/English	8	63%	203	62%
Africa	1	100%	10	100%

Table 10.22. Journals by region, earth sciences

Average cost per article: $1,137 for APC-based journals, $557 for all journals. Includes geography, geology, oceanography, some place-related fields (e.g., parts of tourism) and astronomy.

Ecology: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	266	267	253	232	204	162
%Free	62%	62%	61%	61%	63%	64%
Articles	19,178	15,963	13,127	11,485	9,512	7,677
%Free	31%	32%	31%	33%	36%	36%

Table 10.23. Journals and articles by year, ecology

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	29	27%	10%	7,854	60%	41%
$600-$1.399	39	36%	14%	2,978	23%	16%
$200-$599	14	13%	5%	844	6%	4%
$0.20-$199	25	23%	9%	1,475	11%	8%
Free	174		62%	6,027		31%

Table 10.24. APC levels, ecology

Region	Journals	%Free	Articles	%Free
APCLand	57	32%	8,579	11%
Western Europe	44	50%	4,517	34%
Latin America	47	87%	1,778	74%
Eastern Europe	47	81%	1,657	59%
Pacific/English	23	52%	1,030	41%
Asia	27	67%	954	37%
Middle East	14	79%	433	77%
Africa	7	71%	230	72%

Table 10.25. Journals by region, ecology

Average cost per article: APC journals $1,273, overall $874—both up sharply (around $300) from last year. Includes environmental fields and any journal where much coverage seems devoted to ecological issues.

Engineering: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	342	351	345	324	289	246
%Free	64%	64%	65%	64%	64%	67%
Articles	21,330	18,115	16,511	16,098	14,060	11,196
%Free	41%	46%	48%	46%	45%	44%

Table 10.26. Journals and articles by year, engineering

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	24	17%	6%	6,527	52%	31%
$600-$1.399	53	38%	14%	2,249	18%	11%
$200-$599	23	17%	6%	2,235	18%	10%
$0.20-$199	39	28%	10%	1,608	13%	8%
Free	233		63%	8,711		41%

Table 10.27. APC levels, engineering

Region	Journals	%Free	Articles	%Free
APCLand	76	30%	5,973	21%
Eastern Europe	91	76%	4,912	62%
Asia	58	60%	3,024	34%
Pacific/English	9	67%	2,590	4%
Latin America	56	96%	2,133	96%
Western Europe	24	46%	1,638	25%
Middle East	22	86%	809	89%
Africa	6	50%	251	43%

Table 10.28. Journals by region, engineering

Average cost per article: APC journals $1,189, overall $704—both much higher than last year. Distinguished from technology primarily based on journal titles and specific subject headings.

Mathematics: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	211	215	206	206	183	135
%Free	69%	67%	63%	60%	63%	70%
Articles	8,376	8,103	9,282	11,867	10,040	7,935
%Free	52%	52%	42%	32%	32%	35%

Table 10.29. Journals and articles by year, mathematics

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	5	6%	2%	1,578	39%	19%
$600-$1.399	64	71%	27%	1,811	45%	22%
$200-$599	6	7%	3%	293	7%	3%
$0.20-$199	15	17%	6%	317	8%	4%
Free	150		63%	4,377		52%

Table 10.30. APC levels, mathematics

Region	Journals	%Free	Articles	%Free
APCLand	51	24%	3,525	9%
Eastern Europe	53	87%	1,556	83%
Pacific/English	16	81%	1,028	91%
Asia	35	71%	736	71%
Western Europe	24	75%	611	66%
Middle East	18	100%	498	100%
Latin America	13	100%	411	100%
Africa	1	0%	11	0%

Table 10.31. Journals by region, mathematics

Average cost per article: APC journals $1,272, overall $600. Includes statistics.

Other Sciences: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	185	186	172	164	142	122
%Free	72%	73%	73%	73%	77%	80%
Articles	67,122	65,566	56,226	51,964	44,572	32,788
%Free	10%	10%	10%	9%	8%	10%

Table 10.32. Journals and articles by year, other sciences

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	14	27%	7%	55,407	91%	83%
$600-$1.399	13	25%	7%	3,070	5%	5%
$200-$599	11	21%	6%	796	1%	1%
$0.20-$199	14	27%	7%	1,307	2%	2%
Free	144		73%	6,542		10%

Table 10.33. APC levels, other sciences

Region	Journals	%Free	Articles	%Free
APCLand	34	32%	55,554	1%
Pacific/English	9	56%	2,368	4%
Western Europe	18	72%	2,309	36%
Asia	36	67%	1,936	34%
Latin America	44	98%	1,793	93%
Eastern Europe	24	88%	1,291	79%
Africa	5	100%	989	100%
Middle East	15	80%	882	86%

Table 10.34. Journals by region, other sciences

Average cost per article: APC journals $1,919, overall $1,732—both up significantly from last year. Includes megajournals and multidisciplinary journals that appear to be mostly biomed and STEM, a small group of journals publishing conference reports and some fields that don't appear to fit anywhere else.

Physics: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	137	141	136	132	113	91
%Free	45%	45%	44%	42%	42%	48%
Articles	19,553	15,766	14,544	13,098	9,186	7,451
%Free	47%	51%	52%	55%	50%	52%

Table 10.35. Journals and articles by year, physics

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	25	29%	16%	6,887	67%	35%
$600-$1.399	40	46%	26%	2,422	24%	12%
$200-$599	10	11%	7%	677	7%	3%
$0.20-$199	12	14%	8%	295	3%	2%
Free	66		43%	9,272		47%

Table 10.36. APC levels, physics

Region	Journals	%Free	Articles	%Free
APCLand	64	33%	12,449	39%
Western Europe	18	33%	4,063	78%
Pacific/English	8	25%	1,537	18%
Asia	21	52%	558	32%
Eastern Europe	17	88%	530	75%
Latin America	6	67%	296	90%
Middle East	2	100%	109	100%
Africa	1	0%	11	0%

Table 10.37. Journals by region, physics

Average cost per article: APC journals $1,537, overall $808. Includes optics.

Technology: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	177	177	173	161	134	113
%Free	68%	68%	67%	68%	70%	70%
Articles	17,832	15,428	11,381	9,590	7,549	6,444
%Free	64%	66%	63%	67%	65%	63%

Table 10.38. Journals and articles by year, technology

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	14	22%	7%	4,612	72%	26%
$600-$1.399	25	38%	13%	806	13%	5%
$200-$599	13	20%	7%	451	7%	3%
$0.20-$199	13	20%	7%	493	8%	3%
Free	125		66%	11,470		64%

Table 10.39. APC levels, technology

Region	Journals	%Free	Articles	%Free
APCLand	44	34%	6,072	14%
Western Europe	24	63%	6,062	97%
Eastern Europe	46	91%	2,245	91%
Asia	27	74%	1,536	76%
Latin America	20	95%	1,156	96%
Pacific/English	10	60%	621	58%
Middle East	4	75%	90	79%
Africa	2	50%	50	54%

Table 10.40. Journals by region, technology

Average cost per article: APC journals $1,598, overall $570. Distinguished from engineering (and chemistry and physics) by journal titles and specific subjects: it's a fuzzy distinction.

Zoology: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	205	208	199	191	173	163
%Free	48%	49%	48%	49%	50%	50%
Articles	10,029	9,774	9,269	8,985	8,671	8,557
%Free	31%	31%	33%	31%	32%	31%

Table 10.41. Journals and articles by year, zoology

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	21	19%	10%	1,738	25%	17%
$600-$1.399	25	23%	12%	1,589	23%	16%
$200-$599	30	27%	14%	2,301	33%	23%
$0.20-$199	35	32%	16%	1,296	19%	13%
Free	104		48%	3,105		31%

Table 10.42. APC levels, zoology

Region	Journals	%Free	Articles	%Free
APCLand	38	18%	2,304	8%
Latin America	38	66%	2,168	37%
Eastern Europe	36	61%	1,680	40%
Asia	36	31%	1,667	25%
Western Europe	33	67%	1,115	54%
Middle East	16	50%	721	40%
Pacific/English	4	25%	240	19%
Africa	4	50%	134	68%

Table 10.43. Journals by region, zoology

Average cost per article: APC journals $807, overall $557. Includes veterinary medicine and marine biology.

11. Humanities and Social Sciences

The humanities and social sciences (HSS) have more gold OA journals than other segments (nearly 4,800 in all), but they're mostly smaller journals—and very few charge APCs. Total potential revenue is a tiny fraction of the other segments, less than one-fifteenth that of biomed. (For that matter, 46% of that HSS revenue is in Psychology, which could also be grouped with Medicine, leaving just over 3% as much revenue as biomed).

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	4,227	3,972	111,155	28
Pay	558	539	25,490	47
Total	4,785	4,511	136,645	30
Free%	88%	88%	81%	

Table 11.1. Journals and articles, HSS

One out of eight journals charges fees; those journals average two-thirds more articles than free journals.

	2017	2016	2015	2014	2013	2012
Journals	4,511	4,612	4,436	4,116	3,719	3,292
%Free	88%	88%	89%	89%	89%	90%
Articles	136,645	135,281	123,038	109,686	98,316	87,705
%Free	81%	80%	82%	82%	84%	84%

Table 11.2. Journals and articles by year, HSS

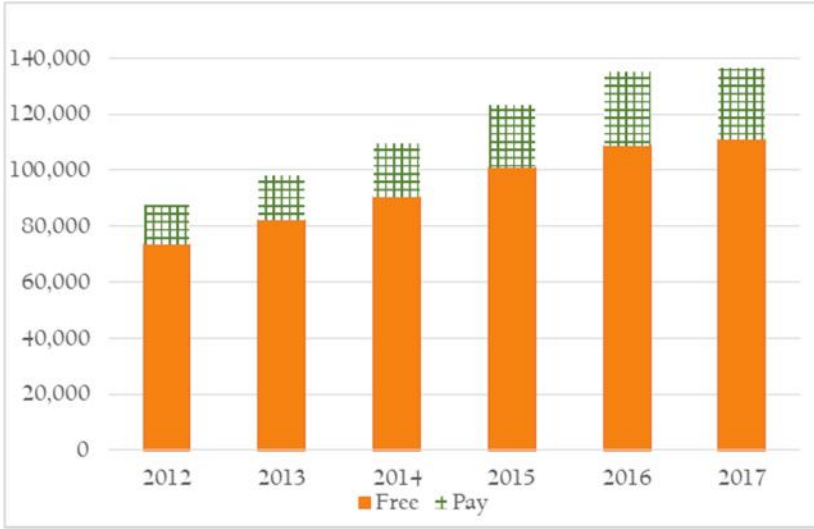

Figure 11.1. Free and pay articles by year, HSS

Many HSS journals have been added to *DOAJ* in 2017, yielding significantly higher article and journal counts.

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	9	44%	6,465	35%
Large: 150-599	78	56%	10,994	49%
Med.: 60-149	559	80%	34,460	79%
Small: 20-59	2,691	90%	71,035	90%
Smallest: 1-19	1,174	90%	13,691	90%

Table 11.3. Article volume, HSS

As usual, larger journals are more likely to have fees, but there are few such HSS journals, where smallish journals dominate. Note that nine out of ten small and smallest journals are free, and free journals publish nine out of ten articles in the smaller journals.

APC Levels

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	40	7%	1%	3,770	15%	3%
$600-$1.399	80	14%	2%	3,319	13%	2%
$200-$599	103	18%	2%	5,527	22%	4%
$0.20-$199	335	60%	7%	12,874	51%	9%
Free	4,227		88%	111,155		81%

Table 11.4. APC levels, HSS

More than three out of four fee-charging journals have low or nominal fees, and only 5% of HSS articles involve fees of $600 or more.

Starting Date

Figure 11.2. Starting dates, HSS

Quite a few OA pioneers (nearly 500 before 2000) and steady growth ever since 2003, with a longer than usual peak from 2010 through 2015. For that matter, 360 new HSS journals emerged in the last two years.

Regions

Region	Journals	%Free	Articles	%Free
Latin America	1,184	99%	38,149	98%
Western Europe	1,203	91%	31,637	88%
Eastern Europe	737	85%	26,648	74%
Asia	654	76%	13,130	71%
Pacific/English	358	93%	9,537	90%
Middle East	177	81%	7,892	64%
APCLand	148	58%	7,664	36%
Africa	50	34%	1,988	20%

Table 11.5. Journals by region, HSS

Publisher Category

Category	Journals	%Free	Articles	%Free
Univ/college	3,218	91%	93,165	87%
Miscellaneous	578	87%	18,053	83%
Open Access	304	64%	12,132	41%
Society/govt	284	91%	8,890	90%
Traditional	127	59%	4,405	46%

Table 11.6. Publisher categories, HSS

Universities and colleges dominate HSS publishing, with more than twice as many journals and articles as all others combined.

Visibility

Fee/APC	Free	%	Pay	%
Visible	3,443	81.5%	521	93.4%
Obscure	780	18.5%	37	6.6%

Table 11.7. Visibility, HSS

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	790	16.5%	
Grew 25-49.9%	477	10.0%	26.5%
Grew 10-24.99%	573	12.0%	38.5%
Even, ±9.99%	1,222	25.5%	64.0%
Shrank 10-24.99%	572	12.0%	75.9%
Shrank 25-49.99%	571	11.9%	87.9%
Shrank 50%+	580	12.1%	

Table 11.8. Growth and shrinkage, HSS

Subjects

Subject	Journals	%Free	Articles	%Free
Anthropology	396	89%	12,276	79%
Arts & Architecture	224	92%	6,170	85%
Economics	609	79%	17,175	69%
Education	657	84%	19,833	82%
History	235	96%	6,933	95%
Language & Literature	558	91%	16,860	86%
Law	262	93%	6,641	91%
Library Science	117	95%	2,969	97%
Media & Communications	185	93%	5,379	93%
Miscellany	195	86%	8,359	74%
Philosophy	148	95%	4,082	96%
Political Science	217	91%	6,342	91%
Psychology	165	84%	6,894	54%
Religion	156	86%	4,449	81%
Sociology	387	88%	12,283	80%

Table 11.9. Subjects, HSS

Countries in OAWorld (partial)

Country	Journals	%Free	Articles	%Free
Brazil	686	99%	25,085	98%
Spain	431	97%	11,642	94%
Indonesia	571	76%	10,958	71%
United States	234	92%	6,410	91%
Russian Federation	85	82%	5,972	78%
Poland	157	92%	5,674	76%
Romania	164	79%	5,396	63%
Turkey	111	83%	5,199	70%
Italy	172	98%	4,877	97%
Colombia	160	99%	4,050	99%
United Kingdom	115	64%	3,248	52%
France	120	98%	3,121	99%
Ukraine	46	50%	2,552	51%
Argentina	112	99%	2,387	99%
Germany	71	89%	1,999	79%
Portugal	64	88%	1,802	72%
Mexico	65	97%	1,775	99%
Canada	69	97%	1,711	96%
South Africa	38	21%	1,600	11%
Serbia	61	93%	1,552	89%
Iran, Islamic Republic of	52	85%	1,491	82%
Australia	47	91%	1,296	74%
Chile	51	100%	1,203	100%
Norway	57	89%	1,088	92%
Netherlands	39	82%	1,064	89%
Croatia	45	98%	1,044	98%
Ecuador	20	100%	988	100%
Cuba	16	100%	936	100%
Iraq	4	25%	889	7%
Czech Republic	38	97%	863	96%
Moldova, Republic of	18	61%	747	60%
Slovenia	34	100%	738	100%
Costa Rica	28	100%	690	100%

Table 11.10. Countries in OAWorld with 600 or more HSS titles

Anthropology: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	396	409	402	368	334	294
%Free	89%	89%	89%	89%	90%	90%
Articles	12,276	11,741	11,576	9,686	8,749	8,152
%Free	79%	80%	82%	86%	86%	86%

Table 11.11. Journals and articles by year, anthropology

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	5	10%	1%	341	13%	3%
$600-$1.399	8	17%	2%	147	6%	1%
$200-$599	11	23%	3%	446	17%	4%
$0.20-$199	24	50%	6%	1,654	64%	13%
Free	378		89%	9,688		79%

Table 11.12. APC levels, anthropology

Region	Journals	%Free	Articles	%Free
Western Europe	141	92%	3,776	89%
Eastern Europe	80	88%	3,345	58%
Latin America	94	98%	2,851	97%
Pacific/English	28	86%	857	82%
APCLand	16	50%	513	46%
Asia	23	70%	472	72%
Middle East	13	85%	457	74%
Africa	1	100%	5	100%

Table 11.13. Journals by region, anthropology

Average cost per article: APC journals $521, overall $110. Includes archæology and sports sciences.

Arts & Architecture: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	224	237	225	214	189	164
%Free	92%	92%	92%	93%	93%	93%
Articles	6,170	6,043	5,501	5,194	4,499	4,004
%Free	85%	88%	87%	88%	87%	89%

Table 11.14. Journals and articles by year, arts & architecture

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	3	15%	1%	75	8%	1%
$600-$1.399	3	15%	1%	157	17%	3%
$200-$599	6	30%	2%	390	42%	6%
$0.20-$199	8	40%	3%	306	33%	5%
Free	228		92%	5,242		85%

Table 11.15. APC levels, arts & architecture

Region	Journals	%Free	Articles	%Free
Western Europe	102	90%	2,467	85%
Latin America	45	100%	1,377	100%
Eastern Europe	28	93%	1,070	90%
Pacific/English	20	95%	464	79%
APCLand	7	71%	339	45%
Asia	18	83%	280	82%
Middle East	4	75%	173	34%

Table 11.16. Journals by region, arts & architecture

Average cost per article: APC journals $511, overall $77. Includes most journals related to the fine arts and some related to architecture and urban planning—but note two other subjects: language & literature and media & communications.

Economics: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	609	606	573	520	462	401
%Free	79%	80%	80%	80%	81%	82%
Articles	17,175	17,352	15,537	14,660	13,495	12,578
%Free	69%	65%	69%	70%	71%	71%

Table 11.17. Journals and articles by year, economics

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	5	4%	1%	109	2%	1%
$600-$1.399	10	8%	2%	428	8%	2%
$200-$599	24	19%	4%	1,595	30%	9%
$0.20-$199	89	70%	14%	3,110	59%	18%
Free	506		80%	11,933		69%

Table 11.18. APC levels, economics

Region	Journals	%Free	Articles	%Free
Eastern Europe	178	72%	6,303	62%
Latin America	139	99%	3,646	99%
Asia	132	78%	2,582	75%
Middle East	40	65%	1,995	33%
Western Europe	53	77%	1,118	57%
APCLand	36	69%	822	81%
Pacific/English	26	81%	550	78%
Africa	5	40%	159	45%

Table 11.19. Journals by region, economics

Average cost per article: APC journals $267, overall $82. Includes most business and management topics.

Education: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	658	654	610	560	495	426
%Free	84%	84%	85%	85%	86%	88%
Articles	19,857	19,110	15,852	14,028	12,085	10,622
%Free	82%	82%	84%	83%	85%	85%

Table 11.20. Journals and articles by year, education

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	7	7%	1%	248	7%	1%
$600-$1.399	10	9%	1%	398	11%	2%
$200-$599	18	17%	3%	879	24%	4%
$0.20-$199	71	67%	11%	2,099	58%	11%
Free	569		84%	16,233		82%

Table 11.21. APC levels, education

Region	Journals	%Free	Articles	%Free
Latin America	156	98%	6,521	96%
Asia	179	72%	4,203	66%
Western Europe	141	89%	3,969	83%
Eastern Europe	50	80%	1,680	76%
Pacific/English	66	94%	1,451	90%
Middle East	38	82%	1,249	82%
APCLand	19	53%	546	41%
Africa	8	38%	214	23%

Table 11.22. Journals by region, education

Average cost per article: APC journals $370, overall $67.

History: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	234	249	246	233	217	198
%Free	96%	97%	97%	97%	97%	97%
Articles	6,909	7,383	7,149	6,543	5,812	5,529
%Free	95%	96%	95%	96%	96%	97%

Table 11.23. Journals and articles by year, history

	Jour.	%APC	%All	Art.	%APC	%All
$200-$599	2	22%	1%	164	49%	2%
$0.20-$199	7	78%	3%	168	51%	2%
Free	248		96%	6,577		95%

Table 11.24. APC levels, history

Region	Journals	%Free	Articles	%Free
Western Europe	95	99%	2,413	100%
Latin America	77	100%	2,222	100%
Eastern Europe	32	91%	1,068	80%
Pacific/English	15	100%	908	100%
Middle East	7	71%	186	67%
Asia	8	63%	112	53%

Table 11.25. Journals by region, history

Average cost per article: APC journals $157, overall $8. Includes most aspects of cultural research focused on the past and a number of local and regional journals.

Language & Literature: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	558	574	569	537	489	438
%Free	91%	91%	91%	92%	93%	93%
Articles	16,860	15,534	14,575	12,596	12,322	10,715
%Free	86%	87%	87%	88%	88%	87%

Table 11.26. Journals and articles by year, language & literature

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	3	6%	0%	75	3%	0%
$600-$1.399	6	12%	1%	155	7%	1%
$200-$599	8	15%	1%	540	23%	3%
$0.20-$199	35	67%	6%	1,572	67%	9%
Free	557		91%	14,518		86%

Table 11.27. APC levels, language & literature

Region	Journals	%Free	Articles	%Free
Western Europe	201	96%	4,868	96%
Latin America	114	99%	4,198	99%
Eastern Europe	93	89%	3,275	70%
Pacific/English	50	94%	1,464	81%
Asia	72	76%	1,394	71%
Middle East	14	86%	1,219	96%
Africa	8	25%	293	9%
APCLand	6	50%	149	42%

Table 11.28. Journals by region, language & literature

Average cost per article: APC journals $235, overall $33. Includes linguistics and a number of other fields as well as author-specific journals.

Law: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	262	268	254	215	186	165
%Free	93%	93%	92%	92%	91%	93%
Articles	6,641	7,054	6,052	5,220	4,491	3,712
%Free	91%	91%	88%	88%	88%	88%

Table 11.29. Journals and articles by year, law

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	1	5%	0%	17	3%	0%
$600-$1.399	3	14%	1%	72	12%	1%
$200-$599	2	10%	1%	15	3%	0%
$0.20-$199	15	71%	5%	478	82%	7%
Free	258		92%	6,059		91%

Table 11.30. APC levels, law

Region	Journals	%Free	Articles	%Free
Latin America	104	99%	2,707	98%
Western Europe	54	94%	1,378	94%
Eastern Europe	29	93%	1,040	91%
Asia	44	82%	774	71%
Middle East	8	88%	256	86%
APCLand	8	63%	192	63%
Pacific/English	11	100%	183	100%
Africa	4	75%	111	63%

Table 11.31. Journals by region, law

Average cost per article: APC journals $237, overall $21. Includes forensics and criminology.

Library Science: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	117	120	118	116	108	98
%Free	95%	95%	95%	95%	94%	94%
Articles	2,969	2,706	2,593	2,538	2,250	2,036
%Free	97%	96%	97%	97%	96%	96%

Table 11.32. Journals and articles by year, library science

	Jour.	%APC	%All	Art.	%APC	%All
$200-$599	2	33%	2%	21	26%	1%
$0.20-$199	4	67%	3%	61	74%	2%
Free	118		95%	2,887		97%

Table 11.33. APC levels, library science

Region	Journals	%Free	Articles	%Free
Western Europe	32	94%	793	97%
Latin America	25	100%	733	100%
Pacific/English	27	96%	686	96%
Eastern Europe	13	100%	372	100%
Asia	13	85%	210	90%
Middle East	5	100%	135	100%
APCLand	1	100%	27	100%
Africa	1	0%	13	0%

Table 11.34. Journals by region, library science

Average cost per article: APC journals $143, overall $4. Includes bibliography, archives, museums and some aspects of information science that don't seem specifically akin to computer science.

Media & Communications: Select tables

	2017	2016	2015	2014	2013	2012
Journals	185	185	179	161	156	139
%Free	93%	92%	93%	93%	93%	93%
Articles	5,379	5,083	4,682	3,745	3,558	3,212
%Free	93%	94%	94%	93%	94%	93%

Table 11.35. Journals and articles by year, media & communications

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	1	7%	1%	35	9%	1%
$600-$1.399	3	21%	2%	105	28%	2%
$200-$599	2	14%	1%	59	16%	1%
$0.20-$199	8	57%	4%	181	48%	3%
Free	174		93%	4,999		93%

Table 11.36. APC levels, media & communications

Region	Journals	%Free	Articles	%Free
Western Europe	68	94%	2,084	92%
Latin America	53	98%	1,845	99%
Pacific/English	17	100%	476	100%
Asia	21	81%	390	72%
Eastern Europe	18	94%	333	95%
APCLand	4	50%	145	59%
Middle East	3	100%	89	100%
Africa	1	0%	17	0%

Table 11.37. Journals by region, media & communications

Average cost per article: APC journals $578, overall $41. Includes film, journalism, communication theory and some related fields.

Miscellany: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	195	200	189	177	159	137
%Free	86%	87%	86%	87%	88%	91%
Articles	8,359	9,454	7,892	6,655	5,616	4,707
%Free	74%	61%	71%	69%	69%	71%

Table 11.38. Journals and articles by year, miscellany

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	1	4%	0%	16	1%	0%
$600-$1.399	6	22%	3%	327	15%	4%
$200-$599	4	15%	2%	419	19%	5%
$0.20-$199	16	59%	8%	1,392	65%	17%
Free	175		87%	6,205		74%

Table 11.39. APC levels, miscellany

Region	Journals	%Free	Articles	%Free
Latin America	82	99%	3,352	97%
Eastern Europe	37	78%	1,576	81%
Middle East	7	71%	1,000	24%
Western Europe	28	89%	780	71%
APCLand	6	50%	706	46%
Asia	18	61%	532	53%
Africa	5	40%	219	38%
Pacific/English	12	100%	194	100%

Table 11.40. Journals by region, miscellany

Average cost per article: APC journals $302, overall $78. Includes multidisciplinary and interdisciplinary journals that appear to have strong HSS components and a few journals that didn't fit anywhere else.

Philosophy: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	148	154	153	149	131	123
%Free	95%	95%	95%	95%	95%	95%
Articles	4,082	4,073	3,785	3,544	3,095	2,778
%Free	96%	97%	96%	95%	96%	97%

Table 11.41. Journals and articles by year, philosophy

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	2	29%	1%	77	43%	2%
$600-$1.399	2	29%	1%	33	18%	1%
$0.20-$199	3	43%	2%	70	39%	2%
Free	153		96%	3,902		96%

Table 11.42. APC levels, philosophy

Region	Journals	%Free	Articles	%Free
Western Europe	50	98%	1,298	99%
Latin America	44	98%	1,259	99%
Eastern Europe	27	96%	879	97%
Pacific/English	17	100%	375	100%
APCLand	5	20%	154	17%
Middle East	3	100%	77	100%
Asia	2	100%	40	100%

Table 11.43. Journals by region, philosophy

Average cost per article: APC journals $1,135, overall $50. Includes specific philosophies and philosophers—but note that religion is a separate and larger subject.

Note that "zero lines" (APC, region, etc.) are removed from tables.

Political Science: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	217	225	218	203	186	164
%Free	91%	91%	91%	91%	91%	91%
Articles	6,342	6,328	6,109	5,387	4,708	3,898
%Free	91%	88%	87%	90%	89%	90%

Table 11.44. Journals and articles by year, political science

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	2	10%	1%	18	3%	0%
$600-$1.399	3	15%	1%	124	21%	2%
$200-$599	4	20%	2%	54	9%	1%
$0.20-$199	11	55%	5%	399	67%	6%
Free	212		91%	5,747		91%

Table 11.45. APC levels, political science

Region	Journals	%Free	Articles	%Free
Eastern Europe	60	92%	2,403	88%
Western Europe	67	91%	1,567	90%
Latin America	52	98%	1,463	99%
Asia	16	63%	294	55%
Pacific/English	11	91%	273	97%
APCLand	4	100%	170	100%
Middle East	4	100%	107	100%
Africa	3	100%	65	100%

Table 11.46. Journals by region, political science

Average cost per article: APC journals $349, overall $33. Includes military and defense topics and most of governmental affairs.

Psychology: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	165	169	167	161	150	136
%Free	84%	84%	84%	84%	86%	88%
Articles	6,894	6,582	6,495	5,922	5,141	4,354
%Free	54%	56%	59%	62%	68%	76%

Table 11.47. Journals and articles by year, psychology

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	5	17%	3%	2,460	77%	36%
$600-$1.399	9	31%	5%	251	8%	4%
$200-$599	7	24%	4%	337	11%	5%
$0.20-$199	8	28%	5%	145	5%	2%
Free	144		83%	3,701		54%

Table 11.48. APC levels, psychology

Region	Journals	%Free	Articles	%Free
APCLand	17	53%	2,808	6%
Latin America	53	100%	1,683	100%
Western Europe	39	74%	1,012	63%
Eastern Europe	25	92%	784	95%
Pacific/English	12	67%	256	60%
Asia	13	85%	202	87%
Middle East	5	100%	124	100%
Africa	1	0%	25	0%

Table 11.49. Journals by region, psychology

Average cost per article: APC journals $2,335, overall $1,081. Includes a few journals that might be psychiatry (and in medicine), and you could make a case for including all of this in either STEM or biomed.

Religion: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	156	163	148	141	121	110
%Free	86%	87%	86%	87%	85%	85%
Articles	4,449	4,437	3,930	3,607	3,306	2,774
%Free	81%	80%	79%	77%	80%	81%

Table 11.50. Journals and articles by year, religion

	Jour.	%APC	%All	Art.	%APC	%All
$600-$1.399	2	9%	1%	345	41%	8%
$200-$599	8	36%	5%	239	28%	5%
$0.20-$199	12	55%	7%	263	31%	6%
Free	147		87%	3,602		81%

Table 11.51. APC levels, religion

Region	Journals	%Free	Articles	%Free
Asia	66	88%	1,078	85%
Western Europe	25	84%	826	89%
Latin America	22	95%	723	95%
Eastern Europe	18	94%	615	96%
Africa	7	0%	521	0%
APCLand	1	100%	268	100%
Middle East	10	90%	241	94%
Pacific/English	7	100%	177	100%

Table 11.52. Journals by region, religion

Average cost per article: APC journals $554, overall $106. Includes journals devoted to specific religions, religious leaders, and other subjects where the religious aspect is key; also aspects of religious and non-religious thought (e.g. atheism).

Sociology: Selected tables

	2017	2016	2015	2014	2013	2012
Journals	387	399	385	361	336	299
%Free	88%	88%	89%	89%	89%	91%
Articles	12,283	12,401	11,310	10,361	9,189	8,634
%Free	80%	83%	82%	82%	84%	82%

Table 11.53. Journals and articles by year, sociology

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	5	10%	1%	299	12%	2%
$600-$1.399	15	31%	4%	777	32%	6%
$200-$599	5	10%	1%	369	15%	3%
$0.20-$199	24	49%	6%	976	40%	8%
Free	360		88%	9,862		80%

Table 11.54. APC levels, sociology

Region	Journals	%Free	Articles	%Free
Latin America	124	100%	3,569	100%
Western Europe	107	86%	3,288	83%
Eastern Europe	49	86%	1,905	72%
Pacific/English	39	97%	1,223	98%
APCLand	18	50%	825	23%
Middle East	16	88%	584	76%
Asia	29	72%	567	64%
Africa	5	20%	322	7%

Table 11.55. Journals by region, sociology

Average cost per article: APC journals $680, overall $134. Includes gender studies, social science and some journals that didn't fit elsewhere.

12. Regions and APCLand

Several earlier chapters have mentioned regions: groupings of countries, usually based on geography. There's good reason to believe that there are regional differences in OA publishing, especially once the publishers in APCLand are removed from the picture.

Region	Journals	%Free	Articles	%Free
APCLand	1,890	26%	242,313	13%
Africa	121	51%	6,686	41%
Asia	1,293	68%	41,451	50%
Eastern Europe	1,533	83%	62,023	72%
Latin America	1,833	94%	73,018	86%
Middle East	563	82%	25,220	71%
Pacific/English	593	78%	31,032	50%
Western Europe	1,842	78%	81,403	64%

Table 12.1. Journals and articles by region

Table 12.1 shows the overall picture, including the huge differences in prevalence of fees.

Chapters 13 through 19 focus on each region of OAWorld, using essentially the same format as Chapters 9 through 11, except that there's no region table, there is a segment table, and there are no sets of selected tables in each chapter. Regions (other than APCLand, where more tables make up the rest of this chapter) are arranged alphabetically.

Country and subject tables in these chapters show *all* journals with any articles 2012-2017, not just journals with 2017 articles. Some tables, including regions as in Table 12.1, continue to show only journals active in 2017.

APCLand

Some discussion, some of the tables and both figures for this imaginary Region of the Money have already appeared. The rest of this chapter provides the remaining tables.

	Journals	Active 2017	Articles	Art/Jrnl
Free	506	496	30,901	62
Pay	1,599	1,394	211,412	152
Total	2,105	1,890	242,313	128
Free%	24%	26%	13%	

Table 12.2. Journals and articles, APCLand

While slightly more than one-quarter of APCLand journals with 2017 articles are free, they publish only about one-seventh of the articles.

	2017	2016	2015	2014	2013	2012
Journals	1,890	1,928	1,871	1,780	1,489	1,225
%Free	26%	26%	24%	21%	19%	19%
Articles	242,313	221,780	205,148	189,878	150,650	121,904
%Free	13%	14%	13%	13%	11%	11%

Table 12.3. Journals and articles by year, APCLand

APCLand journals publish 8%-9% more articles each year in recent years, with more than 20% annual growth in 2012-2014.

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	71	6%	122,507	4%
Large: 150-599	296	17%	62,467	13%
Med.: 60-149	486	26%	34,254	28%
Small: 20-59	817	33%	21,149	39%
Smallest: 1-19	220	21%	1,936	28%

Table 12.4. Article volume, APCLand

More than half of all APCLand articles appear in the largest journals.

APC Levels

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	791	49%	38%	179,592	85%	74%
$600-$1.399	626	39%	30%	19,693	9%	8%
$200-$599	154	10%	7%	10,767	5%	4%
$0.20-$199	28	2%	1%	1,360	1%	1%
Free	506		24%	30,901		13%

Table 12.5. APC levels, APCLand

Three-quarters of all APCLand articles appear in the most expensive journals (nearly half of all fee-charging APCLand journals). Average cost per article within APC-charging journals is $1,955; overall, $1,706.

Segments

	Biomed	STEM	HSS
$1,400+	595	154	17
Articles	83,885	92,611	3,096
Revenue	$199,047,462	$180,701,296	$8,402,057
$600-$1.399	214	208	33
Articles	8,392	10,238	1,063
Revenue	$7,889,319	$11,287,109	$1,054,932
$200-$599	85	54	10
Articles	6,172	3,858	737
Revenue	$2,731,987	$1,782,178	$316,078
$0.20-$199	19	3	2
Articles	1,221	100	39
Revenue	$135,760	$11,130	$930
Free	247	163	86
Articles	16,229	11,943	2,729

Table 12.6. Articles and revenue by segment, APCLand

Looking at the revenue figures, note that the two megajournals are in STEM. One small table omitted for space reasons.

Subjects

Subject	Journals	%Free	Articles	%Free
Medicine	1,069	22%	93,696	16%
Other Sciences	35	34%	55,554	1%
Biology	191	9%	22,203	4%
Physics	75	28%	12,449	39%
Chemistry	68	16%	8,685	13%
Ecology	63	29%	8,579	11%
Agriculture	57	23%	6,726	9%
Technology	51	31%	6,072	14%
Engineering	90	26%	5,973	21%
Earth Sciences	73	34%	5,258	20%
Computer Science	61	13%	3,625	5%
Mathematics	74	16%	3,525	9%
Psychology	18	50%	2,808	6%
Zoology	42	17%	2,304	8%
Sociology	20	45%	825	23%
Economics	39	69%	822	81%
Miscellany	6	50%	706	46%
Education	19	53%	546	41%
Anthropology	17	47%	513	46%
Arts & Architecture	7	71%	339	45%
Religion	1	100%	268	100%
Law	9	56%	192	63%
Political Science	4	100%	170	100%
Philosophy	5	20%	154	17%
Language & Literature	6	50%	149	42%
Media & Communications	4	50%	145	59%
Library Science	1	100%	27	100%

Table 12.7. Subjects, APCLand (complete)

Even in APCLand, some subjects are entirely free.

Countries

This table is not identical to Table 7.1 because this table includes journals that did not publish articles in 2017 (and is sorted by articles).

Country	Journals	%Free	Articles	%Free
United Kingdom	673	8%	87,542	2%
Switzerland	225	22%	56,179	4%
United States	108	5%	39,657	1%
Egypt	551	9%	18,590	10%
Netherlands	169	48%	14,535	40%
India	131	71%	10,324	65%
Germany	103	51%	6,459	73%
China	37	84%	2,278	91%
Spain	30	93%	1,618	96%
Saudi Arabia	12	100%	1,191	100%
Taiwan, Province of China	9	100%	944	100%
Korea, Republic of	13	85%	816	90%
Hong Kong	7	57%	404	44%
Japan	4	25%	390	25%
Australia	4	50%	185	73%
Mexico	3	100%	173	100%
Singapore	4	75%	143	87%
Ireland	2	0%	136	0%
Iran, Islamic Republic of	4	100%	132	100%
Greece	1	100%	92	100%
Jordan	2	100%	86	100%
Thailand	2	0%	85	0%
Georgia	1	100%	80	100%
Italy	3	67%	70	63%
Argentina	1	100%	68	100%
Lithuania	1	100%	48	100%
Colombia	2	100%	40	100%
Qatar	1	100%	26	100%
South Africa	1	0%	22	0%
Russian Federation	1	100%	0	

Table 12.9. Country of publication, APCLand (complete)

13. Africa

Africa (excluding the Middle East) has a fairly long history of open access publishing, but it's on a small scale (at least in *DOAJ* as of 1/1/2018), with by far the fewest journals and articles of any region.

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	66	62	2,731	44
Pay	59	59	3,955	67
Total	125	121	6,686	55
Free%	53%	51%	41%	

Table 13.1. Journals and articles, Africa

Most journals don't charge APCs, but most articles appear in those that do. The average APC-charging journal published 52% more articles in 2017 than the average free journal.

	2017	2016	2015	2014	2013	2012
Journals	121	123	117	113	99	89
%Free	51%	52%	51%	51%	48%	46%
Articles	6,686	7,885	6,022	5,371	3,734	3,048
%Free	41%	29%	30%	32%	33%	36%

Table 13.2. Journals and articles by year, Africa

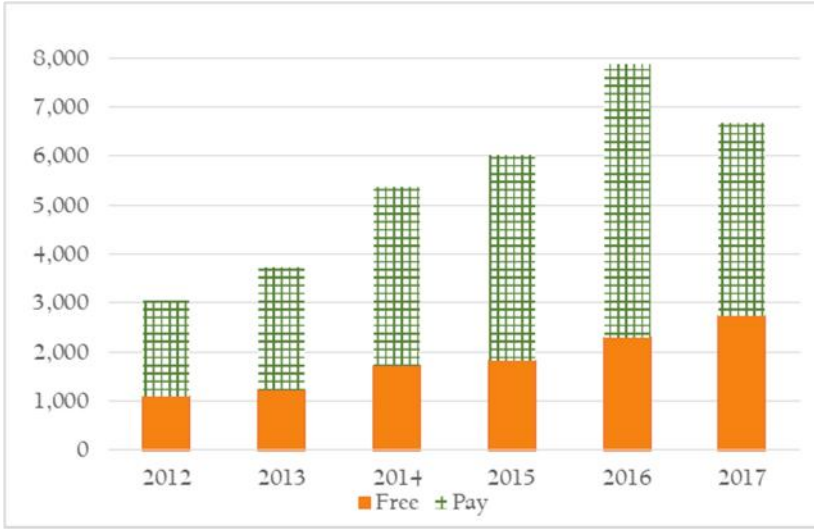

Figure 13.1. Free and pay articles by year, Africa

The percentage of free articles is rising (unusual) and free articles continue to rise, but overall article count dropped in 2017.

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	3	33%	1,744	46%
Large: 150-599	6	17%	1,297	11%
Med.: 60-149	27	37%	1,727	41%
Small: 20-59	59	58%	1,616	56%
Smallest: 1-19	26	62%	302	59%

Table 13.3. Article volume, Africa

Most medium-sized and larger journals charge APCs. Unusually, there are relatively few very small journals.

APC Levels

	Jour.	%APC	%All	Art.	%APC	%All
$600-$1.399	20	34%	16%	941	24%	14%
$200-$599	17	29%	14%	1,285	32%	19%
$0.20-$199	22	37%	18%	1,729	44%	26%
Free	66		53%	2,731		41%

Table 13.4. APC levels, Africa

There are (still) no expensive African OA journals. Average cost per article in APC-charging journals: $417. Overall average: $246.

Starting Date

Figure 13.2. Starting dates, Africa

A few African OA journals go back decades.

Segments

	Biomed	STEM	HSS
$600-$1.399	4	3	13
Articles	147	95	699
Revenue	$158,669	$77,846	$642,313
$200-$599	3	6	8
Articles	575	229	481
Revenue	$178,481	$112,325	$196,356
$0.20-$199	3	7	12
Articles	1,116	201	412
Revenue	$203,416	$19,834	$58,043
Free	19	26	17
Articles	692	1,643	396

Table 13.5. Articles and revenue by segment, Africa

This is a unique case: HSS revenue is higher than biomed or STEM.

Publisher Category

Category	Journals	%Free	Articles	%Free
Univ/college	43	65%	2,689	64%
Open Access	45	38%	1,794	27%
Society/govt	11	55%	1,236	16%
Miscellaneous	22	50%	967	33%

Table 13.6. Publisher categories, Africa

Visibility

Fee/APC	Free	%	Pay	%
Visible	53	81.5%	57	96.6%
Obscure	12	18.5%	2	3.4%

Table 13.7. Visibility, Africa

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	30	24.0%	
Grew 25-49.9%	13	10.4%	34.4%
Grew 10-24.99%	17	13.6%	48.0%
Even, ±9.99%	24	19.2%	67.2%
Shrank 10-24.99%	19	15.2%	82.4%
Shrank 25-49.99%	15	12.0%	94.4%
Shrank 50%+	7	5.6%	

Table 13.8. Growth and shrinkage, Africa

Much more growth than shrinkage, always a good sign.

Countries

Country	Jour.	%Free	Art.	%Free
South Africa	71	38%	2,860	30%
Algeria	15	100%	1,165	100%
Uganda	1	0%	850	0%
Nigeria	5	40%	500	8%
Kenya	3	0%	268	0%
Morocco	10	90%	215	89%
Tunisia	5	60%	179	30%
Ethiopia	4	100%	156	100%
Congo, the Democratic Republic of the	1	100%	138	100%
Libya	3	67%	135	59%
Cameroon	1	0%	124	0%
Ghana	5	40%	85	48%
Mauritius	1	100%	11	100%

Table 13.9. Country of publication, Africa (complete)

Subjects

Subject	Journals	%Free	Articles	%Free
Medicine	26	65%	2,346	28%
Other Sciences	5	100%	989	100%
Religion	8	13%	521	0%
Sociology	5	20%	322	7%
Agriculture	8	63%	303	54%
Language & Literature	9	33%	293	9%
Engineering	6	50%	251	43%
Ecology	7	71%	230	72%
Miscellany	6	50%	219	38%
Education	8	38%	214	23%
Biology	3	67%	184	23%
Economics	5	40%	159	45%
Zoology	4	50%	134	68%
Law	4	75%	111	63%
Chemistry	3	67%	101	76%
Computer Science	4	50%	78	15%
Political Science	3	100%	65	100%
Technology	3	67%	50	54%
Psychology	1	0%	25	0%
History	1	0%	24	0%
Media & Communications	1	0%	17	0%
Library Science	1	0%	13	0%
Mathematics	1	0%	11	0%
Physics	1	0%	11	0%
Earth Sciences	1	100%	10	100%
Anthropology	1	100%	5	100%

Table 13.10. Subjects, Africa (complete)

14. Asia

Asia's presence in *DOAJ* has changed considerably with Indonesia's enormous growth in titles.

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	924	883	20,584	23
Pay	425	410	20,867	51
Total	1,349	1,293	41,451	32
Free%	68%	68%	50%	

Table 14.1. Journals and articles, Asia

More than two-thirds of journals don't charge fees, but those that do publish more than twice as many articles per journal.

	2017	2016	2015	2014	2013	2012
Journals	1,293	1,260	1,127	1,005	866	725
%Free	68%	68%	67%	68%	67%	67%
Articles	41,451	40,792	34,621	31,973	27,112	21,060
%Free	50%	50%	50%	50%	51%	52%

Table 14.2. Journals and articles by year, Asia

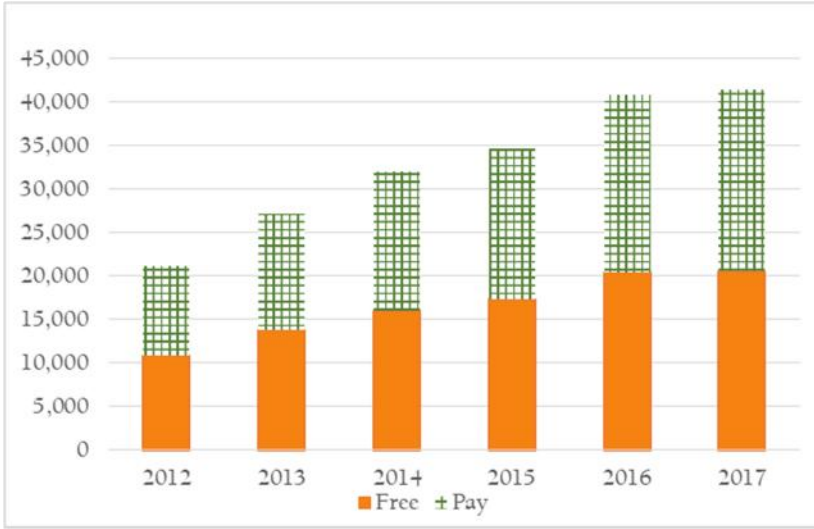

Figure 14.1. Free and pay articles by year, Asia

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	5	20%	4,100	5%
Large: 150-599	33	18%	7,076	18%
Med.: 60-149	135	51%	8,669	49%
Small: 20-59	630	67%	15,367	65%
Smallest: 1-19	490	79%	6,239	78%

Table 14.3. Article volume, Asia

APC Levels

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	1	0%	0%	70	0%	0%
$600-$1.399	16	4%	1%	915	4%	2%
$200-$599	69	16%	5%	8,614	41%	21%
$0.20-$199	339	80%	25%	11,268	54%	27%
Free	924		68%	20,584		50%

Table 14.4. APC levels, Asia

Asia is unusual in that the more expensive journals publish very few articles. Average cost per article: APC-charging $224, overall $113.

Starting Date

Figure 14.2. Starting dates, Asia

Rapid growth began in 2008—and, unusually, continues to this day.

Visibility

Fee/APC	Free	%	Pay	%
Visible	793	85.8%	382	90.5%
Obscure	131	14.2%	40	9.5%

Table 14.5. Visibility, Asia

Segments

	Biomed	STEM	HSS
$1,400+	1	0	0
Articles	70	0	0
Revenue	$105,000	$0	$0
$600-$1.399	5	7	0
Articles	339	576	0
Revenue	$343,300	$553,080	$0
$200-$599	25	34	9
Articles	4,914	3,431	269
Revenue	$1,574,898	$1,228,957	$72,523
$0.20-$199	56	127	146
Articles	3,393	4,306	3,569
Revenue	$281,559	$295,193	$212,698
Free	137	247	499
Articles	4,910	6,382	9,292

Table 14.6. Articles and revenue by segment, Asia

Most revenue is from relatively inexpensive journals.

Publisher Category

Category	Journals	%Free	Articles	%Free
Univ/college	1,035	71%	25,978	60%
Miscellaneous	123	59%	8,070	31%
Society/govt	111	63%	4,520	45%
Open Access	17	29%	2,438	7%
Traditional	7	71%	445	57%

Table 14.7. Publisher categories, Asia

Changes in the *DOAJ* landscape since the previous study mean that universities now dominate the Asian OA landscape

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	214	15.9%	
Grew 25-49.9%	93	6.9%	22.8%
Grew 10-24.99%	150	11.1%	33.9%
Even, ±9.99%	500	37.1%	70.9%
Shrank 10-24.99%	134	9.9%	80.9%
Shrank 25-49.99%	126	9.3%	90.2%
Shrank 50%+	132	9.8%	

Table 14.8. Growth and shrinkage, Asia

Countries

Country	Journals	%Free	Articles	%Free
Indonesia	1,011	70%	21,006	64%
India	65	54%	6,238	22%
China	41	41%	4,836	16%
Korea, Republic of	46	63%	2,357	53%
Pakistan	34	68%	1,673	33%
Malaysia	32	72%	1,241	53%
Thailand	19	84%	737	83%
Taiwan, Province of China	17	71%	643	30%
Bangladesh	17	65%	607	69%
Japan	13	46%	565	28%
Nepal	15	100%	428	100%
Hong Kong	14	43%	358	81%
Philippines	5	80%	246	40%
Sri Lanka	10	100%	213	100%
Singapore	5	40%	204	8%
Mongolia	3	67%	61	30%
Kyrgyzstan	2	100%	38	100%

Table 14.9. Country of publication, Asia (complete)

Subjects

Subject	Journals	%Free	Articles	%Free
Medicine	197	62%	12,626	35%
Education	181	71%	4,203	66%
Engineering	64	63%	3,024	34%
Economics	137	78%	2,582	75%
Other Sciences	40	68%	1,936	34%
Agriculture	69	51%	1,813	40%
Zoology	36	31%	1,667	25%
Technology	30	70%	1,536	76%
Language & Literature	74	76%	1,394	71%
Computer Science	66	64%	1,152	68%
Religion	71	89%	1,078	85%
Biology	31	61%	1,000	43%
Ecology	27	67%	954	37%
Earth Sciences	24	54%	813	37%
Law	47	81%	774	71%
Mathematics	37	70%	736	71%
Sociology	33	73%	567	64%
Physics	21	52%	558	32%
Miscellany	20	65%	532	53%
Chemistry	22	68%	506	53%
Anthropology	25	72%	472	72%
Media & Communications	23	78%	390	72%
Political Science	17	65%	294	55%
Arts & Architecture	19	84%	280	82%
Library Science	14	86%	210	90%
Psychology	13	85%	202	87%
History	8	63%	112	53%
Philosophy	3	100%	40	100%

Table 14.10. Subjects, Asia (complete)

15. Eastern Europe

The third-largest region in journals and articles, with seven of every eight journals and just under three of every four articles free. Growth here seems to have stalled, declining slightly in 2016 and 2017.

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	1,351	1,268	44,483	35
Pay	268	265	17,540	66
Total	1,619	1,533	62,023	40
Free%	83%	83%	72%	

Table 15.1. Journals and articles, Eastern Europe

	2017	2016	2015	2014	2013	2012
Journals	1,533	1,575	1,548	1,461	1,315	1,107
%Free	83%	83%	83%	83%	83%	83%
Articles	62,023	63,078	64,514	60,794	55,602	49,076
%Free	72%	72%	73%	73%	72%	69%

Table 15.2. Journals and articles by year, Eastern Europe

Changes in *DOAJ* mean that roughly 10,000 more articles appear each year compared to the previous study. The free percentages haven't changed *at all* for journals or significantly since 2013 for articles, which is somewhat unusual.

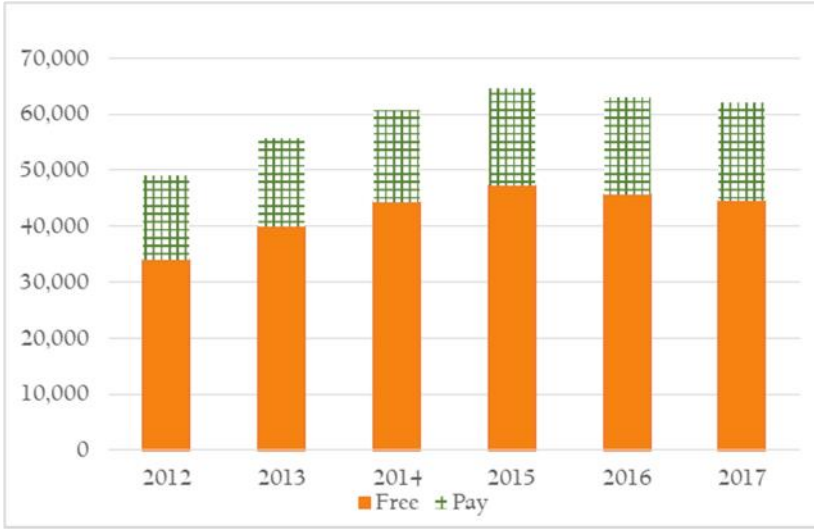

Figure 15.1. Free and pay articles by year, Eastern Europe

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	6	50%	2,727	36%
Large: 150-599	85	49%	11,722	46%
Med.: 60-149	383	72%	23,474	72%
Small: 20-59	807	88%	21,461	87%
Smallest: 1-19	252	93%	2,639	93%

Table 15.3. Article volume, Eastern Europe

APC Levels

Table 15.4 is unusual and revealing: roughly two-thirds of the (relatively few) paid articles involve nominal fees. Average cost per article within APC-charging journals was a low $272; including all journals, it comes down to a very low $77.

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	1	0%	0%	368	2%	1%
$600-$1.399	28	10%	2%	2,383	14%	4%
$200-$599	60	22%	4%	3,605	21%	6%
$0.20-$199	179	67%	11%	11,184	64%	18%
Free	1,351		83%	44,483		72%

Table 15.4. APC levels, Eastern Europe

Starting Dates

Figure 15.2. Starting date, Eastern Europe

Visibility

Fee/APC	Free	%	Pay	%
Visible	1,162	86.0%	236	88.1%
Obscure	189	14.0%	32	11.9%

Table 15.5. Visibility, Eastern Europe

Segments

	Biomed	STEM	HSS
$1,400+	0	1	0
Articles	0	368	0
Revenue	$0	$684,848	$0
$600-$1.399	8	17	3
Articles	464	1,765	154
Revenue	$407,896	$1,434,389	$105,140
$200-$599	15	28	17
Articles	1,194	1,622	789
Revenue	$441,618	$618,298	$251,365
$0.20-$199	25	59	92
Articles	2,193	3,114	5,877
Revenue	$140,790	$281,047	$406,303
Free	199	444	625
Articles	8,471	16,184	19,828

Table 15.6. Articles and revenue by segment, Eastern Europe

Very little biomed revenue, with most revenue being in STEM, specifically medium-priced STEM. There are almost as many fee-based articles in HSS as in STEM, which is also unusual.

Publisher Category

Category	Journals	%Free	Articles	%Free
Univ/college	826	84%	34,996	72%
Open Access	369	86%	11,912	77%
Miscellaneous	201	73%	8,756	61%
Society/govt	115	81%	5,261	73%
Traditional	22	82%	1,098	75%

Table 15.7. Publisher categories, Eastern Europe

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	180	11.1%	
Grew 25-49.9%	149	9.2%	20.3%
Grew 10-24.99%	195	12.0%	32.4%
Even, ±9.99%	457	28.2%	60.6%
Shrank 10-24.99%	211	13.0%	73.6%
Shrank 25-49.99%	228	14.1%	87.7%
Shrank 50%+	199	12.3%	

Table 15.8. Growth and shrinkage, Eastern Europe

Significantly more shrinkage than growth.

Countries

Poland does the most OA publishing, three-quarters of it free; Romania is second for journals, but the Russian Federation publishes more articles than Romania. Only two countries, both with small gold OA publishing programs, have more articles in APC-charging journals than in free ones: Macedonia and (with a single journal) Kazakhstan.

Country	Journals	%Free	Articles	%Free
Poland	463	87%	16,485	74%
Russian Federation	193	89%	12,229	83%
Romania	280	81%	8,495	69%
Ukraine	119	61%	6,945	55%
Serbia	126	90%	4,005	73%
Czech Republic	81	84%	2,624	71%
Croatia	85	91%	2,604	75%
Bulgaria	36	53%	1,891	37%
Slovenia	49	96%	1,356	87%
Slovakia	38	76%	1,020	69%
Moldova, Republic of	23	65%	875	62%
Lithuania	34	79%	686	68%
Hungary	25	92%	684	82%
Latvia	10	80%	387	69%
Macedonia, the Former Yugoslav Republic of	8	75%	354	34%
Belarus	6	100%	328	100%
Bosnia and Herzegovina	13	77%	323	76%
Montenegro	6	67%	287	70%
Estonia	15	100%	244	100%
Cyprus	4	75%	90	72%
Georgia	1	100%	46	100%
Albania	2	100%	42	100%
Kazakhstan	1	0%	13	0%
Turkmenistan	1	100%	10	100%

Table 15.9. Country of publication, Eastern Europe (complete)

Subjects

Subject	Journals	%Free	Articles	%Free
Medicine	211	81%	10,144	71%
Economics	184	72%	6,303	62%
Engineering	96	77%	4,912	62%
Agriculture	86	77%	4,104	63%
Anthropology	87	87%	3,345	58%
Language & Literature	100	90%	3,275	70%
Political Science	63	92%	2,403	88%
Technology	46	91%	2,245	91%
Biology	42	83%	2,178	56%
Computer Science	56	82%	2,036	86%
Earth Sciences	74	91%	1,941	87%
Sociology	53	87%	1,905	72%
Education	53	81%	1,680	76%
Zoology	39	64%	1,680	40%
Ecology	49	82%	1,657	59%
Miscellany	38	79%	1,576	81%
Mathematics	55	87%	1,556	83%
Other Sciences	26	88%	1,291	79%
Chemistry	30	73%	1,101	67%
Arts & Architecture	32	94%	1,070	90%
History	36	92%	1,068	80%
Law	34	94%	1,040	91%
Philosophy	29	97%	879	97%
Psychology	26	92%	784	95%
Religion	20	95%	615	96%
Physics	22	91%	530	75%
Library Science	14	100%	372	100%
Media & Communications	18	94%	333	95%

Table 15.10. Subjects, Eastern Europe (complete)

16. Latin America

Latin America (including the Caribbean) has the most gold OA journals of any OAWorld region and the highest percentage of free (no-fee) journals and articles. Seven of every ten articles come from Brazil.

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	1,793	1,714	62,556	36
Pay	124	119	10,462	88
Total	1,917	1,833	73,018	40
Free%	94%	94%	86%	

Table 16.1. Journals and articles, Latin America

The average APC-charging journal published 2.4 times as many articles in 2017 as the average no-fee journals, but there are so few APC journals that it doesn't make much difference.

	2017	2016	2015	2014	2013	2012
Journals	1,833	1,889	1,854	1,763	1,674	1,557
%Free	94%	93%	94%	93%	93%	92%
Articles	73,018	70,757	66,616	62,456	57,835	55,854
%Free	86%	85%	84%	82%	81%	79%

Table 16.2. Journals and articles by year, Latin America

Additions to *DOAJ* make these numbers considerably higher than in the previous study—and gold OA continues to grow in Latin America.

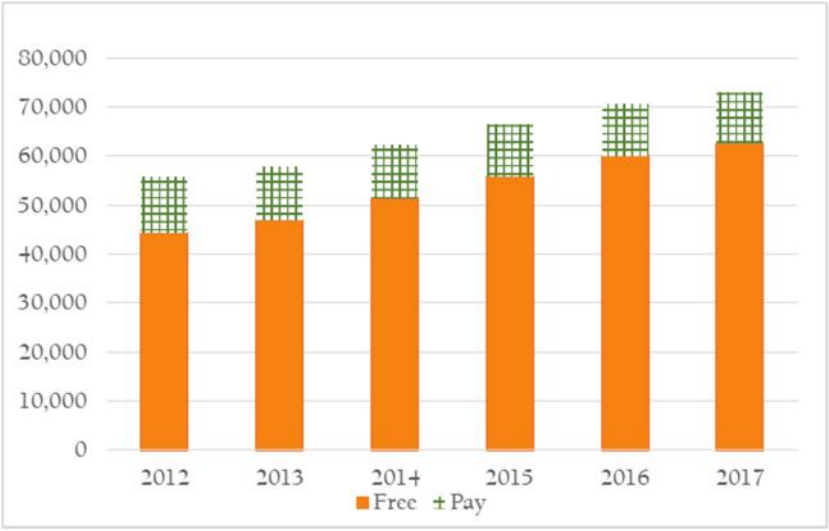

Figure 16.1. Free and pay articles by year, Latin America

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	2	50%	148	23%
Large: 150-599	70	56%	11,578	55%
Med.: 60-149	362	85%	25,296	83%
Small: 20-59	1,149	98%	32,909	98%
Smallest: 1-19	250	97%	3,087	97%

Table 16.3. Article volume, Latin America

Small and medium-sized journals dominate Latin American OA. The top row of Table 16.3 needs clarification: journals are split into groups based on their *peak* volume, 2012-2017; both of the once-largest journals have been declining ever since 2012.

APC Levels

Expensive journals account for less than 0.5% of articles. Average cost per article in fee journals: $341. Overall: a very low $49.

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	3	2%	0%	334	3%	0%
$600-$1.399	14	11%	1%	1,355	13%	2%
$200-$599	43	35%	2%	4,070	39%	6%
$2-$199	64	52%	3%	4,703	45%	6%
Free	1,793		94%	62,556		86%

Table 16.4. APC levels, Latin America

Starting Date

Figure 16.2. Starting dates, Latin America

Gold OA has a long tradition in Latin America, with 54 journals before 1980 and another 73 by 1991. New journals peaked in 2010-2011, but continue to appear at a healthy rate.

Segments

	Biomed	STEM	HSS
$1,400+	2	1	0
Articles	283	51	0
Revenue	$440,500	$71,400	$0
$600-$1.399	7	6	0
Articles	650	705	0
Revenue	$524,216	$598,033	$0
$200-$599	20	18	4
Articles	1,984	1,843	243
Revenue	$690,915	$660,242	$115,920
$0.20-$199	12	40	9
Articles	1,370	2,957	376
Revenue	$152,890	$283,716	$25,538
Free	215	328	1,171
Articles	12,463	12,563	37,530

Table 16.6. Articles and revenue by segment, Latin America

What's interesting about Table 16.6 is what's missing, given that Latin America publishes so much OA: not a single Revenue cell of $700,000 or higher—and the most revenue comes from fairly modest fees.

Publisher Category

Category	Journals	%Free	Articles	%Free
Univ/college	1,523	95%	55,993	89%
Society/govt	185	82%	11,568	73%
Miscellaneous	116	89%	4,777	76%
Open Access	5	100%	516	100%
Traditional	4	100%	164	100%

Table 16.6. Publisher Categories, Latin America

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	269	14.0%	
Grew 25-49.9%	237	12.4%	26.4%
Grew 10-24.99%	265	13.8%	40.2%
Even, ±9.99%	514	26.8%	67.0%
Shrank 10-24.99%	240	12.5%	79.6%
Shrank 25-49.99%	223	11.6%	91.2%
Shrank 50%+	169	8.8%	

Table 16.7. Growth and shrinkage, Latin America

Significantly more growth than shrinkage (40.2% to 33%).

Visibility

Fee/APC	Free	%	Pay	%
Visible	1,469	81.9%	114	92.7%
Obscure	324	18.1%	9	7.3%

Table 16.8. Visibility, Latin America

An unfortunately large number of no-fee Latin American journals fail to say they lack fees in a visible way.

Countries

Country	Jour.	%Free	Articles	%Free
Brazil	1,095	92%	51,227	82%
Colombia	264	99%	7,002	98%
Argentina	159	94%	3,356	91%
Mexico	95	88%	2,831	84%
Chile	80	94%	2,031	83%
Cuba	47	100%	1,952	100%
Ecuador	36	100%	1,326	100%
Costa Rica	47	100%	1,230	100%
Peru	35	97%	1,096	96%
Venezuela, Bolivarian Republic of	22	86%	371	60%
Uruguay	14	100%	307	100%
Paraguay	5	100%	100	100%
Bolivia, Plurinational State of	4	100%	57	100%
Barbados	1	100%	32	100%
El Salvador	1	100%	26	100%
Nicaragua	4	100%	20	100%
Puerto Rico	2	100%	19	100%
Guatemala	3	100%	15	100%
Bahamas	1	100%	10	100%
Guam	1	0%	5	0%
Jamaica	1	0%	5	0%

Table 16.9. Country of publication, Latin America (complete)

Some of these countries may be Anglophile or Francophile, but not enough to justify separate treatment.

Subjects

Subject	Journals	%Free	Articles	%Free
Medicine	236	86%	14,646	79%
Education	159	98%	6,521	96%
Agriculture	94	68%	5,281	52%
Language & Literature	123	99%	4,198	99%
Economics	142	99%	3,646	99%
Sociology	128	100%	3,569	100%
Miscellany	82	99%	3,352	97%
Anthropology	100	97%	2,851	97%
Law	107	99%	2,707	98%
History	80	100%	2,222	100%
Earth Sciences	69	90%	2,191	84%
Zoology	38	66%	2,168	37%
Engineering	59	97%	2,133	96%
Biology	25	60%	2,104	45%
Media & Communications	54	98%	1,845	99%
Other Sciences	47	98%	1,793	93%
Ecology	51	88%	1,778	74%
Psychology	57	100%	1,683	100%
Political Science	57	98%	1,463	99%
Arts & Architecture	52	98%	1,377	100%
Philosophy	49	98%	1,259	99%
Technology	21	95%	1,156	96%
Library Science	26	100%	733	100%
Religion	23	96%	723	95%
Chemistry	8	50%	644	13%
Mathematics	14	100%	411	100%
Physics	6	67%	296	90%
Computer Science	10	100%	268	100%

Table 16.10. Subjects, Latin America (complete)

17. Middle East

The second least prolific region, mostly free, with OA publishing dominated by Iran and Turkey.

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	487	464	17,814	38
Pay	101	99	7,406	75
Total	588	563	25,220	45
Free%	83%	82%	71%	

Table 17.1. Journals and articles, Middle East

	2017	2016	2015	2014	2013	2012
Journals	563	580	547	498	427	341
%Free	82%	83%	82%	81%	81%	79%
Articles	25,220	26,178	23,742	21,321	17,737	14,605
%Free	71%	70%	72%	69%	71%	68%

Table 17.2. Journals and articles by year, Middle East

Both free and pay OA grew each year through 2016 (free growing faster than pay), and both declined slightly in 2017.

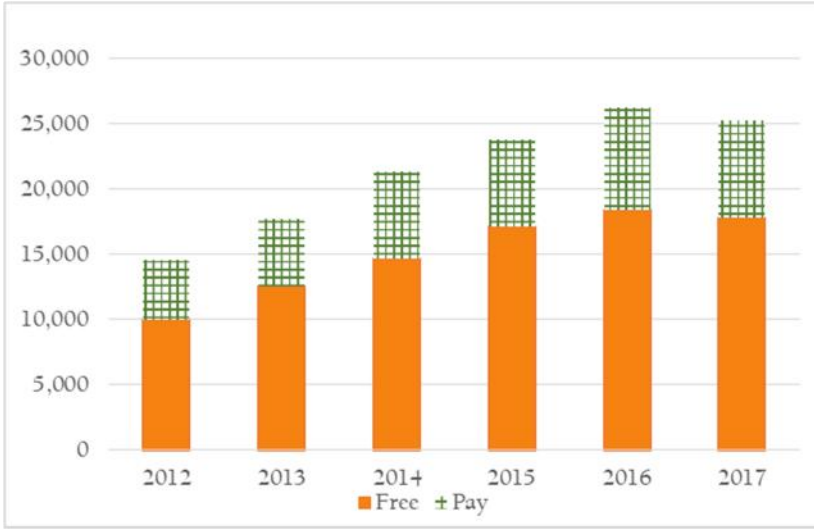

Figure 17.1. Free and pay articles by year, Middle East

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	5	60%	2,132	41%
Large: 150-599	28	50%	4,437	36%
Med.: 60-149	115	76%	7,676	77%
Small: 20-59	348	86%	10,061	85%
Smallest: 1-19	67	91%	914	93%

Table 17.3. Article volume, Middle East

APC-charging journals are never a majority—and paid articles are only a majority in the relatively few large and largest journals.

APC Levels

Another region where, if there are fees at all, they're almost always nominal or low. Average cost is a low $203 for fee journals, a *very* low $60 for all journals

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	2	2%	0%	122	2%	0%
$600-$1.399	1	1%	0%	10	0%	0%
$200-$599	24	24%	4%	3,127	42%	12%
$2-$199	74	73%	13%	4,147	56%	16%
Free	487		83%	17,814		71%

Table 17.4. APC levels, Middle East

Starting Date

Figure 17.2. Starting dates, Middle East

Visibility

Fee/APC	Free	%	Pay	%
Visible	387	79.5%	95	94.1%
Obscure	100	20.5%	6	5.9%

Table 17.5. Visibility, Middle East

Segments

	Biomed	STEM	HSS
$1,400+	1	0	1
Articles	42	0	80
Revenue	$91,770	$0	$144,000
$600-$1.399	0	1	0
Articles	0	10	0
Revenue	$0	$9,950	$0
$200-$599	12	3	9
Articles	1,760	201	1,166
Revenue	$514,653	$82,750	$377,450
$0.20-$199	13	35	24
Articles	724	1,817	1,606
Revenue	$60,759	$109,513	$109,938
Free	211	110	143
Articles	8,612	4,162	5,040

Table 17.6. Articles and revenue by segment, Middle East

Publisher Category

Category	Journals	%Free	Articles	%Free
Univ/college	402	85%	16,594	76%
Miscellaneous	96	79%	4,685	74%
Open Access	28	64%	1,988	42%
Society/govt	36	81%	1,889	48%
Traditional	1	100%	64	100%

Table 17.7. Publisher categories, Middle East

Another region where universities and colleges dominate OA publishing.

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	89	15.1%	
Grew 25-49.9%	64	10.9%	26.0%
Grew 10-24.99%	66	11.2%	37.2%
Even, ±9.99%	173	29.4%	66.7%
Shrank 10-24.99%	66	11.2%	77.9%
Shrank 25-49.99%	70	11.9%	89.8%
Shrank 50%+	60	10.2%	

Table 17.8. Growth and shrinkage, Middle East

More growth than shrinkage, and a large stable group.

Countries

Country	Journals	%Free	Articles	%Free
Iran, Islamic Republic of	312	84%	12,364	72%
Turkey	229	90%	10,393	80%
Iraq	17	12%	1,380	6%
United Arab Emirates	6	0%	268	0%
Saudi Arabia	2	50%	264	10%
Oman	5	100%	191	100%
Egypt	7	43%	158	49%
Qatar	4	75%	85	88%
Israel	3	100%	82	100%
Lebanon	1	100%	23	100%
Yemen	1	100%	12	100%
Palestine, State of	1	0%	0	

Table 17.9. Country of publication, Middle East (complete)

Iran and Turkey dominate. Iraq, UAW and Saudi Arabia stand out for having predominantly fee-based OA publishing (although the numbers are too small to be significant except, possibly, in Iraq).

Subjects

Subject	Journals	%Free	Articles	%Free
Medicine	233	91%	10,766	77%
Economics	42	67%	1,995	33%
Agriculture	28	54%	1,552	43%
Education	40	83%	1,249	82%
Language & Literature	15	87%	1,219	96%
Miscellany	7	71%	1,000	24%
Other Sciences	15	80%	882	86%
Engineering	23	83%	809	89%
Zoology	17	53%	721	40%
Sociology	16	88%	584	76%
Mathematics	18	100%	498	100%
Earth Sciences	10	60%	486	42%
Chemistry	14	86%	463	89%
Anthropology	14	86%	457	74%
Ecology	14	79%	433	77%
Biology	17	71%	372	76%
Law	8	88%	256	86%
Religion	10	90%	241	94%
History	8	75%	186	67%
Arts & Architecture	4	75%	173	34%
Computer Science	8	75%	147	63%
Library Science	5	100%	135	100%
Psychology	5	100%	124	100%
Physics	2	100%	109	100%
Political Science	5	100%	107	100%
Technology	4	75%	90	79%
Media & Communications	3	100%	89	100%
Philosophy	3	100%	77	100%

Table 17.10. Subject, Middle East (complete)

18. Pacific/English

This "region" is composed of Australia, Canada (with apologies to Québec), New Zealand and the United States. The United States is the largest OAWorld factor.

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	504	463	15,475	33
Pay	137	130	15,557	120
Total	641	593	31,032	52
Free%	79%	78%	50%	

Table 18.1. Journals and articles, Pacific/English

APC journals average more than 3.5 times as many articles per journal as free journals.

	2017	2016	2015	2014	2013	2012
Journals	593	613	600	558	497	432
%Free	78%	79%	79%	79%	83%	87%
Articles	31,032	25,902	21,636	18,696	15,718	13,096
%Free	50%	55%	59%	63%	67%	74%

Table 18.2. Journals and articles by year, Pacific/English

Article count—both free and pay—continues to grow at a healthy rate, but the growth is faster in APC-charging journals.

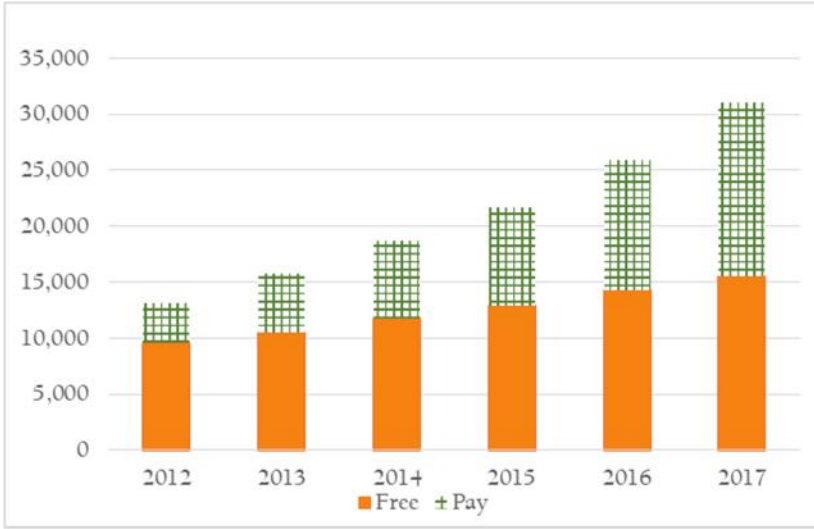

Figure 18.1. Free and pay articles by year, Pacific/English

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	8	25%	9,383	18%
Large: 150-599	33	45%	7,246	41%
Med.: 60-149	73	62%	4,700	60%
Small: 20-59	297	82%	7,903	80%
Smallest: 1-19	182	87%	1,800	89%

Table 18.3. Article volume, Pacific/English

APC Levels

With very few low-priced journals and a fair number of expensive ones, Pacific/English has the highest average cost per article: $1,656 for articles in APC-charging journals and $830 averaged among all journals.

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	41	30%	6%	8,863	57%	29%
$600-$1.399	27	20%	4%	4,554	29%	15%
$200-$599	41	30%	6%	1,591	10%	5%
$0.20-$199	28	20%	4%	549	4%	2%
Free	504		79%	15,475		50%

Table 18.4. APC levels, Pacific/English

Starting Date

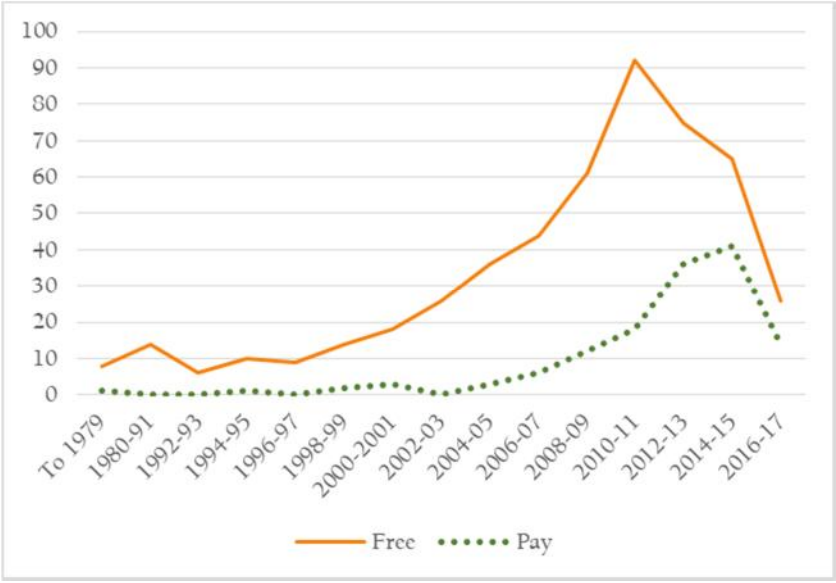

Figure 18.2. Starting dates, Pacific/English

Somewhat unusually, new APC-charging journals peaked later (2014-2015) than free ones (2010-2013 with a gradual decline in 2014-2015). There are 29 OA journals established before 1994.

Segments

	Biomed	STEM	HSS
$1,400+	19	19	3
Articles	3,453	5,260	150
Revenue	$7,833,720	$12,126,173	$272,950
$600-$1.399	15	10	2
Articles	1,610	2,905	39
Revenue	$1,724,145	$3,163,966	$38,225
$200-$599	18	13	7
Articles	696	435	460
Revenue	$283,635	$134,321	$129,537
$0.20-$199	8	4	12
Articles	153	92	304
Revenue	$18,790	$5,976	$28,293
Free	61	68	334
Articles	3,464	3,427	8,584

Table 18.5. Articles and revenue, Pacific/English

STEM has the most revenue, up considerably from the previous report.

Publisher Category

Category	Journals	%Free	Articles	%Free
Society/govt	122	68%	13,581	28%
Univ/college	257	94%	6,685	92%
Miscellaneous	143	83%	5,964	82%
Open Access	62	31%	4,360	13%
Traditional	9	22%	442	14%

Table 18.6. Publisher categories, Pacific/English

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	140	21.8%	
Grew 25-49.9%	80	12.5%	34.3%
Grew 10-24.99%	64	10.0%	44.3%
Even, ±9.99%	119	18.6%	62.9%
Shrank 10-24.99%	66	10.3%	73.2%
Shrank 25-49.99%	81	12.6%	85.8%
Shrank 50%+	91	14.2%	

Table 18.7. Growth and shrinkage, Pacific/English

A relatively small stable group, and more growth than shrinkage.

Visibility

Fee/APC	Free	%	Pay	%
Visible	412	82.1%	127	92.7%
Obscure	90	17.9%	10	7.3%

Table 18.8. Visibility, Pacific/English

Countries

Country	Journals	%Free	Articles	%Free
United States	437	75%	24,052	46%
Canada	122	85%	4,197	64%
Australia	69	88%	2,611	63%
New Zealand	13	92%	172	93%

Table 18.9. Country of publication, Pacific/English (complete)

Subjects

Subject	Journals	%Free	Articles	%Free
Medicine	106	52%	6,675	49%
Biology	22	41%	2,701	7%
Engineering	10	60%	2,590	4%
Other Sciences	9	56%	2,368	4%
Physics	8	25%	1,537	18%
Language & Literature	57	95%	1,464	81%
Education	71	94%	1,451	90%
Chemistry	4	50%	1,392	18%
Sociology	42	98%	1,223	98%
Ecology	24	54%	1,030	41%
Mathematics	16	81%	1,028	91%
History	19	100%	908	100%
Anthropology	31	87%	857	82%
Computer Science	18	78%	825	84%
Library Science	29	97%	686	96%
Technology	10	60%	621	58%
Economics	27	81%	550	78%
Media & Communications	17	100%	476	100%
Arts & Architecture	23	96%	464	79%
Philosophy	18	100%	375	100%
Agriculture	8	50%	285	37%
Political Science	13	92%	273	97%
Psychology	13	62%	256	60%
Zoology	4	25%	240	19%
Earth Sciences	8	63%	203	62%
Miscellany	12	100%	194	100%
Law	13	100%	183	100%
Religion	9	100%	177	100%

Table 18.10. Subject, Pacific/English (complete)

19. Western Europe

Western Europe has the most journals and articles of any OAWorld region. It's about midway in free percentage of both.

Journals and Articles

	Journals	Active 2017	Articles	Art/Jrnl
Free	1,540	1,441	51,766	36
Pay	409	401	29,637	74
Total	1,949	1,842	81,403	44
Free%	79%	78%	64%	

Table 19.1. Journals and articles, Western Europe

	2017	2016	2015	2014	2013	2012
Journals	1,842	1,869	1,817	1,698	1,532	1,397
%Free	78%	79%	79%	80%	81%	83%
Articles	81,403	77,124	65,170	59,733	54,737	49,123
%Free	64%	63%	64%	63%	64%	66%

Table 19.2. Journals and articles by year, Western Europe

While growth slowed somewhat in 2017, there's been healthy growth each year.

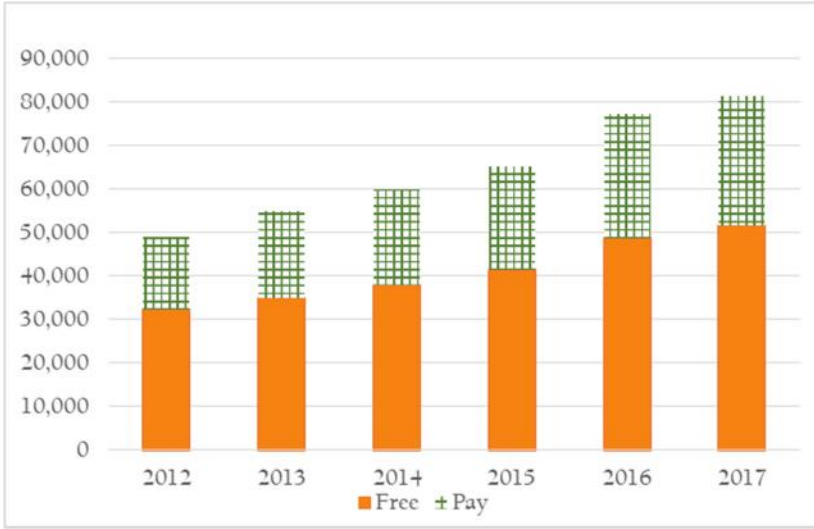

Figure 19.1. Free and pay articles by year, Western Europe

Article Volume

	Journals	%Free	Articles	%Free
Largest: 600+	16	44%	20,742	55%
Large: 150-599	63	46%	11,527	41%
Med.: 60-149	272	58%	17,783	54%
Small: 20-59	1,006	83%	26,371	82%
Smallest: 1-19	485	85%	4,980	87%

Table 19.3. Article volume, Western Europe

It's unusual for articles in the largest journals to be mostly free and for paid articles to be the majority only in large journals.

APC Levels

Medium-priced journals publish slightly more articles than either expensive or inexpensive ones. Average cost per article in APC-charging journals is $1,281; across all journals, that drops to $466.

	Jour.	%APC	%All	Art.	%APC	%All
$1,400+	110	27%	6%	11,192	38%	14%
$600-$1.399	153	37%	8%	11,408	38%	14%
$200-$599	97	24%	5%	4,160	14%	5%
$2-$199	49	12%	3%	2,877	10%	4%
Free	1,540		79%	51,766		64%

Table 19.4. APC levels, Western Europe

Starting Date

Figure 19.2. Starting dates, Western Europe

Western Europe is rich in early OA, with 112 journals before 1994.

Segments

	Biomed	**STEM**	**HSS**
$1,400+	68	24	18
Articles	8,990	1,758	444
Revenue	$19,515,336	$3,448,431	$1,066,546
$600-$1.399	45	79	26
Articles	2,926	7,118	1,364
Revenue	$2,942,156	$7,567,315	$1,620,415
$200-$599	30	28	36
Articles	1,113	1,665	1,382
Revenue	$485,820	$609,614	$452,217
$0.20-$199	4	17	26
Articles	154	2,032	691
Revenue	$21,373	$171,726	$70,536
Free	127	217	1,097
Articles	6,011	17,999	27,756

Table 19.5. Articles and revenue by segment, Western Europe

Expensive biomed journals and medium-priced STEM journals bring in the most money and have the most articles.

Visibility

Fee/APC	**Free**	**%**	**Pay**	**%**
Visible	1,224	79.6%	392	95.8%
Obscure	314	20.4%	17	4.2%

Table 19.6. Visibility, Western Europe

Too many free journals fail to make their status clear.

Publisher Category

Category	Journals	%Free	Articles	%Free
Univ/college	885	94%	25,550	86%
Traditional	174	18%	22,554	47%
Miscellaneous	361	82%	13,211	65%
Open Access	243	50%	11,600	42%
Society/govt	179	88%	8,488	66%

Table 19.7. Publisher categories, Western Europe

As with several other regions, universities publish the most articles and have by far the most journals.

Growth and Shrinkage

Change 2016-17	Count	Percent	Cum%
Grew 50%+	366	18.8%	
Grew 25-49.9%	205	10.5%	29.3%
Grew 10-24.99%	197	10.1%	39.4%
Even, ±9.99%	425	21.8%	61.2%
Shrank 10-24.99%	272	14.0%	75.2%
Shrank 25-49.99%	232	11.9%	87.1%
Shrank 50%+	252	12.9%	

Table 19.8. Growth and shrinkage, Western Europe

Almost as many journals shrank (38.8%) as grew (39.4%).

Countries

Country	Journals	%Free	Articles	%Free
United Kingdom	302	40%	19,977	18%
Spain	546	96%	14,714	94%
France	194	90%	14,480	95%
Germany	168	70%	10,240	48%
Italy	280	83%	7,950	78%
Switzerland	47	53%	3,276	46%
Portugal	85	88%	2,485	74%
Sweden	48	60%	1,890	37%
Netherlands	48	83%	1,254	90%
Norway	70	91%	1,216	93%
Greece	29	69%	1,079	64%
Austria	40	85%	920	68%
Belgium	33	94%	602	93%
Finland	19	84%	532	72%
Iceland	6	100%	313	100%
Denmark	18	94%	229	84%
Ireland	12	100%	205	100%
Malta	2	100%	25	100%
Luxembourg	2	100%	16	100%

Table 19.9. Country of publication, Western Europe (complete)

The UK has the most articles, Spain the most journals.

Subjects

Subject	Journals	%Free	Articles	%Free
Medicine	253	49%	15,054	37%
Technology	25	60%	6,062	97%
Language & Literature	225	96%	4,868	96%
Ecology	46	52%	4,517	34%
Earth Sciences	92	61%	4,304	58%
Biology	32	34%	4,140	11%
Physics	18	33%	4,063	78%
Education	143	90%	3,969	83%
Anthropology	151	92%	3,776	89%
Sociology	112	87%	3,288	83%
Arts & Architecture	111	91%	2,467	85%
History	106	99%	2,413	100%
Chemistry	12	42%	2,343	57%
Other Sciences	19	74%	2,309	36%
Media & Communications	68	94%	2,084	92%
Computer Science	39	72%	2,012	28%
Engineering	24	46%	1,638	25%
Agriculture	43	60%	1,598	48%
Political Science	70	90%	1,567	90%
Law	57	95%	1,378	94%
Philosophy	53	98%	1,298	99%
Economics	58	79%	1,118	57%
Zoology	35	69%	1,115	54%
Psychology	40	75%	1,012	63%
Religion	27	85%	826	89%
Library Science	34	94%	793	97%
Miscellany	31	90%	780	71%
Mathematics	25	76%	611	66%

Table 19.10. Subjects, Western Europe (complete)

Appendix A. Methods, Changes and Caveats

The Investigation

This research began with the master dataset prepared for *GOAJ2: Gold Open Access Journals 2011-2017* and the downloaded *DOAJ* metadata as of 0:30 a.m., January 1, 2018 (half an hour after midnight, as timestamped in the filename).

The 2016 dataset included 9,366 journals. The 2017 dataset (the *DOAJ* download) includes 10,711 journals (of which five had disappeared from *DOAJ* and the internet by the time I tested them, so the dataset size is 10,706 journals).

Matching proceeded as follows:

- For 6,195 journals, the URL and journal title in the 2016 and 2017 files were exact matches (according to Excel's Vlookup and equality tests).
- For 1,272 journals, the URL in both datasets was an exact match, and manual inspection said that these were the same journals but with changes in titles or publisher. That adds up to 7,467 unambiguous matches.
- For 341 journals, the URLs were different, the journal titles were identical, and the publishers were either identical or represented normal changes. That adds up to 7,808 matches.
- Manual comparison of titles yielded 159 more journals that changed both URLs and titles (the latter usually in small ways). That adds up to 7,967 total matches.

- Inspecting datasets of journals previously removed from *DOAJ* or in the "gray OA" groups yielded 201 "restored" journals, yielding 8,168 matches.
- The new dataset includes 2,538 journals added to *DOAJ* during 2017 that had not been in one of the other datasets. These are *not* mostly brand-new journals: only 185 of the 2,538 began in 2017.
- Thus, the dataset for 2017 begins with 10,706 journals. (More than 1,300 journals were dropped from *DOAJ* during 2017.)
- During the course of testing, a few dozen duplicates appeared, and comparisons yielded a few more—primarily cases where the same journal (with the same or an equivalent URL) appears with the title in two different languages or with other minor changes. These were coded as "XD," combined with other cases where a journal has no articles throughout the 2012-2017 period. Unlike last year's study, these *are* included in the Figshare spreadsheet, which includes all 10,706 rows.
- As discussed in Chapter 3, 413 journals were excluded for various reasons ("X" codes). That leaves 10,293 journals that published at least one article between 2012 and 2017 and were accessible during the testing period (January 4, 2018-May 3. 2018). All "X" journals were tested twice; all "XM" journals were checked three times.

Changes from *Gold Open Access Journals 2011-2016*

Some codes have been added or combined in order to provide a clearer picture in Chapters 1 and 3 (the only chapters where codes come into play—except that "X" codes are excluded from all other chapters).

Changes in B Codes

Two codes have been added and several eliminated:

- **BI: No articles since 2015.** All of these were rechecked in late April 2018. I'm sure that rechecking later in 2018 would yield 2017 arti-

cles for some of these. This code—the "I" is for "Inactive"—combines former codes B2, B3, B4, B5, and portions of BC (ceased journals with 2016-2017 articles are now coded A).

- **BM: Outbound malware, but could measure the journal**. Think of this as a yellow flag—Malwarebytes flagged some site *called* by the journal as containing malware and blocked access to the subsite, but without that access I could examine journal policies and archives. I would be loath to go to any of these journals without strong active antivirus/antimalware software running.
- In addition to dropping B2-B5 and BC, BF (few 2016 articles) has been dropped as not providing useful information (it's easy enough to determine from the spreadsheet), and BS has been dropped because it's not allowed by *DOAJ* standards.

Changes in Other Codes

- **CA** has been eliminated, as the *DOAJ* rules don't allow it. (Two journals didn't yet submit their information, but both were pretty clearly free.)
- **XU and XP** have been merged into XX.
- **The new XD** combines the old XE and other cases where examination shows that a journal is, in effect, a duplicate or earlier version (and 2012-2017 counts are in the other version).
- **XT** has been eliminated thanks to help from my friends, as noted in the Preface.

Caveats

The same caveats apply as in *GOAJ2: Gold Open Access Journals 2011-2016*. 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 15 journals marked as approximate counts, but only nine for 2017). I'm certain that manual counts are off by one or two in some cases

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