

# Delays in Availability of Faculty Journal Articles : Local Effects of Open Access Policies

John Wiswell, Appalachian State University

## How much OA is there? 50%?

Many peer-reviewed journal articles are freely available on the web. Some estimates suggest that over 50% of recently published articles are open access or that we might reach that proportion soon. In 2014, Archambault et al (2014) estimated that over 50% of 2013 articles were accessible. Their study was global. However, there are few estimates focusing on research published in the United States. One study, by Swan et al (2015), found 32% at one US university. Swan et al also includes several estimates, from a few other American universities, that suggest high proportions of open access. Bjork et al (2014) in their comprehensive review of Green OA, suggest that about 80% of all journal articles could be made available by 12 months after publication.

This is important for promoting open access among faculty and for helping researchers and students efficiently access full text of studies.

## My own experience? Maybe 15%

My own experience in assisting students and faculty has suggested lower levels. My guess had been about 15%. However, I recently did a study of faculty journal articles at one university. In the sample of peer-reviewed articles, from faculty in the sciences and health sciences, 53% of articles were openly available within a year of publication (Wiswell 2015). These were post-peer-review versions.

## A few hypotheses, none of which will be tested

This study will not involve hypothesis testing (although I will include a few p-values to demonstrate differences). I do have had several hypotheses, not all addressed in this study:

1. The OA proportion of recently published articles is approaching 50%.
2. The proportion varies across universities, departments, and disciplines.
3. The proportion will vary over time.
4. Talking about it will encourage participation and use.

## Methods

### Finding articles from departments at 3 universities

I searched several databases and search engines (Web of Science, PubMed, Google Scholar, EBSCO Discovery, and ProQuest databases) for all refereed journal articles, published in 2015 from 10 disciplines at three masters-comprehensive, regional, public universities. The EBSCO Discovery search includes EBSCO databases but many others also. I did not look at all the Google Scholar results — only until I stopped finding new articles. The selected departments include a range of natural science, social science, and health science disciplines. None were from the arts and humanities. I identified 341 articles from those departments at the 3 schools.

### Creating a sample and clean up

A random sample of about 36 articles was taken from each of the universities. Several of these were removed when it was found that they had actually been assigned to an issues dated 2016. A few of these articles e-published in 2015 have still not been assigned to any issue, but they were left in. The sample then included 101 articles.

### Variables

Data were found on the 101 articles remaining in the sample, including:

- . month that they were nominally published,
- . month that they became available by subscription, and
- . month they became available in a reasonably findable open access website.

Journals were searched in the Sherpa Romeo database for information on Open Access restrictions, especially embargo periods for posting post-peer-review versions of the articles. In some cases, this information was taken from the journals' websites or other sources.

Intervals from nominal and actual publication to open access availability were calculated. Intervals from the end of the publisher embargo to open publication were calculated also.

### Analysis

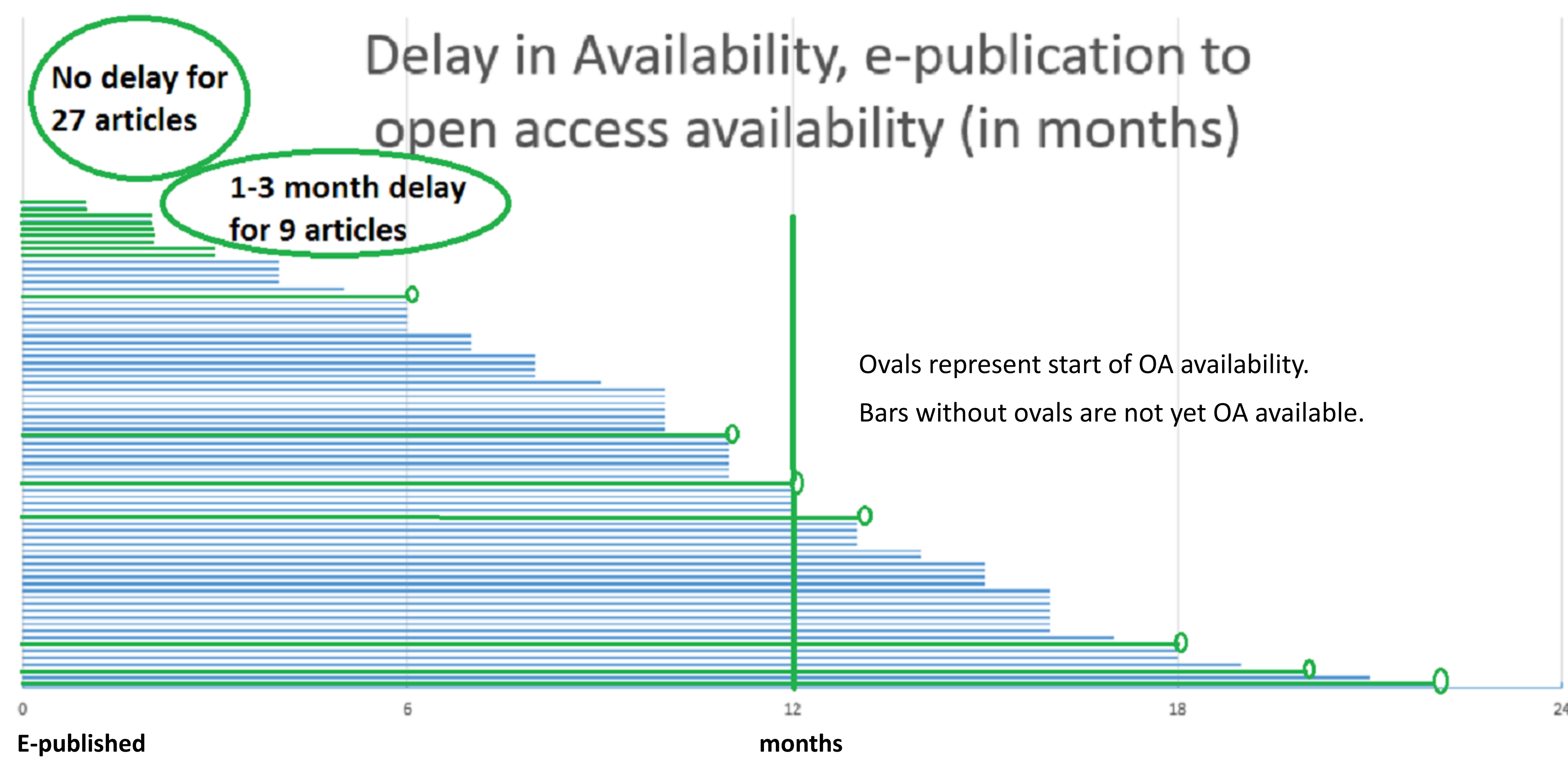
One problem with statistical analysis of these data is that many of the observations are incomplete. We do not yet know when many of the articles will be open access, if ever. (A few of those that are open access may become unavailable again also.) One tool would be survival analysis, a multivariate method for analysis of censored data. This study does not include that so far. Analysis includes descriptive statistics and graphics.

### Differences among the 3 universities

	School 1	School 2	School 3	Total
<b>open</b>	<b>8</b>	<b>16</b>	<b>19</b>	<b>43</b>
<b>not open</b>	<b>24</b>	<b>18</b>	<b>16</b>	<b>58</b>
<b>% open</b>	<b>25%</b>	<b>47%</b>	<b>54%</b>	<b>43%</b>

### Health fields compared to other fields

	health sciences	other sciences
<b>open</b>	<b>10</b>	<b>33</b>
<b>not open</b>	<b>24</b>	<b>34</b>



Each bar represents an article. The length represents delay from first publishing date until open availability or the present (late April/early May 2016).

Types of OA journals and repositories	Number	Examples
ResearchGate	23	
PubMed Central	15	
Association (non-profit?) journals	10	CBE, NATA, MLA
Commercial journals open or OA brand	6	BioMed Central, Elsevier OA, T&F AIDS Care
"Frontiers in" journals	3	
IR, Library, lab, or K12 website	5	

Many open access articles are in more than one repository.

## Results

These articles were published in 2015, and this analysis was completed in April and May 2016. The average article was published about July 1, 2015, so about 10 months before this analysis.

**43%** 43% of the articles in the sample are open access so far.

**The first 3 months** There are differences among the schools. Only 25% of the School 1 articles are open access, compared to 47% at School 2 and 54% at School 3 (chi squared test p=.04). It appears important that more School 2 and School 3 authors make their articles open access immediately on publication. In the first 3 months, 19%, 41%, and 46%, respectively, were made openly available. After 3 months, very few articles were made available.

**Variation** This study was not large enough to show meaningful differences among different academic disciplines, but there may be differences between the health sciences and other sciences. Across the health sciences, only 29% are open, compared to 49% from the other sciences (chi squared p=.06). This could be influenced by the individual departments' behavior. There may be lots of variation, which is not surprising.

**Embargoes and other rules** The Sherpa Romeo database has up to date information on publisher restrictions for most journals. The 12-month embargo for post-prints (last post-peer-reviewed version) is common, but often there is no embargo at all or an embargo only for some kinds of websites. Many open access articles are publisher's versions and fail to reference the publisher's version's website. This is not usually in compliance with publisher requirements. Another significant problem is long delays from first e-publication until nominal publication date. Since embargoes are commonly applied to the nominal date, this can increase delays in access.

## Conclusions

**43% and above** These results after only about 10 months, 43% open access, show that estimates approaching 50% are plausible.

**Differences** There may be important differences among fairly similar institutions and within institutions. For one example, School 1 and School 2 both have long-standing institutional repositories, while School 3 has only recently joined an existing one. However, in this sample, these IRs may not help much in speeding availability.

**Could be open** These results indicate that most articles must become open access early or their chance of being made openly available fall. The publisher requirements may be effective in discouraging many authors. Other authors might respond by posting immediately in the most convenient way, rather than attempting to understand and comply with publisher requirements. There is a great deal of journal literature that could be opened up. Only 7 of the 101 articles in the sample were not permitted to be openly available in the post-print version by 12 months.

**Repositories for OA** Research Gate and PubMed Central are the leading repositories. Scholarly and professional associations, such as the American Society for Cell Biology, the National Athletic Trainers Association, and the Medical Library Association, are responsible for some of the open access content in this sample. Other articles were open through commercial publishers, including Springer's BioMed Central, Elsevier, and Taylor & Francis. Only two articles from this sample were open in institutional repositories (and a few more were closed in IRs, possibly until embargo periods end).

**Limitations** The study examined only a handful of academic departments from a few universities. The universities are not research intensive, so are not representative of the institutions that produce a large percentage of the total. This study is a start on measuring open access behavior at the local level, but more small studies will be necessary to understand local behavior and the global picture.

**Next?** One next step would be to create valid samples to measure entire universities' or groups of universities' output. Studies on the same populations could track change over time. Focus on specific disciplines might be valuable, especially if results were presented at disciplinary conferences or in disciplinary journals. Qualitative studies of author behavior and preferences would also be valuable.

## References

Archambault, Didier Amyot. 2014. "Evolution of Open Access Policies and Availability, 1996-2013." Science-Metrix. [http://science-metrix.com/files/science-metrix/publications/d\\_4.5\\_sm\\_ec\\_dg-rid\\_0a\\_policies\\_proportion\\_0a\\_1996-2013\\_v05p\\_1.pdf](http://science-metrix.com/files/science-metrix/publications/d_4.5_sm_ec_dg-rid_0a_policies_proportion_0a_1996-2013_v05p_1.pdf)

Björk, Bo-Christer, Laakso, Mikael, Welling, Patrik, and Paetau, Patrik. 2014. "Anatomy of green open access." Journal of the Association for Information Science & Technology.65(2): 237-250. DOI: 10.1002/asi.22963

Swan, Alma, Yassine Gargouri, Megan Hunt, and Slevan Harnad. 2015. "Open Access Policy: Numbers, Analysis, Effectiveness." arXiv Preprint arXiv:1504.02261.

Wiswell, John. 2015. "Delays in Open Access availability of faculty journal articles." Poster presented at the Mid-Atlantic Chapter of the Medical Library Association, 2015 Annual Meeting, Asheville, NC, October 18-20, 2015. [libres.uncg.edu/ir/uncg/listing.aspx?styp=ti&id=18751](https://libres.uncg.edu/ir/uncg/listing.aspx?styp=ti&id=18751)

John Wiswell, Appalachian State University, [wiswellj@appstate.edu](mailto:wiswellj@appstate.edu)