

Open Access: Benefits and Pitfalls for Political Scientists

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Abstract

Who benefits from open access (OA) publishing? For whom does it present additional hurdles?

We seek to understand the impact of the move to OA publishing models on scholars as producers of articles for academic journals. Specifically, we examine whether research funding, author gender and number, (location of) institutional affiliation, and the European or US origin of the journal affect the likelihood that an article is published OA. Our empirical analysis focuses on twelve well-respected journals. We find that research funding is consistently and positively associated with OA publishing, but also that relatively few articles are published OA. In addition, articles authored by scholars with European institutional affiliations are more likely than those with US institutional affiliations to be published OA. We discuss the implications of our findings and point to avenues for further work to better understand how OA affects scholars' ability to publish their research in academic journals.

Introduction

Who benefits from open access (OA) publishing? Many academic publishers now offer an OA option for articles that appear in their traditional subscription-based journals.¹ For scholars, OA has two sides. As consumers of academic publishing, scholars benefit from the enhanced access that OA offers. It eliminates the need for – and cost of – either personal or institutional subscriptions and makes research accessible not only to the general public, but also to scholars at institutions that have less well-stocked libraries.

However, as producers of academic articles, scholars may face new hurdles to get their articles published. OA shifts the cost of producing academic journals to them. Instead of relying on individual and institutional subscriptions for income, the OA model relies on income derived from article processing charges (APCs). These are the responsibility of each article's authors. The necessary funds may be obtained in a variety of ways, but authors' ability to access potential sources of funds is not equally distributed. This presents pitfalls that are not yet well-understood.

To evaluate the likely impact of the shift toward OA publishing on scholars-as-producers of academic journal articles, we investigate the degree to which articles published in twelve well-respected, traditional academic journals are published OA and explore potential explanations for the authors' choice to publish OA. The twelve journals that are the focus of our empirical study are the *American Journal of Political Science* (AJPS), the *American Political Science Review* (APSR), the *British Journal of Political Science* (BJPS), *Comparative Politics* (CP), *Comparative Political Studies* (CPS), the *European Journal of International Relations* (EJIR),

¹ Many academic publishers now offer both OA options in subscription-based journals and completely OA journals. The latter are not the focus of this study.

the *European Journal of Political Research* (EJPR), *International Organization* (IO), *International Studies Quarterly* (ISQ), the *Journal of Conflict Resolution* (JCR), the *Journal of Politics* (JOP), and *World Politics* (WP). We note that BJPS, EJIR, and EJPR are Europe-based, whereas the remaining journals are based in the US. We also note that CP and WP maintain the traditional subscription-based model and do not currently offer an OA option. In addition, JOP places some restrictions on the OA option.

By investigating traditional subscription-based journals, we seek to determine what (if anything) differentiates scholars who select the OA option from those who do not. We leverage patterns of OA versus traditional academic publishing in these twelve well-respected journals to establish which authors are most likely to select the OA option. We assume that those who have the resources will prefer the OA option, which makes their work more accessible, garners it greater visibility, and possibly more citations. For whom does OA publishing represent an opportunity? And for whom does it represent an additional hurdle?

This paper proceeds as follows: we first define OA, discuss tradeoffs between it and traditional journals publishing formats, the forces that led to its emergence, and the state of the literature on OA. The latter helps us frame the expectations that guide our empirical study. Next, we describe the design of our study and coding scheme. Subsequently, we present the results of our analysis and discuss the implications of our findings.

Open Access and Its Impact on Article Publishing

Open access (OA) is a relatively new publication format that makes articles in scholarly journals freely available to anyone who wishes to read them. This publishing format benefits scholars in their role as consumers of research publications. This format is especially helpful for scholars

located at institutions that do not have the resources to sustain extensive library holdings (Nentwich 2008; Calise et al 2010; Gleditsch 2012; Mehlum 2012; Thompson 2012; Atchison and Bull 2015; Jisc 2019). The literature tends to focus on scholars in the global south regarding the issue of access to journal content. We do not wish to discount the difficulties these scholars face, but note that scholars in middle-income countries and those at smaller, teaching-focused universities in wealthier countries also face limits on access (Mehlum 2012). However, as consumers of research publications, scholars in many different locales benefit from OA.

Publishers cover the costs of publishing such articles by collecting article processing fees (APCs) from the author(s), the funder of the research, or another entity (Jisc 2019). In some cases, a professional society (partially) subsidizes APCs for its members or a foundation supports the journal's operations (Morgan et al 2012). This makes OA different from the traditional publication model, in which publishers charge annual subscription fees that pay for the cost of production. No fees are collected from authors. Instead, libraries and individuals pay for subscriptions. Individuals can also access journals that are sponsored by professional societies as a benefit of membership. The move from traditional to OA therefore shifts the costs associated with publishing from subscribers to authors, or from the overlapping groups of scholars-as-consumers to scholars-as-producers. Hence, although OA is beneficial to scholars in the former role, the impact on scholars in the latter role is a subject of debate.

Journals that traditionally employed a subscription-based format increasingly include articles that are published OA. In effect, many academic journals have become “hybrid” journals (Calise et al 2010; Atchison and Bull 2015). There are several reasons for the shift, but a key element is that university libraries have simultaneously confronted the rising cost of subscriptions *and* the proliferation of academic journals, which strained budgets (Atchison and

Bull 2015). As libraries have sought to cut costs and eliminate lower-usage journals, publishers responded by offering “bundles” of titles at a flat fee to ensure the viability of highly specialized (but low usage) journals. The result of this practice is that libraries maintain subscriptions to some low usage journals, but also have gaps in their holdings because they cannot afford to maintain subscriptions to journals that are not part of a bundle – even when it concerns journals that are prestigious and frequently accessed. This confluence of factors – rising prices for subscriptions, more journals, and distortions in library holdings as a result of subscription bundling – prompted a search for new publication models, such as OA (Atchison and Bull 2015).

The assertion that OA makes research more accessible, because it eliminates the need for a subscription, resonates with funders of research. Especially when research is completed with public funds, the argument that everyone who wishes to read it should have access is persuasive (Gleditsch 2012; Jisc 2019). The contention that OA benefits not only scholars but society at large has been especially popular in Europe, where universities, funders, and governments in European Union countries initially set a target date of 2020 to mandate OA (Berlin Declaration 2003; Plan S 2022). Progress toward OA has been slower than this ambitious goal, but this publishing model has gained ground.

How OA may reshape academic publishing in political science is not yet well understood. This study leverages data from twelve well-respected, traditional academic journals in political science, most of which now also publish OA articles as part of the adoption of a hybrid format. This means that authors whose article has been accepted by these journals have the option to publish it either conventionally or OA. There is some evidence that articles published OA gather more visibility and citations (Antelman 2004; Atchison and Bull 2015). This prospect makes OA an attractive option for scholars.

Table 1. Article Processing Charges for the Journals in this Study

Journal	Article Processing Charge (in USD)
American Journal of Political Science (AJPS)	3750
American Political Science Review (APSR)	3255
British Journal of Political Science (BJPS)	3255
Comparative Politics (CP)	--
Comparative Political Studies (CPS)	3500
European Journal of International Relations (EJIR)	3500
European Journal of Political Research (EJPR)	3600
International Organization (IO)	3255
International Studies Quarterly (ISQ)	3956
Journal of Conflict Resolution (JCR)	3250
Journal of Politics (JOP)	2500
World Politics (WP)	--
<i>Average</i>	3382.1

Sources: Publisher's webpages, accessed August 2022.

That said, the APCs associated with OA publishing are likely to form an impediment for many authors, unless they have research funding or are affiliated with institutions that can afford to support this type of publishing or have negotiated a transformative agreement with the journal's publisher.² The cost of OA publishing varies between publishers and journals. The APCs charged by the journals investigated here vary from \$2500 for JOP to \$3956 for ISQ, as is shown in Table 1. For context, these amounts exceed the annual amount of conference support that many scholars receive from their institutions. These APCs exceed those charged by the fully OA journals *Research and Politics* and *Global Studies Quarterly*, which charge \$800 and \$1957

² Such transformative agreements come in many varieties. A common type is a "read and publish agreement" between a publisher and university that includes both access to the publisher's journals and facilitates OA publishing for the scholars affiliated with the institution. This type of agreement is not widespread at this time, but more common in Europe than in the US (ESAC nd).

(discounted to \$1565 for International Studies Association members) respectively. These charges place OA publishing in these now hybrid journals out of reach for the many scholars whose research was not funded, whose institutions do not provide support to pay APCs (or lack a transformative agreement), or who cannot otherwise qualify for a discounted rate. Hence, we expect that publishing OA will remain confined to a small segment of the profession – most likely those affiliated with the most prestigious – and well-endowed – institutions.

Gender may also matter. Earlier research that showed that women tend to publish less and are more likely to be affiliated with less research-focused institutions (Breuning and Sanders 2007; Hancock, Baum, and Breuning 2013; Fattore 2019). From this, we extrapolate that women are more often affiliated with less prestigious (and frequently less well-endowed) institutions, will less often have funding for their research, and, as a result, also less likely to publish OA.

In sum, the literature leads us to the following expectations:

1. Articles that report on funded research should be more likely to be published OA than non-funded research.
2. Women will be less likely to publish OA than men.
3. Scholars affiliated with highly ranked (and well-endowed) institutions will be more likely to publish OA than those at lower-ranked institutions.
4. Europe-based scholars will publish more OA articles than US-based ones.

The next section describes the design of our study of twelve well-established journals in political science and explains how we coded our variables. We present our findings in the subsequent section.

Design of this Study

This paper empirically investigates what differentiates articles (and the scholars who authored them) that are published OA from those that are published conventionally. We coded all research articles published in the 2020 volume of twelve well-respected journals: the *American Journal of Political Science* (AJPS), the *American Political Science Review* (APSR), the *British Journal of Political Science* (BJPS), *Comparative Politics* (CP), *Comparative Political Studies* (CPS), the *European Journal of International Relations* (EJIR), the *European Journal of Political Research* (EJPR), *International Organization* (IO), *International Studies Quarterly* (ISQ), the *Journal of Conflict Resolution* (JCR), the *Journal of Politics* (JOP), and *World Politics* (WP). Of these, the APSR is the oldest. It published its 114th volume in 2020. The EJIR is the youngest, publishing its 26th volume in 2020. All have well-established reputations. We focus on 2020 because it was set as the target year for implementing OA in Europe. We focus on a cross-section, because OA is a fast-moving target and a time-series would at best include three years – too few to offer substantial advantages over a cross-section.

The journals included in our study were all originally established as subscription-based journals. Most have in recent years begun to offer authors the option of publishing their work OA for a fee. This means that they are now publishing as “hybrid” journals: they simultaneously maintain their subscription-based model and offer author the option of paying an article processing charge (APC) to make their work freely available to anyone who wishes to access it.

As mentioned, in the subscription-based model, subscribers collectively fund the costs of producing the journal. In the OA model, the APCs cover the costs of producing articles. As shown in Table 1 above, APCs differ between journals and publishers. Although most journals that offer the OA option make it available to all authors who wish to take advantage of it, JOP’s

publisher notes that the option is intended primarily for authors “with research funding from an organization that absolutely mandates gold OA as a condition of publication” (University of Chicago Press 2022). Further, two of the journals in our study, CP and WP, make no mention of an OA option and neither published any articles OA in 2020.

The unit of analysis for this study is the research article. To be able to trace each article back to its origin, we recorded the journal title, volume, and issue. Next, we recorded whether each article was published OA. The variable *Open Access* codes articles that were published OA as “1” and those published under the conventional subscription-based model as “0.” This is our dependent variable in all multivariate logistic regression models we report in the next section.

Further, for each article, we recorded the family names of all the authors, as well as their institutional affiliation. We also coded the gender of each author, looking for a reference to the author as “he” or “she” (we found no instances of authors identifying as “they”). We coded male authors as “0” and female authors as “1,” to help us evaluate whether gender matters in OA publishing.

The gender information for each author allowed us to construct a variety of authorship indicators. First, we constructed a variable that noted whether co-authored articles were written by an all-male team, a mixed-gender team, or an all-female team. To this, we added indicators for articles authored by a single male or female author to create a five-point scale with the following categories: “0” for a single male author, “1” for an all-male team of authors, “2” for a mixed-gender team of male and female authors, “3” for an all-female team of authors, and “4” for a single female author. In our regression models, we collapsed the single author and associated single-gender team categories to create the variable *Gender Authorship*. This variable

is coded as follows: male single or co-authored articles are coded “0,” articles by a mixed-gender team are coded “1,” and female single or co-authored articles are coded “2.”

Second, we created the variable *Authorship*, which combines single male and female authorship as “0,” single gender co-authored articles as “1” (irrespective of whether the team consisted of all male or all female authors), and mixed gender co-authorship as “2.” Third, we created the variable *Number of Authors*, which is a simple count of the number of authors. This ranges from “1” for single-authored articles to “9” for the largest team of co-authors we identified.

Next, we collected data on whether the research was funded. This information is found in different locations, depending on the journal. In some cases, it is included in an author’s note on the first page of the article. In other cases, it is found at the end of the article in a special section that may be placed before or after the references. We recorded all the funders the author(s) listed and then created two versions of the variable *Funded* – indicated in the text and the tables as funded1 and funded2. The first version coded as “1” all articles that included mention of any kind of funding, whether that came from the author’s institution or an external funder. When no funding was mentioned, we coded “0.” The second version used a more restrictive definition of funding and coded as “1” only cases when funding was obtained from granting agencies outside of the institution that employed the author(s). To ascertain whether funding fit this more restricted second definition, we looked up the listed funders and established whether they were separate from the employing institution. In cases where no funding was mentioned or where the funder was an entity affiliated with the author(s) institution, we coded “0” for this second version of the funding variable. We used this second, more restrictive, version – i.e. *Funded2* – in the

models reported in the paper and used the broader definition – i.e. *Funded1* – in robustness checks reported in the Appendix.

Further, we coded whether the journal is Europe-based or US-based. This was evaluated on the basis of where the journal was founded and its association with a particular professional society, if any. Editorships have become increasingly international. For this reason, we did not use the location of the current editorial team as the criterion for judging a journal's base. This variable is called *Journal dummy* and is coded “1” for BJPS, EJIR, and EJPR and “0” for the remaining journals.

We used the institutional affiliation of the first author to identify the ranking of their university in the US News & World Report's “Best Global Universities Rankings.” We could not use the Carnegie classification, which provides a detailed classification of colleges and universities but does not include institutions outside of the US. This latter ranking of universities would have made it impossible to code institutions not located in the US. The US News ranking is international. It currently includes 1750 universities, located in the US and 90 other countries, according to its website. The rankings pertain to each institution's overall ranking, not to political science in particular. Although the 2020 rankings would have been preferred, we were only able to access the current rankings for 2022. However, we suspect university rankings do not radically change in a few years and small variations are accommodated by consolidating the ranking into ordinal categories. We describe our process in the next paragraph.

We started by recording the rank of each article's first author's institutional affiliation (as listed in the article) and coded “0” for those institutions that did not appear in the rankings. Of the 686 articles in the dataset, we were able to identify a ranking for the first author of 610, leaving 76 articles coded as “0.” This included a very small number of teaching-focused

institutions (such as liberal arts universities in the US), but also a sizeable number of institutions such as German Institute for Global and Area Studies (GIGA) or the Centro de Investigación y Docencia Económicas (CIDE) in Mexico. Both are well-known and prestigious institutes that employ very productive researchers. However, we do not have a justifiable way to place them into the university ranking system. To create our variable *Ranking*, we ordinalized the university rankings by dividing the data for which we had ranking information into thirds. The top third was coded “3”, the middle third “2,” and the lower third “1.” All institutions that did not appear in the rankings were kept as “0.”

We also used the authors’ institutional affiliation to code their country of residence. We used this to construct several variables to test whether European-based scholars were more likely to publish OA than US-based ones. First, we created the variable *one author European*, which is coded “1” if an article has at least one author affiliated with a European institution and “0” otherwise. Second, we created *all authors European*, which distinguishes between articles authored by single authors and teams who are all based in Europe (“1”) versus others (“0”). Third, we created *all authors US*, which distinguishes between articles authored by single authors and teams who are all based in the US (“1”) versus others (“0”).

Further, as controls, we coded the *Subfield* of political science for each article. In most cases, the abstract and keywords provided guidance. However, not all journals print keywords and some abstracts provided insufficient information, requiring us to read the article to determine the best category. We coded all articles as either American politics (“1”), comparative politics (“2”), international relations (“3”), normative theory (“4”), methods (“5”), or other (“6”). We did not use that final category, because we were able to place all articles in one of the first five.

We employed a similar strategy to code the methodology used in the article, with the caveat that some articles mentioned the use of multiple methods in the abstract. We consistently coded the first method mentioned. We coded formal theory (“1”), experimental research (“2”), survey research (“3”), quantitative analysis (“4”), qualitative studies (“5”), interpretive and/or conceptual work (“6”), or other (“7”). Again, we did not use the final category, as we were able to place all articles in one of the first six. For the analyses reported here, we created the *Methodology dummy*, which distinguishes quantitative vs other scholarship. We categorized experimental research, survey research, and large-N quantitative analysis as “1” and the remaining categories as “0.”

Table 2. Summary Statistics

Variable name	Variable definition (codebook name)	N	Mean	St Dev	Min	Max
Open Access	Article published open access (openaccess)	687	.122	.328	0	1
Gender authorship	Male single author or team; mixed team, female single author or team (teamgender2t)	687	.680	.799	0	2
Authorship	Single author; same-gender team; mixed gender team (teamgender3)	687	.854	.804	0	2
Number of authors	Count of the number of authors (aunumber)	687	1.908	.986	1	9
Funded2	Externally funded research (funded2)	687	.309	.462	0	1
Funded1	Internally and externally funded research (funded1)	687	.434	.496	0	1
Journal dummy	US-based vs European-based journals (eurdummy)	687	.231	.422	0	1
Ranking	Ordinalized global ranking of universities (rankord)	687	1.783	.995	0	2
Subfield	American; comparative; international relations; normative theory; methods; other (field)	687	2.306	.771	1	5
Methodology	Quantitative analysis; other (method 2)	687	.767	.423	0	1
One author European	One author affiliated with European institution (oneeuauthor)	687	.397	.490	0	1
All authors European	All authors affiliated with European institution (alleuauthor)	687	.277	.448	0	1
All authors US	All authors affiliated with US institution (allusauthor)	687	.507	.500	0	1

The next section presents our findings. We begin with some descriptive data and then present several multivariate regression models. Because our dependent variable, *Open Access*, is binary (0, 1), we employ logistic regression models. We evaluated our models for multicollinearity using the VIF score. The reported models are not plagued by multicollinearity. In other words, our independent variables are sufficiently independent of one another to not influence the results of our analyses. Table 2 provides summary statistics for the variables used in the logistic regression models. For each variable, we included a brief description.

Findings

What distinguishes articles that are published OA in well-established, subscription-based, academic journals? Which authors take advantage of the option to publish OA when journals move from subscription-based only to hybrid formats?

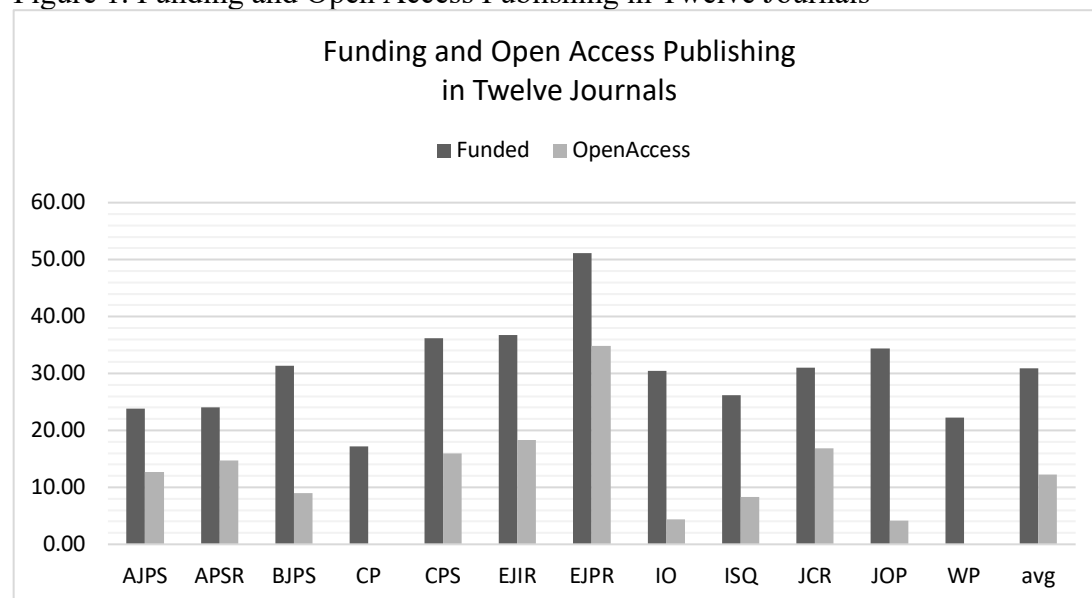
As Figure 1 shows, the proportion of articles that are published OA is not high. On average, just over twelve percent of the articles published by the journals we examined were published OA. Of course, there is variation between the journals. EJPR published almost thirty-five percent of its articles in 2020 as OA. On the other end of the spectrum are CP and WP did not publish any OA articles at all. In addition, JOP offered just over four percent of its articles as OA. We note that EJPR is a Europe-based journal. The other two Europe-based journals published proportionally fewer articles OA. EJIR, ranked second with a little over eighteen percent and BJPS ranked in the middle of the twelve journals at just under nine percent OA articles. Although we expected Europe-based journals to be at the forefront of OA publishing, this evidence suggests that these journals each perform differently. Several of the journals in our sample are general journals – in the sense that they are open to publishing across the subfields in

political science – whereas others are more easily identified as emphasizing a specific subfield.

Figure 1 does not show a clear pattern between journals with different missions. For instance, the journals most closely associated with international relations do not necessarily cluster together.

In a ranking of the percentage of OA articles, EJIR and JCR are toward the higher end, whereas ISQ and IO are in the lower half, and WP published none. It does look like journals that publish more funded research are more likely to publish more OA, but Figure 1 shows that the latter proportion invariably trails the former.

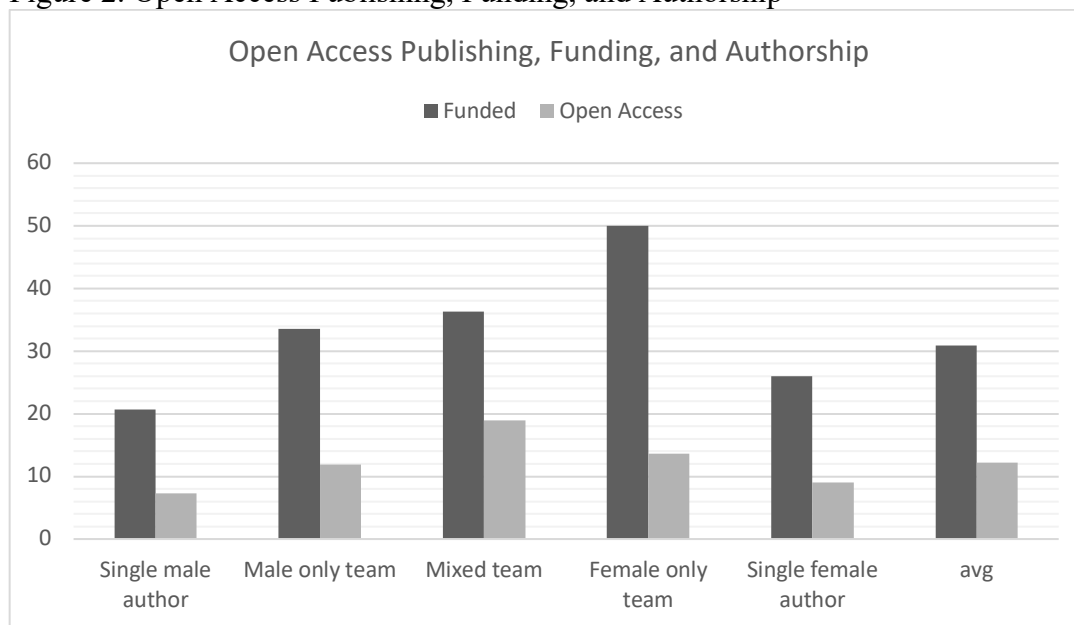
Figure 1. Funding and Open Access Publishing in Twelve Journals



A clearer pattern emerges in patterns of authorship. As shown in Figure 2, articles by single male and single female authors are least likely to be published OA, whereas co-authored articles are more likely to use this format. Interestingly, almost nineteen percent of the mixed-gender teams publish OA articles. Here, too, OA publishing lags behind the proportion of authors in each category that reported funding. Additionally, the difference between the proportion of OA publishing and funding across the authorship categories is noteworthy, with a

caveat: it looks like women-only teams did very well in acquiring funding but lagged in OA publishing. However, there were only forty-four articles authored by female only teams. Of these, twenty-two received funding and six were published OA. Given these small numbers, it is premature to draw any conclusions regarding this category of authorship.

Figure 2. Open Access Publishing, Funding, and Authorship



We cannot assume that all work published OA was funded research. Some external grants require that the research is published OA. In that case, the researcher must allocate a portion of the grant to offset OA publishing costs. However, not all external grantmaking entities include such a requirement. In fact, we find that 59.5 percent of the 84 articles that are published OA were based on externally funded research, whereas the rest did not have such support.³ Overall,

³ Using the broader definition of funding, we find that 67.9 percent of the 84 articles are published OA when including both internal and external funding sources.

just 7.3 percent of the 687 articles in our dataset are both funded and published OA.⁴ An additional 5.0 percent were not funded but were published OA, whereas 23.6 percent were funded and *not* published OA. The remaining 64.1 percent of the articles in the twelve journals we examined neither report on funded research nor are they published OA.⁵

This means that in 2020, 87.8 percent of the articles that appeared in these journals were published according to the conventional subscription model, which provides access to the publication on the basis of either individual or institutional subscriptions. Only 12.2 percent of the 687 articles were published OA.⁶ While OA remains a small portion of the total articles published in subscription journals that offer this option, the ongoing shift toward this model makes it important to understand what prompts authors to elect to publish their work OA.

The descriptive data presented thus far indicate that there may be a relationship between co-authorship, funding, and OA publishing. We suspect that co-authorship may indirectly affect

⁴ Substituting the broader definition of funding, we find that 8.3 percent of the 687 articles is both funded and published OA.

⁵ Substituting the broader definition of funding, the percent of articles that are not funded and not published OA drops to 52.6. In addition, the figures are comparable if we exclude CP and WP from the calculation: 7.8 percent both funded and OA; 5.3 percent not funded and OA; 23.9 percent funded and not OA; and 62.9 percent neither funded nor OA out of a total of 640 articles (these figures are for external funding only).

⁶ These figures are the same from the more restrictive and the broader definition of funding. If we exclude CP and WP, these figures change to 86.9 percent conventional and 13.2 percent OA.

OA publishing, as funded work – especially research relying on larger grants – tends to be teamwork.

To test these intersections more systematically, we ran logistic regression models. This type of model is appropriate for our binary dependent variable. We evaluated our models for multicollinearity, using the variance inflation factor (VIF) test. We present our authorship variables – those pertaining to gender composition, number of authors, and geographic location – in separate models. The two variables measuring *one* and *all authors European* were collinear, exceeding the acceptable limit of 4. In the models we present in the tables, multicollinearity is not a problem. In other words, our independent variables are sufficiently independent of one another to not confound the results.

Table 3 reports the results for nine models that differ in how authorship and author location are measured. The table provides brief explanations of the variables. The strongest predictors of OA publication of an article are whether the research was funded and includes (a) European author(s). The result varies somewhat between models, but funding makes it between 2.7 and 3.3 times more likely that an article is published OA. The models reported in Table 3 employ the more restrictive measure and include only external funding. The broader measure of funding, which includes both internal and external funding reduces the likelihood of OA publication to between 2.6 and 3.0 times over nonfunded research (see Table A-1 in the Appendix) The differences are quite small and likely driven by several factors. The broader measure of funding includes, one, fellowships that provide salary support and, two, includes small grants provided by the authors' institutions to support field work, surveys, or other data acquisition. These types of support are important for scholars' ability to conduct research, but they generally do not include funds to offset APCs. On the other hand, a small proportion of the

support that fits under this broader definition may well reflect support for OA publishing (and account for the small differences between analyses using the two different funding measures).

If we exclude CP and WP, which do not offer the OA option, from the analysis, our results remain substantially the same as well. This is shown in Table A-2 and A-3 in the Appendix. CP and WP published fewer articles per issue than the other publications, which explains why excluding them from the analysis did not alter the results very much.

If funding makes OA publishing more likely, then it matters whether funding is gendered. This is the reason we delve into the issue of gender and authorship. First, in models 1, 4, and 7 we investigate whether gender composition of an article's authors influences the likelihood that it is published OA. We collapsed the gender variable used in Figure 2 to create the following three categories: male single authors and teams (coded "0"), mixed gender teams (coded "1") and female single authors and teams (coded "2"). Despite the different propensities to publish OA based on the gender make-up of the authors (as shown in Figure 2), our multivariate analysis shows that male, mixed, and female teams do not exhibit statistically significant differences. This result does not change if we employ the five categories used in Figure 2 (see Table A-4 in the Appendix).

Table 3. Which Articles Are Published Open Access?

Logistic regression models	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Dependent Variable: Open Access	OR (Robust SE)								
Gender authorship (male single/team; mixed team, female single/team)	1.176 (.177)			1.136 (.163)			1.209 (.187)		
Authorship (single author; same-gender team; mixed gender team)		1.525** (.253)			1.739*** (.284)			1.482* (.247)	
Number of authors (1-9)			1.310** (.144)			1.497*** (.168)			1.282* (.143)
Funded2 (Externally funded research)	3.007*** (.768)	2.913*** (.744)	2.796*** (.725)	3.329*** (.849)	3.045*** (.783)	2.846*** (.743)	2.811*** (.728)	2.751*** (.712)	2.665*** (.696)
Journal dummy (US-based vs European-based)	1.317 (.363)	1.364 (.374)	1.346 (.374)	1.359 (.400)	1.330 (.391)	1.295 (.394)	1.320 (.358)	1.365 (.369)	1.364 (.371)
Ranking (ordinal)	.966 (.124)	.894 (.112)	.966 (.125)	.941 (.117)	.956 (.121)	.964 (.122)	1.032 (.131)	1.029 (.132)	1.025 (.132)
Subfield	.977 (.233)	1.002 (.230)	1.021 (.235)	1.026 (.219)	1.032 (.215)	1.060 (.219)	.924 (.227)	.951 (.225)	.964 (.229)
Methodology	1.046 (.367)	.857 (.296)	.860 (.304)	1.085 (.378)	.828 (.283)	.820 (.287)	1.081 (.383)	.878 (.307)	.886 (.318)
One author European	3.774*** (1.090)	3.517*** (.990)	3.455*** (.981)						
All authors European				2.366** (.673)	2.694*** (.761)	2.734*** (.790)			
All authors US							.199*** (.064)	.222*** (.070)	.225*** (.071)
N	687	687	687	687	687	687	687	687	687
Wald Chi-square	61.37***	65.53***	67.30***	56.42***	63.96***	63.43***	63.89***	65.81***	68.61***
Pseudo R ²	.128	.140	.136	0.100	.122	.121	.137	.145	.142
Log Pseudolikelihood	-222.396	-219.558	-220.358	-229.569	-224.082	-224.428	-220.313	-218.138	-218.848

^= p ≤ .10; * = p ≤ .05; ** = p ≤ .01; *** = p ≤ .001

We note that mixed gender teams are the largest category of authorship (see Figure 2). Perhaps it is not gender but the size of teams that influences the likelihood that an article is published OA. We pursued this, considering also that funded projects (especially larger ones) are often secured by – and reliant upon the work of – research teams. We created two additional authorship variables to test whether larger teams are more likely to publish OA: 1. *Authorship*, which differentiates between male and female single authors (coded “0”), same gender teams (coded “1”), and mixed-gender teams (coded “2”); 2. *Number of authors*, which is a simple count of the number of authors and ranges from one to nine.⁷ As Model 2, 3, 5, 6, 8, and 9 (Table 3) show, both authorship and the number of authors are statistically significant. The former show that as authorship moves towards mixed-gender teams the more likely it is that the article is published OA. Similarly, articles with more authors have a greater likelihood of being published OA. Hence, although gender is not irrelevant, it appears that team size matters for OA publishing – especially if the team includes both women and men. We note that the effect is less strong than the impact of funding: the two variables indicate that larger teams and mixed gender teams make it, respectively, 1.3-1.5 and 1.5-1.7 times more likely that an article is published OA. Again, using the broader definition of funding and excluding CP and WP from the analysis does not substantially alter the results (see Tables A-1, A-2, and A-3 in the Appendix).

In addition to authorship, we checked whether the geographic location of authors matters. We find that if there is one author (single or team) who is based in Europe, it is 3.5 to 3.8 times more likely that an article is published OA (models 1-3 in Table 3). The result is less strong

⁷ We also created a version of this variable that combined four and more authors as “4,” because there are relatively few very large teams. However, this did not change the results. (Not shown.)

when the authors (single or team) are all Europe-based and inverse when the authors are all US-based (single or team). This is shown, respectively, in models 4-6 and 7-9 in Table 3. On the other hand, whether the journal's base in Europe or the US does not matter. As is shown in Table 3, our *Journal dummy* is not statistically significant in any of the models. Here, too, the result is robust to using the broader definition of funding and excluding CP and WP from the analysis (see Tables A-1, A-2, and A-3 in the Appendix).

We also included a variable based on an ordinalized version of a global ranking of universities. As is shown in Table 3, this is not statistically significant in any of the three models. Before concluding that institutional affiliation does not matter, we point out that this variable suffers from several issues. First, as we discussed in our description of the design of the study, the global ranking of universities we employed is a relatively blunt instrument, in part because the rankings describe each institution's overall prestige rather than that of the political science department. It also emphasizes the world's research-intensive universities and does not include the many teaching-focused institutions in the US and elsewhere that employ a very sizeable proportion of the world's research-active scholars.

Second, as we also pointed out in our description of the design of the study, independent research institutes had to be classified as "0" by our decision rule, which mandated that any institution not found in the ranking was classified in this way. This is not ideal, but we were unable to identify a good decision rule to classify such entities more accurately.

Third, to simplify the coding, we relied on the ranking of the first author's institutional affiliation. Although we collapsed the individual rankings into broader, ordinal categories, the exclusion of the institutional affiliations of second, third, etc. authors implies that research teams are composed of researchers affiliated with approximately equally prestigious institutions. That

may not be the case. However, an examination of the data suggested that a composite measure of the institutional affiliations of all authors would not net a different result from the statistically insignificant one we obtained – there were not significantly more lower-ranked institutional affiliations for second (and subsequent) authors on multi-authored articles.

Fourth, we note that the largest proportion of the articles published in the journals included in this study are authored by scholars affiliated with research-intensive universities. Out of the 687 articles, only 76 (or 11%) had a first author who was not affiliated with an institution that appeared in the global ranking. A significant proportion of these were affiliated with an independent research institute rather than a teaching-focused (and less research-intensive) university. Hence, our findings reflect the propensity of scholars affiliated with elite universities to publish OA. Our data cannot speak to the likelihood with which research-active scholars at teaching-focused (and less-research-intensive) institutions will (be able to) choose the OA option.

Finally, we note that the subfield variable is never statistically significant. Neither is the dummy variable for quantitative versus other scholarship. This indicates that articles from different subfields or methodological approaches cannot be distinguished regarding the likelihood they are published OA. We discuss the implications of these findings in the next section.

Implications

Scholars-as-consumers of journal content benefit from OA, especially if they are affiliated with universities that have less well-stocked libraries. However, our findings suggest that scholars-as-producers of research may face additional hurdles as journals move toward OA publishing.

First, the strongest finding is that funded research is more likely to be published OA. This supports our expectation regarding the relationship between funding and OA. However, not all funded research is published OA, suggesting that not all funders compel scholars to choose it at this time. However, this may change as OA is implemented more broadly. There are some articles that are *not* funded and published OA, but this is fairly rare. The relationship between funding and OA publishing means that authors can build the APCs into their grants, but it also entails that the subjects of interest to funders may come to fill a larger space in journals. Of course, the impact of funders may be less dramatic if universities and states invest in transformative agreements, such as “read and publish” schemes. Although Europe seems to be moving in this direction (ESAC nd), it is less clear what the future of OA is in the US.⁸ The impact of funders, transformative agreements, and the intersection between them on the discipline is a subject for future study.

Second, gender does not seem to impact OA publishing directly. This is contrary to our expectation on the impact of gender. However, the finding that mixed-gender and larger teams are more likely to publish OA may have a gendered component: mixed-gender teams of authors are not very often gender-balanced. In many cases, female authors are a clear minority in the team. This, too, warrants further inquiry.

Third, we show that the presence of one author affiliated with a European institution is a strong predictor of OA publishing. In addition, articles published by a single author or team consisting of only Europe-based authors also are more likely to be published OA, whereas

⁸ Further, as noted by Mehlum (2012), scholars from the global south may be able to get OA fees waived, but others (e.g. in middle-income countries) do not have access to such schemes.

articles published by a single author or team consisting of authors who are all based in the US is inversely related to OA publishing. However, we cannot statistically differentiate between journals that are based in Europe or the US. This suggests that the greater push toward OA publishing in Europe, as compared to the US, affects authors, not journals. European institutions, governments, and funders have been supportive of the OA model. This affects the propensity for Europe-based scholars, as well as teams that include at least one Europe-based scholar, to publish OA. Scholars outside of Europe who do not team up with Europe-based scholars – such as fully US-based teams – face bigger hurdles to publish OA.

Fourth, we do not find that the ranking of authors' institutional affiliations is significantly related to the likelihood that their article is published OA. Although this seems to contradict our expectation on this issue, we note that the articles included in the journals in our study are overwhelmingly authored by scholars affiliated with highly ranked institutions. Hence, our data cannot empirically evaluate whether research-active scholars at teaching-focused (and less-research-intensive) institutions have sufficient access to the funds needed to choose the OA option. The proportion of scholars not affiliated with a highly ranked university was simply too small to arrive at meaningful conclusions on this matter. This question warrants further investigation.

What is perhaps most notable in our findings: almost ninety percent of the articles published in these journals appear under the conventional publication model and almost seventy percent of the articles report on research that did not benefit from funding. We need a better understanding of what type of research gets funded to be able to identify how OA may influence the discipline if it becomes more prevalent. Comprehensive transformative agreements may mediate some of the inequities of access but, at this time, such agreements are more prevalent in

Europe than in the US. Indeed, in the US, transformative agreements tend to benefit scholars at a rather small selection of research-intensive universities (ESAC nd). This suggests that US-based scholars – at a broad cross-section of institutions – will face important hurdles to publishing if OA becomes more prevalent.

In sum, this study confirms that there is a relationship between funding, co-authorship, Europe, and the ability to publish OA in well-respected political science journals. That said, this study also shows that there are several aspects of OA publishing that are not yet well-understood. Among these are gendered impacts and equity of access for scholars at a range of institutions beyond the most prestigious and well-resourced ones, especially in the US.

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