



## Citation differences across research funding and access modalities

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### ABSTRACT

This research provides insight into the complex relationship between open access, funding, and citation advantage. It presents an analysis of research articles and their citations in the Scopus database across 40 subject categories. The sample includes 12 categories from Health Sciences, 7 from Life Sciences, 10 from Physical Sciences & Engineering, and 11 from Social Sciences & Humanities. Specifically, the analysis focuses on articles published in 2016 and the citations they received from 2016 to 2020. Our findings show that open access articles published in hybrid journals receive considerably more citations than those published in gold open access journals. Articles under the hybrid gold modality are cited on average twice as much as those in the gold modality, regardless of funding. Furthermore, we found that funded articles generally obtain 50 % more citations than unfunded ones within the same publication modality. Open access repositories significantly increase citations, particularly for articles without funding. Thus, articles in open access repositories receive 50 % more citations than paywalled ones.

### Introduction

Since the emergence of the world wide web, scientists and scholarly publishers have used different forms of Open Access (OA), a disruptive model for the dissemination of research publications (Björk, 2004). Open access is a movement in academic publishing that aims to make academic materials freely and openly accessible to all. Academic libraries are crucial in supporting OA initiatives by providing access to OA resources and hosting institutional repositories where researchers can deposit their publications. Open Access is important in the academic community and academic libraries are at the forefront of this movement, working to make scholarly research more widely accessible (McAllister et al., 2022).

Open Access is becoming increasingly popular as a means of making scientific research more accessible, transparent, and impactful. Academic libraries have an important role in promoting the OA. They can provide financial support for OA publishing fees, help researchers identify OA publishing opportunities, and provide training on best practices for OA publishing (Mercer, 2011).

The defining trait shared by all variations of Open Access is that the peer-reviewed article, which serves as the main medium of communication for research findings, is freely accessible to anyone with an internet connection and without any access restrictions (Prosser, 2003).

In the last years, more and more scientists are making their research results openly accessible to increase its visibility, usage, and citation impact (Dorta-González et al., 2017, 2020). The citation advantage is important because it provides evidence of the impact and relevance of the research to the scientific community and to society (Aksnes et al., 2019). However, it is necessary to understand the factors that contribute to the citation advantage, and one of these factors is funding. Research funded by government agencies or non-profit organizations may require or encourage researchers to publish their findings in OA journals, thus increasing the visibility and accessibility of their research.

The four main modes of Open Access are as follows: Gold OA, which pertains to scholarly articles published in fully accessible Open Access journals; Green OA, which involves publishing in a subscription or pay-per-view journal, alongside self-archiving the pre-print or post-print paper in a repository (Harnad et al., 2004); Hybrid Gold, an intermediate form of OA where authors pay scholarly publishers to make articles freely accessible within journals that would otherwise require a subscription or pay-per-view to read (Björk, 2017); and finally, Bronze OA (delayed OA), which refers to scholarly articles in subscription journals that are made openly available on the internet directly through the publisher after a specific embargo period has elapsed (Laakso & Björk, 2013).

According to Prosser (2003), Hybrid journals offer a safe pathway to

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transition towards full Open Access (Gold), unlike creating new Open Access journals or converting existing ones, as subscription revenue is retained. Nonetheless, the cost of publishing in Hybrid Gold journals is usually around 3000 USD, which numerous authors and their institutions consider exorbitant (Tenopir et al., 2017). According to Zhang et al. (2022), certain publishers do not specify the APC for individual journals but instead provide a standardized rate. For instance, the APC for American Chemical Society's hybrid journals is 5000 USD, while IEEE's hybrid journals charge 2045 USD. Taylor & Francis' hybrid journals require a fee of 3000 USD, as do Sage's hybrid journals.

Although Lawrence (2001) proposed the Open Access (OA) citation advantage more than twenty years ago, its validity has been the subject of extensive debate without a consensus being reached, as noted by Davis et al. (2008) and Langham-Putrow et al. (2021). Additionally, some authors are sceptical about the causal relationship between OA and increased citations, arguing that the advantages of OA are not definitive and may differ across various disciplines (Davis & Walters, 2011).

Greater accessibility to research articles via Open Access likely contributes to some of the citation advantage as it enables more individuals to read and potentially cite papers they may not have had access to otherwise. However, establishing correlation is challenging, and numerous biases may exist. Several variables can influence the observed differences in citation rates, such as funder mandates. Funder requirements for Open Access are frequent, and studies with more funding are likely to receive more citations than those with less funding (Aagaard et al., 2020).

Costas and van Leeuwen (2012) state that the acknowledgments section of a research publication is where the authors express gratitude towards entities that contributed, inspired, or financed the research. However, the present study focuses solely on funding acknowledgements, which are acknowledgements that specifically recognize the financial support provided to the research. Funding is a crucial component of the research process, and it has been a subject of research interest since the 1970s (Álvarez-Bornstein & Montesi, 2020; Desrochers et al., 2017; Liu, 2020; Liu et al., 2020). These studies have examined various aspects of funding, including the types of funders acknowledged, the language used in funding acknowledgements, and the impact of funding on research outcomes.

The objective of this paper is to determine if citation differences are related to funding. We seek to quantify the variation in citation rates based on financing and accessibility modes, encompassing Gold, Hybrid Gold, Bronze, Green, and Paywalled options.

## Open access citation advantage

The OA citation advantage, first proposed by Lawrence in 2001, has been observed in various academic fields including computer science (Lawrence, 2001), philosophy, political science, electrical and electronic engineering, and mathematics (Antelman, 2004), physics (Harnad et al., 2004), biology, and chemistry (Eysenbach, 2006), as well as civil engineering (Koler-Povh et al., 2014). However, despite extensive discussion in the literature, there is no agreement on this postulate (Davis et al., 2008; Dorta-González & Santana-Jiménez, 2018; Gargouri et al., 2010; González-Betancor & Dorta-González, 2019; Joint, 2009; Norris et al., 2008; Wang et al., 2015). Moreover, some authors have criticized the causal link between OA and higher citations, arguing that the benefits of OA are uncertain and vary across different fields (Craig et al., 2007; Davis & Walters, 2011).

Kurtz et al. (2005) and subsequent authors (Craig et al., 2007; Davis et al., 2008; Moed, 2007) proposed three postulates to support the existence of a correlation between OA and increased citations. Firstly, the Open Access postulate suggests that OA articles are easier to obtain, read, and cite. Secondly, the Early View postulate suggests that OA articles are often available online before their publication, giving them a head start in accumulating citations compared to pay-for-access articles.

Lastly, the Selection Bias postulate suggests that more prominent authors are more likely to provide OA to their articles, and authors tend to provide OA to their best quality articles.

Studies by Gaule and Maystre (2011) and Niyazov et al. (2016) found evidence of selection bias in OA but found statistically significant citation advantages despite controlling for this bias. While the validity and generalizability of their findings may be debatable, their research highlights the need for any analysis of OA citation advantages to consider the influence of time and selection bias.

Gumpenberger et al. (2013) showed that the impact factor of gold OA journals was increasing, and that after three years, one-third of newly launched OA journals were indexed in the Journal Citation Reports (JCR). However, Björk and Solomon (2012) disputed that the economic model of a journal is unrelated to its impact factor. This finding was supported by Solomon et al. (2013), who concluded that articles are cited at a comparable rate irrespective of the distribution model.

Not all studies support the existence of the OA citation advantage, with some being criticized for their methodology (Davis & Walters, 2011) and randomized-control trials failing to find evidence for it (Davis, 2011). However, recent studies employing robust methods have found evidence of an OA citation advantage. McCabe and Snyder (2014), for example, used a sophisticated statistical model to control for author bias and observed a modest but significant 8 % OA citation advantage. Archambault et al. (2014) used a large sample of over one million articles and field-normalized citation rates to demonstrate a 40 % OA citation advantage. Similarly, Ottaviani (2016) found a 19 % OA citation advantage when excluding the author self-selection bias and looking beyond the first few years after publication.

Piwowar et al. (2018) conducted a study that analyzed three sets of 100,000 articles to investigate OA in three populations: all journal articles assigned a DOI, recent journal articles indexed in Web of Science, and articles viewed by users of the open-source browser extension Unpaywall. The researchers found that at least 28 % of scholarly literature is OA, with gold and hybrid journals being the main contributors to the growth. After controlling for age and discipline, they found that OA articles received 18 % more citations than the average article, with green and hybrid OA being the primary drivers of this effect.

## Methodology

The Scopus database includes open access filters as of the end of 2020, allowing users to access information on the modality of open access. With this classification system, users can filter their results or use specific open access tags such as gold, hybrid gold, bronze, and green. The source of OA information in Scopus is Unpaywall, an open-source browser extension (managed by Impactstory, a non-profit organization) that helps users find OA articles from publishers and repositories.

The reliability of the data source used to determine the publication modality depends on various factors that need to be considered. In this case, the study indirectly employs Unpaywall through Scopus. However, it is crucial to bear in mind that Unpaywall depends on algorithms rather than indexing, which may affect its ability to locate open access versions of journal articles across different disciplines. Consequently, the number of OA articles identified by Unpaywall may be lower than that obtained through manual searches. This shortcoming has been noted in previous studies conducted by Piwowar et al. (2018) and Sergiadis (2019).

Some authors choose to deposit a version of their paper in a thematic or institutional open access repository (Green). In some cases, this paper ends up being open accessible through the publisher, as is the case with the other forms of open access: Gold, Hybrid, and Bronze. However, in other cases, the version deposited in the open access repository ends up being the only one available for free access because the publication is ultimately produced in a subscription-based journal (Paywalled). In our work, we use the term "Only Green" to disaggregate this last group, that is, to be able to analyze the group of articles published in subscription-

based journals but that have open access through the repository provided by the authors themselves.

To achieve a comprehensive representation of all thematic fields, we opted to sample 12 % of the subject categories available in the Scopus database, which corresponds to one out of every eight disciplines and 6.5 % of the research articles in the Scopus database. The selection of thematic categories was done randomly. To do this, the 334 subject categories in the Scopus database were alphabetically sorted and then 40 numbers between 1 and 334 were randomly generated. Thus, the sample included 12 subject categories from Health Sciences, 7 from Life Sciences, 10 from Physical Sciences & Engineering, and 11 from Social Sciences & Humanities.

For each subject category, we downloaded the “research articles” from the Scopus database in the year 2016 and their corresponding citations received from 2016 to 2020. To minimize the influence of non-research article types, such as reviews or letters, we restricted our study solely to research articles. This was achieved by utilizing the metadata available in the Scopus database, which allows for the categorization of each journal's content according to document type. This information is summarized in a dataset provided in [Appendix A](#).

In terms of sample representativeness, a total of 1,992,035 research articles were indexed in the Scopus database in 2016, of which 640,032 specified a funding source (32.1 %). In the same year, the selected 40 subject categories included 128,663 research articles, of which 39,675 were funded (30.8 %).

We have calculated the OA citation advantage as the percentage difference in citations between each OA modality and the paywalled modality. Specifically, if the number of citations per article in an OA modality exceeds the number of citations per paywalled article, then the citation advantage for that modality is calculated as (Citations per OA article - Citations per paywalled article) / Citations per paywalled article. On the other hand, if the number of citations per article in an OA modality is less than the number of citations per paywalled article, then the citation disadvantage (which is negative) for that OA modality is calculated as (Citations per OA article - Citations per paywalled article) / Citations per OA article.

Finally, non-parametric Kruskal-Wallis tests were performed to examine the significance of differences between the funded and unfunded groups within each subject category.

## Results

[Table 1](#) presents the distribution of publication modalities according to funding. It shows that in the sample, most research articles were paywalled, with 65 % of unfunded articles and 44 % of funded articles falling into this category. The use of open access repositories (green) was more prevalent among funded articles (45 %) than unfunded ones (25 %). The prevalence of the gold modality was similar in both groups (12 %). However, the prevalence of the hybrid gold modality was more than double in the funded group compared to the unfunded one (note that authors are required to cover publication costs under this modality).

It is notable that most research articles in the sample were unfunded (69 %), with only one-third (31 %) receiving funding. Among the

paywalled articles, the prevalence of unfunded articles rose to 77 %. In contrast, the proportion of funded and unfunded articles is similar in other open access modalities, despite the larger absolute size of the unfunded group. Therefore, there is a greater emphasis on offering open access to publications in the funded group.

[Table 2](#) displays the prevalence of publication modality by subject category and funding. Notably, there are significant variations across subject categories regarding both funding prevalence and open access modalities. To illustrate, funding rates are notably lower in the humanities (including Classics, Visual & Performing Arts, General Arts & Humanities, and Music) at a mere 5 %, compared to certain life sciences such as Developmental Biology, Structural Biology, and Ecological Modelling, which can exceed 50 %. Additionally, open access rates fall below 20 % in certain humanities and social sciences, such as Classics, Visual & Performing Arts, and Tourism, Leisure & Hospitality Management, whereas they can exceed 70 % in certain scientific disciplines like Immunology & Microbiology, Discrete Mathematics & Combinatorics, and Geometry & Topology.

### Cites per article by funding and publication modality

[Table 3](#) displays the citations per article from 2016 to 2020, categorized by funding, publication modality, and branch of knowledge. In most cases, the mean citations per article are higher than the median citations per article. However, in some publication modalities within life sciences, the opposite is observed. On average, the highest citation rates are found in life and health sciences, whereas the lowest citation rates are observed in social sciences and humanities.

The largest differences are observed between funding groups. In the same publication modality, funded articles tend to receive 50 % more citations than unfunded ones. Among the different modalities, the hybrid gold receives the highest average number of citations, while gold receives the least, even lower than paywalled articles. Hybrid gold articles are cited on average twice as much as gold articles, while green articles receive 50 % more citations than paywalled ones. Furthermore, these relationships are not influenced by funding.

Citations per article are significantly higher for articles in the funded group across all publication modalities. To analyze the effect of funding on citations and publication modality, a non-parametric Kruskal-Wallis test was conducted, and the results indicate significant differences between the funded and unfunded groups for all subject categories at a 0.01 level of significance.

Open articles published in hybrid journals received considerably more citations than those published in open access journals, regardless of funding. Specifically, 75 % of articles published in open access journals (gold) received fewer citations on average than the 25 % least cited articles published in hybrid journals (hybrid gold). This evidence is strong and not dependent on funding. Apart from open access journals (gold), all other open access modalities received more citations than paywalled articles. Moreover, the hybrid open access modality received the most citations, regardless of funding.

The average citation count for unfunded articles deposited in open access repositories but published in the paywalled modality (only green)

**Table 1**  
Prevalence of publication modality by funding.

|          |            | Gold   | Hybrid Gold | Bronze | Green  | Only Green | Paywalled | All <sup>a</sup> |
|----------|------------|--------|-------------|--------|--------|------------|-----------|------------------|
| Funded   | Articles   | 4713   | 2734        | 7134   | 17,729 | 7796       | 17,298    | 39,675           |
|          | % of All   | 11.9 % | 6.9 %       | 18.0 % | 44.7 % | 19.6 %     | 43.6 %    | 100 %            |
|          | % of Total | 29.8 % | 52.3 %      | 47.9 % | 43.9 % | 43.5 %     | 23.1 %    | 30.8 %           |
| Unfunded | Articles   | 11,128 | 2492        | 7746   | 22,616 | 10,127     | 57,495    | 88,988           |
|          | % of All   | 12.5 % | 2.8 %       | 8.7 %  | 25.4 % | 11.4 %     | 64.6 %    | 100 %            |
|          | % of Total | 70.2 % | 47.7 %      | 52.1 % | 56.1 % | 56.5 %     | 76.9 %    | 69.2 %           |
| Total    | Articles   | 15,841 | 5226        | 14,880 | 40,345 | 17,923     | 74,793    | 128,663          |
|          | % of All   | 12.3 % | 4.1 %       | 11.6 % | 31.4 % | 13.9 %     | 58.1 %    | 100 %            |

<sup>a</sup> All = Gold + Hybrid Gold + Bronze + Only Green + Paywalled.

**Table 2**  
Prevalence of publication modality by subject category and funding.

| Subject Category                          | Funded |             |        |            |           | Unfunded |             |        |            |           |
|---|--------|-------------|--------|------------|-----------|----------|-------------|--------|------------|-----------|
|   | Gold   | Hybrid Gold | Bronze | Only Green | Paywalled | Gold     | Hybrid Gold | Bronze | Only Green | Paywalled |
| Accounting                                | 1.1 %  | 0.7 %       | 0.3 %  | 2.1 %      | 5.0 %     | 8.8 %    | 0.8 %       | 2.0 %  | 18.4 %     | 60.8 %    |
| Acoustics & Ultrasonics                   | 0.4 %  | 4.0 %       | 2.3 %  | 6.6 %      | 20.4 %    | 0.7 %    | 2.2 %       | 4.3 %  | 6.0 %      | 53.1 %    |
| Advanced & Specialized Nursing            | 1.1 %  | 0.8 %       | 5.5 %  | 7.5 %      | 4.7 %     | 5.3 %    | 0.7 %       | 7.6 %  | 7.8 %      | 59.0 %    |
| Aging                                     | 12.0 % | 3.0 %       | 6.7 %  | 14.6 %     | 11.2 %    | 19.3 %   | 1.6 %       | 4.1 %  | 6.1 %      | 21.4 %    |
| Agricultural & Biological Sciences        | 2.1 %  | 4.3 %       | 3.7 %  | 2.9 %      | 13.6 %    | 10.6 %   | 7.4 %       | 5.2 %  | 8.3 %      | 42.0 %    |
| Anatomy                                   | 2.4 %  | 2.2 %       | 4.0 %  | 8.2 %      | 9.6 %     | 8.6 %    | 2.9 %       | 7.9 %  | 7.3 %      | 46.9 %    |
| Business, Management & Accounting         | 1.3 %  | 0.1 %       | 0.3 %  | 0.9 %      | 3.7 %     | 11.3 %   | 0.5 %       | 2.7 %  | 18.4 %     | 60.9 %    |
| Chemical Engineering                      | 2.6 %  | 10.0 %      | 4.0 %  | 3.0 %      | 23.1 %    | 9.5 %    | 4.8 %       | 4.9 %  | 1.8 %      | 36.3 %    |
| Classics                                  | 0.0 %  | 0.2 %       | 0.7 %  | 0.2 %      | 2.0 %     | 2.0 %    | 5.0 %       | 3.0 %  | 5.7 %      | 81.2 %    |
| Computer Science                          | 5.5 %  | 0.6 %       | 1.8 %  | 3.5 %      | 25.5 %    | 10.6 %   | 0.2 %       | 3.7 %  | 5.4 %      | 43.2 %    |
| Developmental Biology                     | 13.7 % | 4.6 %       | 14.7 % | 7.3 %      | 18.0 %    | 7.3 %    | 2.0 %       | 7.2 %  | 4.0 %      | 21.1 %    |
| Developmental Neuroscience                | 8.5 %  | 2.5 %       | 4.6 %  | 15.0 %     | 17.7 %    | 9.7 %    | 1.0 %       | 4.3 %  | 4.9 %      | 31.7 %    |
| Discrete Mathematics & Combinatorics      | 9.5 %  | 1.2 %       | 17.0 % | 4.7 %      | 5.9 %     | 16.1 %   | 2.6 %       | 11.9 % | 8.0 %      | 23.0 %    |
| Ecological Modelling                      | 2.2 %  | 3.6 %       | 5.1 %  | 6.7 %      | 34.5 %    | 4.1 %    | 2.6 %       | 3.8 %  | 3.7 %      | 33.8 %    |
| Economics, Econometrics & Finance         | 2.6 %  | 0.5 %       | 0.8 %  | 2.9 %      | 6.4 %     | 10.9 %   | 2.1 %       | 4.2 %  | 17.4 %     | 52.2 %    |
| Emergency Nursing                         | 0.3 %  | 0.5 %       | 0.5 %  | 3.3 %      | 7.4 %     | 1.8 %    | 1.0 %       | 1.7 %  | 1.9 %      | 81.8 %    |
| Filtration & Separation                   | 1.1 %  | 0.3 %       | 3.3 %  | 5.0 %      | 48.4 %    | 2.2 %    | 0.2 %       | 1.7 %  | 1.5 %      | 36.2 %    |
| Food Animals                              | 0.8 %  | 8.9 %       | 2.8 %  | 3.5 %      | 23.9 %    | 4.0 %    | 4.9 %       | 8.2 %  | 3.2 %      | 39.9 %    |
| Gender Studies                            | 0.6 %  | 0.2 %       | 0.3 %  | 2.3 %      | 3.9 %     | 9.7 %    | 1.0 %       | 2.4 %  | 11.9 %     | 67.8 %    |
| General Arts & Humanities                 | 2.4 %  | 0.2 %       | 0.2 %  | 0.5 %      | 1.8 %     | 28.7 %   | 1.7 %       | 3.0 %  | 3.2 %      | 58.3 %    |
| Geometry & Topology                       | 4.1 %  | 0.6 %       | 15.3 % | 8.5 %      | 5.3 %     | 9.1 %    | 0.9 %       | 16.7 % | 15.6 %     | 23.8 %    |
| Gerontology                               | 1.1 %  | 0.8 %       | 2.0 %  | 7.2 %      | 10.8 %    | 4.7 %    | 1.5 %       | 4.2 %  | 6.8 %      | 60.8 %    |
| Health Information Management             | 1.8 %  | 1.3 %       | 2.3 %  | 6.3 %      | 8.1 %     | 5.6 %    | 1.9 %       | 17.2 % | 8.4 %      | 47.1 %    |
| Hepatology                                | 1.7 %  | 2.4 %       | 8.8 %  | 8.0 %      | 11.5 %    | 10.9 %   | 2.9 %       | 11.2 % | 6.7 %      | 35.9 %    |
| History & Philosophy of Science           | 0.4 %  | 2.7 %       | 1.1 %  | 8.3 %      | 9.0 %     | 5.4 %    | 1.9 %       | 2.3 %  | 10.9 %     | 57.9 %    |
| Immunology & Microbiology                 | 17.0 % | 0.1 %       | 7.9 %  | 0.1 %      | 0.3 %     | 37.6 %   | 0.2 %       | 35.6 % | 0.0 %      | 1.4 %     |
| Information Systems & Management          | 1.0 %  | 1.1 %       | 1.3 %  | 5.3 %      | 27.9 %    | 5.9 %    | 0.7 %       | 1.0 %  | 10.4 %     | 45.3 %    |
| Mathematical Physics                      | 1.3 %  | 2.3 %       | 4.1 %  | 19.7 %     | 9.7 %     | 2.6 %    | 1.3 %       | 2.9 %  | 29.0 %     | 27.1 %    |
| Medical Laboratory Technology             | 2.8 %  | 1.1 %       | 1.7 %  | 2.8 %      | 3.9 %     | 7.4 %    | 2.3 %       | 11.6 % | 5.8 %      | 60.7 %    |
| Music                                     | 0.2 %  | 0.4 %       | 0.2 %  | 2.1 %      | 4.0 %     | 7.5 %    | 0.6 %       | 3.6 %  | 10.4 %     | 70.9 %    |
| Nephrology                                | 3.5 %  | 1.4 %       | 12.4 % | 3.2 %      | 4.4 %     | 19.8 %   | 3.2 %       | 10.0 % | 4.1 %      | 37.9 %    |
| Numerical Analysis                        | 1.2 %  | 1.5 %       | 14.5 % | 9.9 %      | 18.3 %    | 1.9 %    | 1.8 %       | 8.4 %  | 9.7 %      | 32.7 %    |
| Orthodontics                              | 0.7 %  | 0.1 %       | 1.4 %  | 2.3 %      | 4.5 %     | 22.7 %   | 0.7 %       | 17.5 % | 5.9 %      | 44.3 %    |
| Palaeontology                             | 3.5 %  | 3.4 %       | 13.7 % | 5.0 %      | 23.1 %    | 7.5 %    | 1.6 %       | 3.9 %  | 3.4 %      | 35.0 %    |
| Paediatrics                               | 1.6 %  | 0.2 %       | 1.2 %  | 5.1 %      | 6.6 %     | 9.7 %    | 0.4 %       | 8.2 %  | 6.0 %      | 61.0 %    |
| Sensory Systems                           | 15.4 % | 2.1 %       | 5.2 %  | 7.4 %      | 11.1 %    | 13.8 %   | 1.9 %       | 7.4 %  | 3.8 %      | 31.9 %    |
| Structural Biology                        | 7.3 %  | 3.6 %       | 8.5 %  | 10.3 %     | 27.4 %    | 8.3 %    | 1.0 %       | 2.8 %  | 2.6 %      | 28.2 %    |
| Tourism, Leisure & Hospitality Management | 0.3 %  | 0.6 %       | 0.5 %  | 2.4 %      | 11.1 %    | 3.3 %    | 0.9 %       | 0.3 %  | 11.3 %     | 69.1 %    |
| Transplantation                           | 0.6 %  | 5.3 %       | 11.7 % | 4.5 %      | 10.1 %    | 5.0 %    | 3.5 %       | 14.8 % | 2.3 %      | 42.2 %    |
| Visual & Performing Arts                  | 0.3 %  | 0.3 %       | 0.2 %  | 1.0 %      | 2.4 %     | 4.9 %    | 1.4 %       | 4.2 %  | 7.5 %      | 77.9 %    |

**Table 3**  
Cites per article in 2016–2020 by funding, publication modality, and branch of knowledge.

| Branch of Knowledge             |        | Funded |             |        |       |            | Unfunded  |      |             |        |       |            |           |
|---------------------------------|--------|--------|-------------|--------|-------|------------|-----------|------|-------------|--------|-------|------------|-----------|
|                                 |        | Gold   | Hybrid Gold | Bronze | Green | Only Green | Paywalled | Gold | Hybrid Gold | Bronze | Green | Only Green | Paywalled |
| Health Sciences                 | Mean   | 8.3    | 22.7        | 20.5   | 17.5  | 15.5       | 11.4      | 5.3  | 16.1        | 17.3   | 11.3  | 11.4       | 6.4       |
|                                 | Median | 7.7    | 21.3        | 18.8   | 16.3  | 13.3       | 10.9      | 4.7  | 15.2        | 11.8   | 10.5  | 9.6        | 6.1       |
| Life Sciences                   | Mean   | 15.2   | 19.8        | 15.5   | 16.9  | 15.0       | 12.0      | 11.4 | 15.1        | 11.9   | 11.6  | 11.1       | 7.2       |
|                                 | Median | 13.7   | 21.0        | 17.4   | 18.0  | 14.4       | 12.9      | 11.7 | 13.8        | 11.0   | 11.3  | 10.6       | 8.3       |
| Physical Sciences & Engineering | Mean   | 8.3    | 18.6        | 13.2   | 14.2  | 15.1       | 12.4      | 6.8  | 13.3        | 7.3    | 9.7   | 11.3       | 7.1       |
|                                 | Median | 6.7    | 18.9        | 11.3   | 14.2  | 13.6       | 11.5      | 6.1  | 8.7         | 5.0    | 9.7   | 11.2       | 6.0       |
| Social Sciences & Humanities    | Mean   | 6.7    | 14.9        | 11.5   | 11.1  | 12.0       | 9.5       | 3.7  | 9.3         | 5.4    | 7.3   | 8.5        | 5.9       |
|                                 | Median | 5.3    | 17.7        | 10.4   | 8.1   | 10.8       | 8.4       | 3.5  | 8.1         | 4.7    | 6.7   | 7.8        | 5.5       |
| Total                           | Mean   | 9.1    | 19.0        | 15.3   | 14.8  | 14.4       | 11.2      | 6.3  | 13.4        | 10.6   | 9.9   | 10.5       | 6.6       |
|                                 | Median | 7.5    | 20.0        | 14.1   | 14.5  | 13.7       | 10.7      | 5.7  | 12.2        | 7.9    | 9.8   | 9.5        | 6.1       |

is higher than the average citation count for all articles with versions in repositories (green). However, this trend is not observed within the group of funded articles. These findings suggest that using open access repositories significantly boosts citation counts, particularly for publications without funding.

*Open Access citation advantage*

The citation advantage (or disadvantage, if negative) for an open access (OA) modality is defined as the difference in citations compared

to the paywalled modality. Specifically, if the number of citations per OA article in a particular modality is greater than the number of citations per paywalled article, then the citation advantage of that modality is calculated as (Citations per OA - Citations per paywalled) / Citations per paywalled.

In contrast, if the cites per OA article in a particular modality is less than the cites per paywalled article, then the OA citation disadvantage (which is negative) of that modality is (Cites per OA - Cites per paywalled) / Cites per OA.

Table 4 displays the average OA citation advantage by funding,



**Table 4**

OA citation advantage (in relation to Paywalled) in 2016–2020 by funding, publication modality, and branch of knowledge.

| Branch of Knowledge             |        | Funded |             |        |       |            | Unfunded |             |        |       |            |
|---------------------------------|--------|--------|-------------|--------|-------|------------|----------|-------------|--------|-------|------------|
|                                 |        | Gold   | Hybrid Gold | Bronze | Green | Only Green | Gold     | Hybrid Gold | Bronze | Green | Only Green |
| Health Sciences                 | Mean   | -51 %  | 93 %        | 80 %   | 55 %  | 38 %       | -22 %    | 190 %       | 164 %  | 81 %  | 88 %       |
|                                 | Median | -42 %  | 83 %        | 57 %   | 41 %  | 29 %       | -10 %    | 151 %       | 91 %   | 63 %  | 71 %       |
| Life Sciences                   | Mean   | 49 %   | 76 %        | 40 %   | 58 %  | 24 %       | 172 %    | 152 %       | 188 %  | 181 % | 39 %       |
|                                 | Median | 21 %   | 67 %        | 34 %   | 38 %  | 23 %       | 39 %     | 115 %       | 67 %   | 78 %  | 37 %       |
| Physical Sciences & Engineering | Mean   | -66 %  | 59 %        | 14 %   | 27 %  | 37 %       | 0 %      | 84 %        | -19 %  | 42 %  | 62 %       |
|                                 | Median | -22 %  | 60 %        | 3 %    | 9 %   | 15 %       | -4 %     | 56 %        | -13 %  | 44 %  | 64 %       |
| Social Sciences & Humanities    | Mean   | -88 %  | 86 %        | 24 %   | 42 %  | 82 %       | -63 %    | 72 %        | 13 %   | 54 %  | 82 %       |
|                                 | Median | -66 %  | 83 %        | 29 %   | 49 %  | 37 %       | -27 %    | 69 %        | 31 %   | 27 %  | 55 %       |
| Total                           | Mean   | -46 %  | 79 %        | 41 %   | 45 %  | 47 %       | 6 %      | 124 %       | 81 %   | 81 %  | 72 %       |
|                                 | Median | -36 %  | 69 %        | 37 %   | 35 %  | 22 %       | -6 %     | 80 %        | 42 %   | 50 %  | 61 %       |

publication modality, and branch of knowledge. However, it should be noted that outliers in the data distribution can potentially affect the mean and skew the results. Therefore, the median can be a more reliable measure of central tendency. Articles with an OA citation advantage above the median are exactly half of the distribution, and the other half have an OA citation advantage below the median.

There are notable variations among branches of knowledge. Excluding the gold modality, the average OA citation advantage in the funded group ranges from 41 % to 79 %, with a median of 22 % to 69 % for all subject categories. In the unfunded group, and excluding gold modality, the OA citation advantage ranges from 72 % to 124 %, with a median of 42 % to 80 %.

The highest OA citation advantage is observed in the hybrid gold modality, with 79 % and 124 % for funded and unfunded research, respectively. For half of the categories analyzed, the citation advantage in hybrid gold is greater than 69 % for funded articles and 80 % for unfunded ones. In the green modality, the average OA citation advantage is 45 % and 81 % for funded and unfunded research, respectively. Additionally, for half of the categories analyzed, the green citation advantage is greater than 35 % for funded articles and 50 % for unfunded ones. In the only green modality, the average OA citation advantage is 47 % for funded and 72 % for unfunded articles, but for half of the categories, the citation advantage is greater than 22 % and 61 % for funded and unfunded articles, respectively.

**Discussion**

We observed that funded articles generally receive 50 % more citations than unfunded ones, regardless of the publication modality. This result is interesting and indicates the importance of financial support in academic research. The higher citation rate of funded articles may be attributed to several factors, such as the availability of resources for conducting high-quality research, the ability to access and analyze larger datasets, and the potential for wider dissemination through marketing and publicity efforts (Álvarez-Bornstein & Montesi, 2020). Additionally, funding agencies may prioritize research topics that are more likely to have broader societal impacts, which could result in increased interest and attention from the scientific community (Aagaard et al., 2020).

It is important to note, however, that the correlation between funding and citation rates does not necessarily imply causation (Bornmann & Daniel, 2008). It is possible that articles receiving higher citations are more likely to attract funding, rather than the other way around. Further research is needed to investigate this relationship and determine the mechanisms through which funding may impact citation rates. Nonetheless, the present observation highlights the need for continued financial support for academic research to enhance its visibility and impact.

Among the various publication modalities, the hybrid gold modality was found to be the most cited, while the gold modality was found to be the least cited as also noted by Langham-Putrow et al. (2021), even

falling below the paywalled modality. This is an important finding in academic publishing. This finding suggests that the choice of publication modality can have a significant impact on the visibility and impact of research. The higher citation rate of hybrid gold open access articles may be attributed to their ability to reach a wider audience compared to traditional paywalled articles. Hybrid gold open access articles are freely accessible to readers online, while still being published in well-established and prestigious journals (Dorta-González & Dorta-González, 2023). This combination of wider accessibility and high visibility may lead to increased readership and citation rates.

Several factors may contribute to the lower citation rate of gold open access articles as also noted by Dorta-González et al. (2017), such as the perceived lower quality of open access journals or the lack of robust peer-review processes. Additionally, the lack of financial support for gold open access publishing may limit the marketing and publicity efforts that are crucial for increasing the visibility of research.

Based on these findings, it is important to recognize the significance of carefully choosing the appropriate publication modality for academic research, as it can have a significant impact on the visibility and impact of the research. Researchers should consider the advantages and disadvantages of different publication modalities and weigh them against their research goals and priorities.

Interestingly, using open access repositories had a significant positive impact on the number of citations received as also observed by Wheeler et al. (2022), particularly for articles without funding. In fact, articles in open access repositories (green) received 50 % more citations than paywalled articles, which is a remarkable finding independent of funding status.

Researchers who receive funding tend to display a greater inclination towards publishing their work on Open Access platforms (Piwowar et al., 2018). This is largely because the funding agencies and organizations they are affiliated with often require them to publish their research in such venues to maximize the dissemination and impact of their findings. As a result, the adoption of open access repositories (green) is more widespread within the funded group, accounting for 41 % of their publications, in contrast to the unfunded group, where it is 24 %.

Moreover, publishing on OA platforms enables researchers to reach a wider audience, including those who may not have access to traditional subscription-based academic journals. Additionally, publishing on OA platforms can improve a researcher's visibility and impact, which can be important for their career advancement and future funding opportunities (Niyazov et al., 2016). As a result, the trend towards OA publishing is likely to continue to gain momentum as funding agencies increasingly prioritize open access to research outputs.

**Conclusions**

This study analyzed Scopus data -publications from one year, and their citations over five years, in a random selection of subject categories- to determine whether open-access articles are cited more than

paywalled articles and whether any differences in citation are related to funding.

Our analysis revealed that while funded research articles tend to receive more citations than unfunded ones, there is a greater open access citation advantage for unfunded articles. This advantage is consistent across various fields and is largely due to the hybrid gold modality and author self-archiving in green open access repositories.

When considering the phenomenon of the OA citation advantage, it is important to notice that there are several complex factors at play that can influence the observed differences in citation rates. While increased accessibility due to open access publication can certainly contribute to the higher citation rates of OA articles, it is also possible that other biases are involved. One such bias is the selection postulate, which suggests that authors may be more likely to make only their most impactful studies open access, leading to a skewed representation of the overall impact of open access articles. Additionally, there may be social or cultural biases that influence who cite OA articles and how frequently they are cited (Hanel et al., 2018). For instance, certain disciplines or geographical regions may be more likely to value or prioritize open access publishing.

There are several factors to consider regarding the reliability of the data source used to determine the publication modality. In this case, Unpaywall is indirectly utilized via Scopus. However, it is important to note that Unpaywall relies on algorithms rather than indexing. As a result, it may not locate as many OA versions of journal articles as manual searches, regardless of the discipline. This limitation has been also observed in studies conducted by Piwowar et al. (2018) and Serigiadis (2019).

In recent years, the issue of access to academic literature has become a highly debated topic in the research community (Maddi & Sapinho,

2022). Research funders are placing greater emphasis on open access dissemination to promote wider readership and accessibility to their findings. At the same time, the rising cost of academic journals and other publications has forced many university libraries to cancel some of their subscriptions. This dilemma has put pressure on both researchers and publishers to find new ways to make academic literature more accessible while ensuring the sustainability of the publishing industry (Guédon et al., 2019). It remains to be seen how this issue will evolve in the future, but the debate over access to scholarly literature will continue to be an important issue for the research community.

**CRedit authorship contribution statement**

**Pablo Dorta-González:** Conceptualization, Methodology, Data curation, Validation, Writing- Original draft preparation, Writing- Reviewing and Editing, Supervision.

**María Isabel Dorta-González:** Conceptualization, Methodology, Data curation, Software, Validation, Writing- Original draft preparation, Writing- Reviewing and Editing.

**Declaration of competing interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**Data availability**

Data will be made available on request.

**Appendix A**

**Table A1**

Dataset for the sample. Cites per article and OA citation advantage (in relation to Paywalled) by subject category, funding, and publication modality. Research articles in 2016 and citations in 2016–2020 (Source: Scopus).

| Subject Category        | Total Articles | Funding  | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|-------------------------|----------------|----------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
| Accounting              | 3758           | Funded   | Gold                 | 43            | 1.1 %  | 6          | 30         | 61         | 78         | 81         | 256         | 6.0               | -70 %                 |
|                         |                |          | Hybrid Gold          | 25            | 0.7 %  | 57         | 62         | 79         | 135        | 137        | 470         | 18.8              | 86 %                  |
|                         |                |          | Bronze               | 10            | 0.3 %  | 1          | 16         | 30         | 37         | 57         | 141         | 14.1              | 39 %                  |
|                         |                |          | Green                | 142           | 3.8 %  | 155        | 283        | 452        | 630        | 725        | 2245        | 15.8              | 56 %                  |
|                         |                |          | Only Green           | 78            | 2.1 %  | 95         | 195        | 298        | 408        | 489        | 1485        | 19.0              | 88 %                  |
|                         |                |          | Paywalled            | 188           | 5.0 %  | 73         | 249        | 396        | 486        | 700        | 1904        | 10.1              |                       |
|                         |                | Unfunded | Gold                 | 331           | 8.8 %  | 35         | 155        | 278        | 357        | 437        | 1262        | 3.8               | -146 %                |
|                         |                |          | Hybrid Gold          | 30            | 0.8 %  | 13         | 60         | 136        | 131        | 170        | 510         | 17.0              | 81 %                  |
|                         |                |          | Bronze               | 76            | 2.0 %  | 42         | 105        | 182        | 234        | 370        | 933         | 12.3              | 31 %                  |
|                         |                |          | Green                | 1006          | 26.8 % | 515        | 1430       | 2460       | 3259       | 4353       | 12,017      | 11.9              | 27 %                  |
|                         |                |          | Only Green           | 691           | 18.4 % | 459        | 1243       | 2107       | 2823       | 3796       | 10,428      | 15.1              | 61 %                  |
|                         |                |          | Paywalled            | 2286          | 60.8 % | 878        | 2531       | 4473       | 5955       | 7647       | 21,484      | 9.4               |                       |
| Acoustics & Ultrasonics | 6350           | Funded   | Gold                 | 26            | 0.4 %  | 20         | 45         | 62         | 96         | 97         | 320         | 12.3              | 1 %                   |
|                         |                |          | Hybrid Gold          | 255           | 4.0 %  | 463        | 1401       | 1636       | 1649       | 1617       | 6766        | 26.5              | 117 %                 |
|                         |                |          | Bronze               | 147           | 2.3 %  | 60         | 281        | 352        | 408        | 386        | 1487        | 10.1              | -21 %                 |

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Table A1 (continued)

| Subject Category               | Total Articles | Funding                            | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|--------------------------------|----------------|------------------------------------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
| Advanced & Specialized Nursing | 3076           | Unfunded                           | Green                | 575           | 9.1 %  | 415        | 1486       | 1889       | 2110       | 1950       | 7850        | 13.7              | 12 %                  |
|                                |                |                                    | Only Green           | 421           | 6.6 %  | 319        | 1122       | 1385       | 1535       | 1401       | 5762        | 13.7              | 12 %                  |
|                                |                |                                    | Paywalled            | 1298          | 20.4 % | 729        | 2775       | 3977       | 4350       | 4006       | 15,837      | 12.2              |                       |
|                                |                |                                    | Gold                 | 45            | 0.7 %  | 9          | 57         | 56         | 82         | 59         | 263         | 5.8               | 7 %                   |
|                                |                |                                    | Hybrid Gold          | 137           | 2.2 %  | 253        | 696        | 865        | 849        | 863        | 3526        | 25.7              | 369 %                 |
|                                |                |                                    | Bronze               | 271           | 4.3 %  | 59         | 331        | 559        | 489        | 530        | 1968        | 7.3               | 32 %                  |
|                                |                |                                    | Green                | 558           | 8.8 %  | 340        | 1172       | 1616       | 1694       | 1522       | 6344        | 11.4              | 107 %                 |
|                                |                |                                    | Only Green           | 381           | 6.0 %  | 247        | 893        | 1221       | 1263       | 1122       | 4746        | 12.5              | 127 %                 |
|                                |                | Paywalled                          | 3369                 | 53.1 %        | 706    | 2961       | 4860       | 5303       | 4645       | 18,475     | 5.5         |                   |                       |
|                                |                | Funded                             | Gold                 | 35            | 1.1 %  | 5          | 22         | 30         | 42         | 50         | 149         | 4.3               | -163 %                |
|                                |                | Hybrid Gold                        | 26                   | 0.8 %         | 29     | 106        | 150        | 158        | 156        | 599        | 23.0        | 106 %             |                       |
|                                |                | Bronze                             | 168                  | 5.5 %         | 409    | 1375       | 1754       | 1720       | 1799       | 7057       | 42.0        | 275 %             |                       |
|                                |                | Green                              | 407                  | 13.2 %        | 545    | 1927       | 2517       | 2627       | 2700       | 10,316     | 25.3        | 126 %             |                       |
|                                |                | Only Green                         | 230                  | 7.5 %         | 189    | 818        | 1060       | 1189       | 1208       | 4464       | 19.4        | 73 %              |                       |
|                                |                | Paywalled                          | 146                  | 4.7 %         | 81     | 278        | 409        | 460        | 407        | 1635       | 11.2        |                   |                       |
|                                |                | Unfunded                           | Gold                 | 162           | 5.3 %  | 10         | 92         | 148        | 194        | 203        | 647         | 4.0               | -3 %                  |
| Hybrid Gold                    | 21             | 0.7 %                              | 16                   | 68            | 88     | 83         | 66         | 321        | 15.3       | 271 %      |             |                   |                       |
| Bronze                         | 233            | 7.6 %                              | 785                  | 1801          | 1833   | 1659       | 1764       | 7842       | 33.7       | 717 %      |             |                   |                       |
| Aging                          | 2863           | Funded                             | Green                | 447           | 14.5 % | 322        | 1037       | 1375       | 1483       | 1604       | 5821        | 13.0              | 216 %                 |
|                                |                |                                    | Only Green           | 240           | 7.8 %  | 166        | 557        | 762        | 834        | 883        | 3202        | 13.3              | 224 %                 |
|                                |                |                                    | Paywalled            | 1815          | 59.0 % | 383        | 1318       | 1776       | 1935       | 2064       | 7476        | 4.1               |                       |
|                                |                |                                    | Gold                 | 344           | 12.0 % | 304        | 1292       | 1722       | 1773       | 2021       | 7112        | 20.7              | 40 %                  |
|                                |                |                                    | Hybrid Gold          | 85            | 3.0 %  | 88         | 353        | 490        | 544        | 617        | 2092        | 24.6              | 67 %                  |
|                                |                |                                    | Bronze               | 193           | 6.7 %  | 240        | 612        | 814        | 965        | 1015       | 3646        | 18.9              | 28 %                  |
|                                |                |                                    | Green                | 1010          | 35.3 % | 949        | 3739       | 4911       | 5196       | 5765       | 20,560      | 20.4              | 38 %                  |
|                                |                |                                    | Only Green           | 418           | 14.6 % | 355        | 1581       | 1985       | 2054       | 2273       | 8248        | 19.7              | 34 %                  |
|                                |                | Paywalled                          | 320                  | 11.2 %        | 238    | 948        | 1198       | 1125       | 1218       | 4727       | 14.8        |                   |                       |
|                                |                | Unfunded                           | Gold                 | 552           | 19.3 % | 370        | 1524       | 2056       | 2118       | 2442       | 8510        | 15.4              | 85 %                  |
|                                |                | Hybrid Gold                        | 47                   | 1.6 %         | 39     | 146        | 213        | 231        | 214        | 843        | 17.9        | 115 %             |                       |
|                                |                | Bronze                             | 116                  | 4.1 %         | 117    | 375        | 459        | 466        | 549        | 1966       | 16.9        | 103 %             |                       |
|                                |                | Green                              | 806                  | 28.2 %        | 583    | 2289       | 3096       | 3171       | 3620       | 12,759     | 15.8        | 90 %              |                       |
|                                |                | Only Green                         | 175                  | 6.1 %         | 130    | 488        | 696        | 672        | 783        | 2769       | 15.8        | 90 %              |                       |
|                                |                | Paywalled                          | 613                  | 21.4 %        | 292    | 956        | 1175       | 1275       | 1408       | 5106       | 8.3         |                   |                       |
|                                |                | Agricultural & Biological Sciences | 3417                 | Funded        | Gold   | 71         | 2.1 %      | 31         | 163        | 236        | 237         | 307               | 974                   |
| Hybrid Gold                    | 146            |                                    |                      |               | 4.3 %  | 191        | 473        | 842        | 947        | 945        | 3398        | 23.3              | 80 %                  |
| Bronze                         | 127            |                                    |                      |               | 3.7 %  | 87         | 386        | 531        | 583        | 620        | 2207        | 17.4              | 34 %                  |
| Green                          | 407            |                                    |                      |               | 11.9 % | 362        | 1174       | 1773       | 1965       | 2068       | 7342        | 18.0              | 39 %                  |

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Table A1 (continued)

| Subject Category                  | Total Articles | Funding  | Publication Modality | Articles 2016 | %      | Cites 2016  | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |       |      |        |
|-----------------------------------|----------------|----------|----------------------|---------------|--------|-------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|-------|------|--------|
| Anatomy                           | 3431           | Unfunded | Only Green           | 98            | 2.9 %  | 81          | 236        | 312        | 373        | 411        | 1413        | 14.4              | 11 %                  |       |      |        |
|                                   |                |          | Paywalled            | 464           | 13.6 % | 316         | 976        | 1451       | 1594       | 1666       | 6003        | 12.9              |                       |       |      |        |
|                                   |                |          | Gold                 | 362           | 10.6 % | 52          | 339        | 469        | 650        | 697        | 2207        | 6.1               | 25 %                  |       |      |        |
|                                   |                |          | Hybrid Gold          | 252           | 7.4 %  | 80          | 445        | 762        | 804        | 1008       | 3099        | 12.3              | 152 %                 |       |      |        |
|                                   |                |          | Bronze               | 179           | 5.2 %  | 81          | 290        | 440        | 512        | 638        | 1961        | 11.0              | 124 %                 |       |      |        |
|                                   |                |          | Green                | 893           | 26.1 % | 318         | 1263       | 1964       | 2289       | 2694       | 8528        | 9.5               | 96 %                  |       |      |        |
|                                   |                |          | Only Green           | 282           | 8.3 %  | 141         | 410        | 587        | 715        | 753        | 2606        | 9.2               | 89 %                  |       |      |        |
|                                   |                |          | Paywalled            | 1436          | 42.0 % | 314         | 1183       | 1699       | 1850       | 1963       | 7009        | 4.9               |                       |       |      |        |
|                                   |                | Funded   | Gold                 | 84            | 2.4 %  | 23          | 115        | 197        | 222        | 225        | 782         | 9.3               | -38 %                 |       |      |        |
|                                   |                |          | Hybrid Gold          | 76            | 2.2 %  | 134         | 333        | 419        | 398        | 411        | 1695        | 22.3              | 74 %                  |       |      |        |
|                                   |                |          | Bronze               | 137           | 4.0 %  | 89          | 326        | 363        | 380        | 419        | 1577        | 11.5              | -11 %                 |       |      |        |
|                                   |                |          | Green                | 535           | 15.6 % | 583         | 1834       | 2439       | 2429       | 2547       | 9832        | 18.4              | 43 %                  |       |      |        |
|                                   |                |          | Only Green           | 281           | 8.2 %  | 351         | 1105       | 1508       | 1480       | 1547       | 5991        | 21.3              | 66 %                  |       |      |        |
|                                   |                |          | Paywalled            | 330           | 9.6 %  | 411         | 820        | 939        | 988        | 1069       | 4227        | 12.8              |                       |       |      |        |
|                                   |                |          | Unfunded             | Gold          | 294    | 8.6 %       | 44         | 207        | 280        | 334        | 296         | 1161              | 3.9                   | -84 % |      |        |
|                                   |                |          |                      | Hybrid Gold   | 98     | 2.9 %       | 78         | 177        | 237        | 264        | 267         | 1023              | 10.4                  | 44 %  |      |        |
| Bronze                            | 272            | 7.9 %    |                      | 142           | 439    | 545         | 572        | 623        | 2321       | 8.5        | 17 %        |                   |                       |       |      |        |
| Green                             | 713            | 20.8 %   |                      | 437           | 1454   | 1892        | 1957       | 2046       | 7786       | 10.9       | 50 %        |                   |                       |       |      |        |
| Business, Management & Accounting | 2841           | Funded   | Only Green           | 250           | 7.3 %  | 213         | 816        | 1048       | 1037       | 1119       | 4233        | 16.9              | 133 %                 |       |      |        |
|                                   |                |          | Paywalled            | 1609          | 46.9 % | 858         | 2265       | 2757       | 2747       | 3064       | 11,691      | 7.3               |                       |       |      |        |
|                                   |                |          | Gold                 | 38            | 1.3 %  | 1           | 21         | 41         | 39         | 43         | 145         | 3.8               | -117 %                |       |      |        |
|                                   |                |          | Hybrid Gold          | 2             | 0.1 %  | 2           | 0          | 3          | 2          | 3          | 10          | 5.0               | -65 %                 |       |      |        |
|                                   |                |          | Bronze               | 8             | 0.3 %  | 0           | 2          | 2          | 8          | 14         | 26          | 3.3               | -154 %                |       |      |        |
|                                   |                |          | Green                | 63            | 2.2 %  | 12          | 39         | 73         | 101        | 117        | 342         | 5.4               | -52 %                 |       |      |        |
|                                   |                |          | Only Green           | 25            | 0.9 %  | 10          | 23         | 41         | 61         | 78         | 213         | 8.5               | 3 %                   |       |      |        |
|                                   |                |          | Paywalled            | 104           | 3.7 %  | 61          | 133        | 158        | 209        | 299        | 860         | 8.3               |                       |       |      |        |
|                                   |                | Unfunded | Gold                 | 320           | 11.3 % | 54          | 285        | 441        | 675        | 757        | 2212        | 6.9               | -9 %                  |       |      |        |
|                                   |                |          | Hybrid Gold          | 15            | 0.5 %  | 7           | 21         | 34         | 42         | 55         | 159         | 10.6              | 40 %                  |       |      |        |
|                                   |                |          | Bronze               | 77            | 2.7 %  | 9           | 51         | 94         | 83         | 135        | 372         | 4.8               | -57 %                 |       |      |        |
|                                   |                |          | Green                | 819           | 28.8 % | 201         | 729        | 1177       | 1691       | 1945       | 5743        | 7.0               | -8 %                  |       |      |        |
|                                   |                |          | Only Green           | 523           | 18.4 % | 153         | 533        | 838        | 1199       | 1364       | 4087        | 7.8               | 3 %                   |       |      |        |
|                                   |                |          | Paywalled            | 1729          | 60.9 % | 516         | 1666       | 2808       | 3730       | 4366       | 13,086      | 7.6               |                       |       |      |        |
|                                   |                |          | Chemical Engineering | 2016          | Funded | Gold        | 53         | 2.6 %      | 13         | 63         | 96          | 95                | 103                   | 370   | 7.0  | -152 % |
|                                   |                |          |                      |               |        | Hybrid Gold | 201        | 10.0 %     | 410        | 1246       | 1401        | 1399              | 1389                  | 5845  | 29.1 | 65 %   |
| Bronze                            | 81             | 4.0 %    |                      |               |        | 57          | 190        | 235        | 256        | 280        | 1018        | 12.6              | -40 %                 |       |      |        |
| Green                             | 141            | 7.0 %    |                      |               |        | 92          | 396        | 494        | 534        | 550        | 2066        | 14.7              | -20 %                 |       |      |        |
| Only Green                        | 61             | 3.0 %    |                      |               |        | 45          | 211        | 236        | 263        | 273        | 1028        | 16.9              | -5 %                  |       |      |        |

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Table A1 (continued)

| Subject Category      | Total Articles | Funding  | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |       |
|-----------------------|----------------|----------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|-------|
| Classics              | 1050           | Unfunded | Paywalled            | 466           | 23.1 % | 391        | 1553       | 1959       | 2048       | 2260       | 8211        | 17.6              |                       |       |
|                       |                |          | Gold                 | 191           | 9.5 %  | 42         | 171        | 303        | 323        | 380        | 1219        | 6.4               | -51 %                 |       |
|                       |                |          | Hybrid Gold          | 96            | 4.8 %  | 199        | 602        | 740        | 709        | 776        | 3026        | 31.5              | 227 %                 |       |
|                       |                |          | Bronze               | 99            | 4.9 %  | 8          | 83         | 90         | 73         | 60         | 314         | 3.2               | -204 %                |       |
|                       |                |          | Green                | 228           | 11.3 % | 98         | 348        | 514        | 544        | 612        | 2116        | 9.3               | -4 %                  |       |
|                       |                |          | Only Green           | 37            | 1.8 %  | 43         | 126        | 143        | 150        | 152        | 614         | 16.6              | 72 %                  |       |
|                       |                | Funded   | Paywalled            | 731           | 36.3 % | 308        | 1199       | 1639       | 1850       | 2056       | 7052        | 9.6               |                       |       |
|                       |                |          | Gold                 | 0             | 0.0 %  |            |            |            |            |            |             |                   |                       |       |
|                       |                |          | Hybrid Gold          | 2             | 0.2 %  | 0          | 0          | 0          | 0          | 0          | 0           | 0.0               |                       |       |
|                       |                |          | Bronze               | 7             | 0.7 %  | 0          | 2          | 2          | 3          | 2          | 9           | 1.3               | 29 %                  |       |
|                       |                |          | Green                | 5             | 0.5 %  | 1          | 1          | 5          | 6          | 1          | 14          | 2.8               | 180 %                 |       |
|                       |                |          | Only Green           | 2             | 0.2 %  | 1          | 1          | 4          | 6          | 0          | 12          | 6.0               | 500 %                 |       |
|                       |                |          | Unfunded             | Paywalled     | 21     | 2.0 %      | 1          | 4          | 6          | 4          | 6           | 21                | 1.0                   |       |
|                       |                |          |                      | Gold          | 21     | 2.0 %      | 0          | 2          | 4          | 4          | 3           | 13                | 0.6                   | -16 % |
|                       |                |          |                      | Hybrid Gold   | 52     | 5.0 %      | 2          | 3          | 4          | 4          | 6           | 19                | 0.4                   | -97 % |
| Computer Science      | 2241           | Funded   | Bronze               | 32            | 3.0 %  | 1          | 11         | 10         | 8          | 16         | 46          | 1.4               | 100 %                 |       |
|                       |                |          | Green                | 92            | 8.8 %  | 5          | 17         | 20         | 19         | 18         | 79          | 0.9               | 19 %                  |       |
|                       |                |          | Only Green           | 60            | 5.7 %  | 4          | 12         | 16         | 15         | 12         | 59          | 1.0               | 37 %                  |       |
|                       |                |          | Paywalled            | 853           | 81.2 % | 44         | 97         | 159        | 173        | 140        | 613         | 0.7               |                       |       |
|                       |                |          | Gold                 | 123           | 5.5 %  | 58         | 303        | 388        | 395        | 394        | 1538        | 12.5              | 110 %                 |       |
|                       |                |          | Hybrid Gold          | 13            | 0.6 %  | 18         | 30         | 64         | 45         | 54         | 211         | 16.2              | 173 %                 |       |
|                       |                | Unfunded | Bronze               | 41            | 1.8 %  | 44         | 125        | 168        | 168        | 135        | 640         | 15.6              | 162 %                 |       |
|                       |                |          | Green                | 208           | 9.3 %  | 166        | 648        | 805        | 908        | 899        | 3426        | 16.5              | 177 %                 |       |
|                       |                |          | Only Green           | 79            | 3.5 %  | 81         | 306        | 340        | 449        | 445        | 1621        | 20.5              | 245 %                 |       |
|                       |                |          | Paywalled            | 572           | 25.5 % | 149        | 588        | 859        | 996        | 814        | 3406        | 6.0               |                       |       |
|                       |                |          | Gold                 | 237           | 10.6 % | 84         | 360        | 447        | 407        | 453        | 1751        | 7.4               | 17 %                  |       |
|                       |                |          | Hybrid Gold          | 5             | 0.2 %  | 0          | 7          | 8          | 4          | 7          | 26          | 5.2               | -21 %                 |       |
|                       |                |          | Bronze               | 82            | 3.7 %  | 18         | 74         | 94         | 118        | 106        | 410         | 5.0               | -26 %                 |       |
|                       |                |          | Green                | 289           | 12.9 % | 148        | 539        | 754        | 754        | 710        | 2905        | 10.1              | 60 %                  |       |
|                       |                |          | Only Green           | 120           | 5.4 %  | 94         | 322        | 484        | 505        | 419        | 1824        | 15.2              | 141 %                 |       |
| Developmental Biology | 6867           | Funded   | Paywalled            | 969           | 43.2 % | 243        | 973        | 1553       | 1741       | 1594       | 6104        | 6.3               |                       |       |
|                       |                |          | Gold                 | 940           | 13.7 % | 893        | 3674       | 4738       | 4763       | 5017       | 19,085      | 20.3              | 82 %                  |       |
|                       |                |          | Hybrid Gold          | 319           | 4.6 %  | 405        | 1351       | 1592       | 1600       | 1743       | 6691        | 21.0              | 88 %                  |       |
|                       |                |          | Bronze               | 1010          | 14.7 % | 1005       | 3697       | 4475       | 4600       | 4788       | 18,565      | 18.4              | 65 %                  |       |
|                       |                |          | Green                | 2328          | 33.9 % | 2432       | 9403       | 11,450     | 11,863     | 12,383     | 47,531      | 20.4              | 83 %                  |       |
|                       |                |          | Only Green           | 502           | 7.3 %  | 375        | 1371       | 1658       | 1782       | 1847       | 7033        | 14.0              | 26 %                  |       |
| Paywalled             | 1238           | 18.0 %   | 753                  | 2716          | 3500   | 3305       | 3534       | 13,808     | 11.2       |            |             |                   |                       |       |

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Table A1 (continued)

| Subject Category                     | Total Articles | Funding  | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|--------------------------------------|----------------|----------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
| Developmental Neuroscience           | 2301           | Unfunded | Gold                 | 498           | 7.3 %  | 347        | 1573       | 2244       | 2162       | 2309       | 8635        | 17.3              | 108 %                 |
|                                      |                |          | Hybrid Gold          | 140           | 2.0 %  | 106        | 380        | 475        | 460        | 511        | 1932        | 13.8              | 66 %                  |
|                                      |                |          | Bronze               | 492           | 7.2 %  | 337        | 1257       | 1519       | 1546       | 1631       | 6290        | 12.8              | 54 %                  |
|                                      |                |          | Green                | 1178          | 17.2 % | 817        | 3297       | 4377       | 4269       | 4677       | 17,437      | 14.8              | 78 %                  |
|                                      |                |          | Only Green           | 277           | 4.0 %  | 180        | 626        | 806        | 801        | 918        | 3331        | 12.0              | 44 %                  |
|                                      |                |          | Paywalled            | 1451          | 21.1 % | 705        | 2275       | 2952       | 3031       | 3116       | 12,079      | 8.3               |                       |
|                                      | 2301           | Funded   | Gold                 | 196           | 8.5 %  | 72         | 442        | 671        | 673        | 657        | 2515        | 12.8              | -15 %                 |
|                                      |                |          | Hybrid Gold          | 58            | 2.5 %  | 77         | 242        | 288        | 282        | 291        | 1180        | 20.3              | 38 %                  |
|                                      |                |          | Bronze               | 105           | 4.6 %  | 144        | 359        | 546        | 535        | 622        | 2206        | 21.0              | 42 %                  |
|                                      |                |          | Green                | 647           | 28.1 % | 634        | 2066       | 2619       | 2713       | 2888       | 10,920      | 16.9              | 14 %                  |
|                                      |                |          | Only Green           | 345           | 15.0 % | 414        | 1223       | 1415       | 1531       | 1639       | 6222        | 18.0              | 22 %                  |
|                                      |                |          | Paywalled            | 408           | 17.7 % | 323        | 1197       | 1489       | 1514       | 1511       | 6034        | 14.8              |                       |
| Discrete Mathematics & Combinatorics | 5098           | Unfunded | Gold                 | 224           | 9.7 %  | 85         | 427        | 482        | 514        | 543        | 2051        | 9.2               | -1 %                  |
|                                      |                |          | Hybrid Gold          | 22            | 1.0 %  | 69         | 141        | 159        | 148        | 150        | 667         | 30.3              | 228 %                 |
|                                      |                |          | Bronze               | 100           | 4.3 %  | 120        | 249        | 325        | 426        | 426        | 1546        | 15.5              | 67 %                  |
|                                      |                |          | Green                | 358           | 15.6 % | 205        | 801        | 977        | 1061       | 1136       | 4180        | 11.7              | 26 %                  |
|                                      |                |          | Only Green           | 113           | 4.9 %  | 72         | 250        | 336        | 327        | 374        | 1359        | 12.0              | 30 %                  |
|                                      |                |          | Paywalled            | 730           | 31.7 % | 466        | 1206       | 1553       | 1676       | 1841       | 6742        | 9.2               |                       |
|                                      | 5098           | Funded   | Gold                 | 486           | 9.5 %  | 127        | 418        | 630        | 591        | 663        | 2429        | 5.0               | 24 %                  |
|                                      |                |          | Hybrid Gold          | 63            | 1.2 %  | 16         | 59         | 71         | 88         | 97         | 331         | 5.3               | 31 %                  |
|                                      |                |          | Bronze               | 868           | 17.0 % | 329        | 893        | 1109       | 1249       | 1260       | 4840        | 5.6               | 39 %                  |
|                                      |                |          | Green                | 908           | 17.8 % | 362        | 974        | 1209       | 1296       | 1385       | 5226        | 5.8               | 43 %                  |
|                                      |                |          | Only Green           | 240           | 4.7 %  | 91         | 250        | 292        | 333        | 377        | 1343        | 5.6               | 39 %                  |
|                                      |                |          | Paywalled            | 302           | 5.9 %  | 102        | 205        | 281        | 325        | 300        | 1213        | 4.0               |                       |
| Ecological Modelling                 | 3256           | Unfunded | Gold                 | 819           | 16.1 % | 170        | 605        | 870        | 929        | 945        | 3519        | 4.3               | 75 %                  |
|                                      |                |          | Hybrid Gold          | 135           | 2.6 %  | 20         | 62         | 74         | 79         | 63         | 298         | 2.2               | -11 %                 |
|                                      |                |          | Bronze               | 605           | 11.9 % | 189        | 456        | 562        | 644        | 696        | 2547        | 4.2               | 71 %                  |
|                                      |                |          | Green                | 1063          | 20.9 % | 323        | 889        | 1149       | 1186       | 1254       | 4801        | 4.5               | 84 %                  |
|                                      |                |          | Only Green           | 409           | 8.0 %  | 126        | 337        | 428        | 433        | 462        | 1786        | 4.4               | 78 %                  |
|                                      |                |          | Paywalled            | 1171          | 23.0 % | 170        | 523        | 651        | 712        | 821        | 2877        | 2.5               |                       |
|                                      | 3256           | Funded   | Gold                 | 73            | 2.2 %  | 35         | 169        | 213        | 258        | 213        | 888         | 12.2              | -101 %                |
|                                      |                |          | Hybrid Gold          | 116           | 3.6 %  | 179        | 614        | 911        | 992        | 1143       | 3839        | 33.1              | 35 %                  |
|                                      |                |          | Bronze               | 165           | 5.1 %  | 184        | 659        | 966        | 1081       | 1216       | 4106        | 24.9              | 2 %                   |
|                                      |                |          | Green                | 402           | 12.3 % | 458        | 1747       | 2464       | 2734       | 2880       | 10,283      | 25.6              | 5 %                   |
|                                      |                |          | Only Green           | 218           | 6.7 %  | 266        | 986        | 1363       | 1510       | 1574       | 5699        | 26.1              | 7 %                   |
|                                      |                |          | Paywalled            | 1122          | 34.5 % | 1100       | 4553       | 6568       | 7403       | 7826       | 27,450      | 24.5              |                       |
| 3256                                 | Unfunded       | Gold     | 132                  | 4.1 %         | 76     | 260        | 326        | 376        | 415        | 1453       | 11.0        | -6 %              |                       |

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Table A1 (continued)

| Subject Category                  | Total Articles | Funding                 | Publication Modality | Articles 2016 | %      | Cites 2016  | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |       |      |        |
|-----------------------------------|----------------|-------------------------|----------------------|---------------|--------|-------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|-------|------|--------|
| Economics, Econometrics & Finance | 2643           | Funded                  | Hybrid Gold          | 84            | 2.6 %  | 58          | 253        | 389        | 445        | 551        | 1696        | 20.2              | 73 %                  |       |      |        |
|                                   |                |                         | Bronze               | 123           | 3.8 %  | 138         | 460        | 669        | 865        | 1034       | 3166        | 25.7              | 120 %                 |       |      |        |
|                                   |                |                         | Green                | 297           | 9.1 %  | 255         | 976        | 1400       | 1626       | 1981       | 6238        | 21.0              | 79 %                  |       |      |        |
|                                   |                |                         | Only Green           | 122           | 3.7 %  | 99          | 373        | 517        | 572        | 654        | 2215        | 18.2              | 55 %                  |       |      |        |
|                                   |                |                         | Paywalled            | 1101          | 33.8 % | 581         | 2238       | 2993       | 3366       | 3705       | 12,883      | 11.7              |                       |       |      |        |
|                                   |                | Unfunded                |                      | Gold          | 70     | 2.6 %       | 3          | 55         | 95         | 110        | 99          | 362               | 5.2                   | -62 % |      |        |
|                                   |                | Hybrid Gold             |                      | 14            | 0.5 %  | 10          | 45         | 68         | 92         | 85         | 300         | 21.4              | 156 %                 |       |      |        |
|                                   |                | Bronze                  |                      | 21            | 0.8 %  | 10          | 24         | 37         | 28         | 45         | 144         | 6.9               | -22 %                 |       |      |        |
|                                   |                | Green                   |                      | 161           | 6.1 %  | 55          | 199        | 314        | 345        | 388        | 1301        | 8.1               | -3 %                  |       |      |        |
|                                   |                | Only Green              |                      | 77            | 2.9 %  | 40          | 99         | 158        | 165        | 214        | 676         | 8.8               | 5 %                   |       |      |        |
|                                   |                | Paywalled               |                      | 170           | 6.4 %  | 55          | 204        | 311        | 407        | 444        | 1421        | 8.4               |                       |       |      |        |
|                                   |                | Gold                    |                      | 288           | 10.9 % | 46          | 162        | 316        | 387        | 408        | 1319        | 4.6               | -21 %                 |       |      |        |
|                                   |                | Hybrid Gold             |                      | 55            | 2.1 %  | 31          | 98         | 118        | 147        | 166        | 560         | 10.2              | 84 %                  |       |      |        |
|                                   |                | Bronze                  |                      | 110           | 4.2 %  | 15          | 53         | 77         | 98         | 101        | 344         | 3.1               | -77 %                 |       |      |        |
|                                   |                | Green                   |                      | 758           | 28.7 % | 232         | 651        | 1033       | 1307       | 1408       | 4631        | 6.1               | 10 %                  |       |      |        |
| Only Green                        | 459            | 17.4 %                  | 160                  | 423           | 638    | 833         | 899        | 2953       | 6.4        | 16 %       |             |                   |                       |       |      |        |
| Paywalled                         | 1379           | 52.2 %                  | 414                  | 1092          | 1702   | 2087        | 2352       | 7647       | 5.5        |            |             |                   |                       |       |      |        |
| Emergency Nursing                 | 1684           | Funded                  | Gold                 | 5             | 0.3 %  | 0           | 2          | 6          | 10         | 7          | 25          | 5.0               | -139 %                |       |      |        |
|                                   |                |                         | Hybrid Gold          | 9             | 0.5 %  | 8           | 67         | 100        | 114        | 120        | 409         | 45.4              | 281 %                 |       |      |        |
|                                   |                |                         | Bronze               | 8             | 0.5 %  | 14          | 40         | 51         | 45         | 40         | 190         | 23.8              | 99 %                  |       |      |        |
|                                   |                |                         | Green                | 70            | 4.2 %  | 54          | 230        | 329        | 363        | 388        | 1364        | 19.5              | 63 %                  |       |      |        |
|                                   |                |                         | Only Green           | 55            | 3.3 %  | 34          | 133        | 187        | 211        | 236        | 801         | 14.6              | 22 %                  |       |      |        |
|                                   |                | Unfunded                |                      | Paywalled     | 124    | 7.4 %       | 69         | 291        | 375        | 378        | 366         | 1479              | 11.9                  |       |      |        |
|                                   |                | Gold                    |                      | 30            | 1.8 %  | 2           | 5          | 13         | 23         | 25         | 68          | 2.3               | -40 %                 |       |      |        |
|                                   |                | Hybrid Gold             |                      | 16            | 1.0 %  | 13          | 38         | 29         | 45         | 70         | 195         | 12.2              | 283 %                 |       |      |        |
|                                   |                | Bronze                  |                      | 28            | 1.7 %  | 2           | 7          | 12         | 15         | 26         | 62          | 2.2               | -44 %                 |       |      |        |
|                                   |                | Green                   |                      | 73            | 4.3 %  | 22          | 62         | 73         | 98         | 127        | 382         | 5.2               | 65 %                  |       |      |        |
|                                   |                | Only Green              |                      | 32            | 1.9 %  | 15          | 48         | 51         | 61         | 82         | 257         | 8.0               | 153 %                 |       |      |        |
|                                   |                | Paywalled               |                      | 1377          | 81.8 % | 234         | 747        | 1084       | 1107       | 1207       | 4379        | 3.2               |                       |       |      |        |
|                                   |                | Filtration & Separation |                      | 2219          | Funded | Gold        | 25         | 1.1 %      | 2          | 20         | 37          | 24                | 40                    | 123   | 4.9  | -368 % |
|                                   |                |                         |                      |               |        | Hybrid Gold | 7          | 0.3 %      | 6          | 25         | 40          | 28                | 42                    | 141   | 20.1 | -14 %  |
|                                   |                |                         |                      |               |        | Bronze      | 74         | 3.3 %      | 64         | 366        | 499         | 440               | 408                   | 1777  | 24.0 | 4 %    |
| Green                             | 151            |                         | 6.8 %                |               |        | 178         | 716        | 977        | 898        | 903        | 3672        | 24.3              | 6 %                   |       |      |        |
| Only Green                        | 112            |                         | 5.0 %                |               |        | 156         | 609        | 797        | 753        | 743        | 3058        | 27.3              | 19 %                  |       |      |        |
| Unfunded                          |                | Paywalled               | 1074                 | 48.4 %        | 1118   | 4901        | 6241       | 5972       | 6488       | 24,720     | 23.0        |                   |                       |       |      |        |
| Gold                              |                | 48                      | 2.2 %                | 11            | 48     | 97          | 84         | 82         | 322        | 6.7        | -84 %       |                   |                       |       |      |        |
| Hybrid Gold                       | 4              | 0.2 %                   | 4                    | 6             | 8      | 1           | 6          | 25         | 6.3        | -98 %      |             |                   |                       |       |      |        |

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Table A1 (continued)

| Subject Category          | Total Articles | Funding  | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|---------------------------|----------------|----------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
| Food Animals              | 2736           | Funded   | Bronze               | 37            | 1.7 %  | 7          | 31         | 50         | 60         | 78         | 226         | 6.1               | -102 %                |
|                           |                |          | Green                | 86            | 3.9 %  | 50         | 165        | 244        | 195        | 215        | 869         | 10.1              | -22 %                 |
|                           |                |          | Only Green           | 34            | 1.5 %  | 37         | 103        | 155        | 111        | 128        | 534         | 15.7              | 27 %                  |
|                           |                |          | Paywalled            | 804           | 36.2 % | 563        | 2036       | 2437       | 2387       | 2517       | 9940        | 12.4              |                       |
|                           |                |          | Gold                 | 21            | 0.8 %  | 10         | 13         | 40         | 50         | 53         | 166         | 7.9               | -7 %                  |
|                           |                |          | Hybrid Gold          | 243           | 8.9 %  | 63         | 252        | 399        | 547        | 608        | 1869        | 7.7               | -10 %                 |
|                           |                |          | Bronze               | 77            | 2.8 %  | 27         | 121        | 160        | 134        | 170        | 612         | 7.9               | -7 %                  |
|                           |                | Unfunded | Green                | 155           | 5.7 %  | 85         | 226        | 335        | 406        | 485        | 1537        | 9.9               | 17 %                  |
|                           |                |          | Only Green           | 95            | 3.5 %  | 52         | 148        | 206        | 246        | 302        | 954         | 10.0              | 18 %                  |
|                           |                |          | Paywalled            | 654           | 23.9 % | 247        | 965        | 1394       | 1393       | 1550       | 5549        | 8.5               |                       |
|                           |                |          | Gold                 | 110           | 4.0 %  | 18         | 104        | 182        | 204        | 252        | 760         | 6.9               | 3 %                   |
|                           |                |          | Hybrid Gold          | 133           | 4.9 %  | 46         | 217        | 317        | 387        | 472        | 1439        | 10.8              | 61 %                  |
|                           |                |          | Bronze               | 224           | 8.2 %  | 56         | 193        | 274        | 275        | 362        | 1160        | 5.2               | -30 %                 |
|                           |                |          | Green                | 210           | 7.7 %  | 79         | 331        | 482        | 561        | 672        | 2125        | 10.1              | 50 %                  |
| Gender Studies            | 3185           | Funded   | Only Green           | 87            | 3.2 %  | 31         | 137        | 193        | 226        | 251        | 838         | 9.6               | 43 %                  |
|                           |                |          | Paywalled            | 1092          | 39.9 % | 345        | 1234       | 1751       | 1897       | 2121       | 7348        | 6.7               |                       |
|                           |                |          | Gold                 | 20            | 0.6 %  | 8          | 39         | 51         | 56         | 78         | 232         | 11.6              | 22 %                  |
|                           |                |          | Hybrid Gold          | 5             | 0.2 %  | 6          | 7          | 24         | 27         | 33         | 97          | 19.4              | 105 %                 |
|                           |                |          | Bronze               | 9             | 0.3 %  | 3          | 17         | 20         | 45         | 57         | 142         | 15.8              | 67 %                  |
|                           |                |          | Green                | 105           | 3.3 %  | 60         | 178        | 273        | 337        | 408        | 1256        | 12.0              | 26 %                  |
|                           |                |          | Only Green           | 74            | 2.3 %  | 45         | 116        | 182        | 214        | 256        | 813         | 11.0              | 16 %                  |
|                           |                | Unfunded | Paywalled            | 124           | 3.9 %  | 60         | 169        | 230        | 309        | 407        | 1175        | 9.5               |                       |
|                           |                |          | Gold                 | 309           | 9.7 %  | 40         | 158        | 235        | 296        | 338        | 1067        | 3.5               | -71 %                 |
|                           |                |          | Hybrid Gold          | 32            | 1.0 %  | 6          | 20         | 38         | 47         | 59         | 170         | 5.3               | -11 %                 |
|                           |                |          | Bronze               | 75            | 2.4 %  | 34         | 113        | 179        | 244        | 282        | 852         | 11.4              | 92 %                  |
|                           |                |          | Green                | 652           | 20.5 % | 213        | 713        | 1077       | 1297       | 1707       | 5007        | 7.7               | 30 %                  |
|                           |                |          | Only Green           | 378           | 11.9 % | 161        | 502        | 745        | 859        | 1189       | 3456        | 9.1               | 55 %                  |
|                           |                |          | Paywalled            | 2159          | 67.8 % | 597        | 1685       | 2839       | 3357       | 4289       | 12,767      | 5.9               |                       |
| General Arts & Humanities | 3605           | Funded   | Gold                 | 85            | 2.4 %  | 26         | 52         | 94         | 126        | 137        | 435         | 5.1               | 19 %                  |
|                           |                |          | Hybrid Gold          | 8             | 0.2 %  | 8          | 26         | 31         | 25         | 21         | 111         | 13.9              | 221 %                 |
|                           |                |          | Bronze               | 8             | 0.2 %  | 6          | 16         | 18         | 17         | 26         | 83          | 10.4              | 140 %                 |
|                           |                |          | Green                | 74            | 2.1 %  | 35         | 97         | 134        | 146        | 177        | 589         | 8.0               | 84 %                  |
|                           |                |          | Only Green           | 17            | 0.5 %  | 10         | 32         | 36         | 44         | 62         | 184         | 10.8              | 151 %                 |
|                           |                | Unfunded | Paywalled            | 66            | 1.8 %  | 18         | 49         | 74         | 70         | 74         | 285         | 4.3               |                       |
|                           |                |          | Gold                 | 1036          | 28.7 % | 66         | 273        | 645        | 762        | 1070       | 2816        | 2.7               | 189 %                 |
|                           |                |          | Hybrid Gold          | 61            | 1.7 %  | 11         | 25         | 30         | 30         | 27         | 123         | 2.0               | 114 %                 |
|                           |                |          | Bronze               | 107           | 3.0 %  | 10         | 40         | 51         | 45         | 50         | 196         | 1.8               | 95 %                  |
|                           |                |          | Green                |               |        |            |            |            |            |            |             |                   |                       |

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Table A1 (continued)

| Subject Category    | Total Articles | Funding                       | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|---------------------|----------------|-------------------------------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
| Geometry & Topology | 4551           | Funded                        | Green                | 599           | 16.6 % | 56         | 175        | 290        | 307        | 443        | 1271        | 2.1               | 125 %                 |
|                     |                |                               | Only Green           | 116           | 3.2 %  | 23         | 49         | 72         | 75         | 70         | 289         | 2.5               | 165 %                 |
|                     |                |                               | Paywalled            | 2101          | 58.3 % | 131        | 310        | 509        | 542        | 485        | 1977        | 0.9               |                       |
|                     |                |                               | Gold                 | 185           | 4.1 %  | 32         | 166        | 240        | 216        | 219        | 873         | 4.7               | -36 %                 |
|                     |                |                               | Hybrid Gold          | 27            | 0.6 %  | 12         | 36         | 36         | 42         | 43         | 169         | 6.3               | -3 %                  |
|                     |                |                               | Bronze               | 697           | 15.3 % | 162        | 569        | 735        | 778        | 828        | 3072        | 4.4               | -46 %                 |
|                     |                |                               | Green                | 964           | 21.2 % | 304        | 929        | 1198       | 1293       | 1314       | 5038        | 5.2               | -23 %                 |
|                     |                | Only Green                    | 387                  | 8.5 %         | 159    | 421        | 520        | 604        | 574        | 2278       | 5.9         | -9 %              |                       |
|                     |                | Paywalled                     | 241                  | 5.3 %         | 114    | 266        | 393        | 422        | 354        | 1549       | 6.4         |                   |                       |
|                     |                | Unfunded                      | Gold                 | 416           | 9.1 %  | 110        | 294        | 433        | 438        | 456        | 1731        | 4.2               | -37 %                 |
|                     |                | Hybrid Gold                   | 43                   | 0.9 %         | 14     | 54         | 61         | 81         | 90         | 300        | 7.0         | 22 %              |                       |
|                     |                | Bronze                        | 760                  | 16.7 %        | 182    | 450        | 557        | 664        | 694        | 2547       | 3.4         | -70 %             |                       |
|                     |                | Green                         | 1445                 | 31.8 %        | 456    | 1136       | 1453       | 1513       | 1590       | 6148       | 4.3         | -34 %             |                       |
|                     |                | Only Green                    | 712                  | 15.6 %        | 271    | 593        | 745        | 776        | 809        | 3194       | 4.5         | -27 %             |                       |
| Gerontology         | 2060           | Funded                        | Paywalled            | 1083          | 23.8 % | 351        | 971        | 1510       | 1746       | 1591       | 6169        | 5.7               |                       |
|                     |                |                               | Gold                 | 22            | 1.1 %  | 2          | 16         | 27         | 33         | 36         | 114         | 5.2               | -103 %                |
|                     |                |                               | Hybrid Gold          | 17            | 0.8 %  | 16         | 56         | 80         | 84         | 109        | 345         | 20.3              | 93 %                  |
|                     |                |                               | Bronze               | 41            | 2.0 %  | 63         | 97         | 167        | 160        | 176        | 663         | 16.2              | 54 %                  |
|                     |                |                               | Green                | 227           | 11.0 % | 200        | 423        | 648        | 720        | 880        | 2871        | 12.6              | 20 %                  |
|                     |                |                               | Only Green           | 149           | 7.2 %  | 124        | 260        | 384        | 453        | 574        | 1795        | 12.0              | 14 %                  |
|                     |                |                               | Paywalled            | 223           | 10.8 % | 171        | 407        | 531        | 580        | 659        | 2348        | 10.5              |                       |
|                     |                | Unfunded                      | Gold                 | 97            | 4.7 %  | 17         | 69         | 130        | 176        | 198        | 590         | 6.1               | 4 %                   |
|                     |                | Hybrid Gold                   | 30                   | 1.5 %         | 32     | 64         | 104        | 118        | 134        | 452        | 15.1        | 157 %             |                       |
|                     |                | Bronze                        | 87                   | 4.2 %         | 83     | 158        | 214        | 276        | 369        | 1100       | 12.6        | 115 %             |                       |
|                     |                | Green                         | 301                  | 14.6 %        | 184    | 426        | 624        | 725        | 899        | 2858       | 9.5         | 62 %              |                       |
|                     |                | Only Green                    | 141                  | 6.8 %         | 92     | 216        | 302        | 319        | 410        | 1339       | 9.5         | 62 %              |                       |
|                     |                | Paywalled                     | 1253                 | 60.8 %        | 483    | 1169       | 1615       | 1840       | 2246       | 7353       | 5.9         |                   |                       |
|                     |                | Health Information Management | 1594                 | Funded        | Gold   | 29         | 1.8 %      | 18         | 47         | 65         | 102         | 106               | 338                   |
| Hybrid Gold         | 21             |                               |                      |               | 1.3 %  | 29         | 52         | 93         | 137        | 177        | 488         | 23.2              | 67 %                  |
| Bronze              | 36             |                               |                      |               | 2.3 %  | 28         | 140        | 198        | 223        | 185        | 774         | 21.5              | 54 %                  |
| Green               | 172            |                               |                      |               | 10.8 % | 195        | 359        | 550        | 655        | 702        | 2461        | 14.3              | 3 %                   |
| Only Green          | 101            |                               |                      |               | 6.3 %  | 135        | 197        | 278        | 287        | 325        | 1222        | 12.1              | -15 %                 |
| Paywalled           | 129            |                               |                      | 8.1 %         | 158    | 287        | 394        | 482        | 477        | 1798       | 13.9        |                   |                       |
| Unfunded            | Gold           |                               |                      | 90            | 5.6 %  | 34         | 115        | 159        | 178        | 204        | 690         | 7.7               | -33 %                 |
| Hybrid Gold         | 30             |                               |                      | 1.9 %         | 22     | 69         | 103        | 123        | 163        | 480        | 16.0        | 57 %              |                       |
| Bronze              | 274            |                               |                      | 17.2 %        | 1850   | 3912       | 4491       | 3678       | 3125       | 17,056     | 62.2        | 509 %             |                       |
| Green               | 365            |                               |                      | 22.9 %        | 771    | 1822       | 2202       | 1932       | 1723       | 8450       | 23.2        | 126 %             |                       |

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Table A1 (continued)

| Subject Category                | Total Articles | Funding                   | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |        |       |
|---------------------------------|----------------|---------------------------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|--------|-------|
| Hepatology                      | 5149           | Funded                    | Only Green           | 134           | 8.4 %  | 231        | 524        | 761        | 692        | 630        | 2838        | 21.2              | 107 %                 |        |       |
|                                 |                |                           | Paywalled            | 750           | 47.1 % | 591        | 1254       | 1727       | 2022       | 2073       | 7667        | 10.2              |                       |        |       |
|                                 |                |                           | Gold                 | 87            | 1.7 %  | 97         | 296        | 366        | 345        | 347        | 1451        | 16.7              | -47 %                 |        |       |
|                                 |                |                           | Hybrid Gold          | 122           | 2.4 %  | 460        | 1218       | 1456       | 1429       | 1488       | 6051        | 49.6              | 103 %                 |        |       |
|                                 |                |                           | Bronze               | 455           | 8.8 %  | 1350       | 3637       | 4190       | 3945       | 4223       | 17,345      | 38.1              | 56 %                  |        |       |
|                                 |                |                           | Green                | 883           | 17.1 % | 2138       | 5761       | 6839       | 6497       | 7001       | 28,236      | 32.0              | 31 %                  |        |       |
|                                 |                |                           | Only Green           | 412           | 8.0 %  | 895        | 2558       | 2884       | 2759       | 3046       | 12,142      | 29.5              | 21 %                  |        |       |
|                                 |                | Unfunded                  | Paywalled            | 594           | 11.5 % | 1058       | 3014       | 3613       | 3417       | 3420       | 14,522      | 24.4              |                       |        |       |
|                                 |                |                           | Gold                 | 559           | 10.9 % | 263        | 965        | 1191       | 1173       | 1202       | 4794        | 8.6               | -52 %                 |        |       |
|                                 |                |                           | Hybrid Gold          | 150           | 2.9 %  | 339        | 870        | 883        | 701        | 548        | 3341        | 22.3              | 71 %                  |        |       |
|                                 |                |                           | Bronze               | 578           | 11.2 % | 990        | 2724       | 3460       | 3642       | 413        | 11,229      | 19.4              | 49 %                  |        |       |
|                                 |                |                           | Green                | 1133          | 22.0 % | 934        | 3293       | 3957       | 3834       | 4141       | 16,159      | 14.3              | 9 %                   |        |       |
|                                 |                |                           | Only Green           | 345           | 6.7 %  | 254        | 1076       | 1314       | 1285       | 1437       | 5366        | 15.6              | 19 %                  |        |       |
|                                 |                |                           | Paywalled            | 1847          | 35.9 % | 1688       | 4999       | 5920       | 5618       | 5872       | 24,097      | 13.0              |                       |        |       |
| History & Philosophy of Science | 3653           | Funded                    | Gold                 | 14            | 0.4 %  | 4          | 3          | 7          | 14         | 8          | 36          | 2.6               | -280 %                |        |       |
|                                 |                |                           | Hybrid Gold          | 100           | 2.7 %  | 71         | 268        | 397        | 473        | 559        | 1768        | 17.7              | 81 %                  |        |       |
|                                 |                |                           | Bronze               | 42            | 1.1 %  | 26         | 91         | 139        | 139        | 200        | 595         | 14.2              | 45 %                  |        |       |
|                                 |                |                           | Green                | 418           | 11.4 % | 298        | 924        | 1440       | 1595       | 1933       | 6190        | 14.8              | 51 %                  |        |       |
|                                 |                |                           | Only Green           | 302           | 8.3 %  | 234        | 642        | 1040       | 1098       | 1343       | 4357        | 14.4              | 47 %                  |        |       |
|                                 |                |                           | Paywalled            | 328           | 9.0 %  | 151        | 469        | 718        | 892        | 979        | 3209        | 9.8               |                       |        |       |
|                                 |                |                           | Unfunded             | Gold          | 196    | 5.4 %      | 9          | 49         | 72         | 84         | 83          | 297               | 1.5                   | -217 % |       |
|                                 |                | Hybrid Gold               |                      | 71            | 1.9 %  | 24         | 115        | 137        | 141        | 160        | 577         | 8.1               | 69 %                  |        |       |
|                                 |                | Bronze                    |                      | 85            | 2.3 %  | 23         | 79         | 83         | 102        | 113        | 400         | 4.7               | -2 %                  |        |       |
|                                 |                | Green                     |                      | 572           | 15.7 % | 191        | 623        | 874        | 993        | 1154       | 3835        | 6.7               | 40 %                  |        |       |
|                                 |                | Only Green                |                      | 399           | 10.9 % | 159        | 490        | 709        | 840        | 965        | 3163        | 7.9               | 65 %                  |        |       |
|                                 |                | Paywalled                 |                      | 2116          | 57.9 % | 674        | 1749       | 2272       | 2618       | 2840       | 10,153      | 4.8               |                       |        |       |
|                                 |                | Immunology & Microbiology |                      | 1171          | Funded | Gold       | 199        | 17.0 %     | 84         | 402        | 515         | 538               | 547                   | 2086   | 10.5  |
|                                 |                |                           | Hybrid Gold          |               |        | 1          | 0.1 %      | 0          | 5          | 1          | 2           | 1                 | 9                     | 9.0    | 170 % |
| Bronze                          | 92             |                           | 7.9 %                |               |        | 24         | 122        | 180        | 167        | 217        | 710         | 7.7               | 132 %                 |        |       |
| Green                           | 289            |                           | 24.7 %               |               |        | 106        | 530        | 695        | 708        | 765        | 2804        | 9.7               | 191 %                 |        |       |
| Only Green                      | 1              |                           | 0.1 %                |               |        | 0          | 1          | 1          | 1          | 1          | 4           | 4.0               | 20 %                  |        |       |
| Unfunded                        | Paywalled      |                           | 3                    |               | 0.3 %  | 3          | 1          | 1          | 1          | 4          | 10          | 3.3               |                       |        |       |
|                                 | Gold           |                           | 440                  |               | 37.6 % | 94         | 593        | 757        | 779        | 867        | 3090        | 7.0               | 921 %                 |        |       |
|                                 | Hybrid Gold    |                           | 2                    |               | 0.2 %  | 0          | 2          | 2          | 1          | 2          | 7           | 3.5               | 409 %                 |        |       |
|                                 | Bronze         |                           | 417                  |               | 35.6 % | 100        | 620        | 764        | 789        | 769        | 3042        | 7.3               | 961 %                 |        |       |
|                                 | Green          |                           | 854                  |               | 72.9 % | 193        | 1212       | 1521       | 1566       | 1630       | 6122        | 7.2               | 943 %                 |        |       |
| Only Green                      | 0              | 0.0 %                     |                      |               |        |            |            |            |            |            |             |                   |                       |        |       |

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Table A1 (continued)

| Subject Category                 | Total Articles | Funding    | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|----------------------------------|----------------|------------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
| Information Systems & Management | 4533           | Funded     | Paywalled            | 16            | 1.4 %  | 0          | 3          | 5          | 2          | 1          | 11          | 0.7               |                       |
|                                  |                |            | Gold                 | 45            | 1.0 %  | 15         | 96         | 187        | 272        | 316        | 886         | 19.7              | -36 %                 |
|                                  |                |            | Hybrid Gold          | 49            | 1.1 %  | 57         | 175        | 275        | 379        | 390        | 1276        | 26.0              | -2 %                  |
|                                  |                |            | Bronze               | 61            | 1.3 %  | 79         | 234        | 459        | 452        | 473        | 1697        | 27.8              | 4 %                   |
|                                  |                |            | Green                | 322           | 7.1 %  | 414        | 1243       | 1892       | 2088       | 2214       | 7851        | 24.4              | -9 %                  |
|                                  |                | Only Green | 242                  | 5.3 %         | 323    | 969        | 1383       | 1478       | 1531       | 5684       | 23.5        | -14 %             |                       |
|                                  |                | Unfunded   | Paywalled            | 1265          | 27.9 % | 1625       | 5384       | 8126       | 9343       | 9281       | 33,759      | 26.7              |                       |
|                                  |                |            | Gold                 | 269           | 5.9 %  | 77         | 334        | 558        | 805        | 991        | 2765        | 10.3              | -27 %                 |
|                                  |                |            | Hybrid Gold          | 33            | 0.7 %  | 25         | 80         | 119        | 182        | 170        | 576         | 17.5              | 34 %                  |
|                                  |                |            | Bronze               | 46            | 1.0 %  | 8          | 43         | 85         | 97         | 101        | 334         | 7.3               | -79 %                 |
| Green                            | 658            |            | 14.5 %               | 606           | 1621   | 2523       | 2827       | 3158       | 10,735     | 16.3       | 25 %        |                   |                       |
| Mathematical Physics             | 5019           | Funded     | Only Green           | 471           | 10.4 % | 544        | 1412       | 2214       | 2430       | 2742       | 9342        | 19.8              | 52 %                  |
|                                  |                |            | Paywalled            | 2052          | 45.3 % | 1260       | 3866       | 6149       | 7279       | 8174       | 26,728      | 13.0              |                       |
|                                  |                |            | Gold                 | 64            | 1.3 %  | 14         | 83         | 119        | 92         | 104        | 412         | 6.4               | -8 %                  |
|                                  |                |            | Hybrid Gold          | 116           | 2.3 %  | 92         | 241        | 352        | 326        | 262        | 1273        | 11.0              | 59 %                  |
|                                  |                |            | Bronze               | 204           | 4.1 %  | 169        | 312        | 376        | 417        | 442        | 1716        | 8.4               | 22 %                  |
|                                  |                | Unfunded   | Green                | 1313          | 26.2 % | 922        | 2473       | 2926       | 2879       | 2751       | 11,951      | 9.1               | 31 %                  |
|                                  |                |            | Only Green           | 988           | 19.7 % | 669        | 1900       | 2174       | 2131       | 2046       | 8920        | 9.0               | 30 %                  |
|                                  |                |            | Paywalled            | 487           | 9.7 %  | 242        | 718        | 815        | 806        | 790        | 3371        | 6.9               |                       |
|                                  |                |            | Gold                 | 131           | 2.6 %  | 31         | 108        | 177        | 180        | 149        | 645         | 4.9               | -2 %                  |
|                                  |                |            | Hybrid Gold          | 67            | 1.3 %  | 30         | 90         | 118        | 115        | 118        | 471         | 7.0               | 39 %                  |
| Medical Laboratory Technology    | 2050           | Funded     | Bronze               | 147           | 2.9 %  | 84         | 136        | 167        | 184        | 166        | 737         | 5.0               | -1 %                  |
|                                  |                |            | Green                | 1725          | 34.4 % | 895        | 2298       | 2753       | 2625       | 2538       | 11,109      | 6.4               | 28 %                  |
|                                  |                |            | Only Green           | 1457          | 29.0 % | 776        | 2020       | 2354       | 2238       | 2181       | 9569        | 6.6               | 30 %                  |
|                                  |                |            | Paywalled            | 1358          | 27.1 % | 398        | 1440       | 1723       | 1653       | 1630       | 6844        | 5.0               |                       |
|                                  |                |            | Gold                 | 57            | 2.8 %  | 62         | 143        | 186        | 220        | 181        | 792         | 13.9              | 87 %                  |
|                                  |                | Unfunded   | Hybrid Gold          | 23            | 1.1 %  | 13         | 52         | 75         | 78         | 78         | 296         | 12.9              | 74 %                  |
|                                  |                |            | Bronze               | 34            | 1.7 %  | 33         | 102        | 83         | 86         | 94         | 398         | 11.7              | 58 %                  |
|                                  |                |            | Green                | 150           | 7.3 %  | 126        | 351        | 423        | 444        | 439        | 1783        | 11.9              | 60 %                  |
|                                  |                |            | Only Green           | 57            | 2.8 %  | 29         | 100        | 125        | 103        | 138        | 495         | 8.7               | 17 %                  |
|                                  |                |            | Paywalled            | 80            | 3.9 %  | 41         | 133        | 141        | 147        | 131        | 593         | 7.4               |                       |
| Unfunded                         | Gold           | 152        | 7.4 %                | 33            | 119    | 182        | 198        | 184        | 716        | 4.7        | 19 %        |                   |                       |
|                                  | Hybrid Gold    | 47         | 2.3 %                | 38            | 157    | 178        | 192        | 166        | 731        | 15.6       | 292 %       |                   |                       |
|                                  | Bronze         | 237        | 11.6 %               | 198           | 536    | 664        | 598        | 599        | 2595       | 10.9       | 176 %       |                   |                       |
|                                  | Green          | 380        | 18.5 %               | 201           | 605    | 793        | 817        | 808        | 3224       | 8.5        | 114 %       |                   |                       |
|                                  | Only Green     | 119        | 5.8 %                | 85            | 165    | 230        | 254        | 267        | 1001       | 8.4        | 112 %       |                   |                       |
| Paywalled                        | 1244           | 60.7 %     | 354                  | 1010          | 1202   | 1173       | 1193       | 4932       | 4.0        |            |             |                   |                       |

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Table A1 (continued)

| Subject Category   | Total Articles | Funding  | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|--------------------|----------------|----------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
| Music              | 1853           | Funded   | Gold                 | 3             | 0.2 %  | 0          | 0          | 0          | 1          | 3          | 4           | 1.3               | -211 %                |
|                    |                |          | Hybrid Gold          | 8             | 0.4 %  | 7          | 24         | 28         | 23         | 21         | 103         | 12.9              | 210 %                 |
|                    |                |          | Bronze               | 4             | 0.2 %  | 1          | 3          | 3          | 7          | 2          | 16          | 4.0               | -4 %                  |
|                    |                |          | Green                | 52            | 2.8 %  | 32         | 79         | 85         | 100        | 90         | 386         | 7.4               | 79 %                  |
|                    |                |          | Only Green           | 39            | 2.1 %  | 25         | 58         | 58         | 74         | 68         | 283         | 7.3               | 75 %                  |
|                    |                |          | Paywalled            | 75            | 4.0 %  | 22         | 48         | 91         | 77         | 73         | 311         | 4.1               |                       |
|                    |                | Unfunded | Gold                 | 139           | 7.5 %  | 5          | 9          | 23         | 29         | 21         | 87          | 0.6               | -251 %                |
|                    |                |          | Hybrid Gold          | 12            | 0.6 %  | 6          | 7          | 8          | 5          | 3          | 29          | 2.4               | 10 %                  |
|                    |                |          | Bronze               | 66            | 3.6 %  | 15         | 45         | 49         | 41         | 47         | 197         | 3.0               | 36 %                  |
|                    |                |          | Green                | 289           | 15.6 % | 71         | 200        | 236        | 231        | 270        | 1008        | 3.5               | 59 %                  |
|                    |                |          | Only Green           | 193           | 10.4 % | 57         | 162        | 189        | 185        | 224        | 817         | 4.2               | 93 %                  |
|                    |                |          | Paywalled            | 1314          | 70.9 % | 247        | 506        | 623        | 767        | 742        | 2885        | 2.2               |                       |
| Nephrology         | 4527           | Funded   | Gold                 | 160           | 3.5 %  | 43         | 281        | 385        | 427        | 451        | 1587        | 9.9               | -14 %                 |
|                    |                |          | Hybrid Gold          | 65            | 1.4 %  | 87         | 319        | 431        | 405        | 383        | 1625        | 25.0              | 120 %                 |
|                    |                |          | Bronze               | 560           | 12.4 % | 1288       | 3539       | 3958       | 4145       | 4204       | 17,134      | 30.6              | 170 %                 |
|                    |                |          | Green                | 796           | 17.6 % | 1481       | 4225       | 4730       | 5003       | 5039       | 20,478      | 25.7              | 127 %                 |
|                    |                |          | Only Green           | 143           | 3.2 %  | 232        | 651        | 689        | 709        | 757        | 3038        | 21.2              | 87 %                  |
|                    |                |          | Paywalled            | 199           | 4.4 %  | 147        | 496        | 533        | 513        | 568        | 2257        | 11.3              |                       |
|                    |                | Unfunded | Gold                 | 897           | 19.8 % | 179        | 1042       | 1388       | 1308       | 1471       | 5388        | 6.0               | -4 %                  |
|                    |                |          | Hybrid Gold          | 146           | 3.2 %  | 93         | 343        | 404        | 400        | 446        | 1686        | 11.5              | 84 %                  |
|                    |                |          | Bronze               | 453           | 10.0 % | 779        | 1869       | 2111       | 2148       | 2199       | 9106        | 20.1              | 221 %                 |
|                    |                |          | Green                | 967           | 21.4 % | 786        | 2383       | 2745       | 2849       | 2958       | 11,721      | 12.1              | 93 %                  |
|                    |                |          | Only Green           | 187           | 4.1 %  | 101        | 346        | 318        | 420        | 390        | 1575        | 8.4               | 34 %                  |
|                    |                |          | Paywalled            | 1717          | 37.9 % | 681        | 2192       | 2586       | 2618       | 2686       | 10,763      | 6.3               |                       |
| Numerical Analysis | 4356           | Funded   | Gold                 | 52            | 1.2 %  | 5          | 39         | 59         | 74         | 84         | 261         | 5.0               | -143 %                |
|                    |                |          | Hybrid Gold          | 67            | 1.5 %  | 39         | 176        | 271        | 410        | 467        | 1363        | 20.3              | 67 %                  |
|                    |                |          | Bronze               | 631           | 14.5 % | 364        | 1027       | 1347       | 1563       | 1628       | 5929        | 9.4               | -30 %                 |
|                    |                |          | Green                | 832           | 19.1 % | 512        | 1689       | 2343       | 2826       | 2824       | 10,194      | 12.3              | 0 %                   |
|                    |                |          | Only Green           | 433           | 9.9 %  | 254        | 918        | 1326       | 1547       | 1454       | 5499        | 12.7              | 4 %                   |
|                    |                |          | Paywalled            | 799           | 18.3 % | 622        | 1855       | 2344       | 2493       | 2430       | 9744        | 12.2              |                       |
|                    |                | Unfunded | Gold                 | 83            | 1.9 %  | 18         | 68         | 96         | 144        | 133        | 459         | 5.5               | -28 %                 |
|                    |                |          | Hybrid Gold          | 79            | 1.8 %  | 31         | 127        | 271        | 415        | 557        | 1401        | 17.7              | 151 %                 |
|                    |                |          | Bronze               | 366           | 8.4 %  | 134        | 276        | 338        | 407        | 427        | 1582        | 4.3               | -64 %                 |
|                    |                |          | Green                | 723           | 16.6 % | 355        | 1032       | 1448       | 1664       | 1886       | 6385        | 8.8               | 25 %                  |
|                    |                |          | Only Green           | 421           | 9.7 %  | 236        | 723        | 990        | 1023       | 1060       | 4032        | 9.6               | 35 %                  |
|                    |                |          | Paywalled            | 1425          | 32.7 % | 547        | 1858       | 2406       | 2612       | 2658       | 10,081      | 7.1               |                       |
| Orthodontics       | 1018           | Funded   | Gold                 | 7             | 0.7 %  | 0          | 2          | 9          | 11         | 9          | 31          | 4.4               | -47 %                 |

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Table A1 (continued)

| Subject Category | Total Articles | Funding     | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|------------------|----------------|-------------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
| Palaeontology    | 4846           | Unfunded    | Hybrid Gold          | 1             | 0.1 %  | 0          | 1          | 2          | 3          | 5          | 11          | 11.0              | 69 %                  |
|                  |                |             | Bronze               | 14            | 1.4 %  | 1          | 23         | 37         | 33         | 52         | 146         | 10.4              | 60 %                  |
|                  |                |             | Green                | 35            | 3.4 %  | 10         | 54         | 71         | 87         | 95         | 317         | 9.1               | 39 %                  |
|                  |                |             | Only Green           | 23            | 2.3 %  | 10         | 44         | 50         | 59         | 61         | 224         | 9.7               | 50 %                  |
|                  |                |             | Paywalled            | 46            | 4.5 %  | 12         | 43         | 86         | 81         | 77         | 299         | 6.5               |                       |
|                  |                |             | Gold                 | 231           | 22.7 % | 22         | 121        | 229        | 309        | 362        | 1043        | 4.5               | -14 %                 |
|                  |                |             | Hybrid Gold          | 7             | 0.7 %  | 5          | 14         | 23         | 26         | 35         | 103         | 14.7              | 185 %                 |
|                  |                |             | Bronze               | 178           | 17.5 % | 76         | 222        | 354        | 421        | 451        | 1524        | 8.6               | 66 %                  |
|                  |                |             | Green                | 326           | 32.0 % | 67         | 251        | 430        | 518        | 648        | 1914        | 5.9               | 14 %                  |
|                  |                |             | Only Green           | 60            | 5.9 %  | 15         | 63         | 95         | 86         | 129        | 388         | 6.5               | 25 %                  |
|                  |                | Paywalled   | 451                  | 44.3 %        | 80     | 334        | 546        | 672        | 698        | 2330       | 5.2         |                   |                       |
|                  |                | Funded      | Gold                 | 168           | 3.5 %  | 141        | 365        | 480        | 554        | 582        | 2122        | 12.6              | 16 %                  |
|                  |                | Hybrid Gold | 163                  | 3.4 %         | 141    | 456        | 753        | 796        | 727        | 2873       | 17.6        | 62 %              |                       |
|                  |                | Bronze      | 666                  | 13.7 %        | 687    | 1927       | 2635       | 2821       | 2950       | 11,020     | 16.5        | 52 %              |                       |
|                  |                | Green       | 745                  | 15.4 %        | 700    | 2022       | 2844       | 2949       | 2882       | 11,397     | 15.3        | 41 %              |                       |
|                  |                | Only Green  | 243                  | 5.0 %         | 176    | 593        | 816        | 843        | 838        | 3266       | 13.4        | 24 %              |                       |
|                  |                | Paywalled   | 1119                 | 23.1 %        | 818    | 2136       | 2794       | 3167       | 3252       | 12,167     | 10.9        |                   |                       |
|                  |                | Unfunded    | Gold                 | 362           | 7.5 %  | 230        | 753        | 956        | 1087       | 1066       | 4092        | 11.3              | 106 %                 |
|                  |                | Hybrid Gold | 78                   | 1.6 %         | 112    | 122        | 213        | 172        | 188        | 807        | 10.3        | 88 %              |                       |
|                  |                | Bronze      | 189                  | 3.9 %         | 102    | 268        | 378        | 415        | 442        | 1605       | 8.5         | 55 %              |                       |
| Green            | 562            | 11.6 %      | 327                  | 1122          | 1490   | 1621       | 1591       | 6151       | 10.9       | 99 %       |             |                   |                       |
| Only Green       | 163            | 3.4 %       | 97                   | 290           | 391    | 441        | 418        | 1637       | 10.0       | 83 %       |             |                   |                       |
| Paywalled        | 1695           | 35.0 %      | 676                  | 1712          | 2203   | 2352       | 2366       | 9309       | 5.5        |            |             |                   |                       |
| Paediatrics      | 1118           | Funded      | Gold                 | 18            | 1.6 %  | 1          | 11         | 21         | 14         | 31         | 78          | 4.3               | -87 %                 |
|                  |                |             | Hybrid Gold          | 2             | 0.2 %  | 0          | 1          | 8          | 7          | 7          | 23          | 11.5              | 42 %                  |
|                  |                |             | Bronze               | 13            | 1.2 %  | 3          | 23         | 34         | 35         | 46         | 141         | 10.8              | 34 %                  |
|                  |                |             | Green                | 82            | 7.3 %  | 38         | 133        | 204        | 202        | 223        | 800         | 9.8               | 20 %                  |
|                  |                |             | Only Green           | 57            | 5.1 %  | 34         | 110        | 156        | 161        | 169        | 630         | 11.1              | 36 %                  |
|                  |                | Paywalled   | 74                   | 6.6 %         | 38     | 83         | 129        | 173        | 177        | 600        | 8.1         |                   |                       |
|                  |                | Unfunded    | Gold                 | 108           | 9.7 %  | 10         | 69         | 99         | 114        | 148        | 440         | 4.1               | -5 %                  |
|                  |                | Hybrid Gold | 5                    | 0.4 %         | 5      | 15         | 32         | 54         | 52         | 158        | 31.6        | 636 %             |                       |
|                  |                | Bronze      | 92                   | 8.2 %         | 5      | 69         | 75         | 94         | 119        | 362        | 3.9         | -9 %              |                       |
|                  |                | Green       | 184                  | 16.5 %        | 48     | 146        | 208        | 295        | 327        | 1024       | 5.6         | 30 %              |                       |
| Only Green       | 67             | 6.0 %       | 33                   | 60            | 87     | 141        | 149        | 470        | 7.0        | 63 %       |             |                   |                       |
| Paywalled        | 682            | 61.0 %      | 183                  | 415           | 656    | 779        | 897        | 2930       | 4.3        |            |             |                   |                       |
| Sensory Systems  | 4708           | Funded      | Gold                 | 724           | 15.4 % | 329        | 1841       | 2428       | 2566       | 2604       | 9768        | 13.5              | 21 %                  |
|                  |                |             | Hybrid Gold          | 100           | 2.1 %  | 106        | 245        | 366        | 349        | 366        | 1432        | 14.3              | 28 %                  |

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Table A1 (continued)

| Subject Category                          | Total Articles | Funding    | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |        |
|---|----------------|------------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|--------|
| Structural Biology                        | 5557           | Unfunded   | Bronze               | 246           | 5.2 %  | 212        | 456        | 535        | 618        | 583        | 2404        | 9.8               | -14 %                 |        |
|   |                |            | Green                | 1190          | 25.3 % | 842        | 3088       | 3899       | 4050       | 4233       | 16,112      | 13.5              | 21 %                  |        |
|   |                |            | Only Green           | 350           | 7.4 %  | 340        | 959        | 1113       | 1131       | 1251       | 4794        | 13.7              | 23 %                  |        |
|   |                |            | Paywalled            | 522           | 11.1 % | 444        | 1162       | 1378       | 1400       | 1449       | 5833        | 11.2              |                       |        |
|   |                |            | Gold                 | 648           | 13.8 % | 255        | 1552       | 2144       | 2187       | 2418       | 8556        | 13.2              | 39 %                  |        |
|   |                |            | Hybrid Gold          | 88            | 1.9 %  | 76         | 256        | 321        | 329        | 378        | 1360        | 15.5              | 62 %                  |        |
|   |                |            | Bronze               | 348           | 7.4 %  | 183        | 556        | 761        | 812        | 938        | 3250        | 9.3               | -2 %                  |        |
|   |                |            | Green                | 861           | 18.3 % | 381        | 1747       | 2348       | 2475       | 2813       | 9764        | 11.3              | 19 %                  |        |
|   |                | Funded     | Only Green           | 178           | 3.8 %  | 79         | 291        | 357        | 348        | 380        | 1455        | 8.2               | -16 %                 |        |
|   |                |            | Paywalled            | 1504          | 31.9 % | 884        | 2753       | 3371       | 3621       | 3683       | 14,312      | 9.5               |                       |        |
|   |                |            | Gold                 | 406           | 7.3 %  | 220        | 1140       | 1474       | 1646       | 1698       | 6178        | 15.2              | -5 %                  |        |
|   |                |            | Hybrid Gold          | 202           | 3.6 %  | 268        | 861        | 1160       | 1387       | 1627       | 5303        | 26.3              | 64 %                  |        |
|   |                |            | Bronze               | 473           | 8.5 %  | 447        | 1484       | 1785       | 1770       | 1867       | 7353        | 15.5              | -3 %                  |        |
|   |                |            | Green                | 1377          | 24.8 % | 1599       | 5097       | 6248       | 6452       | 7009       | 26,405      | 19.2              | 20 %                  |        |
|   |                |            | Only Green           | 571           | 10.3 % | 885        | 2444       | 2878       | 2814       | 3026       | 12,047      | 21.1              | 32 %                  |        |
|   |                |            | Paywalled            | 1523          | 27.4 % | 1298       | 4439       | 5996       | 6111       | 6491       | 24,335      | 16.0              |                       |        |
| Tourism, Leisure & Hospitality Management | 3491           | Unfunded   | Gold                 | 464           | 8.3 %  | 257        | 949        | 1348       | 1460       | 1418       | 5432        | 11.7              | 23 %                  |        |
|   |                |            | Hybrid Gold          | 53            | 1.0 %  | 34         | 142        | 163        | 157        | 149        | 645         | 12.2              | 28 %                  |        |
|   |                |            | Bronze               | 154           | 2.8 %  | 105        | 326        | 371        | 387        | 410        | 1599        | 10.4              | 9 %                   |        |
|   |                |            | Green                | 694           | 12.5 % | 413        | 1414       | 1927       | 2016       | 1972       | 7742        | 11.2              | 17 %                  |        |
|   |                |            | Only Green           | 144           | 2.6 %  | 93         | 271        | 341        | 321        | 309        | 1335        | 9.3               | -3 %                  |        |
|   |                |            | Paywalled            | 1567          | 28.2 % | 857        | 2869       | 3562       | 3721       | 3905       | 14,914      | 9.5               |                       |        |
|   |                |            | Funded               | Gold          | 12     | 0.3 %      | 0          | 8          | 17         | 20         | 30          | 75                | 6.3                   | -198 % |
|   |                |            |                      | Hybrid Gold   | 22     | 0.6 %      | 17         | 74         | 129        | 137        | 173         | 530               | 24.1                  | 29 %   |
|   |                | Bronze     |                      | 19            | 0.5 %  | 15         | 63         | 98         | 120        | 128        | 424         | 22.3              | 20 %                  |        |
|   |                | Green      |                      | 114           | 3.3 %  | 72         | 266        | 443        | 613        | 719        | 2113        | 18.5              | -1 %                  |        |
|   |                | Only Green |                      | 85            | 2.4 %  | 52         | 192        | 298        | 461        | 549        | 1552        | 18.3              | -2 %                  |        |
|   |                | Paywalled  |                      | 389           | 11.1 % | 252        | 949        | 1523       | 2005       | 2525       | 7254        | 18.6              |                       |        |
|   |                | Unfunded   |                      | Gold          | 116    | 3.3 %      | 11         | 93         | 147        | 166        | 231         | 648               | 5.6                   | -160 % |
|   |                |            |                      | Hybrid Gold   | 33     | 0.9 %      | 32         | 97         | 162        | 261        | 303         | 855               | 25.9                  | 78 %   |
|   |                |            | Bronze               | 9             | 0.3 %  | 0          | 8          | 17         | 26         | 27         | 78          | 8.7               | -67 %                 |        |
|   |                |            | Green                | 476           | 13.6 % | 245        | 894        | 1531       | 2231       | 2700       | 7601        | 16.0              | 10 %                  |        |
| Only Green                                | 393            |            | 11.3 %               | 227           | 778    | 1335       | 1954       | 2371       | 6665       | 17.0       | 17 %        |                   |                       |        |
| Paywalled                                 | 2413           |            | 69.1 %               | 1241          | 4113   | 7207       | 9729       | 12,738     | 35,028     | 14.5       |             |                   |                       |        |
| Transplantation                           | 4076           |            | Funded               | Gold          | 26     | 0.6 %      | 7          | 26         | 53         | 60         | 50          | 196               | 7.5                   | -36 %  |
|   |                |            |                      | Hybrid Gold   | 217    | 5.3 %      | 285        | 893        | 989        | 1022       | 1128        | 4317              | 19.9                  | 95 %   |
|   |                | Bronze     |                      | 475           | 11.7 % | 737        | 2202       | 2471       | 2561       | 2479       | 10,450      | 22.0              | 115 %                 |        |

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Table A1 (continued)

| Subject Category         | Total Articles | Funding  | Publication Modality | Articles 2016 | %      | Cites 2016 | Cites 2017 | Cites 2018 | Cites 2019 | Cites 2020 | Total Cites | Cites per Article | OA Citation Advantage |
|--------------------------|----------------|----------|----------------------|---------------|--------|------------|------------|------------|------------|------------|-------------|-------------------|-----------------------|
|                          |                |          | Green                | 660           | 16.2 % | 978        | 2853       | 3310       | 3456       | 3384       | 13,981      | 21.2              | 107 %                 |
|                          |                |          | Only Green           | 183           | 4.5 %  | 217        | 582        | 770        | 769        | 663        | 3001        | 16.4              | 60 %                  |
|                          |                |          | Paywalled            | 412           | 10.1 % | 214        | 819        | 1079       | 1065       | 1037       | 4214        | 10.2              |                       |
|                          |                | Unfunded | Gold                 | 202           | 5.0 %  | 39         | 193        | 239        | 241        | 228        | 940         | 4.7               | -54 %                 |
|                          |                |          | Hybrid Gold          | 143           | 3.5 %  | 184        | 521        | 550        | 613        | 633        | 2501        | 17.5              | 145 %                 |
|                          |                |          | Bronze               | 602           | 14.8 % | 906        | 2533       | 3041       | 2772       | 2711       | 11,963      | 19.9              | 178 %                 |
|                          |                |          | Green                | 369           | 9.1 %  | 443        | 1314       | 1490       | 1535       | 1542       | 6324        | 17.1              | 140 %                 |
|                          |                |          | Only Green           | 94            | 2.3 %  | 82         | 254        | 301        | 281        | 285        | 1203        | 12.8              | 79 %                  |
|                          |                |          | Paywalled            | 1722          | 42.2 % | 636        | 2455       | 3324       | 3005       | 2888       | 12,308      | 7.1               |                       |
| Visual & Performing Arts | 6729           | Funded   | Gold                 | 18            | 0.3 %  | 1          | 20         | 23         | 24         | 28         | 96          | 5.3               | 51 %                  |
|                          |                |          | Hybrid Gold          | 17            | 0.3 %  | 4          | 15         | 18         | 26         | 21         | 84          | 4.9               | 40 %                  |
|                          |                |          | Bronze               | 11            | 0.2 %  | 5          | 9          | 16         | 24         | 24         | 78          | 7.1               | 101 %                 |
|                          |                |          | Green                | 101           | 1.5 %  | 40         | 79         | 111        | 144        | 159        | 533         | 5.3               | 49 %                  |
|                          |                |          | Only Green           | 68            | 1.0 %  | 33         | 51         | 63         | 86         | 97         | 330         | 4.9               | 37 %                  |
|                          |                |          | Paywalled            | 162           | 2.4 %  | 48         | 98         | 139        | 139        | 148        | 572         | 3.5               |                       |
|                          |                | Unfunded | Gold                 | 333           | 4.9 %  | 19         | 37         | 74         | 63         | 93         | 286         | 0.9               | 38 %                  |
|                          |                |          | Hybrid Gold          | 93            | 1.4 %  | 7          | 38         | 59         | 89         | 90         | 283         | 3.0               | 388 %                 |
|                          |                |          | Bronze               | 282           | 4.2 %  | 9          | 48         | 77         | 68         | 103        | 305         | 1.1               | 74 %                  |
|                          |                |          | Green                | 817           | 12.1 % | 97         | 302        | 423        | 475        | 540        | 1837        | 2.2               | 261 %                 |
|                          |                |          | Only Green           | 502           | 7.5 %  | 79         | 242        | 315        | 358        | 391        | 1385        | 2.8               | 343 %                 |
|                          |                |          | Paywalled            | 5243          | 77.9 % | 218        | 628        | 728        | 815        | 878        | 3267        | 0.6               |                       |

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