

# BROOKINGS

Report

## **Dismantling the ivory tower's knowledge boundaries**

### **A call for open access as the new normal in the social sciences post-COVID**

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#### **Editor's Note:**

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In response to the COVID-19 crisis, governments, policymakers, foundations, publishers, and researchers poured significant resources into scientific knowledge production on COVID-19 and its impacts while also expanding access to such research. The emphasis on the “open access” publishing model—a set of principles and practices through which research outputs are distributed online, free of cost and access barriers—was a boon to researchers studying the crisis and society in general, dismantling disciplinary and socio-economic boundaries within academia as well as boundaries between academia and the general public. By embracing the open access publishing model outside times of crisis, we could dismantle those boundaries permanently, leading to immeasurable benefits for society.

The major shift to open access during the pandemic began with the Free Read initiative, which launched the petition “Unlock Coronavirus Research” for scientists in early February of 2020 and to which highly reputable medical publishers quickly responded. Before the pandemic, up to 75 percent of scholarly publications were behind a paywall. By comparison, a preliminary study of over 5,600 articles on PubMed suggests that more than 95 percent of scholarly articles related to COVID-19 are now freely available. This increase in accessibility resulted from the rapid adaptation by biomedical journals and publishers, including *Elsevier*, *Springer Nature*, *Cell Press*, *New England Journal of Medicine*, and *The Lancet*. These journals and publishers granted open access to research on COVID-19

research, often making it immediately accessible on the platform PubMed Central and similar public repositories. Free and open access to COVID-19 research quickly became the new normal for biomedicine, with available findings directly impacting the development of treatment protocols and vaccines. Yet the pandemic became more than a health crisis. Understanding the social, psychological, and economic implications of the pandemic were imperative to its continued management.

Social science research, which delivers insights into human behaviors, relationships, and institutions, was instrumental to policymaking and healthcare solution development during the COVID-19 pandemic. The importance of social science research to pandemic management was demonstrated by the shift in the topic of COVID-19 papers, from the initial focus on disease modeling, hospital mortality, diagnostics, and testing to an increasing focus on topics such as business closure, remote work, geographic mobility and migration, inequality, managerial decision-making, as well as accelerating innovation. Once the basic science on the virus were established, research on creating societal and economic resilience played an even larger role for beating the COVID-19 pandemic. One clear area that demonstrated the importance of social science research in informing COVID-19 management was the rollout of vaccines. Psychological, marketing, and information systems research played a central role in vaccine uptake across communities. A recent report by the National Institutes of Health called for the use of evidence-based strategies, such as behavioral nudges and strategic social norms, to increase vaccine uptake.

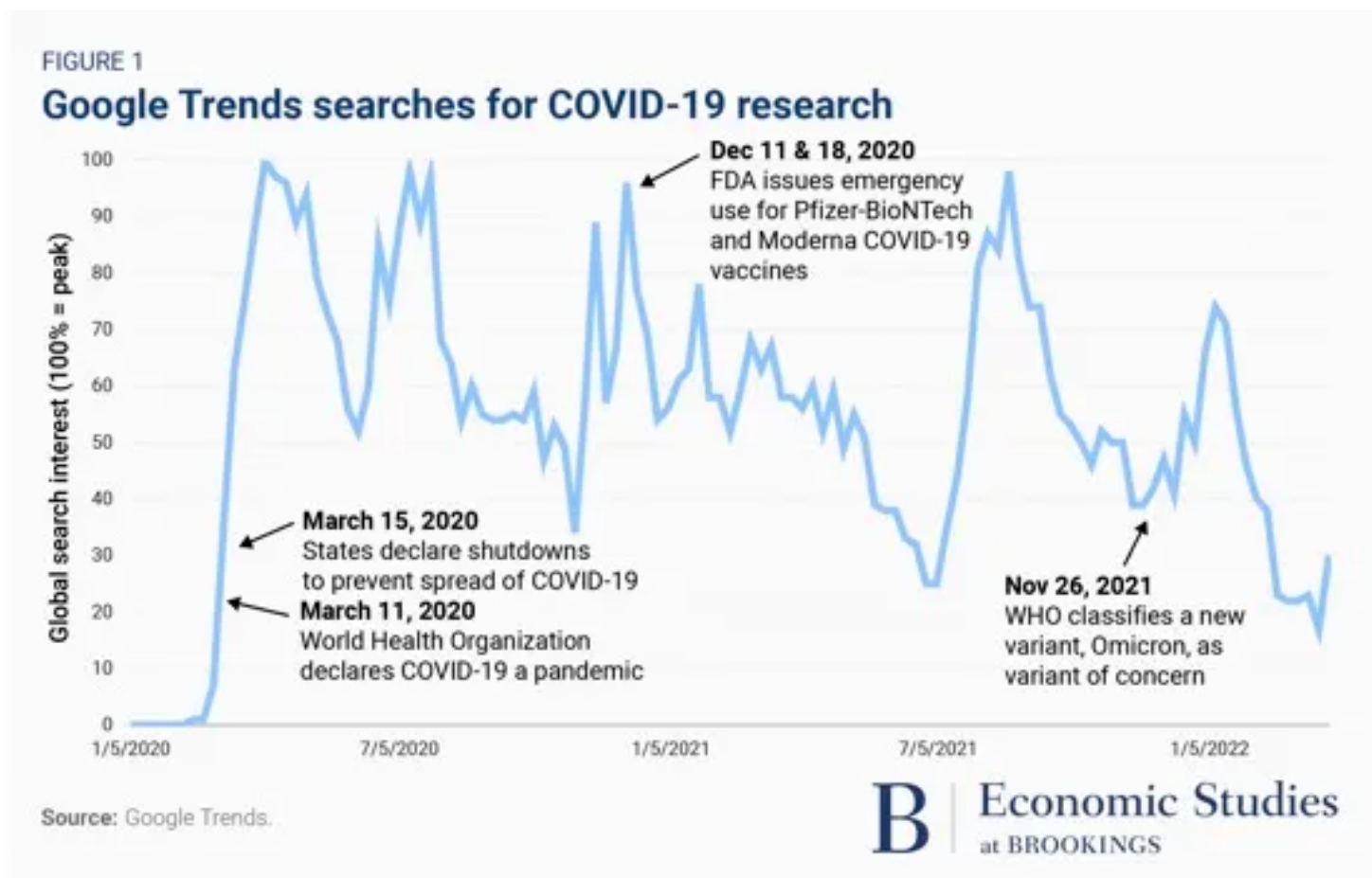
As social science research played an essential role in understanding and managing the COVID-19 crisis, key actors such as policymakers, publishers, universities, journal editors, and researchers sought to adopt open access policies to dismantle boundaries around critical research findings. In this article we argue for the need to leverage these initial efforts and create a systemic change in the field. We start by analyzing the importance of an open access policy in times of crisis, then review recent open access initiatives in the social sciences. We conclude with recommendations for critical actors to effect a long-term shift towards open access.

**The role of open access during the COVID-19 pandemic**

Open access to COVID-19-related research has been of paramount importance for both scientific discovery and public awareness during the pandemic. In general, open access has been shown to accelerate knowledge diffusion and enhance impact. Open access dismantles multiple types of knowledge boundaries to facilitate learning, cross-disciplinary collaborations, and real-time access to knowledge to inform decision-making.

First, open access removes the “ivory tower” effect, the boundary between the academic knowledge and the general public, which is part of the overall paradigm of “open science”. During the COVID-19 crisis, the general public exhibited an astounding thirst for knowledge. According to a Springer Nature study conducted in 2020, almost a third of open access article readers were non-academic. This research enabled the general public to educate themselves about their own and family members’ health conditions in real-time. For example, *The Journal of the American Medical Association* (JAMA) created a JAMA Network COVID-19 collection, which includes Patient Information pages with accessible information about COVID-19 for patients and their families. Other journals such as New England Journal of Medicine (NEJM), The Lancet, and Cell Press created similar websites to assemble and disclose articles and resources on COVID-19, such as the latest research, clinical reports, reviews, management guidelines and commentary.

The increase in general public interest in scholarly research related to COVID-19 is reflected in Google’s search trends. Figure 1 shows the Google search interest (indexed at its peak of 100) for “COVID-19 Research” in the United States between January 5, 2020 to March 31, 2022. Figure 1 illustrates that interest in COVID-19 research has sustained over the past two years since COVID-19 was declared a pandemic, with the level of interest peaking and troughing as new information and developments on the COVID-19 pandemic have emerged over time.



**Fig. 1.** Trends in Google search interest for “COVID-19 research” between 1/5/2020 and 3/31/2022.

Second, open access accelerates research by dismantling disciplinary boundaries among academic researchers, as it allows access to insights from other disciplines that academics might otherwise not come across. During the COVID-19 crisis, open access encouraged new collaborations, particularly cross-disciplinary collaborations—in which team members have a diverse range of skills and knowledge—which led to swifter progress on COVID-19 research due to cross-boundary innovation.

Third, open access research allows for rapid sharing of scientific information, which was crucial to providing real-time guidance to epidemiologists aimed at containing the outbreak as well as frontline healthcare workers managing patients. To overcome language barriers, many articles were translated into different languages to facilitate rapid dissemination of scientific findings. Greater openness and sharing of knowledge are important not only for improving the quality of research outputs but for improving public health and developing solutions to eradicate pandemics. Looking back, the Zika epidemic

in 2015-2016 and the West African Ebola outbreak in 2014-2016 foreshadowed this point by demonstrating that rapid dissemination of knowledge can aid with preventing, addressing, and ending a disease event.

### **Open access in the social sciences: The change induced by the COVID-19 crisis**

The COVID-19 pandemic facilitated an increase in open access research in the social sciences. Many of these efforts began with bottom-up initiatives. To share ongoing work and foster open communication between researchers in the field, many social science researchers posted their initial, non-peer-reviewed COVID-19-related research as drafts in open access repositories, such as SSRN, arXiv, bioRxiv, medRxiv, and ResearchGate. New research platforms were created, such as COVID Economics, to provide quick peer review of pandemic-specific economics discussion papers while still retaining eligibility for formal submission to certain economics journals. To be able to track the topics and progress of various research projects and facilitate collaboration, a community-driven COVID-19 social science tracker was launched on GitHub. This initiative contains over 300 in-progress research projects, submitted by international researchers, teams, and labs from different social science fields. The breadth of project topics spans information and messaging on COVID-19, social and behavioral consequences of COVID-19, health, coping, and social isolation. While most efforts to increase access to social science pandemic research were led by individuals and small groups, there have been a few top-down exceptions. One notable example is the recent initiative launched in December of 2020 by the Emerald Publishing Group, which created a modest publishing fund to cover the Article Publishing Charges (APCs) or publication fees for social science research related to the societal impact of COVID-19.

We propose that funders, policymakers, publishers and others lead efforts to expand open access throughout the social sciences. Currently, the top-tier social science journals continue to be subscription-based and pay-walled, requiring readers to pay to read content either by purchasing a journal subscription or a specific article. Subscription-based journals typically offer one of two options for submitting authors who also wish to publish an open access version of their work. The first is *gold* open access, which allows authors to make individual articles open access on the publishers' websites by paying an often hefty

APC of \$2,000-\$3,000 on average. The second is *green* open access, in which the published version of an article is still locked behind a paywall on the journal's website (i.e., readers need to pay a fee to access the published version), but authors can make an earlier version of the manuscript freely available elsewhere, such as on a university repository or personal website. However, publishers can “embargo” an article, preventing the author from self-archiving their manuscript for 12 to 36 months on average.

These options are not satisfying. We suggest several changes below that leverage the changes triggered by the pandemic to open access to social science research and create a systematic and meaningful change.

### **Systematically opening the access to social science research**

We offer targeted proposals to the primary actors in the social sciences knowledge production cycle (Table 1) that would change the status quo of open access in the social sciences. This is by no means a comprehensive list of policy recommendations but rather a call to action in the hopes of encouraging more investigation on the topic.

Research grant funders and policymakers: We propose that research grant funders and policymakers mandate open access to receive funding. Both public funders, such as the National Institutes of Health (NIH), and private funders, such as Wellcome Trust or the Howard Hughes Medical Institute, want to give the public insight into their funded research and its potential societal impact. For public funders, it will ensure that those who pay for publicly-funded research (i.e., tax-payers) have access to the outputs they have funded. APCs are increasingly a line item in research grant funding proposals, and funders are often proponents of open access. Hence, although authors currently provide the largest percentage of funding for the payment of APCs, the Publishers Communication Group (PCG) Open Access Library Survey shows that the majority is covered by outside funding. Multiple funding agencies have started to mobilize such a change in the last few years. For instance, Congress in 2008 required papers funded by the NIH to be publicly available in PubMed Central within a year of publication. Subsequently, the percentage of NIH-funded articles that are compliant with the funders' open-access policy grew steadily from 30% to 75% between 2008 and 2013, and rose to over 80% after the NIH began sanctioning non-compliant researchers in 2013. Following the NIH's example of mandating open access, the

Bill and Melinda Gates Foundation, European Commission, and National Science Foundation mandated open access requirements for grantees. In the UK, Wellcome Trust has been at the forefront of open access initiatives. Overall, there are currently nearly ninety funders around the globe that have adopted open access mandates for peer-reviewed research articles, though not all monitor for open access compliance.

In 2021, an international consortium of 25 research and funding agencies came together to launch Plan S, an initiative to immediately make scholarly publications fully open access. The consortium includes mostly European national funding agencies, some U.S. biomedical funders—such as the Bill & Melinda Gates Foundation and the Howard Hughes Medical Institute—and the U.K.’s Wellcome Trust. Preliminary evidence shows that Plan S is already having a positive impact on open access research. Beginning in January of 2021, the publisher of *Science*, American Association for the Advancement of Science (AAAS), announced that it will start allowing authors with grants from funding agencies under Plan S to share their accepted manuscripts openly online. While funders’ efforts toward more open access publishing have made progress, there are still publishers undermining the system, for example by offering gold open access with high APCs that technically satisfy Plan S but are costly to authors. Nevertheless, these instrumental changes in open access policies suggest that funders can play an integral role in promoting open access by setting mandates as well as mechanisms ensuring compliance.

**Publishers:** Open access challenges the traditional, subscription-based business model of publishers. We propose that publishers experiment with new business models that incorporate and promote open access, particularly as there are several compelling open access business model alternatives to charging author-facing APCs (Table 1). Some publishers have been actively experimenting with four common models. The first is “Read-and-Publish,” or a “Transformative Agreements Model,” where a contract is made between a university’s library and the publisher. The contract costs cover open-access publishing by university staff and provides access to all the publisher’s articles for university affiliates. Several major universities and institutions have established Read-and-Publish agreements with publishers: in 2019, Springer Nature and more than 700 German research institutions

signed Project DEAL, and in March 2021 the University of California (UC) announced its landmark Read-and-Publish agreement with Elsevier (which disseminates about 17% of journal articles produced by UC faculty).

A second alternative business model for journals to promote open access is “Subscribe to Open.” This subscription model is a mutual assurance approach to motivate collective action by university and institution libraries, which are asked to continue to subscribe to journal publishers, even though the content will be published open access. In 2022, 78 journals will be offering open access on a subscribe-to-open basis, which is a three-fold increase since the first Subscribe to Open pilots in 2020. To discourage institutions from reaping benefits of open access without subscribing, content is made open access only if all current customers continue to subscribe.

Membership models offer a third alternative to high APCs for open access. With membership models, members receive special benefits beyond the content, which is open to everyone. The Open Library of the Humanities, which received initial funding from the Andrew W. Mellon Foundation, is an example of a successful publisher operating with a membership model.

Finally, journals publish open access without charging authors APCs in the No Fee Model, sometimes referred to as diamond or platinum open access journals. In lieu of charging authors, these publishers obtain funding from external sources, such as academic institutions, learned societies, philanthropists, hospitals, museums, governments, and other organizations. Notably, Plan S conducted a study into the finances of 1,619 non-commercial, diamond/platinum journals between June 2020 and February 2021 and found that approximately 40% of the journals reported breaking even. First Monday (<http://firstmonday.org/>) and the Journal of Science Communication (<https://jcom.sissa.it/>) are two examples of diamond open access journals that have been free to readers and authors since they started. Although many diamond open access journals are economically efficient—in large part because they try to keep their costs down to a minimum largely in part to the use of open source software (the majority have annual



costs less than \$10,000 per year)—there is a need for entities such as universities, government, and individuals to donate funds towards No Fee Model journals to help with their operating challenges.

Universities: It is in the long-term interest of universities to promote open access to enable their researchers to access published literature that is pertinent to their investigations. The cost of subscription fees to paywalled research has grown substantially over recent decades, leading to several large libraries and universities (e.g., the Massachusetts Institute of Technology, Max Planck Society, University of California System) to initiate large-scale subscription cancellations. Furthermore, given that open access articles are more likely to be viewed and cited, it is in the interest of universities to develop open access policies for their researchers.

We suggest three ways for universities to promote open access to the research conducted in their institutions. First, universities can adopt open access policies as an academic and social good, preferably through rights-retention policies to scholarly articles, which allows authors to retain broad use and reuse rights to their published articles even after they sign their publishing contracts. Pragmatically, this arrangement means that authors can make their author-accepted manuscript at a journal freely available without embargo, thereby enabling immediate green open access. University rights-retention policies have been an effective solution to promote open access, as only a handful of publishers have required authors to opt out of their university's open access rights-retention license as a condition for publication. This approach can facilitate broader access for researchers and the general public, create more efficient reuse rights, and help authors openly distribute their articles for increased visibility and impact. As universities facilitate broader access to their research, the power publishers have over the dissemination of research sponsored by universities is diminished. For instance, over 80 institutions in North America, Europe, Africa, and Asia have adopted rights-retention open access policies that give faculty and researchers of the university permission for green open access, even in cases where publishers do not give standing permission. A second action universities can take to promote open access is to educate their faculty members about its benefits, such as increased citation rates and impact. Heads of schools, deans, and heads of department should be encouraged to engage with open access in multiple ways in order to act as role

models to junior faculty. Thirdly, universities who have developed guidelines and infrastructure for open access policies can provide guidance and best practices to other universities who are considering an open access policy or renewing an older policy.

Researchers: For researchers, there are numerous benefits to open access publishing, including that it often increases exposure and impact of their work to academics and lay readers. This is particularly important for researchers who are early-career, based in lower status institutions, from developing countries, or with smaller social networks. Researchers should consider submitting to open access journals (e.g., platinum or diamond) or opting for gold open access in hybrid journals if necessary. Alternatively, researchers can practice green open access by depositing pre-prints and peer-reviewed, accepted manuscripts into an open access repository. Though not widely known, most non-open access publishers will give standing permission for green open access. Lastly, there is no harm in asking for open access when standing permission is not given. Even if the request is rejected, there is merit in asking. Many journals will review requests for open access on a case-by-case basis and will sometimes respond favorably due to increasing demands from their audience (the authors have experienced this firsthand).

Editors: Journal editors should use their position and influence to request or instigate a transition from paywall to open access at their journals. If requests do not work, then editors can demand such a change. Particularly noteworthy is the recent actions of the editorial board of *Neuron*, which wrote a letter, signed by leading scientists in the field, demanding that their publisher switch the journal to open access to make scientific research freely available. Editorial boards can also take steps to make a “Journal Declaration of Independence,” whereby editors resign from a journal in protest of high subscription fees and launch a comparable journal with less restrictive accessing policies. Such actions will help the switch from subscription-based to open access across publishers and disciplines.

## **Conclusion**

The COVID-19 pandemic highlighted the need for and benefits of open access to scientific research. Concurrently, changes to academic research publishing during the pandemic highlighted differences in norms and practices across fields. In the social sciences, many

barriers to more permanent open access adoption remain. We suggest that the momentum created around initiatives to provide open access to social science research should be leveraged to create systematic change that can become the new normal post-COVID.

We provide actionable recommendations for each of the main actors in the knowledge production cycle: funding institutions and policymakers, publishers, universities, researchers, and editors. Dismantling the boundaries of knowledge production can accelerate the advancement of science and support the dissemination of scientific knowledge to the public and researchers across disciplines. Moreover, open access is a powerful and important part of democratizing and opening the scientific process—if everyone plays their part. A shift towards open access in the social sciences will require coordination and communication among the stakeholders mentioned here. Although this effort may present near-term challenges, it promises long-term rewards. As funders are integral in determining how resources and grant money are allocated, it will be critical that funders continue to make open access a priority in their funding mandates. Initiatives, such as Plan S will be essential to the broader transition towards open access in the social sciences. Other scientific fields have created dramatic changes and have embraced open access as their new normal. We believe the social sciences can leverage the insights from the COVID-19 crisis to close the gap and deliver on such a change. If not now, then when?

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