

# How Scholarly Societies Solved Their Collective Action Problem

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## Introduction

What follows is certainly an over simplification. The actual practice of individual scholarly societies will vary from the general storyline. None-the-less, I believe that in general the story holds. I will consider the fiscal problem now facing scholarly societies in light of the collective action problem. I believe the collective action perspective offers insight into the choices scholarly societies have going forward and how difficult it will be for them to make up the revenue that they will undoubtedly lose when the majority of scholarly journals subscriptions to open access.

## The Collective Action Problem

In his 1965 book, *The Logic of Collective Action: Public Goods and the Theory of Groups*, Mancur Olson identified the difficulties groups have in organizing to further their collective interest. As he puts it, "Though all of the members of the group therefore have a common interest in obtaining the collective benefit, they have no common interest in paying the cost of the providing that collective good. Each would prefer that others pay the entire cost, and ordinarily would get any benefit provided whether he had borne part of the cost or not."<sup>1</sup> The collective action problem becomes greater, Olson asserts, as the size of the group increases. "The larger a group is, the further it will fall short of obtaining an optimal supply of any collective good, and the less likely that it will act to obtain even a minimal amount of such a good. In short, the larger the group, the less it will further its common interest."<sup>2</sup> There are several reasons for this. First, the larger the group the higher the coordinating costs of organizing for collective action the group must absorb. Second, the larger the group, the easier it is for individuals to free ride without

sanction and gain the benefits of the group without paying for them. Olson identifies three ways in which collective action can be reasonably accomplished: coercion, outside inducements, and oligopoly-sized groups. Coercion can most easily be understood when governments use it. In this case it is a tax. Other examples would be union dues in a closed shop, or on a college campus, mandatory fees to support student organizations, technology, or athletics. Outside inducements, what economists would call club goods, require some aspect of membership in the group which cannot be provided at the exclusion of those that don't pay for membership. An example from Olson would be insurance offered by farmer cooperatives. Oligopoly-sized groups work because it is often in the interest of a small number of people or organizations to fully fund the collective action without regard for freeloaders.

### **Scholarly Societies and the Collective Action Problem**

Scholarly Societies are organized to represent the collective interests of individuals in a particular academic discipline or profession. These groups are often relatively large and almost always dispersed. As such, as Olson would tell us, they have a collective action problem. Advancing the interests of a discipline or profession requires action on a variety of fronts. Primary is advancing scholarship and interactions among practitioners through publications and conferences that are outside inducements that encourage membership. If you want a subscription to the society's journal, you needed to be a member. If you want to attend the conference, the registration is cheaper if you are a member. These inducements, particularly the society's journal has been seen as a, if not the, primary inducement for membership. These activities are generally self-supporting. But most scholarly societies take on additional tasks in support of the discipline. They lobby for government policies that are in the interest of their members. They monitor and support educational programs. They provide support for career development and employment. These activities are subject to freeriding and the benefits are available to non-members. As such, providing these services requires finding a revenue source to pay for them to the extent that would be desirable. Successful scholarly societies need to find this additional source of revenue.

### **The Solution**

A solution to the collective action problem faced by scholarly societies developed, probably more through necessity than a consciously developed strategy. That

solution was institutional subscriptions to the society's journals. Commercial publishers paved the way for this solution in the 1980s when they instituted dual pricing. This allowed them to charge different prices to individuals than they did for institutions. The latter quickly got much larger. For societies implementing this strategy was easy. Since individual subscriptions were tied to membership, all they needed to do was to raise subscriptions to institutions, mostly academic libraries. While most scholarly societies initially exhibit some restraint on these increases, the difference between membership dues and the price libraries paid for subscriptions were soon substantial. The justification for the dual pricing was that institutional subscriptions served many users and thus the publisher deserved a higher price. The reality was that this form of price discrimination works when there are distinct markets and while it was often suggested that faculty could donate the journals they received as part of their memberships to libraries, in practice the logistics never really worked for libraries. As a result, they had no choice but to pay the higher cost for subscriptions. This practice began when journals were printed on paper, and was carried forward and accelerated when journals became digital. Both the publisher's justifications and the way libraries operated strengthened the system.

Today most large and mid-sized scholarly societies have come to rely on their revenue from publishing to support many of the non-publishing activities of the society and to keep membership dues cheaper than would otherwise be required, thus encouraging membership. Robert Harington, the one-time associate director in charge of the American Mathematics Society's publications operations, says in a piece in the *Scholarly Kitchen*:

The AMS publishes a range of journals and a discovery database called MathSciNet® that is a fundamental part of a research mathematician's daily life. Indeed the AMS has its own printing and distribution facility in Rhode Island. The reality is that 70% of AMS revenues come from publishing activities, including subscription revenues from books, journals, and the database MathSciNet®. Surplus funds go directly back into our programs. If subscription revenues were to evaporate, the ability of the AMS to provide services and programs that fortify the mathematical sciences community would likely also evaporate.<sup>3</sup>

The extent of this dependency on institutional subscriptions for society publications can be seen dramatically if you look at the difference in the percentage of society revenue that is generated from publications compared with the percentage generated by membership dues. The extreme case is the American Chemical Society (ACS),

which has a massive publication enterprise, where in 2017 a little less than 90% of revenue was from publications and revenue from membership dues was 2%. That year ACS had a surplus from their publications of over \$45 million, four times the revenue generated from membership dues.<sup>4</sup> For the Institute of Electrical and Electronics Engineers (IEEE) the comparable percentages in 2018 were 50% and 13%. The IEEE generated a surplus of about \$48 million from publications or about 75% as much as was generated by membership dues.<sup>5</sup> As noted above the American Mathematics Society (AMS) generates about 70% of their revenue from publications and only about 10% from membership dues. The surplus generated by the AMS in 2016 was \$6.3 million or not quite twice what was brought in through membership dues.<sup>6</sup> This is not simply the way societies in the sciences operate, for the Modern Language Association (MLA) in 2016 the percentages were 66% from publications and 14% from membership dues. That year the MLA generated about \$1.2 million publications surplus and \$2.2 million in membership dues.<sup>7</sup> Smaller societies also follow the same strategy. The Society for Conservation Biology (SCB), for example, had a budget in 2017-17 of \$3.4 million or which 20% comes from publications and 6% comes from membership dues. The SCB surplus from publishing is about \$409,000 or about twice the revenue generated through membership.<sup>8</sup>

This sampling of societies, though far from exhaustive is likely representative, at least of large and mid-sized societies. It is clearly the case that the revenue scholarly societies generated through publishing surpluses, most of which comes from library subscriptions, make sizeable contributions to the society programs. Looked at from the library side the subsidy is probable somewhere between 10% and 20% of the amount they spend on society publications.<sup>9</sup> Arguably, the society's members would not be prepared to pay more in dues, which, in most cases, would at least double. if the publishing surplus were lost.

So, this is how societies have solved their collective action problem. They created a club good – their publications. Members get the publications by virtue of their membership, but institutions pay ever increasing subscription cost that pay for society programs that the membership is unprepared to fund. As I said in an earlier paper on scholarly societies, "one way to think of this is that colleges and universities, through their libraries, are providing a significant level of support to scholarly societies. This is support, I suspect, few Provosts or VPs for Finance are aware they are providing."<sup>10</sup> One suspects that this lack of transparency is a key reason that this system has persisted.

Scholarly Societies solved their collective action problem by getting universities to subsidize them. Part of the trick was to keep the subsidy hidden. Another part was a form of coercion. For a long time, faculty could insist that their libraries purchase the journal published by their disciplinary societies and librarians would acquiesce. Often an implied threat to accreditation was used. How could any self-respecting university library not subscribe to MathSciNet, the ACS journal package, or the *MLA International Bibliography*? This worked for a long time, especially for larger societies. It mostly still works today, especially for the journals of larger societies, even with the increasing fiscal pressures faced by academic libraries.

## **The End is Coming**

Unfortunately for scholarly societies, the solution that has carried them for the last 30 years or so will soon be coming to an end. Subscription journals, which are a legacy of the print era will give way to open access. I have argued that this will happen because open access is a disruptive technology that is far better suited to digital technologies than subscription as it should reduce costs and increase exposure to and use of scholarship.<sup>11</sup> My assessment is long term and somewhat theoretical, but there is a more immediate driver – Plan S.

Plan S is an initiative of a consortium, calling itself cOAlition S, of research funders to further open access to scientific research. Launched by Science Europe on September 4, 2018, by November 2018 European Research Council and the major national research agencies and funders from twelve European countries as well as the Wellcome Trust and the Gates Foundation. Since then it has added two national funders and two large foundations. Importantly, the Chinese national research funding agency, the largest research funder in the world, which has not formally endorsed Plan S, has indicated their support of its principles.<sup>12</sup> Plan S aims to change how scholarly and scientific research is communicated. Plan S states that, “After 1 January 2020 scientific publications on the results from research funded by public grants provided by national and European research councils and funding bodies, must be published in compliant Open Access Journals or on compliant Open Access Platforms.”<sup>13</sup> As stated on the Plan S website:

Plan S aims for full and immediate Open Access to publications from publicly funded research. The coalition of research funders that have committed to implement Plan S, known as cOAlition S, therefore calls for a definitive shift towards new models of academic publishing.

cOAlition S aims to accelerate the transition to a scholarly publishing system that is characterised by immediate, free online access to, and largely unrestricted use and re-use of scholarly publications... cOAlition S is committed to fulfil the specific target set out in Plan S – immediate Open Access to all scholarly publications from research funded by coalition members from 2020 onwards.<sup>14</sup>

Plan S is based on 10 principles, the most important ones for this discussion are principle 5 that will standardize and cap APCs, and principle 9 that states that hybrid OA journals are not compliant with the plan. Plan S effectively means that articles based on the research funded by members of cOAlition S cannot be published in subscription journals.<sup>15</sup> Plan S on its own is unlikely to kill the subscription model, but it will hurry its demise. In addition, by limiting APCs and ruling that hybrid journals are non-compliant, the obvious way of making up for lost subscription revenue are significantly constrained.

As many have pointed out, scholarly societies will be hard hit by Plan S. Here is a sampling of the headlines: “Scientific Societies Worry Plan S will Make Them Shutter Journals, Slash Services,”<sup>16</sup> “Opinion: “Plan S” Falls Short for Society Publishers—and for the Researchers They Serve,”<sup>17</sup> “Plan S ‘Could Prove Fatal’ for Learned Societies,”<sup>18</sup> and “Europe’s Plan S Casts Shadow on Scholarly Societies,”<sup>19</sup> As Michael Clarke puts it in a *Scholarly Kitchen* post, “This misalignment between Plan S and societies was evident –even to Robert Smits, principal architect of Plan S – before the release of the implementation guidance. What the implementation guidance makes clear is that Plan S (if widely adopted) will harm society publishers even more than commercial publishers.”<sup>20</sup> What Smits said, not mincing words, was, ““I talked a lot to scholarly societies. They are a noble group, but they will have to bite the bullet and go open access. We are quite flexible with regard to society journals, but they have to bite the bullet and go.”<sup>21</sup> Recognizing the difficulties scholarly societies will face with Plan S, cOAlition S has offer to support scholarly societies in finding new business models, but they are not backing off their core principles.<sup>22</sup> So, it is clear that open access in general, and Plan S specifically, will force changes in the business models of most scholarly societies. The comfortable solution scholarly societies crafted to their collective action problem nearly 30 years ago – getting a subsidy from universities through subscription prices well above publishing costs – has run its course. A new solution is now required.

## Options Going Forward

To begin, we should be clear that the publications of scholarly societies are not necessarily at risk. Libraries and funders are most likely prepared to pay for publications, either through APCs or other means, if the costs are transparent and the publications are produced in a cost effective manner. The “library + funder” (L+F) funding model has been proposed in a number of cases. As Heather Paxson, who is currently leading MIT Anthropology, a project based on this model, explains it, “The basic idea is to ask granting agencies to support the open publication of their funded research so that findings may reach a wider audience, with libraries covering remaining publication costs out of the subscription fees they’re currently paying to for-profit publishers.”<sup>23</sup> John Willinsky and Matthew Rusk argue that this model would be a more cost effective way of open access publishing, though this finding maybe be based on moving from commercial and society publisher, where the former takes profits and the latter subsidies, to not-for-profit publishing.<sup>24</sup>

Whether it makes sense, absent the subsidies they provide, for societies to continue as publishers is an open question. Many societies have already, often in pursuit of larger subsidies, given their publications over to commercial publishers. But since the society’s brand is often tied tightly to its journals, abandoning them could be difficult

What is at risk is the subsidies that publications have generate to support other society programs.

With this in mind, it is useful to consider the options scholarly societies have going forward from a collective action perspective. As noted above, Olson argues that there are three ways that groups can overcome the collective action problem: coercion, outside inducements, and oligopoly-sized groups. The question is: can scholarly societies find a way to use one of the three to solve their collective action problem going forward.

Cameron Neylon, using Olson’s work, examined scholarly communications infrastructure, a category that if view broadly, includes scholarly societies. He concluded that there are two factors that need to be considered, “First, infrastructures need to be seen as both sustaining and being sustained by the communities that they serve. *Political economy* needs to be addressed, not simply financial issues. Second, the size of the community and the scale of the infrastructure are critical factors for defining what

sustainability models can work, and sustainability models must therefore change throughout the growth and development of an infrastructure."<sup>25</sup>

The first of Neylon's factors is critical. As noted above scholarly societies have solved their collective action problem by extracting subsidies from universities. They however think of themselves as organizations of practicing scholars or professionals – their individual members. While societies may have institutional membership, these are usually the mechanism used to charge for subscriptions. Neylon's argument suggests that one way scholarly societies can survive the loss of subscription revenue is to redefine what their community is to include institutions and to adjust their political economy – their governance, their priorities, and their programs reflect the expanded version of community. Doing so could entice universities to continue their subsidies. Whether such changes, especially in governance and priorities would be acceptable to current members is an open question. This is a tricky path, but probably the path most likely to be successful, especially for larger societies.

Neylon goes on to say, "A deeper understanding of which non-collective benefits are appropriate will be valuable and will help address the assumption that membership and subscription systems can only be tied to content access. It will also be important to identify where non-collective benefits are not a viable model and to avoid forcing the model on organisations for which it cannot work."<sup>26</sup> If this approach is to be successful, societies will need to find benefits that their members value. It may be that some scholarly societies can put together a suite of benefits that individual members will fully fund. The most likely benefits will be based on networking of members. Meetings and conferences are generally sources of revenue for societies, though vendors often make significant contributions to this funding source through booth rentals in exhibition halls and sponsorships of various kinds. This path, given the collective action problem, this will be difficult, especially given the ease networking can be done using digital technologies.

The bottom line is that scholarly societies have a difficult road ahead of them. I suspect many will not survive. What is likely is that in many cases, new ways of accomplishing what societies did will be replaced with new ways of forming and supporting academic communities. This will be traumatic for existing legacy organizations, but not necessarily bad for the scholars and professionals they once served.

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## Notes

- <sup>1</sup> Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge, MA: Harvard University Press, 1965, pp. 21.
- <sup>2</sup> Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge, MA: Harvard University Press, 1965, pp. 36.
- <sup>3</sup> Robert Harington, "Societies, Mission and Publishing: Why One Size Does Not Fit All," *Scholarly Kitchen*, October 1, 2018, <https://scholarlykitchen.sspnet.org/2018/10/01/societies-mission-and-publishing-why-one-size-does-not-fit-all/>
- <sup>4</sup> American Chemical Society, *2017 Management's Statement of Responsibility and Audited Financial Statements*, March 2018, <https://www.acs.org/content/dam/acsorg/about/aboutacs/financial/2017-audited-financial-statements.pdf>
- <sup>5</sup> Institute of Electrical and Electronics Engineers, *Inspiring Change. Empowering People: Annual Report 2017*, <https://www.ieee.org/content/dam/ieee-org/ieee/web/org/corporate-communications/annual-report/2017/2017-ieee-annual-report-final.pdf>
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- <sup>8</sup> Society for Conservation Biology, *2016-2017 Annual Report*, page 12, [https://conbio.org/images/content\\_about\\_scb/scb\\_an\\_rpt\\_2016-17\\_web\\_1\\_reduced.pdf](https://conbio.org/images/content_about_scb/scb_an_rpt_2016-17_web_1_reduced.pdf)
- <sup>9</sup> This estimate is based on five large scholarly societies. See: David W. Lewis, "Scholarly Societies and the Newspaper Problem," November 2018, <http://hdl.handle.net/1805/17836>
- <sup>10</sup> David W. Lewis, "Scholarly Societies and the Newspaper Problem," November 2018, <http://hdl.handle.net/1805/17836>
- <sup>11</sup> David W. Lewis, "The Inevitability of Open Access," *College & Research Libraries* 73(5):493-506 September 2012. doi:10.5860/crl-299, <http://crl.acrl.org/content/73/5/493.full.pdf+html>

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- <sup>12</sup> Quirin Schiermeier, "China Backs Bold Plan to Tear Down Journal Paywalls," *Nature*, December 6, 2018, <https://www.nature.com/articles/d41586-018-07659-5>
- <sup>13</sup> cOAlition S, "10 Principles," <https://www.coalition-s.org/10-principles/>
- <sup>14</sup> cOAlition S, "Making Full and Immediate Open Access a Reality," [https://www.coalition-s.org/wp-content/uploads/271118\\_cOAlitionS\\_Guidance.pdf](https://www.coalition-s.org/wp-content/uploads/271118_cOAlitionS_Guidance.pdf)
- <sup>15</sup> Plan S do not actually forbid publication in subscription journals, but articles must be made open upon publication, with authors maintaining copyright, and with open licenses (principle 1). These are stipulations most publishers of subscription journals find these requirements unacceptable.
- <sup>16</sup> Jeffery Brainard, "Scientific societies worry Plan S will make them shutter journals, slash services," *Science*, January 23, 2019, <https://www.sciencemag.org/news/2019/01/scientific-societies-worry-plan-s-will-make-them-shutter-journals-slash-services>
- <sup>17</sup> Marcia McNutt, "Opinion: 'Plan S' Falls Short for Society Publishers—and for the Researchers They Serve," *PNAS* February 12, 2019 116 (7) 2400-2403; first published February 12, 2019, <https://doi.org/10.1073/pnas.1900359116>
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- <sup>21</sup> Leonid Scheider, "Robert-Jan Smits: scholarly societies 'will have to bite the bullet and go Open Access,'" *For Better Science* [blog], October 22, 2018, <https://forbetterscience.com/2018/10/22/robert-jan-smits-scholarly-societies-will-have-to-bite-the-bullet-and-go-open-access/>
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- <sup>23</sup> "Q&A: Heather Paxson on a new model for open-access publishing in anthropology," *MIT News*, May 10, 2019, <http://news.mit.edu/2019/mit-heather-paxson-open-access-model-workshop-0510>
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<sup>25</sup> Cameron Neylon, "Sustaining Scholarly Infrastructures Through Collective Action: The Lessons that Olson can Teach Us," *KULA: Knowledge Creation, Dissemination, and Preservation Studies*, 1(1), p.3. 2017, DOI: <http://doi.org/10.5334/kula.7>

<sup>26</sup> Cameron Neylon, "Sustaining Scholarly Infrastructures Through Collective Action: The Lessons that Olson can Teach Us," *KULA: Knowledge Creation, Dissemination, and Preservation Studies*, 1(1), p.3. 2017, DOI: <http://doi.org/10.5334/kula.7>