

The Costs of Open Access Publication: A Case Study at Catalan Universities

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Abstract

This article explores the financial dynamics of open access (OA) publication in Catalan universities by combining four data sources: publication data coupled with article processing charge (APC) estimates; information on journal subscriptions, transformative agreements and APC payments made by universities; acknowledgements of APC funding sources in OA scholarly outputs; and a survey of authors. The findings reveal a consistent increase in OA publication across Catalan universities, with 60% of the articles indexed in the Web of Science being published in either gold or hybrid OA in 2022. In parallel, investment in the research publishing system shows an upward trend. Resources allocated to journal subscription licenses have been redirected towards transformative agreements, leading to a rise in hybrid OA publications. Additional budget allocations have been made to accommodate APCs for gold OA journals. Authors employ varied funding sources for gold and hybrid OA, with university funding programmes and research grants commonly facilitating gold OA, while transformative agreements often support hybrid OA. Authors associated with Catalan universities frequently benefit from funding schemes and transformative agreements that are accessible to their coauthors. However, survey responses underscore the multifaceted

nature of researchers' financial support, including personal assets and waivers. Authors express frustration with the evolving OA landscape, particularly concerning the exorbitant publication fees. Nevertheless, the allure of high-impact journals and expedited peer review processes continues to incentivize authors towards gold OA. Researchers voice concerns regarding the lack of equitable funding programmes and potential conflicts of interest within gold OA models, which signals the risk of compromising peer review integrity to prioritize profits. This study underscores the need for further research to deepen our understanding of scholarly publishing expenditure and inform strategies for fostering a sustainable, equitable OA ecosystem.

Keywords: article processing charges; open access; scholarly communication; transformative agreements

1. Introduction

Over the past two decades, open access (OA) has reshaped the landscape of scholarly communication by introducing the concept of freely and openly distributing research outputs. This aim is pursued through two main strategies: "green OA" (i.e., the deposit of scholarly outputs in repositories) and "gold OA". Gold OA journals, except for diamond journals funded by learned societies and university presses, commonly charge article processing charges (APCs) to authors to make their work available OA. Most commercial publishers, whose income traditionally has been based on selling subscriptions, have also embraced APCs. Their journals commonly use a "hybrid OA" model that combines subscription content, which is paywalled, with OA for articles whose authors pay APCs.

In its origins, OA was envisioned as an opportunity to restrain library expenses in scholarly communication. The continuous increases of journal subscription prices above the rate of inflation prevented research institutions from buying access to all the scholarly contents required by their researchers. Even if APCs meant the introduction of a new fee, the expectation was that these charges would be offset against journal subscriptions, so there would be no need to devote any additional resources to scholarly communication. As stated by Schimmer et al. (2015), "all the indications are that the money already invested in the research publishing system is sufficient to enable a transformation that will be sustainable for the future. There needs

to be a shared understanding that the money currently locked in the journal subscription system must be withdrawn and repurposed for open access publishing services”.

Several studies have scrutinized the prevalence of OA journals that rely on APCs as a source of revenue, their pricing models and financial implications for research institutions. Research concurs that APCs are associated with large publishers and that OA journals based on APCs are larger than OA journals without author fees (Borrego, 2023). In an overall picture of gold OA journals listed in the Directory of Open Access Journals (DOAJ) in 2021 (Crawford, 2022) 16,620 OA journals were identified: 68% charged no fees but 69% of the articles were published in journals that required APCs.

In terms of fees charged, there is a wide price range, with hybrid journals charging higher APCs than gold journals (Solomon & Björk, 2012, 2016). APCs increase at a rate three times faster than inflation (Khoo, 2019) and authors are more likely to publish in more expensive journals. Journals that have a higher impact charge higher fees (Morrison et al., 2022).

Two studies in the United Kingdom aimed to provide a picture of the total cost incurred by academic institutions (i.e., subscriptions plus APCs and administration costs). Initial results revealed that APCs accounted for 10% and subscriptions for 90% of the total cost (Pinfield et al., 2016). A subsequent study (Pinfield et al., 2017) showed that APCs constituted 12% of total publication costs, APC administration 1%, and subscriptions 87%. In France, Blanchard et al. (2022) estimated that, in 2020, research institutions devoted 87.5 million euros to journal licences plus 30.1 million euros to APCs, and APCs multiplied by three between 2013 and 2020. In Spain, most national research projects spend between 3% and 8% of their budgets on APCs (Alonso-Álvarez et al., 2024), a figure adding to other APC funding sources these projects may benefit from.

Research designed to collect information on authors' views and behaviour regarding APCs share two main findings. Firstly, there was a relatively high level of rejection of APCs in the early stages that has only partially disappeared as the model has been consolidated. Secondly, there are significant disciplinary differences related to the availability of research funds to pay author fees (Boukacem-Zeghmouri et al., 2018; Feenstra & Delgado López-Cózar, 2022; Ruiz-Pérez & Delgado López-Cózar, 2017; Schöpfel et al., 2016; Tenopir et al., 2017).

Hybrid journals seemed a promising model that would allow traditional publishers to flip their business from selling subscriptions to publishing OA. The idea was that authors would progressively pay fees for publishing their articles OA and, as a result, publishers would reduce subscription prices until the full journal converted to OA. However, concerns about higher APCs in hybrid journals than in gold journals were further exacerbated by the perception that publishers offering hybrid OA were “double dipping”, that is, profiting from two income streams, APCs and subscriptions, in a way that its overall income from the same customer rises. In addition, large commercial publishers disproportionately benefit from hybrid OA funding compared to gold OA publishers (Butler et al., 2023; Shu & Larivière, 2023).

To address these challenges and align with evolving funding policies, such as the decision made by cOAlition S to no longer provide financial support for publishing in hybrid journals (Schiltz, 2018), an increasing number of publishers and libraries have negotiated transformative agreements, also known as “offsetting”, “read and publish” or “publish and read” agreements (Borrego et al., 2021). Transformative agreements bundle subscription licences with APCs to shift the focus of scholarly journal licensing towards OA publication. However, evidence shows that transformative agreements are not bringing a large-scale transition to fully OA (Jahn, 2024; Kiley, 2023). COAlition S (2024, p. 4) qualified 2023 as a “year of growing frustration in the community regarding the slow transition to OA of journals included in so-called transformative agreements and concern about the inequalities of the APC business model”. Based on the flipping rates of journals observed between 2018 and 2022, Brayman et al. (2024) estimated that it would take at least 70 years for the big five publishers to convert their transformative agreement titles to OA.

In Spain, the Conference of Rectors of Spanish Universities (CRUE) and the Spanish National Research Council (CSIC) have signed transformative agreements with four publishers: American Chemical Society, Elsevier, Springer Nature and Wiley.¹ Ten Catalan universities that are members of the Consortium of Catalan University Services (CSUC)² participate in these agreements. In addition, the Consortium has forged transformative agreements with the American Institute of Physics, Emerald, IEEE and the Royal Society of Chemistry.³ These agreements seek to reshape scholarly communication practices, yet their efficacy in driving comprehensive OA remains subject to scrutiny.

Our study aimed to investigate OA publication trends and scholarly communication expenditure at Catalan universities from 2018 to 2022. Our research was guided by the following research questions:

- 1) What is the share of gold and hybrid OA publication by Catalan universities?
- 2) How has scholarly communication expenditure (subscriptions, transformative agreements and APCs) evolved at Catalan universities?
- 3) What factors influence researchers at Catalan universities in selecting OA venues?
- 4) What funding resources do researchers at Catalan universities use to cover APCs?

2. Methods

This study combined complementary information gathered from four data sources:

- a) Data on OA publication between 2018 and 2022 by authors affiliated with Catalan universities obtained from the Web of Science, coupled with APC expenditure estimates obtained from DOAJ.
- b) Factual data on library expenditure and APC payments compiled by Catalan universities.
- c) Acknowledgements of APC funding sources disclosed by authors in their OA scholarly outputs.
- d) An authors' survey delving into the motivations behind gold OA publishing and the funding mechanisms to cover APCs.

2.1. OA Publication and Estimate of APC Expenditure

In January 2024, we compiled the scholarly output published between 2018 and 2022 by authors affiliated with ten Catalan universities from the Web of Science (SCI, SSCI, AHCI and ESCI). The search query, limited to “articles” and “review articles”, was formulated using the authority names employed in the Web of Science affiliation index. This strategy led to a mix of languages in the affiliation names, as the Web of Science uses the English name for some universities and the Catalan name for others. Although the index may not

capture all possible names for a university, the number of records retrieved suggests that the search provides a representative sample of the scientific production of Catalan universities.

University of Barcelona (Affiliation) OR Autonomous University of Barcelona (Affiliation) OR Universitat Politècnica de Catalunya (Affiliation) OR Pompeu Fabra University (Affiliation) OR Universitat de Girona (Affiliation) OR Universitat de Lleida (Affiliation) OR Universitat Rovira i Virgili (Affiliation) OR UOC Universitat Oberta de Catalunya (Affiliation) OR Universitat de Vic–Universitat Central de Catalunya (UVic-UCC) (Affiliation) OR Universitat Ramon Llull (Affiliation)

AND

Article OR Review Article (Document Types)

AND

2018 OR 2019 OR 2020 OR 2021 OR 2022 (Publication Years)

We retrieved 95,041 records. To ascertain the share of gold (33.0%) and hybrid (13.4%) OA outputs, we relied on the information sourced from OurResearch’s Unpaywall database through the Web of Science.⁴ To discern the fees charged by gold OA journals, we used DOAJ data⁵ downloaded on 29 January 2024. Exchange rates were calculated using the Google Finance currency converter.⁶

2.2. Factual Data on Expenditure Provided by Catalan Universities

Data on expenditure was compiled by the ten Catalan universities (CSUC, 2023), encompassing: a) library expenditure allocated to journal subscription licenses; b) library expenditure allocated to transformative agreements; and c) APCs paid by Catalan universities through external research grants and university funds to cover the publication of gold and hybrid OA articles.

2.3. APCs Funding Acknowledgements

To identify funding support for gold and hybrid OA articles, we searched the “funding text” field in the Web of Science records for any of these five

expressions: “APC”, “article processing charge”, “author fee”, “open access” and “publication fee”.

Our search yielded 1,498 excerpts acknowledging funding support to pay APCs, with 634 corresponding to gold OA articles and 864 to hybrid OA articles. These excerpts correspond to approximately 4% of the articles published in gold journals with APCs (i.e., excluding articles in diamond journals) and hybrid journals. While this sample does not fully represent the entire population of OA articles and the analysis was constrained by the lack of standardization in acknowledgements, these excerpts offered valuable insights into how researchers finance OA publication fees.

2.4. Authors’ Survey

For gold OA articles published in 2022 with corresponding authors affiliated to a Catalan university, we collected institutional email addresses (i.e., disregarding “gmail” and similar addresses). Corresponding authors of hybrid OA articles were omitted from the survey as hybrid OA publication is often not a deliberate decision of authors but occurs due to inclusion of journals in transformative agreements.

We identified 491 potential participants for the survey. The survey instrument was an anonymous online form tailored to elicit qualitative responses to three open-ended questions:

- What motivated these authors to submit their articles to a gold OA journal?
- What resources did these authors use to cover APCs?
- Any other comments on OA publication and associated APCs.

In March 2024, participants were invited via email to reply to the online survey. Each email was personalized to the recipient. Employing a critical incident technique, email messages referenced in the title of the article for which participants were corresponding authors and prompted them to consider the article while they were responding. Responses were collected through Microsoft Forms. On survey closure, 202 participants had responded, which was a response rate of 41%.

The raw data supporting this article is available at Borrego (2024).

3. Results

3.1. OA Scholarly Output and Estimation of APCs Expenditure

Between 2018 and 2022, researchers at Catalan universities published 95,041 articles. The annual output increased regularly from 2018 to 2021. However, the number of articles published in 2022 was lower than in the two previous years (Table 1). This decrease is unlikely to be attributable to delays in the indexing process by the Web of Science, since data were not collected until January 2024 to mitigate this possibility.

Despite a slight decrease in the number of gold OA articles published in 2022, the share of gold OA escalated from 25% in 2018 to 39% in 2022. Hybrid OA increased in absolute and relative terms, to reach 21% of the output in 2022.

The 31,319 gold OA articles published during the five-year period under scrutiny were published in 2,915 journals. We located 2,503 of these journals (86%) within DOAJ. These journals had published 28,931 (92%) of the Catalan gold OA outputs. Table 2 shows the fees charged by these journals.

The results reveal that, despite 37% of gold OA journals operate on a diamond model (i.e., they do not impose APCs), most articles (82%) were published in

Table 1: Scholarly output of Catalan universities, 2018–2022.

	2018	2019	2020	2021	2022	Total
Gold OA articles	4,175	5,072	6,509	7,952	7,611	31,319
% Gold	25.3%	28.7%	32.8%	36.7%	39.3%	33.0%
Hybrid OA articles	1,438	1,641	2,044	3,483	4,091	12,697
% Hybrid	8.7%	9.3%	10.3%	16.1%	21.1%	13.4%
Total articles	16,478	17,653	19,844	21,680	19,386	95,041

Table 2: Gold OA scholarly output of Catalan universities, 2018–2022.

	0	1–500	501–1,000	1,001–1,500	1,501–2,000	2,001–2,500	2,501–3,000	>3,000
	EUR	EUR	EUR	EUR	EUR	EUR	EUR	EUR
Journals	928	117	120	240	336	383	215	164
% Journals	37%	5%	5%	10%	13%	15%	9%	7%
Articles	5,067	648	469	1,290	3,511	6,678	5,237	6,031
% Articles	18%	2%	2%	4%	12%	23%	18%	21%

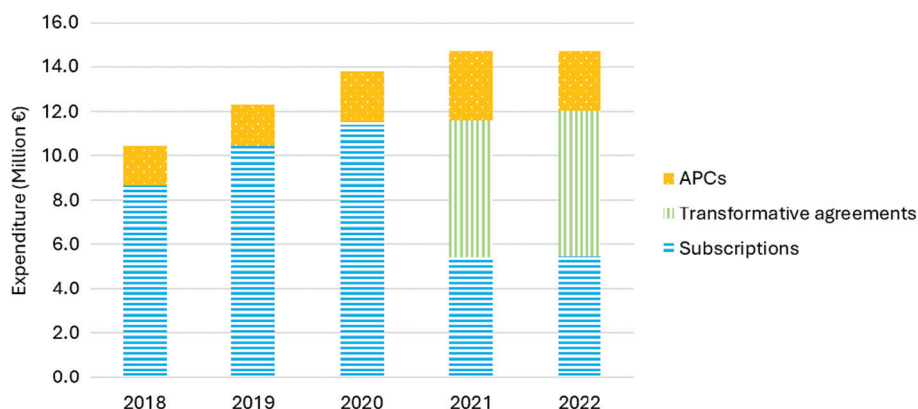
journals that do charge APCs. In fact, 62% of the articles were published in journals that charge more than 2,000 euros per article, even though these journals comprise only 31% of the publishing outlets. A rough estimate, based on the simple sum of publication fees, suggests that collective APC expenditure for publishing the gold OA scholarly output of Catalan universities between 2018 and 2022 would amount to 59 million euros.

3.2. Factual Data on Expenditure in Journal Subscriptions, Transformative Agreements and APCs

Hard data collected by Catalan universities included library expenditure on journal subscriptions and transformative agreements, plus APCs paid by researchers for gold and hybrid OA publication (CSUC, 2023). The data underscored a consistent upward trajectory in expenditure, rising from 10.4 million euros in 2018 to 14.7 million euros in 2022. In 2022, funds were allocated as follows: 45% for transformative agreements, 37% for journal subscriptions, and 18% for APCs.

An examination of the combined costs of journal subscriptions and transformative agreements revealed that expenditure increased from 8.68 million euros in 2018 to 12.03 million euros in 2022 (Figure 1). The stabilization of expenses from 2021 to 2022 is explained by the reduction in APC payments,

Fig. 1: Expenditure in journal subscriptions, transformative agreements and APCs.



which decreased from 3.10 million euros in 2021 to 2.67 million euros in 2022. This decline aligns with the decrease in the publication of gold OA articles and the influence of transformative agreements that attract to hybrid OA some articles that might otherwise have been published in gold OA journals, as outlined in Table 1.

3.3. APC Funding Acknowledgements

We retrieved 1,498 excerpts acknowledging funding to pay APCs, either for gold (634 excerpts, Table 3) or hybrid (864 excerpts, Table 4) OA articles.

In gold OA articles, nearly half of the excerpts acknowledged support to cover publication fees from a non-CSUC university or research centre, i.e., authors of these articles acknowledged support from an APC funding scheme available to coauthors affiliated with a different institution. For example:

*Open access funding provided by University of Vienna
We acknowledge support by Open Access Publishing Fund of University of Tübingen*

Table 3: Sources of APC funding acknowledged in gold OA articles (n = 634).

	Articles	%
Non-CSUC universities and research centres	307	48%
Research grants	207	33%
CSUC universities	72	11%
Private companies	22	3%
Authors	13	2%
Publishers	7	1%
Transformative agreements	6	1%

Table 4: Sources of APC funding acknowledged in hybrid OA articles (n = 864).

	Articles	%
Transformative agreements	540	63%
Non-CSUC universities and research centres	198	23%
CSUC universities	93	11%
Private companies	24	3%
Research grants	9	1%

The second source of funding to pay APCs were research grants. In some instances, distinguishing between the first two categories was challenging. As a rule, we classified as “research grants” the excerpts that mentioned a specific grant, whereas general excerpts acknowledging a non-CSUC funder were classified as “non-CSUC research centres”. In certain instances, such as the first example below, the same grant encompassed both the expenses for conducting the research and the APCs. In other cases, such as the second example, authors relied on separate sources for each purpose.

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About one in every ten acknowledgements recognized funding from a CSUC university. Some acknowledgements made general references to funding from a university (as in the first example below), while others specified support from a particular department (as seen in the second example) or a funding programme specifically designated to cover APCs (as illustrated in the third example). Occasionally, authors indicated that the institution only partially covered APCs without explicitly stating the source of the remaining funds (as observed in the second and fourth examples).

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Article processing charges were partially supported by University of Barcelona

Alternative sources of APC funding were less common yet noteworthy. For instance, 3% of acknowledgments recognized the support from private companies, predominantly from the pharmaceutical industry.

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Certain acknowledgments revealed that authors personally financed the APCs, either through fellowships (as in the first example below) or using their own resources (as illustrated in the second example). Additionally, some excerpts indicated that authors did not receive external funding to cover APCs (as shown in the third example), which implied that they incurred the expenses themselves. This finding suggests that the practice of covering APCs with personal funds might be more widespread, although authors may not necessarily feel compelled to include this information as part of an “acknowledgment”.

The APC was funded by M.F-M’s FWO postdoctoral fellowship

The APC were covered with own funds

The authors state that they have not received funds to cover the costs of publishing in open access

In a few instances, the publisher waived APCs and bore the expenses of OA publication.

The APC was funded by MDPI

The open access publication charge for this paper has been waived by Oxford University Press – NAR Editorial Board members are entitled to one free paper per year in recognition of their work on behalf of the journal

Lastly, certain references to transformative agreements in acknowledgments for gold OA articles may potentially be errors, either within the acknowledgment itself or in the classification of articles as gold OA.

Regarding hybrid OA articles (Table 4), nearly two-thirds of the acknowledgments indicated that the articles had been published within the scope of transformative agreements. Most acknowledgments referenced the CRUE-CSIC transformative agreements in Spain (345 excerpts), Projekt DEAL in Germany (120 excerpts) and CRUI-CARE in Italy (68 excerpts). Other categories of acknowledgments resembled those discussed for gold OA articles. However, the low percentage of hybrid OA articles acknowledging funding from research grants to cover APCs is notable.

Tables 3 and 4 provide valuable insights into the disparities between the estimated gold APC expenditure based on publication data (totalling 59 million euros between 2018 and 2022, as indicated in Table 2) and the actual APC

expenditure data collected by Catalan universities (amounting to 11.4 million euros between 2018 and 2022, as depicted in Figure 1). The factual APC expenditure data gathered by Catalan universities solely pertains to APC funding programmes managed by Catalan universities themselves and APCs funded by research grants managed by Catalan universities. The remaining sources of funding identified in Tables 3 and 4, including APC funding schemes and grants managed by non-CSUC universities and research centres, contributions from private companies, authors' personal assets, and waivers by publishers, would be allocated to cover the costs associated with the remaining gold OA articles. Furthermore, the results shed light on the frequent utilization of transformative agreements drawn up by coauthors' institutions for hybrid OA publication.

3.4. Authors' Behaviour and Opinions Regarding Gold OA Publication

Two hundred and two corresponding authors of gold OA articles affiliated with Catalan universities participated in the open-ended online questionnaire. When respondents were asked why they submitted their manuscript to a gold OA journal, they typically gave a mix of reasons.

By a significant margin, the most common rationale cited was the journal's impact factor, which was mentioned by 52% of the respondents. The OA availability of the article emerged as the second most prevalent reason, noted by 38%. In many instances, respondents indicated that they valued the visibility afforded by OA availability, although a handful justified their decision to publish in OA journals based on funders' requirements.

Other criteria were also frequently mentioned, albeit to a lesser extent. These included the speed of the publication process (30%), the prestige of the journal (25%), its scope (20%) and its target audience (18%).

Some respondents relied on their specific knowledge of the journal: they had been invited to submit a manuscript (7%), were responding to a call for papers (4%) or were members of the editorial board (3%). In an additional 3% of instances, the authors had not initially submitted their paper to the publishing journal, but rather to another journal that rejected it. They were then offered the opportunity to submit the paper to the current journal as part of a cascade submission process.

When asked about the resources they had utilized to cover the APCs, nearly half the respondents (49%) indicated that they had used research grants. In addition, authors relied on university funding schemes (21%). Another comparable percentage (19%) depended on their “own” funds, a miscellaneous category encompassing research funds resulting from contracts with private companies and, in some cases, authors who stated that they had directly paid the APCs from their personal funds. All these categories were not mutually exclusive, as respondents often combined funding sources. A notable proportion of respondents (17%) stated that they had not paid APCs because they had been invited to submit, were members of editorial boards or had vouchers given in exchange for reviewing.

In the section where authors were invited to provide additional comments regarding OA publication and associated APCs, several recurring themes emerged. Foremost among these was criticism of the high fees charged by gold OA publishers in comparison to the perceived value of the services offered. Many respondents described publication fees as “abusive”, “excessive”, “exorbitant”, “scandalous” or “shameful”. One respondent estimated that 20% of their research funding was allocated to APC payments, while another expressed dissatisfaction with having paid 10,000 euros for the publication of a single article in a “prestigious” journal. Another respondent expressed “remorse” for utilizing public funds to publish their research results.

Despite this criticism, authors acknowledged the pressures of the publish-or-perish model, which compels them to publish as much as possible. In the words of one participant “researchers need these journals to advance in their professional careers and journals take advantage of these needs to impose abusive fees”.

Some gold OA journals were praised for offering desirable features such as high impact factors and speedy review and publication processes. However, several respondents lamented a misalignment between funder requirements for OA publication and the criteria used in research assessment exercises.

Additionally, some respondents called for universities to allocate more resources to cover APCs, citing the scarcity of funding for this purpose. They suggested implementing “transformative agreements” like those used for hybrid OA to cover gold OA fees.

Furthermore, authors raised concerns about inequity, noting that only those with resources can afford to publish in gold OA journals. This creates a situation where information may not be published due to authors lacking the resources to pay APCs, thus exacerbating disparities in access to scientific knowledge. As one respondent put it, “equality of opportunities has evaporated, and with it, science suffers”.

Several respondents also mentioned perceived conflicts of interest among gold OA publishers, who may be incentivized to publish extensively to increase revenue. This has led to scepticism about the prestige of gold OA journals compared to traditional ones. Some authors expressed concerns about the rapid review process and perceived lack of quality in gold OA journals that prompted them to reconsider their publication strategies. In the words of one respondent, “paying to publish makes a bad impression”.

Despite the criticism, few respondents offered alternative solutions. Only a couple suggested the possibility of funding peer-reviewed repositories. Diamond journals were hardly mentioned.

4. Discussion and Conclusions

The scholarly output of Catalan universities from 2018 to 2022 saw a constant increase in the adoption of OA publication. By 2022, 60% of the articles by authors affiliated with Catalan universities indexed in the Web of Science were published either in gold or hybrid OA. This statistic is in line with the overall Spanish university system and the Spanish National Research Council (CSIC), which also recorded a combined gold plus hybrid OA rate of 59% in the same year, based on OpenAlex data (Aguilera et al., 2023).

However, this shift towards OA publication has come at a prize. Contrary to earlier expectations by Schimmer et al. (2015), investment in the research publishing system has not been contained. On the contrary, there has been a consistent increase in resources allocated to sustain the research publishing infrastructure.

Some of the resources devoted to journal subscription licenses have been redirected towards transformative agreements. Our analysis corroborates that transformative agreements contribute to the rise in hybrid OA publications.

However, evidence suggests that a complete transition to OA remains elusive for most journals (Brayman et al., 2024; Jahn, 2024; Kiley, 2023). Furthermore, transformative agreements do not cover APCs for gold OA journals, so additional budget allocations are required to accommodate such expenses.

Publication trends within Catalan universities reveal a notable increase in gold OA publications, with authors opting for journals with higher APCs. The stabilization in the total expenditure on scholarly publication within Catalan universities in 2022 can be attributed to a decline in the number of gold OA articles published and the impact of transformative agreements, which redirect some articles towards hybrid OA that would otherwise have been published in gold OA journals (Brayman et al., 2024).

Like the serials crisis, with increases in journal subscription prices beyond the rate of inflation, the current landscape of APCs mirrors past trends, with publishers setting publication fees for prestigious OA journals above the actual production costs (Khuo, 2019, Morrison et al., 2022).

Delving into the funding dynamics associated with OA publishing, the analysis of funding acknowledgements and replies to the survey draws attention to the distinct sources of funding relied upon by authors for gold and hybrid OA. While gold OA often leverages university funding programmes and research grants, hybrid OA frequently benefits from transformative agreements. Authors affiliated with Catalan universities often profit from funding schemes and transformative agreements that are available to their coauthors. Our survey also underscores the prevalence of researchers relying on diverse funding sources, including personal assets and waivers.

Authors express disillusionment and frustration with the evolving OA landscape, citing concerns over exorbitant publication fees and the challenge of securing funding to cover APCs. Nonetheless, the allure of high-impact journals and expedited peer review processes continue to drive authors towards gold OA publications, echoing findings from previous studies (Borrego & Anglada, 2016).

Furthermore, researchers voice concerns about the lack of equitable funding programmes and the potential conflicts of interest in gold OA models, which highlight the risk of journals compromising the integrity of the peer review process to boost profits. These concerns resonate with broader discussions on authors' perspectives on OA (Boukacem-Zeghmouri et al., 2018; Feenstra

& Delgado López-Cózar, 2022; Ruiz-Pérez & Delgado López-Cózar, 2017; Schöpfel et al., 2016; Tenopir et al., 2017).

Nevertheless, it is important to note that the survey participants are not a fully representative sample of authors affiliated with Catalan universities. The survey specifically targeted authors of gold OA articles who had paid an APC, thereby excluding authors publishing in diamond and hybrid journals, who may hold different views on the topic. Authors with limited funds may opt exclusively for diamond journals or those covered by transformative agreements to publish OA without incurring fees, potentially leading to their exclusion from our sample.

Moving forward, further research is imperative to deepen our understanding of these complex issues. While initiatives like OpenAPC aim to track APC payments, the data remain incomplete (Bruns & Taubert, 2021). Ongoing efforts are needed to enhance transparency and accountability in scholarly publishing expenditure. Standardizing acknowledgment practices and refining data collection mechanisms will be crucial in this endeavour, which will require sustained institutional commitment and collaboration.

The survey results also suggest avenues for further research. While authors express discomfort with APCs, there is limited discussion on alternative OA models. Exploring authors' perspectives on green OA, including repositories and preprint servers, with or without peer review, as well as diamond journals could provide valuable insights. Some researchers mentioned the potential expansion of transformative agreements to include gold OA journals, but their understanding of associated costs may be limited. Although the discomfort expressed by authors may drive action, it remains uncertain to what extent researchers would support their institutions in cancelling transformative agreements or APC payments until publishers lower prices. Additionally, some authors linked APC increases to research assessment criteria, particularly impact factor. This issue warrants further exploration, especially in the context of research assessment reforms in Spain (Orfila, 2023).

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Notes

¹ <https://www.crue.org/proyecto/acuerdos-con-editoriales/>.

² <https://www.csuc.cat/en/serveis/llicitat-dinstitucions-participants-pi>.

³ <https://www.csuc.cat/en/serveis/acces-obert>.

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⁵ <https://doaj.org/csv>.

⁶ <https://www.google.com/finance/markets/currencies>.