OASPA’s mission is to ‘develop and disseminate solutions that advance open access and ensure a diverse, vibrant, and healthy open access community’. These twin goals of advancing open access (OA) and ensuring a healthy OA community are distinct and not necessarily synergistic. Strategies aimed at rapidly increasing the proportion of OA content may prove damaging to the community over the long-term if they lead to higher costs or increase levels of market concentration. Meanwhile, a diverse and vibrant OA community will fail to meaningfully advance OA if it cannot offer credible, mainstream alternatives to paywalled publication.

We can state with confidence that open access is advancing rapidly. OASPA members published 425,000 articles in 2019, a 17% increase on 2018. The number of articles reported by our members has grown almost ten-fold since 2011 (Pollock 2020). This picture is consistent with the wider landscape, with sustained double-digit growth in open access articles far outstripping growth in the underlying scholarly journals market (Pollock and Michael, 2020). Though progress towards open access books and other outputs remains slow, a growing number of studies suggest we have already passed the ‘tipping point’ for open availability of peer-reviewed journal articles (European Commission 2013; Piwowar et al 2019; Hook 2021).

The prospects for a diverse, vibrant and healthy OA community appear less rosy. Today, just six publishers account for around 75% of OASPA members’ OA output (Pollock 2020), and market concentration is increasing rapidly in the wider OA market, as Section 3 of this issue brief shows. There are also legitimate concerns that future models of open access publishing may exclude authors from low- and middle-income countries. As Richard Poynder (2020) has observed, ‘one possible outcome [of the OA movement] is that greater accessibility will be achieved at the cost of both affordability and equity.’

It is for this reason that OASPA has convened two workshops on the open access market with representatives from multiple stakeholders and regions. As a community, we need to assess the roles of different actors in shaping the open access market, recognising that governments and funders are increasingly active in shaping systems of scholarly communication. But most importantly, we want to bring together private, public and community-led stakeholders to identify the influential factors and drivers that can be used to bring about positive change.

Claire Redhead, Executive Director, OASPA

“With most discussions about the private versus the public sector, the answer is not either/or. It is case-by-case, and it is both. The challenge is to find the right balance between regulation and freedom.”

Hans Rosling (2018), Factfulness
1.1 Defining the open access (OA) market

Our working definition of the open access market is:

*The economic system that enables the dissemination of peer-reviewed outputs containing original research or scholarship immediately upon publication, at no charge to user groups, and with minimal restrictions on re-use.*

It is a global economic system which is underpinned by a combination of market-based, government-financed and community-led production mechanisms. The balance between these different actors and mechanisms varies between geographical regions and academic disciplines. However, even in highly marketised environments (such as scientific, technical and medical journal publishing in the US and Europe) the publication of peer-reviewed manuscripts can be seen as the outcome of a process of co-creation between the academic community and publishing service providers.

1.2 The OA market versus the paywalled market

In a digital environment, the knowledge embodied in peer-reviewed manuscripts is non-rivalrous, meaning that it can be used simultaneously by more than one person without being depleted. The open access market can be contrasted with the ‘paywalled’ (also known as ‘subscription’ or ‘toll-access’) market in terms of its approach to excludability - users cannot be barred from accessing open access content by failing to pay for it.

In other respects, however, the two markets have much in common. Both are ‘intermediated’ markets in which researchers act as both the producers and main consumers of published research, while the costs of publication and access are typically met by academic libraries or funders. Open access is already the dominant mode of publication for local journals in many parts of the world, but in the international literature the hybrid journal is the most common model, meaning the OA and paywalled markets remain closely intertwined (QOAM, n.d.). The growing adoption of transformative agreements, whereby libraries pay for both reading and publication costs in a single transaction, is further blurring the distinction between the open access and paywalled markets.

1.3 Sizing the OA market

Delta Think estimate that the market for OA journals grew to around $763m in 2019, representing just over 30% of market volume, but only 7% of market value (Figure 1). Other sources, such as the Dimensions database, suggest more than half of outputs are now openly available (Hook 2021). Meanwhile, Simba (2020) estimate that the market for open books accounts for a mere 0.4% of global scholarly book publishing.

**Figure 1: Comparison of Article Share and Revenue Share (source: Delta Think, 2012)**
SECTION TWO
Market forces in OA publishing

2.1 The role of the market in OA publishing

Publishing service providers, whether open access or otherwise, are commonly understood to undertake four key functions on behalf of the academic community:

- Registration: third-party establishment by date-stamping of the author’s precedence and ownership of an idea.
- Dissemination: communicating the findings to its intended audience usually via the brand identity of the journal.
- Certification: ensuring quality control through peer review and rewarding authors.
- Archival record: preserving a fixed version of the paper for future reference and citation. (Roosendaal and Geurts 1997)

These services may be delivered by public, commercial or not-for-profit entities, and scholarly content can be made open access through routes other than formal publication, including deposit in open access repositories.

“A market economy is to economics what democracy is to government: a decent, if flawed, choice among many bad alternatives.”

C. Wheelan (2019)

Publishing itself can also be viewed as a composite activity that could be re-organized, or 'unbundled', across many different types of actors (European Commission, 2019).

Whilst this diversity of OA business models and publishing mechanisms is to be celebrated, the evidence suggests that fee-based approaches to OA publication are becoming ever more dominant.

A recent study for Science Europe (Bosman et al 2021) found that, since 2018, the share of diamond journal articles (those with no author or reader-side charges) has been dwindling, which coincides with the increase in articles in journals with an article publication charge (APC). This mirrors the pattern seen in the traditional academic publishing market over the late 20th and early 21st centuries, which was characterised by commercialisation and consolidation (Fyfe et al, 2017).

2.2 Developing a healthy market

There is no universally accepted definition of a 'healthy' market, but for our purposes it can be understood as blending the advantages of a pure 'market economy' (such as efficiency, productivity and innovation) with a concern for equity and social justice. In economic terms this is commonly referred to as a 'mixed economy'.

A market could include only a small number of service providers but still be considered healthy if appropriate checks and balances were in place to ensure no single provider comes to dominate the market, and that the interests of consumers are protected.
2.3 Market failure and equitable access

Market failure exists when the competitive outcome of markets is not satisfactory from the point of view of society. This is most apparent in the current subscription publishing model, which many believe fails to deliver a socially acceptable level of access to knowledge. This contributes in part to the persistent inequity and imbalance in global knowledge systems.

As the research communication system evolves, (albeit gradually), towards universal open access, there are no guarantees that this disparity will naturally disappear or even diminish, unless positive action is taken to remove some of the obstacles inherent in current open access business models (Powell et al., 2020).

As more journals make the transition to an open access business model, the risk is that a new form of market failure – an inability to publish rather than to read – simply exacerbates the lack of representation from researchers in low-and-middle-income-countries and other disadvantaged groups in the scholarly literature.

2.4 Diversity in the market

A diverse and vibrant market, in contrast to a merely healthy market, would include the regular arrival of new entrants and the continued presence of small and medium enterprises serving the needs of specific communities. In the context of open access it would also facilitate ‘bibliodiversity’, as advocated by Shearer et al. (2020).

Diversity reduces market concentration and the risk of vendor lock-in, facilitating author choice and widening participation in the scholarly communication system. However, this must be weighed against the value of economies of scale in driving down costs and the need for technical interoperability as science becomes increasingly data-intensive and digital.

2.5 Characteristics of a healthy and diverse market

Taken together, the above considerations suggest that a healthy, diverse and vibrant market would have a number of characteristics, which are summarised in the box below. These represent a starting point for discussion, and a means of testing the level of agreement on the topic.

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**Proposed characteristics of a healthy, diverse and vibrant open access market**

1. Efficient, sustainable dissemination of high-quality peer-reviewed outputs containing original research or scholarship.
2. Readers are able to access research outputs free of charge and with minimal restrictions on re-use.
3. Authors (and libraries or funders acting on their behalf) are able to publish their research either at no charge or at an affordable price.
4. A diversity of workflows, languages, publication outputs, and research topics that support the needs and epistemic pluralism of different research communities.
5. Regular arrival of new entrants and the continued presence of small and medium-sized enterprises within the market.

---
3.1 How healthy is the OA market?

The table on page 5 presents an economic analysis of the open access market, contrasting it with a ‘perfect’ market, and with the paywalled market. This analysis draws on free market principles and is therefore most relevant to those aspects of the system delivered through market mechanisms. The role played by public, not-for-profit and community actors in the open access market is explored further in sections 5 to 7, below.

This analysis indicates that the open access market falls some way short of a ‘perfect’ market, but does not (yet) suffer from the most uncompetitive characteristics of the paywalled market, namely:

- Non-substitutable products, in the form of highly prestigious journals that each constitute a form of ‘mini-monopoly’.
- A lack of price transparency, meaning libraries and library consortia have little visibility of the relationship between the price and quality of paywalled content.

- Inelasticity of demand, meaning changes in price (e.g. year-on-year increases in serials pricing) generally do not result in reduced demand (e.g. cancellation of subscriptions).

3.2 How diverse is the OA market?

While the paywalled market is dominated by English-language publishers based in Western Europe (and, to a lesser extent, North America), open access publishing is truly global in nature, with more than half of open access journals indexed in the Directory of Open Access Journals (DOAJ) being published outside Europe (van der Graaf and Johnson, 2020).

As Figure 2 shows, however, diversity in terms of the distribution of articles across publishers is reducing rapidly, particularly for fee-based open access journals. In 2020, just five publishers accounted for 58% of all fee-based OA articles, compared with 44% in 2015.
### Table 1. Analysis of the OA market and the paywalled market against ‘perfect’ market ideals

The table below presents a supply-side market analysis focused on the most common business models used in the open access and paywalled markets (article publication charges, transformative agreements and subscriptions). In practice, a much greater range of business models is used to publish scholarly outputs than can be represented here. A full market analysis would also need to consider demand-side factors from the perspective of researchers and institutions.

<table>
<thead>
<tr>
<th>A ‘perfect’ market</th>
<th>The open access market</th>
<th>The paywalled market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products are homogeneous</td>
<td>Products are heterogeneous and potentially substitutable for authors, but complementary for readers</td>
<td>Products are highly differentiated and non-substitutable</td>
</tr>
<tr>
<td>Low barriers to entry and exit</td>
<td>Low barriers to entry, but technical and reporting requirements are growing, and new entrants often lack the ability to scale</td>
<td>High barriers to entry due to academic prestige and non-substitutability of established journals</td>
</tr>
<tr>
<td>No transaction costs</td>
<td>Transaction processing is costly and inefficient, with growing expectations around metadata reporting even where there are no financial transactions</td>
<td>Transaction costs for the payment of subscriptions are low, though editorial and peer review workflows are frequently complex</td>
</tr>
<tr>
<td>Buyers and sellers have access to perfect information about price.</td>
<td>High levels of transparency on APC/BPC pricing, underpinned by initiatives like OpenAPC. However, this is being eroded by transformative deals and ‘intermediation’, where libraries/funders pay on behalf of authors.</td>
<td>Non-disclosure agreements limit price transparency</td>
</tr>
<tr>
<td>Many buyers and sellers</td>
<td>Many libraries and OA publishers, but market concentration is increasing, with five publishers accounted for 58% of all fee-based OA articles in 2020.</td>
<td>There are many libraries and publishers, but parts of the market (such as STM journals) have oligopolistic characteristics, and there are very few new market entrants.</td>
</tr>
<tr>
<td>Elastic demand</td>
<td>There is some evidence that demand for OA journals is linked to APC pricing, but the relationship may be weakening over time.</td>
<td>Inelastic demand due to non-substitutability of journals</td>
</tr>
</tbody>
</table>
SECTION FIVE
The future of the OA market

5.1 The current outlook

It remains possible that market forces may prove more effective in shaping a healthy and diverse OA market than they have been in the paywalled market. For example, the involvement of authors in payment workflows may make them more sensitive to the prices they pay. Competition in the market could also increase as OA publishers increasingly come to be viewed as service providers rather than content owners.

However, there are a number of indications that the open access market is becoming less healthy and less diverse over time. These include:

- The prevailing influence of researcher evaluation and assessment policies, which tend to favour publication in established, ‘high-impact’ journals over new and local publishing venues.
- The acquisition of a large number of ‘born open access’ publishers by established players (e.g. BioMedCentral, Dove Press, F1000, Hindawi, Co-Action and Libertas).
- Above-inflation increases in article publication charges, and the recent introduction of APCs priced at more than $10,000 per article (Pollock and Michael, 2021a).
- The dominance of English as the lingua franca of science - notwithstanding the rapid growth in Chinese language publications.
- The concentration of infrastructure and services in the hands of a small number of private corporations.

"In principle, the shift to a full open access publishing ecosystem would create more effective competition between publishers as service providers to authors, and has the potential to finally resolve the problem of maintaining a well-stocked research library on limited resources."

E. Fyfe et al. (2017)

5.2 Surveillance capitalism in the OA market

To these endogeneous aspects of the OA market can be added the wider societal trend towards data-centric platform models. As the OECD notes, ‘the increased digitalisation of markets and their platforms business models has given rise to structural characteristics that drive highly concentrated markets’ (2020, p.11), a tendency which is already in evidence within academia (Aspesi et al 2019).

The future of the OA market must therefore be considered in light of the tendency towards the commodification of personal data with the core purpose of profit-making, commonly termed ‘surveillance capitalism’.

Collectively, these internal and external trends mean it is likely that the open access market will move closer to the subscription market in its dynamics, and further away from a ‘perfect’ market. In the following section we consider the possible responses to these trends.
6.1 Forms of market intervention

The traditional response to a perceived failure of markets has been for government to intervene, either directly or indirectly, through a combination of traditional instruments and market-based approaches, as shown in Figure 3 (Office of Fair Trading, 2009).

To date, competition (or ‘antitrust’) laws have not been invoked as a mechanism to tackle concerns over the operation of the academic publishing market (Tennant and Brembs, 2018). However, regulatory action is already shaping the development of the educational textbook market (Allen, 2021) and similar interventions could play a role in the open access market in future.

While competition authorities have not chosen to intervene directly, there have been a range of other actions taken by policymakers, funding agencies and other stakeholders which already play a role in shaping the open access marketplace, as outlined below:

- Direct provision of publishing services by public and not-for-profit actors (e.g. Scielo, OpenEdition, Open Library of Humanities)
- Competitive tendering for the provision of publishing services (e.g. Open Research Europe, Gates/Wellcome Open Research)
- Influencing the market through regulation (e.g. open access mandates, cOAlition S’ rights retention strategy)
- Using grants and subsidies to address market failure (e.g. funder support for article publication charges, grants to scholar-led publishers and services like Unsub)
- Attempts to reform the systems for evaluation of research, as a means of changing user behaviour (e.g. the San Francisco Declaration on Research Assessment)
- Improving user information (e.g. Quality Open Access Market, cOAlition S price transparency framework)
- Setting norms and standards for behaviour in the marketplace (e.g. OASPA Code of Conduct, Directory of Open Access Journals/Books)

**Figure 3. Types of Government intervention**

<table>
<thead>
<tr>
<th>Providing public services</th>
<th>Traditional instruments</th>
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<tr>
<td>Competing tendering User choice</td>
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</table>

<table>
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<tr>
<th>Influencing private markets</th>
<th>Market-based approaches</th>
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<tbody>
<tr>
<td>Regulation Tax and subsidy</td>
<td>Trading schemes Self-regulation</td>
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</tbody>
</table>
6.2 The role of funders

Recent years have seen research funders take a more active interest in scholarly communication, and specifically the open access market, than was historically the case. Funders, like governments, are seen by some as operating ‘outside’ the market, which in the case of scholarly communication has become closely tied to the evaluation of research (European Commission, 2019). There is also growing evidence to suggest that intervention by funders can accelerate the transition to open access, in terms of the share of articles that are made available free-to-read and under an open licence (Larivière and Sugimoto, 2018).

However, funder requirements apply only to those publications funded by a particular agency, or those researchers working within particular national or regional jurisdictions. Even large groups of funders such as cOAlition S are able to exert direct influence over only a small fraction of the global open access market, and their ability to shape the health and diversity of the market is uncertain. Nevertheless, it is clear that funders are having a significant impact on the global discourse around open access (Pollock and Michael, 2021b).

Funders are also in a strong position to lead reform of the ways in which researchers and the outputs of scholarly research are evaluated (DORA, n.d). In particular, they can challenge the dominance of the journal impact factor, which contributes in large part to the problems of non-substitutability and inelastic demand in the market for scholarly publications (Johnson et al, 2017; European Commission, 2019).

6.3 The limits of regulation

While the pitfalls of a free market approach to open access publishing are apparent, the potential for government or funder intervention to create a healthy and diverse market remains unclear. The global nature of academic publishing, and the lack of consensus among national governments and funding agencies on both the merits of immediate open access, and the mechanisms by which it should be achieved, mean regulation alone is unlikely to deliver a healthy market. Indeed, an excess of regulation even runs the risk of fracturing the current international system of publication along regional lines (Poynder, 2020).

Funders and regulators can and, many would argue, should act to shift behaviour, change incentives and to tackle the most egregious examples of market failure. Yet their ability to do so successfully depends on them being seen as credible and impartial actors and retaining the trust of the market actors and communities affected.

“Many, though not all, of the free-rider and collective-good problems that are usually presented as requiring external regulation may be better addressed by relying on the ingenuity of those most affected by them to devise an appropriate set of rules”

E. Ostrom et al (2012, p.40)
7.1 The role of community

While this issue brief has focussed hitherto on the roles of markets, regulators and funders in scholarly communication, it is recognised that these concepts fail to take adequate account of the full spectrum of actors engaged in open access publishing. Researchers, learned societies, academic institutions, university and scholar-led presses and other key actors in the open access market are neither part of government nor (primarily) part of the market but all form part of what might be termed 'the OA community'.

In practice the OA community is best seen as an umbrella term encompassing multiple communities, each with their own distinct interests, which overlap to varying degrees. Progress towards community-based solutions therefore relies on the development of standards and behavioural norms which can gain cross-community support.

"Importantly, the solutions to many of our problems are to be found in bringing dysfunctional communities back to health, not in clamping down on technology or on markets."

R. Rajan (2019)

7.2 Co-creating a diverse and healthy market

The development of a healthy and diverse open access market is a 'collective action' problem, which neither market forces, regulation or the community are able to resolve in isolation. There is no one-size-fits-all solution.

Instead we must seek to 'co-create' solutions which marry the creative power of the market with the regulatory power of funders and governments and the convening power of community. The emphasis placed on each of these three powers will vary across contexts and cultures, but all are needed to deliver a sustainable future for open access.

There is a rich history of co-creation in academic publishing, with initiatives such as Crossref, arXiv, ORCID, DOAJ, PubMedCentral and many others now forming part of the essential infrastructure on which open access publishing relies.

Significantly, most of these initiatives were initiated by members of a particular community - researchers in a particular discipline, librarians, publishers, funders or governments - and only gained cross-community support over time.

As open access becomes the dominant form of communication, we now need to build a similar cross-community consensus on what constitutes a healthy and diverse OA market, and how it might be co-created.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>APC</td>
<td>An article publication charge, a fee sometimes charged to authors to make a work available open access in either an open access journal or hybrid journal. This fee may be paid by the author, the author’s institution, or their research funder.</td>
</tr>
<tr>
<td>BPC</td>
<td>Book publication charge.</td>
</tr>
<tr>
<td>CC BY</td>
<td>This license lets others distribute, remix, adapt, and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of licenses offered. Recommended for maximum dissemination and use of licensed materials. (<a href="https://creativecommons.org/licenses/">https://creativecommons.org/licenses/</a>)</td>
</tr>
<tr>
<td>DOAJ</td>
<td>Directory of Open Access journals (<a href="https://doaj.org/">https://doaj.org/</a>)</td>
</tr>
<tr>
<td>DORA</td>
<td>The Declaration of Research Assessment (<a href="https://sfdora.org/">https://sfdora.org/</a>)</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development (<a href="https://www.oecd.org/about/">https://www.oecd.org/about/</a>)</td>
</tr>
<tr>
<td>ORCID</td>
<td>A non-proprietary alphanumeric code used to uniquely identify authors and contributors of scholarly communication outputs</td>
</tr>
<tr>
<td>Transformative agreement</td>
<td>Transformative agreements (also known as ‘transitional’, ‘read-and-publish’, and ‘publish-and-read’) agreements is an umbrella term describing those agreements negotiated between institutions (libraries, national and regional consortia) and publishers in which former subscription expenditures are repurposed to support open access publishing</td>
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ISSUE BRIEF
Co-creating a healthy and diverse open access market

About OASPA

Representing a diverse community of organisations engaged in open scholarship, OASPA works to encourage and enable open access as the predominant model of communication for scholarly outputs. We are committed to our mission of developing and disseminating solutions that advance open access and ensuring a diverse, vibrant, and healthy open access community.

About Research Consulting

Research Consulting is a mission-driven research and scholarly communication consultancy, working with national and international organisations to help them make the most of their research processes and findings. We are active participants in the research ecosystem, and our work covers all aspects of the research life-cycle – including policy, funding, management, publishing and knowledge exchange.

Contributors

We gratefully acknowledge the input and advice of the individuals below, whose insights have contributed to the finished text of this issue brief:


Any errors or inaccuracies are the responsibility of the authors alone.