

L'impatto dell'Open Access dal punto di vista del Ricercatore

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GRIN working group on OA

Informatics Europe task force on OA

What do the researchers do?

3

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- disseminating the results of their research
- having a good evaluation

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Dissemination is performed by the publishers and the evaluation depends on the research assessment procedures.

While **publishers** are part of the research value chain, we should not underestimate they **are commercial players**

A sound and cost-effective decision-making process concerning the relationship with scientific publishers is crucial for

- Appropriateness of public spending
- Researchers' ethical posture
- Transparency

Understanding scientific publishing can mitigate and reduce the impact of the epochal changes due to the transition to Open Access

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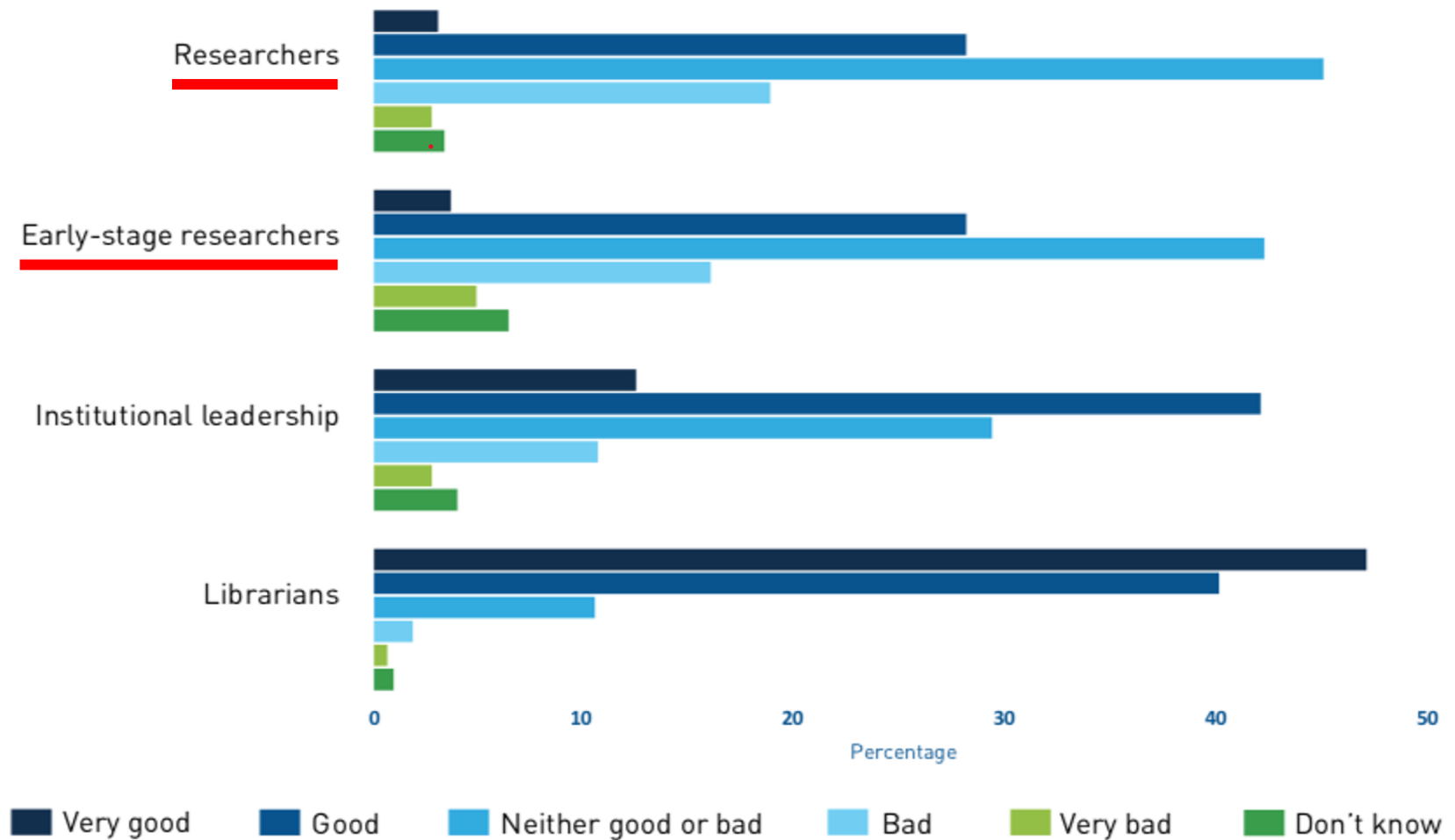
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Awareness among university populations

8

Figure 12. Awareness of scientific publishers' open access policies among different university populations



Open Access 2016-2017 EUA Survey Results, European University Association, Feb 2018

<https://www.eua.eu/downloads/publications/open%20access%202016-2017%20eua%20survey%20results.pdf>

L'impatto dell'Open Access dal punto di vista del Ricercatore / Prof. Alfonso Pierantonio

- Introduction
- Open Access
- Publishing Market
- Plan-S
- Problems
- Predatory journals
- Conclusions and Final Considerations

- Open Access is inducing profound changes in the scientific publishing comparable to the introduction of movable type printing (AD 1455) and the transition to electronic publishing
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Global and local actions are needed

- Open Access permits open and instantly access, **without costs to the reader**, to research results and data
- Authors retain the copyright in their articles
- The basic principle is that the research outcome of public research programs and agencies must be openly accessible

- Enhancing the dissemination on a global scale
- Providing access to people who have not access to paywall-based distribution systems
- Increasing the use of scientific contributions and knowledge transfer, eg in teaching programs, in SMEs
- Making the research process more transparent to the taxpayer and to assessment processes
- etc

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hybrid and golden route
 - **Community:** non-profit organizations, academic or governmental institutions
platinum/diamond route
 - **Institutions:** overlay platforms, repositories
platinum/diamond, green route

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Source of Problems

Model	Description	APC
Gold	All products are openly accessible. Publication costs are covered with APC usually paid by the researcher institution or the funding agency. The APC does not automatically imply the copyright non-transfer.	Yes
Hybrid	A hybrid open-access journal is a subscription journal in which some of the articles are open access.	Yes
Green	Some subscription-based journals permits the authors to distribute the products on institutional platforms (e.g., ArXiv, PubMed), in some cases after 6-12 months from the publication.	No
Platinum or Diamond	All products are openly accessible without any financial and temporal constraint. Products are distributed with flexible and liberal copyright licenses, typically CC-BY. Production costs are covered by non-profit organizations , academic or governmental institutions.	No
Black	All products are openly accessible on platforms that distribute the content illegally .	No
Bronze	Products are openly accessible on the site of the publisher without any specification about the copyright license.	

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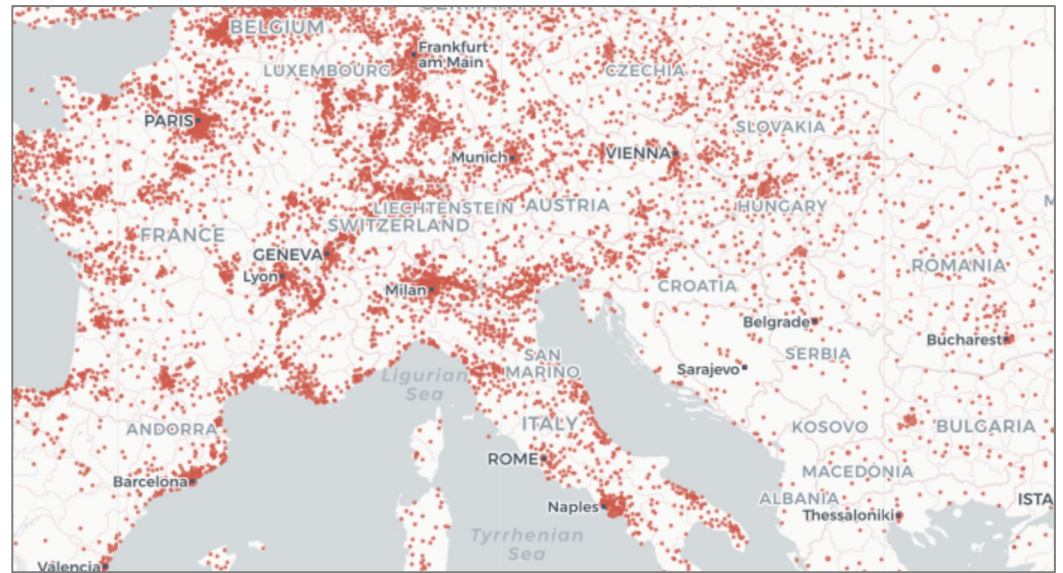
The market is defined by the goods that are exchanged, in scientific publishing, the good exchanged is **knowledge** in terms of **contents** and **indexing**

- scientific knowledge (contents), it is the research product
- bibliographic knowledge (indexing), knowing the existence of a research result, eg Google Scholar is different than SciHub

The accesses in Italy and Europe explain researchers needs

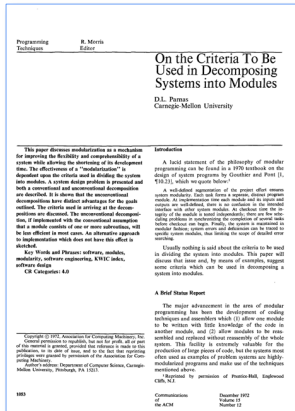
- it is not just about Open Access
- the paywall model jeopardizes usability and immediacy

Sci-Hub combines Open Access and indexing (illegally)



In Scientific Publishing, prices are not self-regulated by buyers and sellers negotiating without coercion

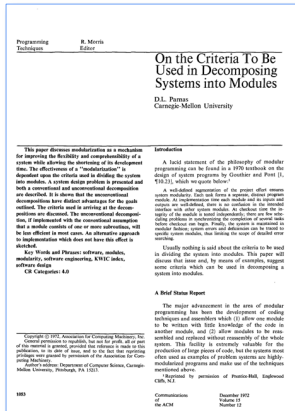
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Parnas, D. L. (1972). On the criteria to be used in decomposing systems into modules. Communications of the ACM, 15(12), 1053-1058.

Can we be happy with an alternative paper if the publisher does not provide access to the paper we are looking for?

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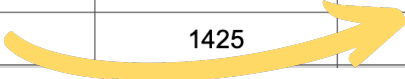
The demand is “inelastic”: if prices change, the demand does not change proportionally.

The market is (technically) non-competitive because

- the demand is inelastic: publisher acts in an almost monopoly regime
- part of production costs are fixed costs
- limited investments and innovation for competitiveness

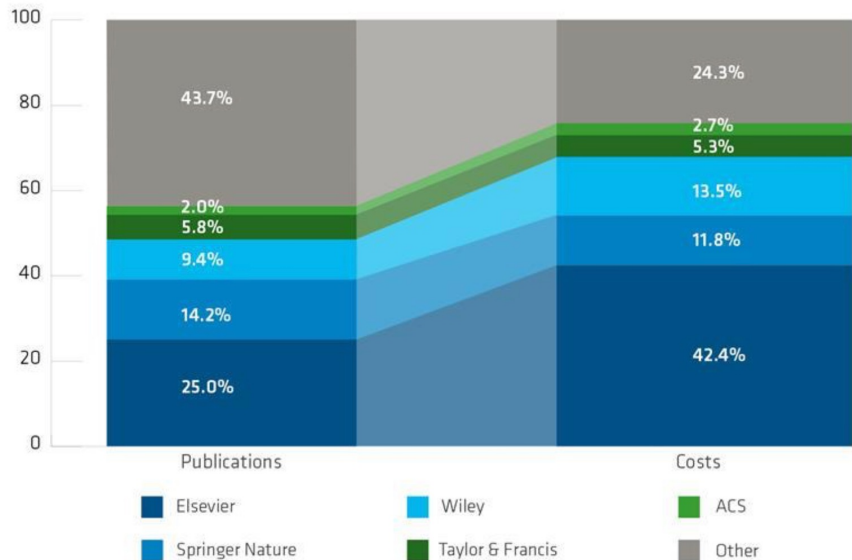
- Historically, most production costs were variable costs, depending on the number of copies to be produced and the number of copies to be distributed
- Today, part of the cost is fixed and is related to the processing, production, and distribution platform, but then the reproduction costs are nonexistent

Cost element	Subscriber-pays journal Cost in US\$		Author-pays journal Cost in US\$	
	Good-to-high-quality journal	Medium-quality journal	Good-to-high-quality journal	Medium-quality journal
First-copy costs per article	1500	750	1500	750
Fixed costs per article	1650	825	1850	925
Variable costs per article	1100	600	100	100
Total costs per article	2750	1425	1950	1025



Costs and business models in scientific research publishing – A report commissioned by the Wellcome Trust (2004)

Publishers have huge profits, and few players share the entire market



75% of European spending on scientific journals goes to 'big five' publishers

Elsevier has a 25% share of publications but 42.4% of costs. Springer Nature has a 14.2% share of publications but an 11.8% share of costs.

Thanks to institutional subscriptions, commercial scientific publishers operate a lucrative market. How lucrative? Spectacularly so.

2019 financial performance

	2019 £m	2018 £m	Underlying growth	Portfolio changes	Currency effects	Total growth
Revenue	2,637	2,538	+2%	-1%	+3%	+4%
Adjusted operating profit	982	942	+3%	-1%	+2%	+4%

Key business trends remained positive in 2019, with underlying revenue growth in line with the prior year.

Underlying revenue growth was +2%. The reported revenue growth rate of +4% benefited from the strength of the US dollar versus sterling, with the difference between constant currency and underlying growth rates reflecting the impact of portfolio changes.

Underlying adjusted operating profit growth was +3%, slightly ahead of underlying revenue growth.

Electronic revenues saw continued good growth, partially offset by print declines. In primary research we continued to enhance customer value by providing broader content sets across our research offering, increasing the sophistication of our analytics, and evolving our technology platforms.

The number of article submissions to our subscription journals continued to grow strongly. Our open access publishing programme, which now includes over 370 dedicated open access

journals, saw its growth rate in articles submitted and published accelerate further as we continue to gain market share.

Databases & tools continued to drive growth across our market segments through content development and enhanced machine learning and natural language processing based functionality.

Print book revenues were down in a market that declined in line with historical trends, and print pharma promotion revenues continued to decline.

In 2019 we made three small acquisitions, including 3D4Medical, a provider of advanced 3D anatomy solutions, and disposed of minor print assets.

2020 outlook

Our customer environment remains largely unchanged from recent years, and we expect another year of modest underlying revenue growth, with underlying operating profit growth exceeding underlying revenue growth.

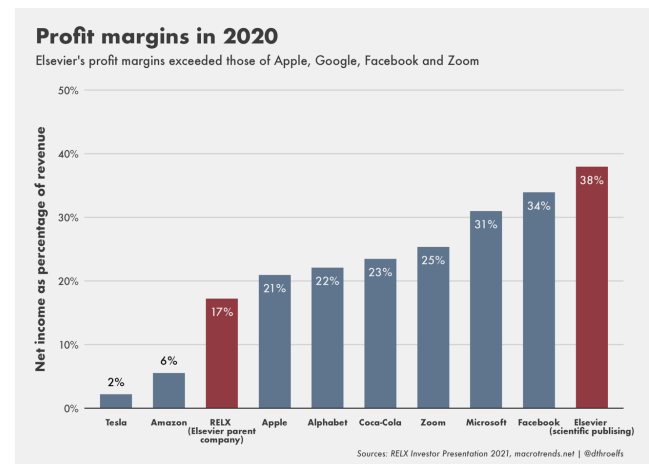
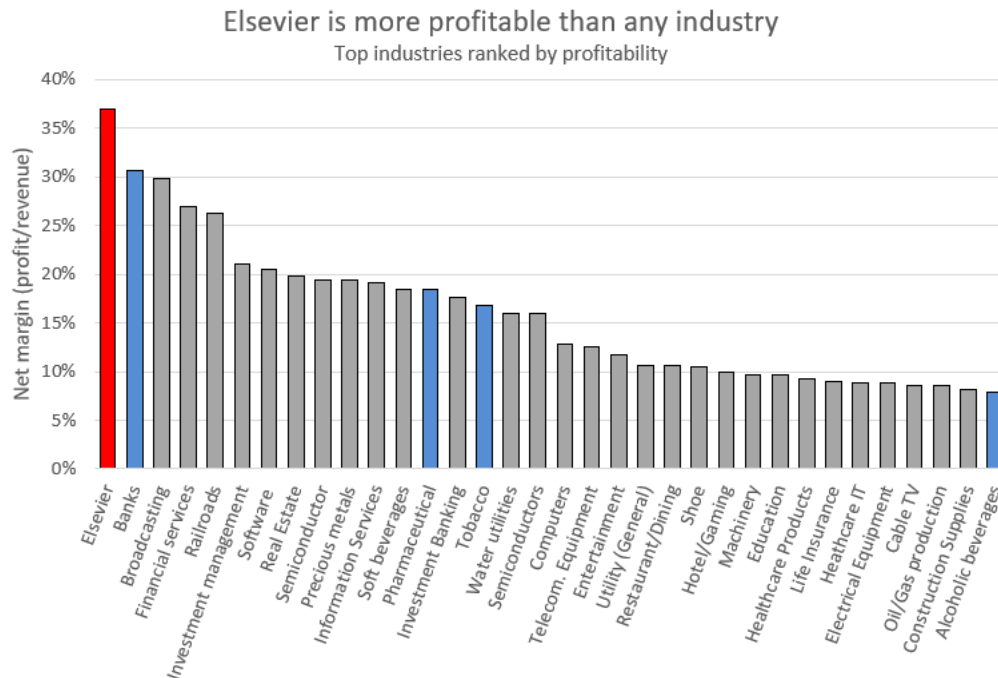
Problems / how lucrative?

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To understand how profitable a company is, divide profit by revenue to obtain the net margin

- Elsevier's is $982/2,637$, which is 37% (2019)

No industry is so profitable!



https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html

- Publishers are selling
 - **Contents**, the research products
 - **Organization** of the activities, content collection, and platform
 - **Certification** based on the reputation of journals and editorial series consolidated over time
- Publishers produce the organization and are responsible for the certification; the contents are researchers responsibility
 - the work done by researchers is typically pro-bono

Researchers produce knowledge led by the desire of

- disseminate the results of their research
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Other important players aim to maximize profits

- commercial publishers
- open archive managers
- social networks like ResearchGate
- search engines like Google Scholar
- the discovery tools producers (and libraries), because scientific knowledge is easy to access, but it is an experience good: **a researcher would like to read only relevant works**

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- Plan-S is an initiative for Open Access science publishing promoted by cOAlition S
- The plan requires scientists and researchers who benefit from state-funded research organisations and institutions to publish their work in open repositories or in journals that are available to all

- 01** Authors or their institutions retain copyright to their publications. All publications must be published under an open licence, preferably the Creative Commons Attribution licence (CC BY), in order to fulfil the requirements defined by the [Berlin Declaration](#);
- 02** The Funders will develop robust criteria and requirements for the services that high-quality Open Access journals, Open Access platforms, and Open Access repositories must provide;
- 03** In cases where high-quality Open Access journals or platforms do not yet exist, the Funders will, in a coordinated way, provide incentives to establish and support them when appropriate; support will also be provided for Open Access infrastructures where necessary;
- 04** Where applicable, Open Access publication fees are covered by the Funders or research institutions, not by individual researchers; it is acknowledged that all researchers should be able to publish their work Open Access;
- 05** The Funders support the diversity of business models for Open Access journals and platforms. When Open Access publication fees are applied, they must be commensurate with the publication services delivered and the structure of such [fees must be transparent](#) to inform the market and funders potential standardisation and capping of payments of fees;
- 06** The Funders encourage governments, universities, research organisations, libraries, academies, and learned societies to align their strategies, policies, and practices, notably to ensure transparency.
- 07** The above principles shall apply to all types of scholarly publications, but it is understood that the timeline to achieve Open Access for [monographs](#) and book chapters will be longer and requires a separate and due process;
- 08** The Funders do not support the 'hybrid' model of publishing. However, as a transitional pathway towards full Open Access within a clearly defined timeframe, and only as part of [transformative arrangements](#), Funders may contribute to financially supporting such arrangements;
- 09** The Funders will monitor compliance and sanction non-compliant beneficiaries/grantees;
- 10** The Funders commit that when assessing research outputs during funding decisions they will value the intrinsic merit of the work and not consider the publication channel, its impact factor (or other journal metrics), or the publisher.

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Open Access shifts the costs from the reader to the writer

- subscription costs are managed in a centralized way, while research funds are managed in a more heterogeneous way
- funds for subscription costs need to be rearranged because who reads is different from who writes

We have to understand the impact of

- APC
- Transformative agreements
- Big deals

Requiring authors to pay to communicate their results introduces a financial bias

- publishers are incentivized to accept papers because they earn per accepted paper
- authors can be invited on a financial basis (they can afford the APC or their institution has an agreement)

How can we prevent authors from being invited only or predominantly on a financial basis, eg they can afford the APC, or their institution has a transformative agreement?

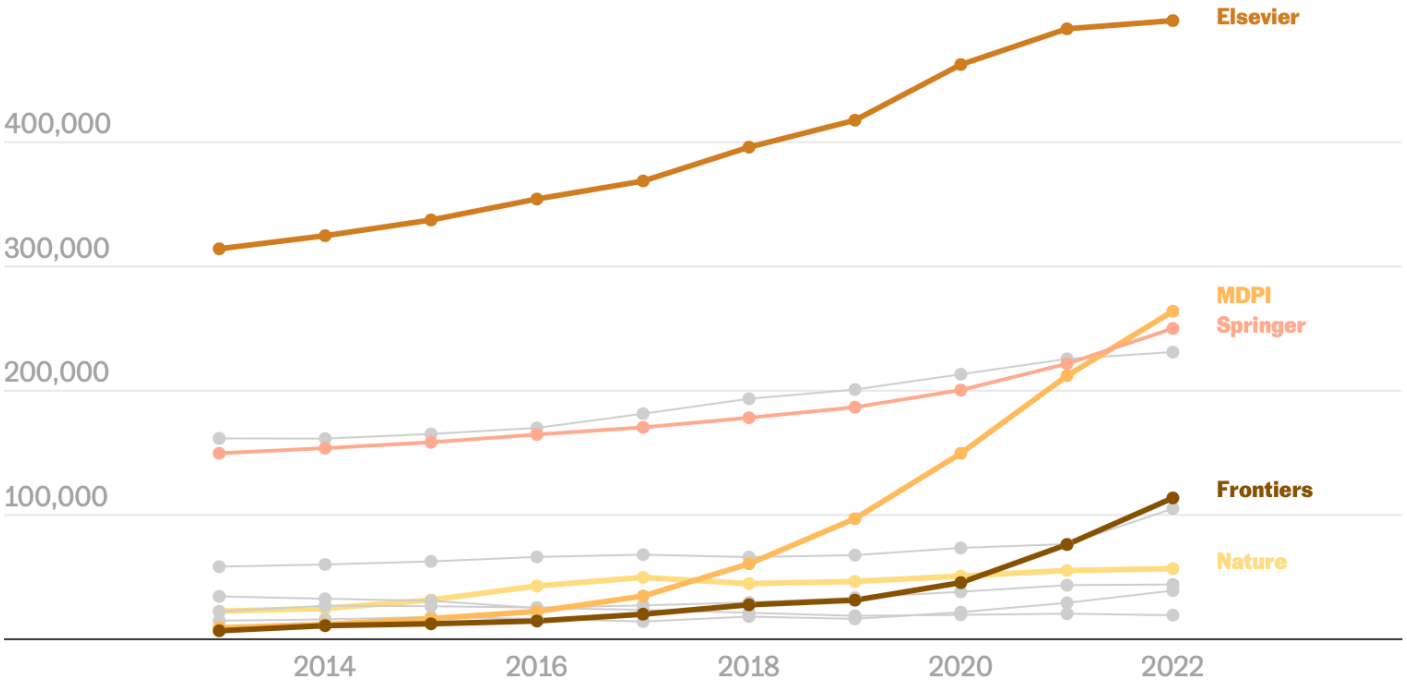
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In 2022, major publishers published 1.6 million articles, more than twice as many as nine years earlier

Annual articles published by each publisher



Publishers may be incentivized to accept papers because the more they publish, the more they earn

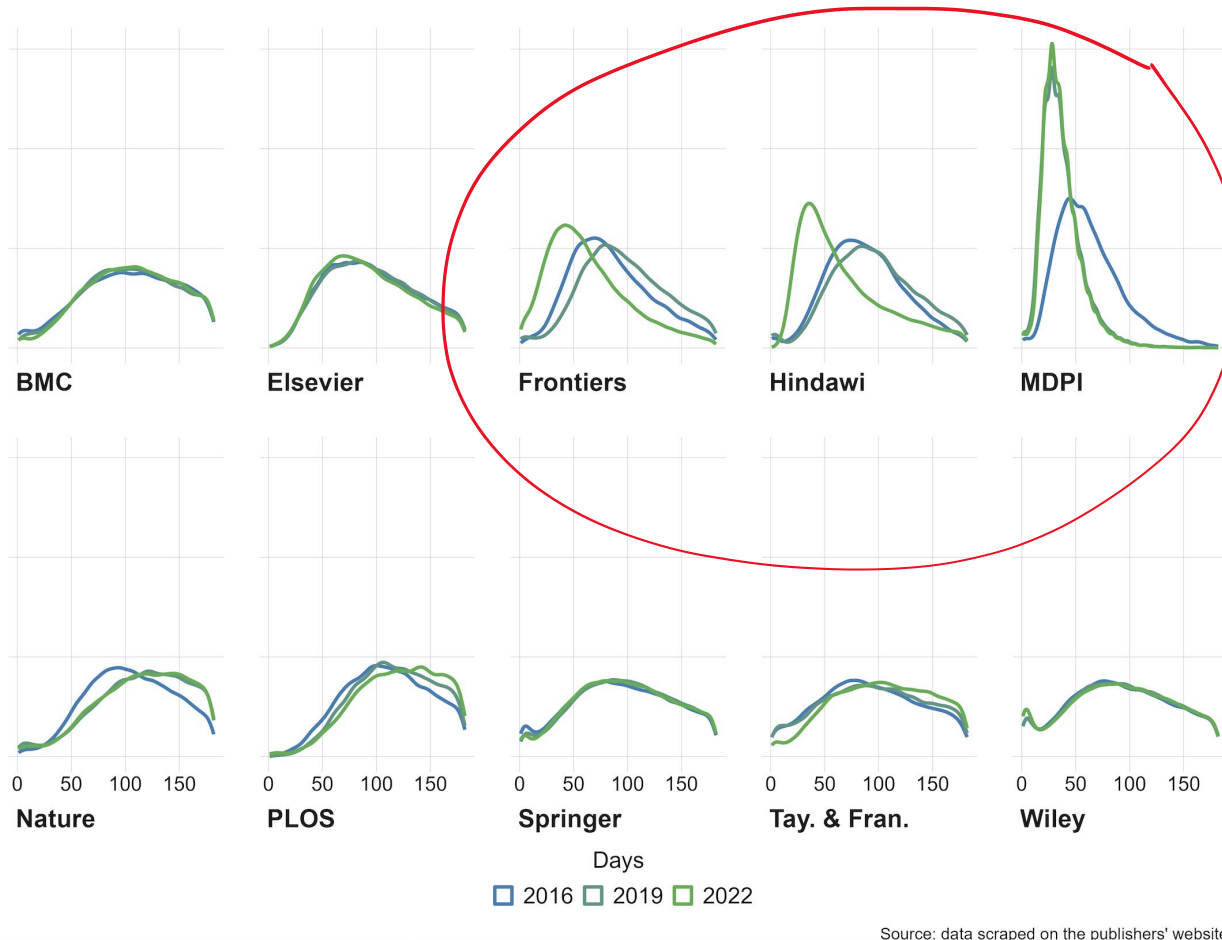
- IEEE Access has published 17,927 papers in 2021

Year	Number of published papers	Revenue
2021	12,471	> 21 mio \$
2020	17,927	> 31 mio \$
2019	15,341	> 28 mio \$

Individual journals might be induced adopting practices and processes where effectiveness prevails on quality

- review processes are getting shorter and shorter
- greater pressure is exerted on reviewers

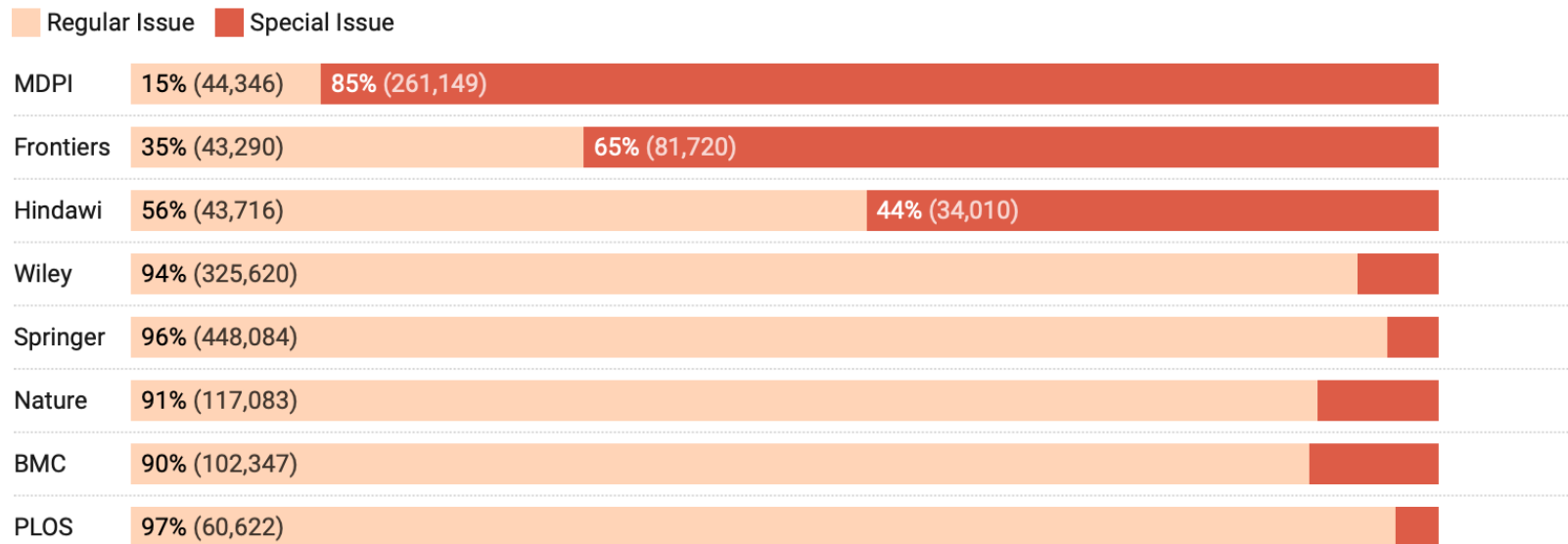
Reviewers are requested to accept/decline review invitations and review manuscripts in an extremely short time!



Per alcuni editori i tempi di turn around (dalla sottomissione alla pubblicazione) sono diventati brevi e omogenei, mentre le riviste e gli articoli richiedono attenzioni diverse

Some publishers publish more special issues than regular issues

Data 2016-2022



Source: 'The strain on scientific publishing,' by Mark Hanson, Pablo Gómez Barreiro, Paolo Crosetto and Dan Brockington

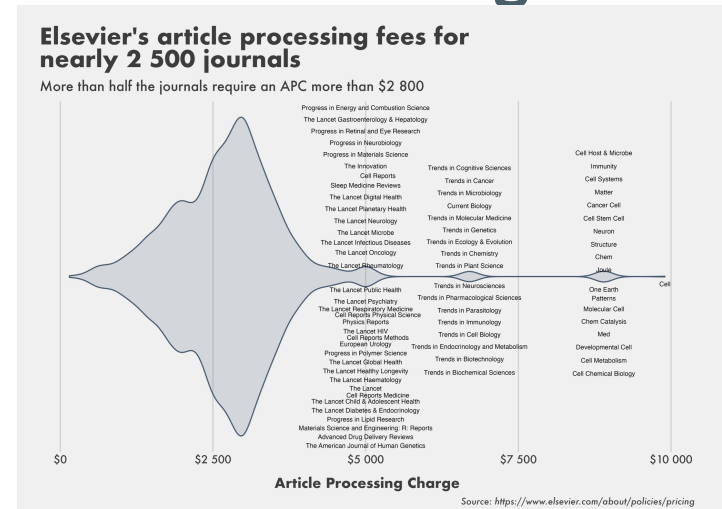
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Transformative agreements are part of the arrangements:

- driving the transition from read-only to read&write contracts
- aiming at fair retributions for publishers



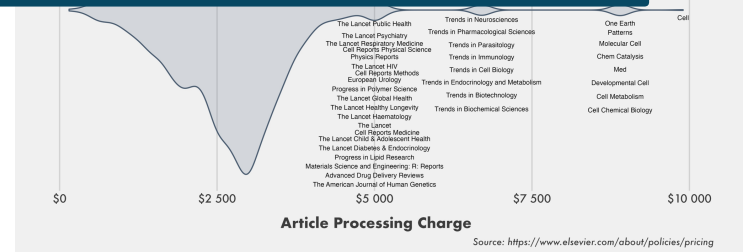
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Transformative agreements
are not
mitigating costs!

Contracts

- aiming at fair retributions for publishers



An all-or-nothing contractual model that prescribes buying the entire catalog of the publishing house

Advantages:

- lower cost per item
- increase in the scientific documentation offered to users
- efficiency, substantial management simplification

Disadvantages:

- contractual inflexibility, purchasing what is not needed
- progressive increase in prices that are not always sustainable
- forcing libraries to renounce increasingly other types of bibliographic materials (monographs in the first place)

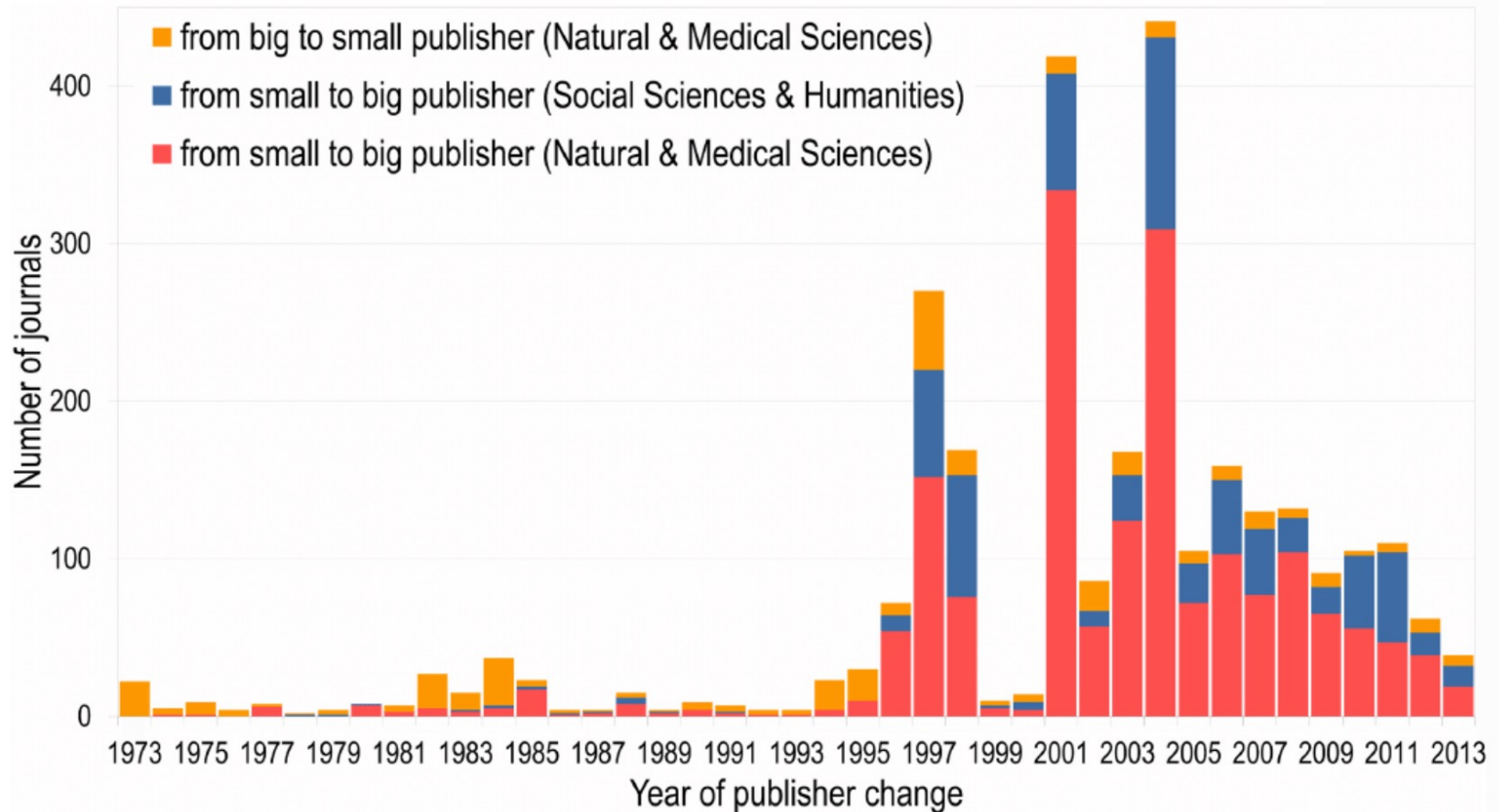


Fig 2. Number of journals changing from small to big publishers, and big to small publishers per year of change in the Natural and Medical Sciences and Social Sciences & Humanities.

doi:10.1371/journal.pone.0127502.g002

Predatory journals exploit both **Open Access** and **quantitative methods** in research assessment

- Open Access renders predatory journals sustainable as APC is a fragment of the subscription costs
- Any evaluation process that adopts quantitative methods can be exploited to enter the market

Predatory publishers exploit it as they help fulfill quantitative requirements

Quality Control and Peer Review: pay-to-publish schemes might compromise the rigor of peer review to increase publication volume

Sustainability and Funding: Funding the OA model can be challenging. Article Processing Charges (APCs) paid by authors or their institutions to cover publishing costs can be prohibitively expensive, creating barriers for researchers without adequate funding or those from low-income countries

Predatory Journals

Archiving and Long-Term Access: Ensuring the long-term preservation and accessibility of OA materials can be challenging

Inequities in Access and Participation: While OA aims to democratize access to knowledge, the APC model can create new inequities

Legal and Copyright Issues: Navigating copyright laws and ensuring compliance with varying international standards can be complex for OA publishers and authors

Impact on Professional Advancement: In some academic fields, publications in traditional, high-impact subscription journals are still seen as more prestigious than OA publications. This perception can affect academic evaluations

Information and awareness

The trend is toward fewer players and a higher concentration of the market in a few hands

- Less market concentration, more players
this may conflict with the certification
- Contrast big deals whenever possible
not all institutions need and can afford big - deal contracts

Mitigate the financial bias

- New cost models – APC is a scam because it is related to the reputation of the journal or publisher and not to the actual cost
- Mutualization of costs
- Transformative agreements
 - transformative agreements as a mean for fair compensation do not work
 - the publishing market is peculiar, market regulatory policies initiatives should be considered

Promote new high-quality editorial initiatives proposed by communities

They have to be sustained in terms of

- **Visibility and recognizability**, we need an umbrella that makes them easily identifiable, whether it be a trademark, a certification, or a new publisher should be understood
- Technical platform and support, who wants to initiate a journal must count on ready-to-go platforms conforming to the standards, eg PJP/OJS
- **Quality model**, the intrinsic quality of a journal also depends on the practices and processes besides ethics

Thank you!