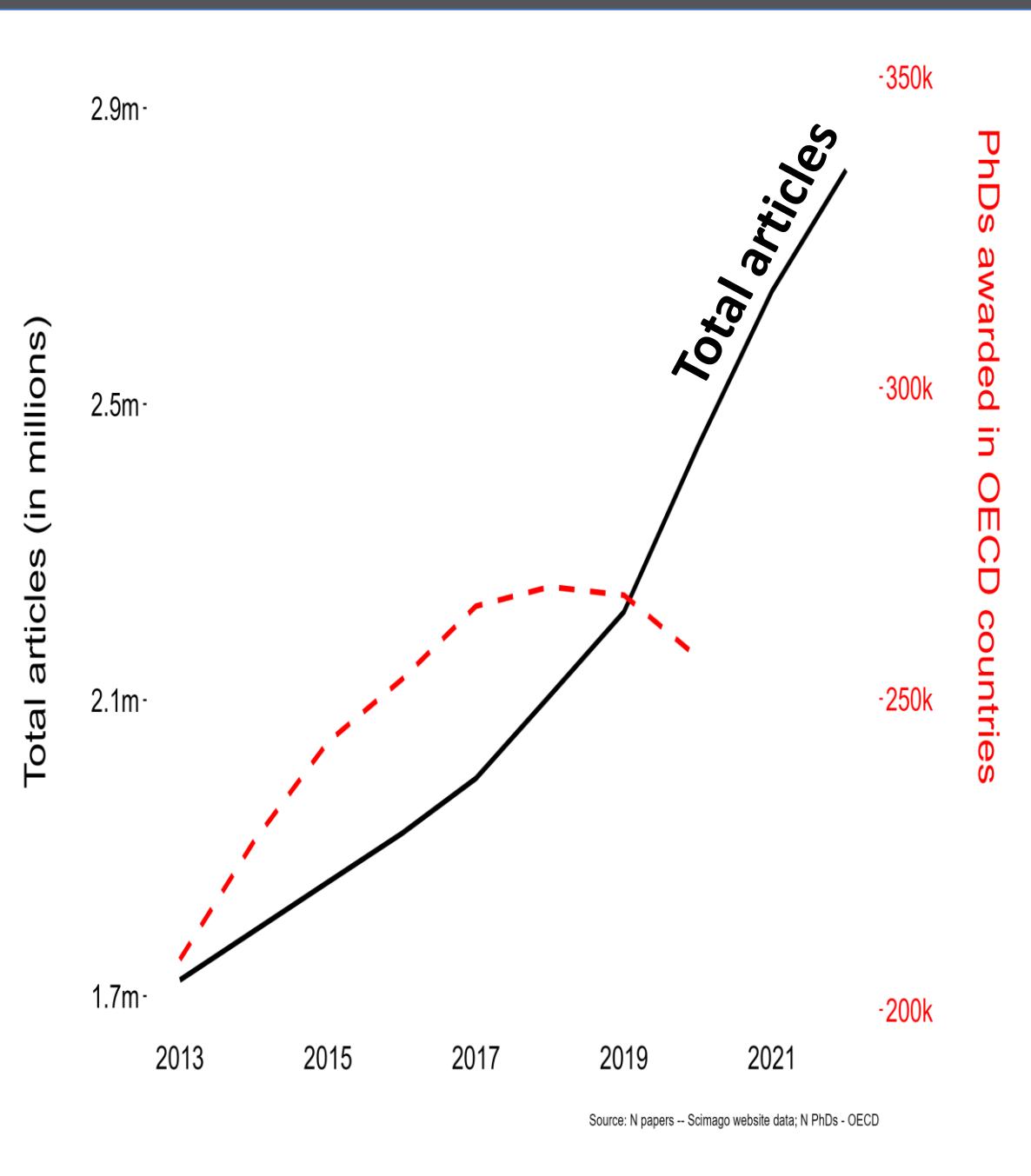


The **strain** on scientific publishing

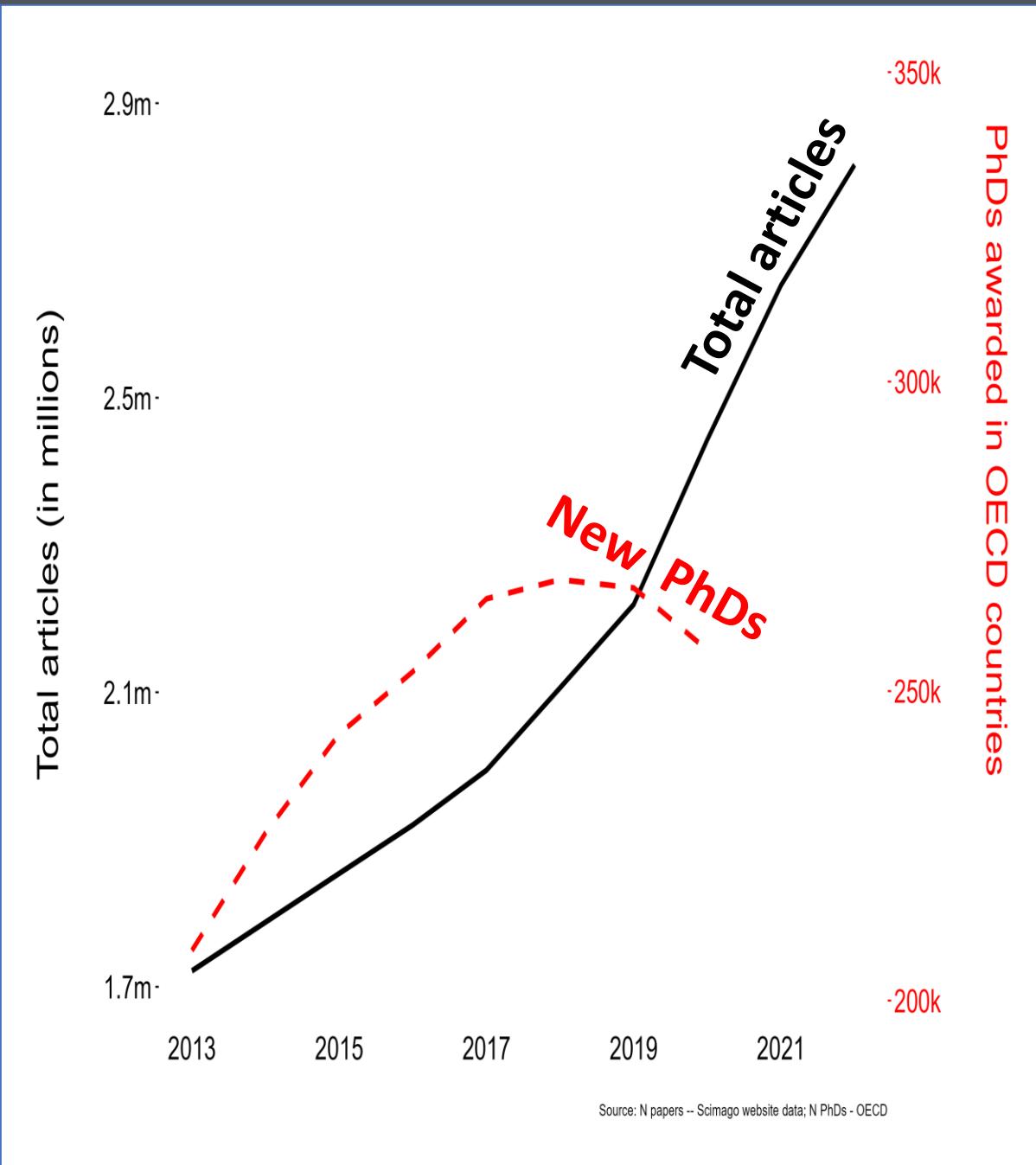
Mark Austin Hanson¹, Pablo Gomez-Barreiro², Paolo Crosetto³, Dan Brockington⁴

1. Article growth is exponential



1. Article growth is exponential

2. *Scientist recruitment isn't keeping up*



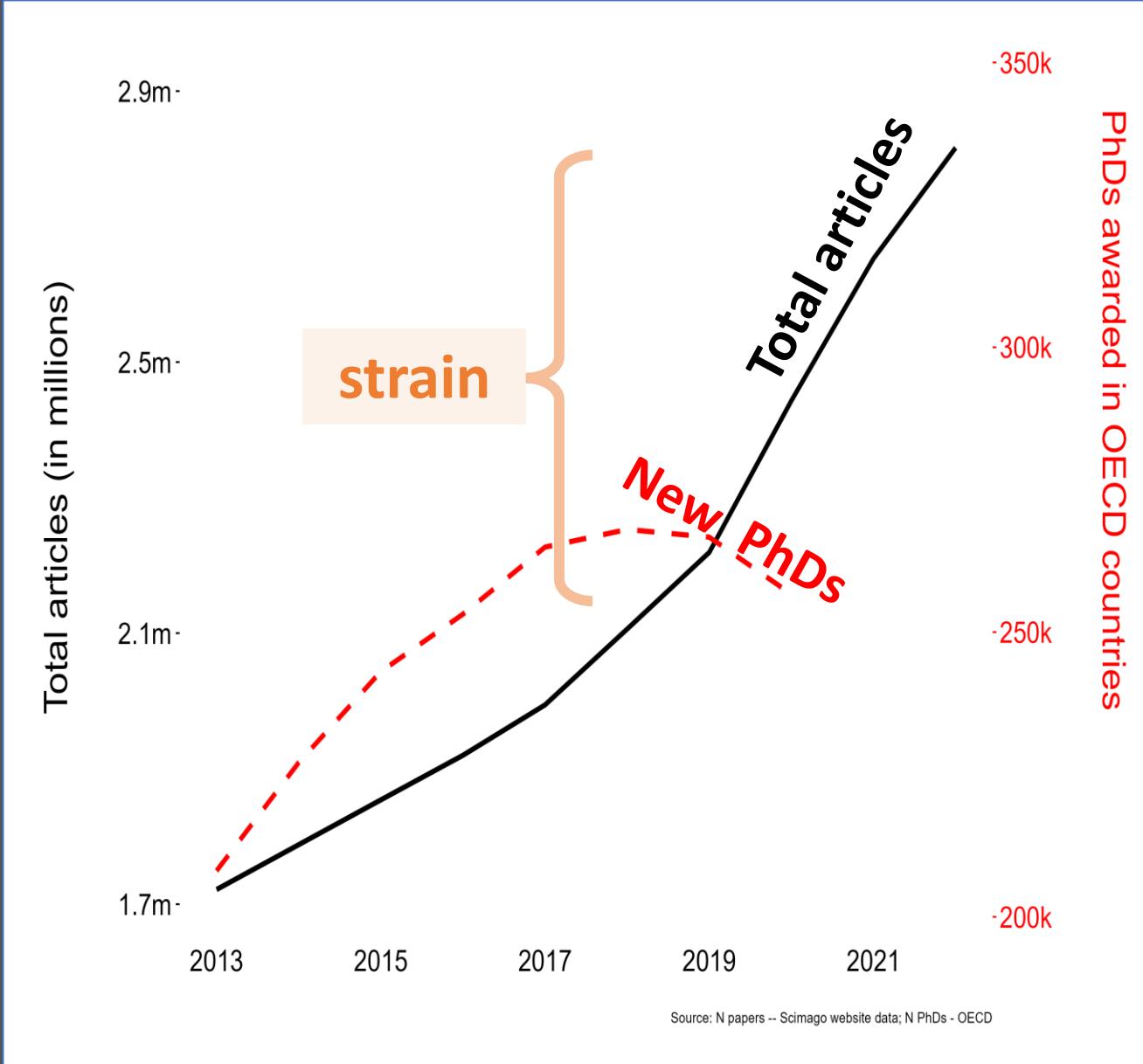
The strain on scientific publishing

1. Article growth is exponential

2. *Scientist recruitment isn't keeping up*

What is going on???

Insert QR code here, and doi/citation



This could be good?

- Combat *systemic biases* in STEM
- *Positive result bias*
- Investment in *Global South*
- Advancing technology?



Yet we've got issues...

Editors resigning

Reviewers overworked

Paper mills and fraud

...

What is going on???

Yet we've got issues

Editors resigning
over **high fees**

Chris Chambers  @chrisdc77 · 16h

Following Elsevier's decision to raise the APC for NeuroImage to \$3,450, all editors (inc. EiCs @fmrib_steve @tobergmann @BirteUta) from NeuroImage and NeuroImage:Reports have resigned, effective immediately. I am joining this action and have also resigned [imaging-neuroscience.org/Announcement.p...](#)

Elsevier: NeuroImage transition - all editors have resigned over the high publication fee, and are starting a new non-profit journal, Imaging Neuroscience

Summary: NeuroImage has long been the leading journal focusing on imaging neuroscience, with both the highest impact factor and the largest number of papers published annually. NeuroImage's editorial team has tried to convince Elsevier to reduce the publication fee from \$3,450, as we believe large profit is unethical and unsustainable. Elsevier is unwilling to reduce the fee; therefore, with great regret, all editors (more than 40 academic editors) of NeuroImage and NeuroImage:Reports have resigned. We are starting a new non-profit Open Access journal, *Imaging Neuroscience*, intended to replace NeuroImage as our field's leading journal.

19 replies 671 retweets 1,617 likes 360,6 k views

Yet we've got issues

Gemma E Derrick @GemmaDerrick · 17 mars ...
Today I resigned my position as Editor-in-Chief of @Public_MDPI. I do not consider our journal, Publications, to be predatory in any way but my decision is precipitated by a continual tension between my outward-facing role as Editor in Chief of Publications 1/3
11 106 247 114,2 k ↗

Gemma E Derrick @GemmaDerrick · 17 mars ...
and increasing discourse within my own professional community around the predatory publishing practices of MDPI journals. The behaviour of our Editorial board has been exemplary, both in assuring the integrity and honesty of our peer review practices in upholding quality 2/3
1 3 52 12,1 k ↗

Gemma E Derrick @GemmaDerrick · 17 mars ...
standards. Despite this, backstage practice of key values at MDPI are increasingly at odds with the values we prioritise in publication practices. I consider my time with the journal to be complete and am grateful for the experience but now is time is now to move on. 3/3
7 7 76 12,5 k ↗

Editors resigning
over bad publisher practices

Yet we've got issues

Paper mills
mass producing
fake articles

NEWS FEATURE | 23 March 2021

The fight against fake-paper factories that churn out sham science

Some publishers say they are battling industrialized cheating. A *Nature* analysis examines the ‘paper mill’ problem – and how editors are trying to cope.

Yet we've got issues

Nick Wise
@nickwizzo

The guest editor of an open special issue in @Symmetry_MDPI on e-learning openly selling authorship of papers on e-learning mdpi.com/journal/symmet...

Traduire le Tweet

The can join the team of authors, if you wish.

The paper will be indexed in both Scopus (Q4) and Web of Science. 1st position costs €390, 2nd position €290, positions 3 to 6 €200. Payment is after acceptance. Would you like to be a part of the team? Register at <https://rtsarev.ru/coauthor/>

* ICT
Papers will be published in a book series indexed in Scopus (Q4) and Web of Science.
1st position costs €390, 2nd position €290, positions 3 to 6 €200.
Payment is after acceptance.
If you wish to join, please register at <https://rtsarev.ru/coauthor/>

Call for Scopus coauthors E-learning and Economics 200 euro

8:29 PM · 4 mars 2023 · 35,6 k vues

Authorship sales
rings

Yet we've got issues

The screenshot shows the homepage of the Public Health Reviews (PHR) journal. At the top, the PHR logo and "Public Health Reviews" are displayed. To the right, the CiteScore (9.6), a "How to publish" link, and a "Submit" button are visible. Below the header, there are two circular icons: one for download and one for sharing. The main content area features an "EDITORIAL" section. The title of the article is "«I Do Not Have Time»—Is This the End of Peer Review in Public Health Sciences?". Below the title, the authors are listed: Nino Künzli^{1,2,3*}, Anke Berger^{1,3}, Katarzyna Czabanowska⁴, Raquel Lucas⁵, Andrea Madarasova Geckova⁶, Sarah Mantwill⁷ and Olaf von dem Knesebeck⁸. To the right of the article summary, there is a "Check for updates" button. The text "Editors unable to find referees" is overlaid on the right side of the page.

CiteScore 9.6 How to publish Submit

EDITORIAL

Public Health Rev, 17 November 2022
<https://doi.org/10.3389/phrs.2022.1605407>

Check for updates

«I Do Not Have Time»—Is This the End of Peer Review in Public Health Sciences?

Nino Künzli^{1,2,3*}, Anke Berger^{1,3}, Katarzyna Czabanowska⁴, Raquel Lucas⁵, Andrea Madarasova Geckova⁶, Sarah Mantwill⁷ and Olaf von dem Knesebeck⁸

Editors **unable** to find referees

Yet we've got issues

SCIENCEINSIDER | SCIENTIFIC COMMUNITY

Fast-growing open-access journals stripped of coveted impact factors

Web of Science delists some 50 journals, including one of the world's largest

28 MAR 2023 • 5:55 PM • BY JEFFREY BRAINARD



Mega-journals being
delisted from WoS

More is different

Growth is not **more of the same**:
growth means **change**.

4 August 1972, Volume 177, Number 4047

SCIENCE

- new practices
- new business strategies
- new incentives
- new constraints
- new meanings

More Is Different

Broken symmetry and the nature of
the hierarchical structure of science.

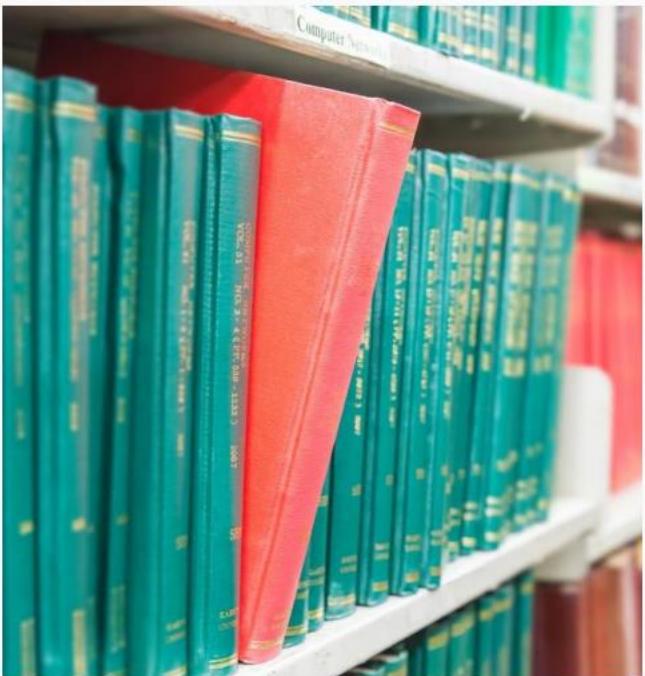
P. W. Anderson

less relevance they seem to have to
very real problems of the rest of
science, much less to those of scie
The constructionist hypothesis t
down when confronted with the
difficulties of scale and complexity
behavior of large and complex sys
gates of elementary particles, it turns
out, is not to be understood in terms
of a simple extrapolation of the
properties of a few particles. Instead
each level of complexity entirely
new properties appear, and the under
standing of the new behaviors requir

A semantic shift

"Journal"

used to mean

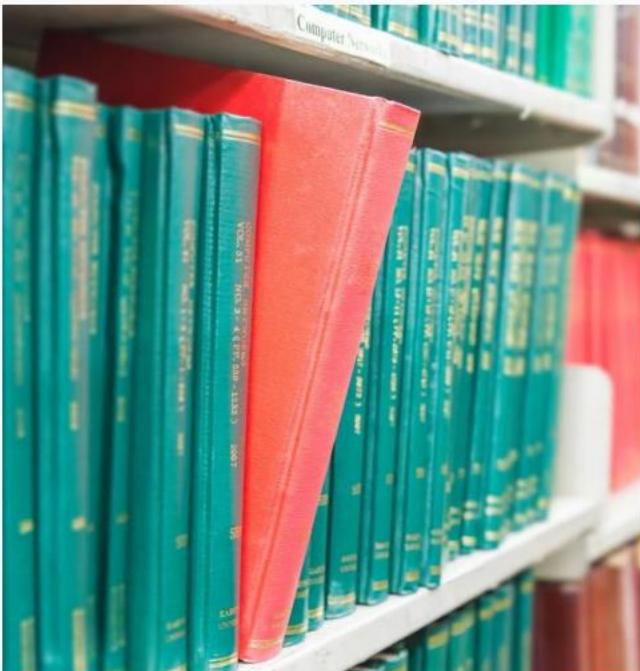


A physical object with
limited available space

A semantic shift

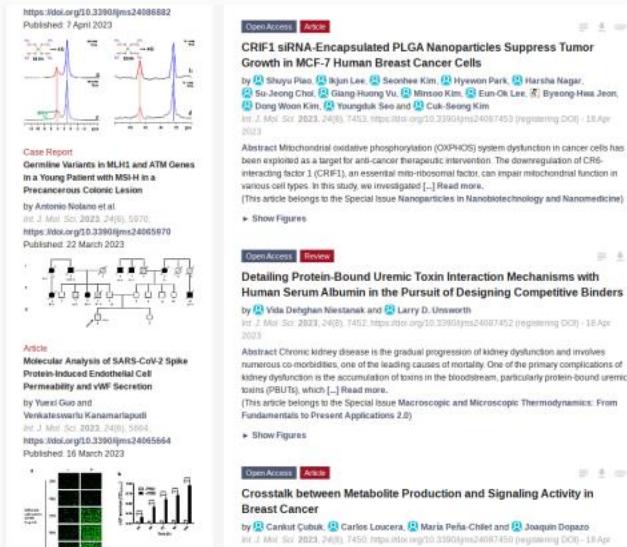
"Journal"

used to mean



A physical object with limited available space

now it also means



A limitless electronic repository with a name

A semantic shift

"Publication"

used to mean

- a handful of journals
- long delays
- free for authors
- do it and thrive

→ good science got
rejected?

A semantic shift

"Publication"

used to mean

- a handful of journals
- long delays
- free for authors
- do it and thrive

→ good science got
rejected?

now it also means

- Thousands of journals
- short delays
- authors pay
- don't do it and die

→ bad science
accepted?

A semantic shift

"Special issue"

used to mean

- A once-in-a-while issue
- About a special topic
- Strict editor control
- regular > special

A semantic shift

"Special issue"

used to mean

- A once-in-a-while issue
- About a special topic
- Strict editor control
- regular > special

now it also means

- A many-a-day issue
- About any topic
- Relaxed editor control
- special > regular

A semantic shift

"Publisher business model"

used to mean

- Many small journals
- Readers pay
- \$ through subscription
- "*Polish your gems*"

Incentive to ↑ quality,
quantity? ...

A semantic shift

"Publisher business model"

used to mean

- Many small journals
- Readers pay
- \$ through subscription
- "*Polish your gems*"

Incentive to ↑↑ quality,
quantity? ...

now it also means

- Few mega-journals
- Authors pay
- \$ through publication
- "*Get authors on board*"

Incentive to ↑↑ quantity,
quality? ...

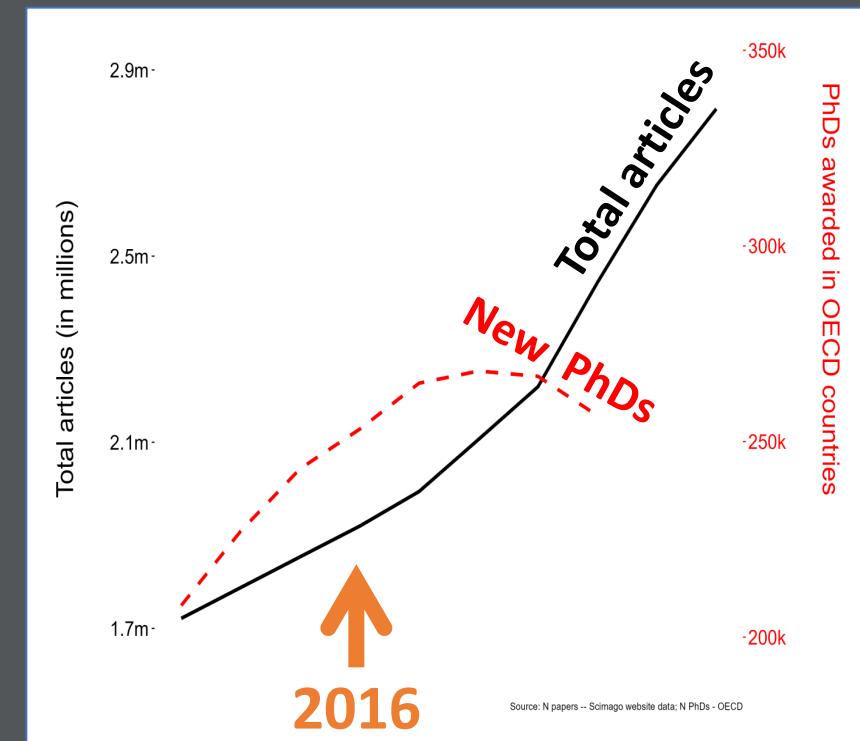
Our aim:
understanding the strain on publishing

Growth in articles → “strain”

Annual articles (Web of Science*Scopus)

2016: ~ 1.9 million

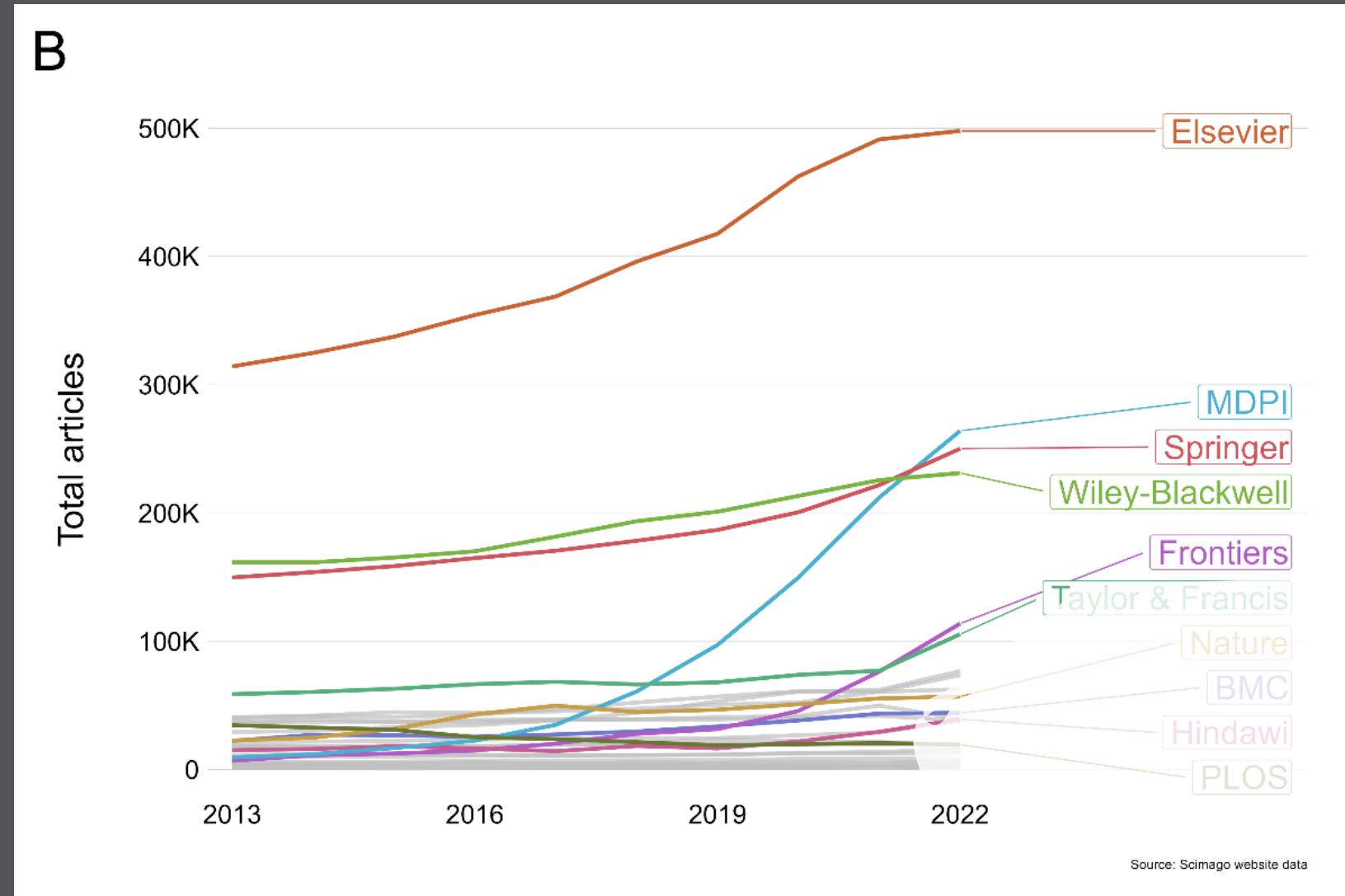
2022: ~ 2.8 million



Growth in articles → “strain”

Five publishers:

- **MDPI** (27%)
- Elsevier (16%)
- Frontiers (10%)
- Springer (10%)
- Wiley (7%)

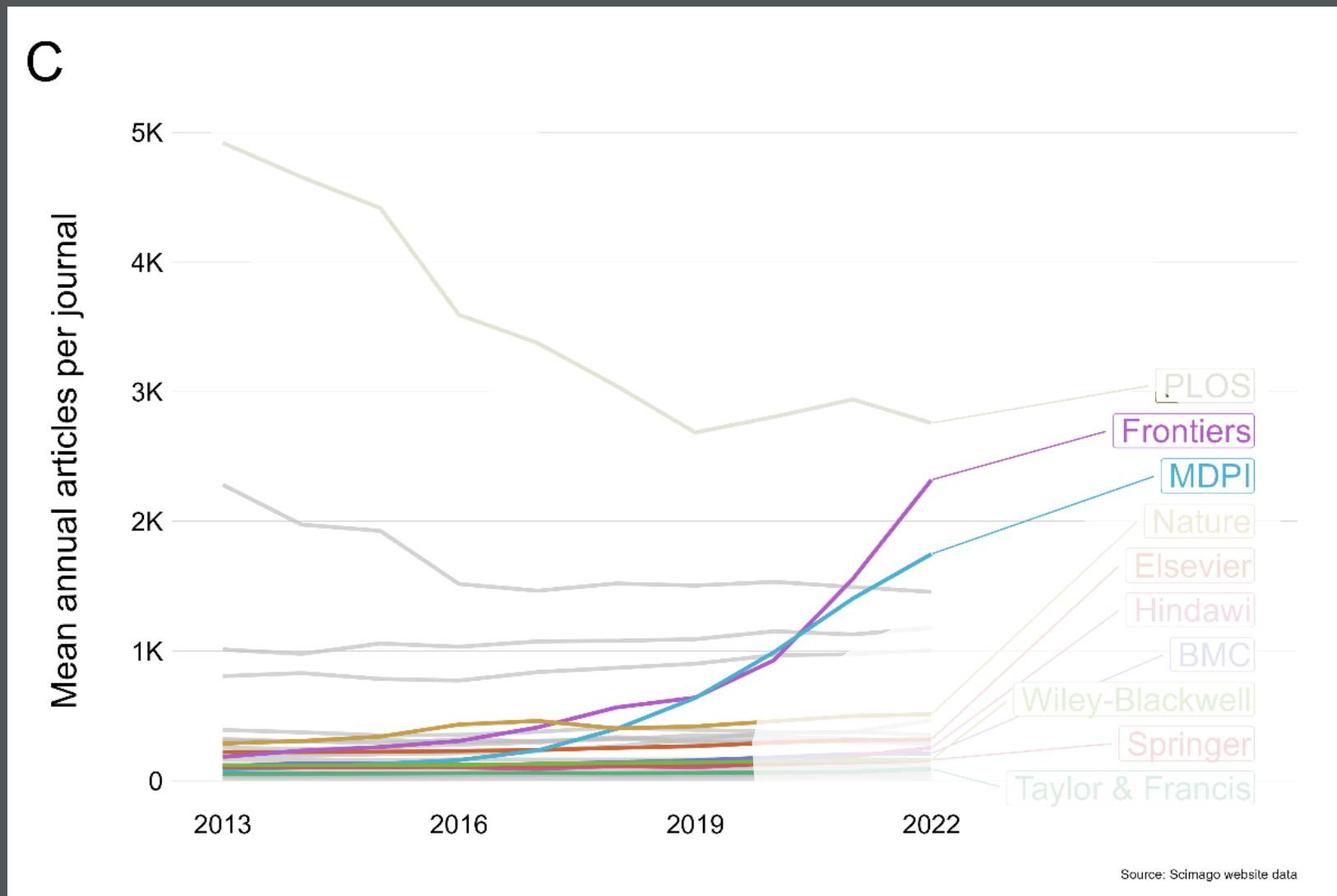


Growth in journal size

New!!!

“Mega journals”

- MDPI
- Frontiers



Strain: what's going on?

Trends

- Two strategies:
 - Growth in journals
 - Growth in *articles per journal*

Threats

- “**publish or perish**”
- Information overload...

The role of *special issues*

The role of *special issues*

“*Special*”

Not so special issues...

Three players:

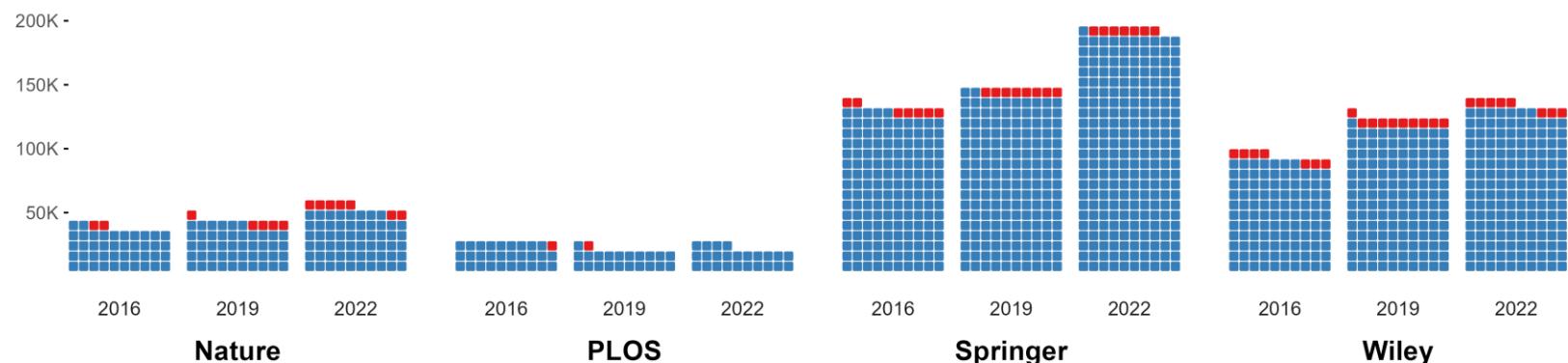
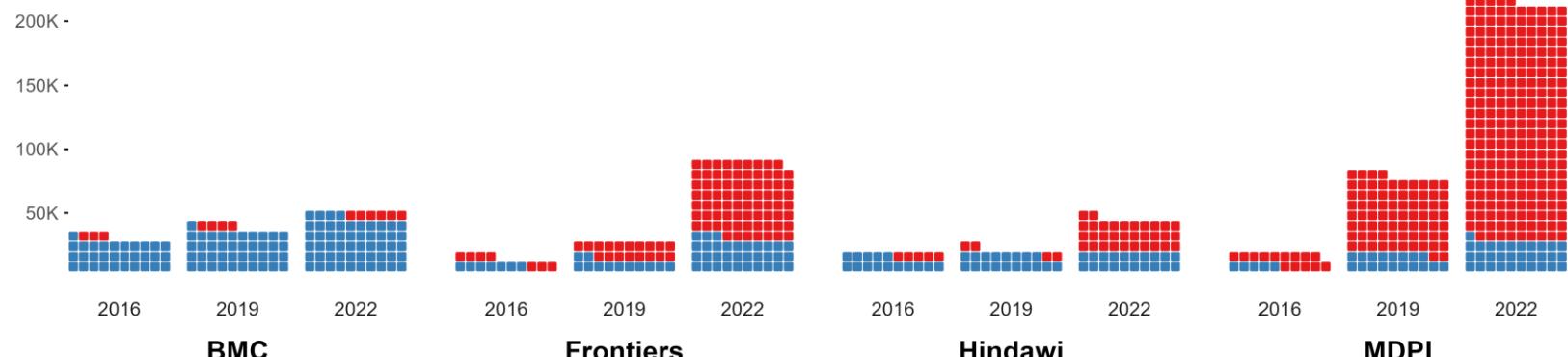
MDPI

Frontiers

Hindawi

Number of papers published in regular vs special issues, 2016-22

One square = 800 articles



Source: data scraped from the publisher's website

Note: Special issues are called Collections at PLOS and Topics at Frontiers. For MDPI Collections, Sections and Topics not shown.

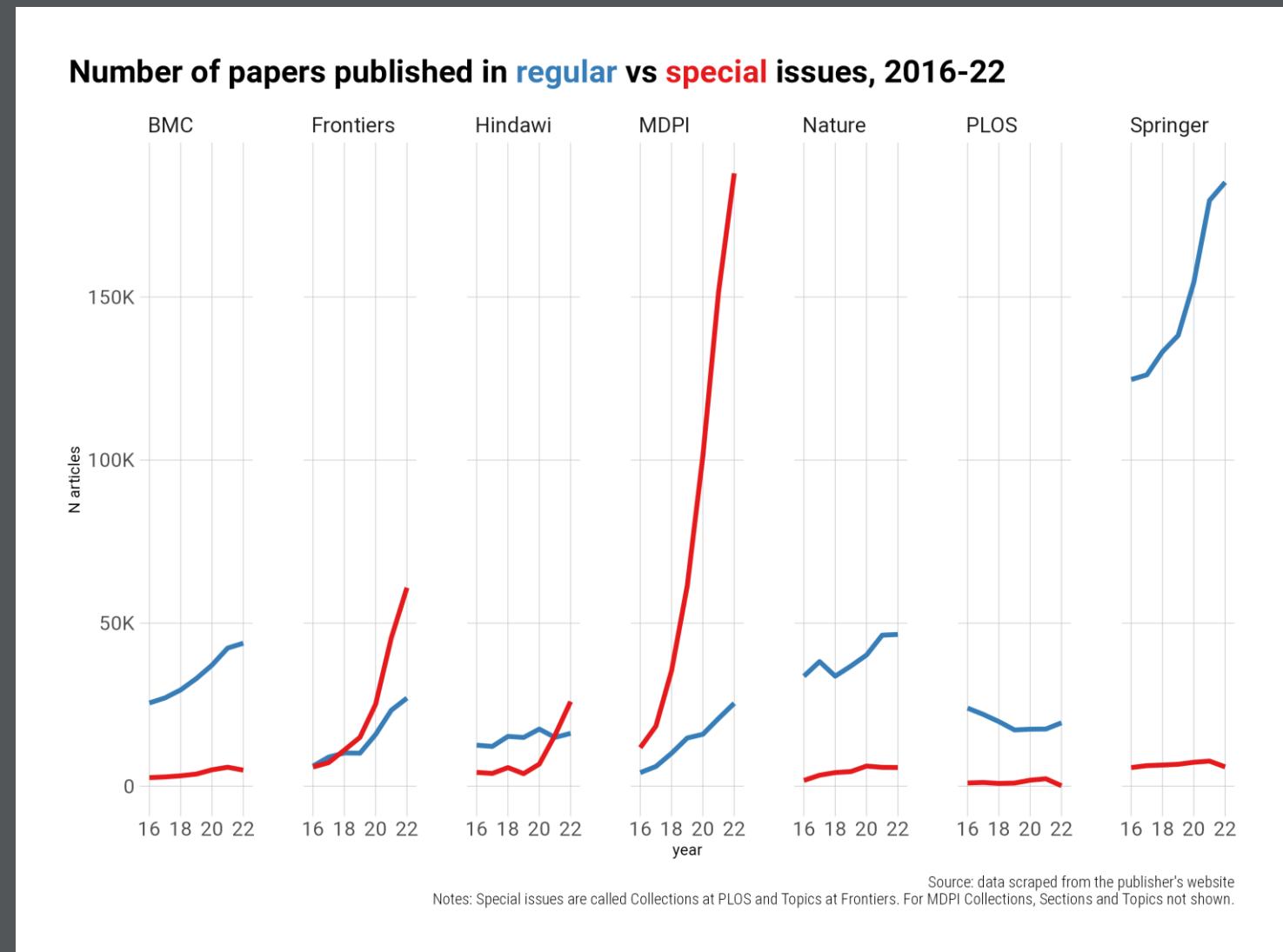
Not so special issues...

Three players:

MDPI

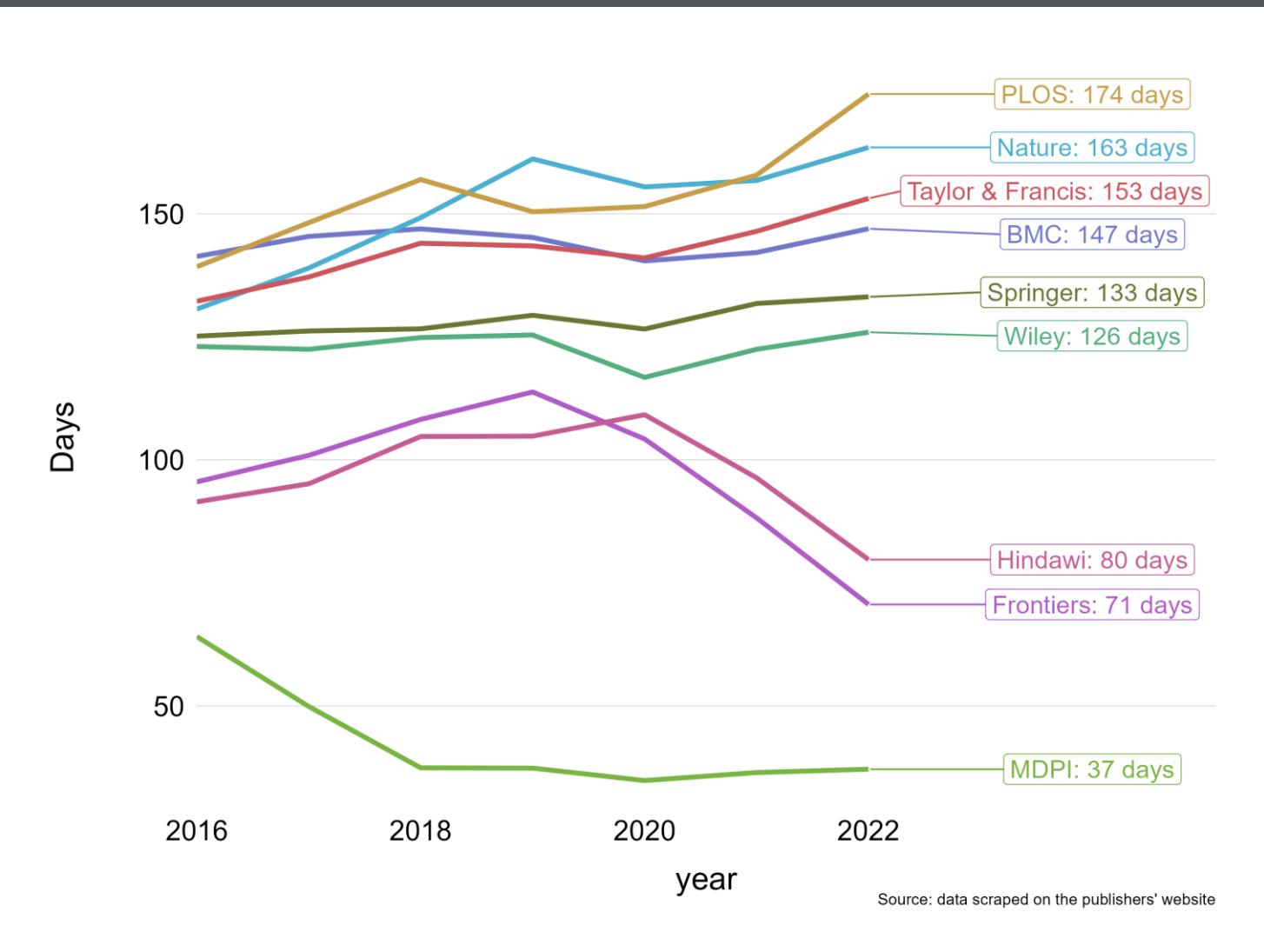
Frontiers

Hindawi



Not so special issues... but... that turnaround!

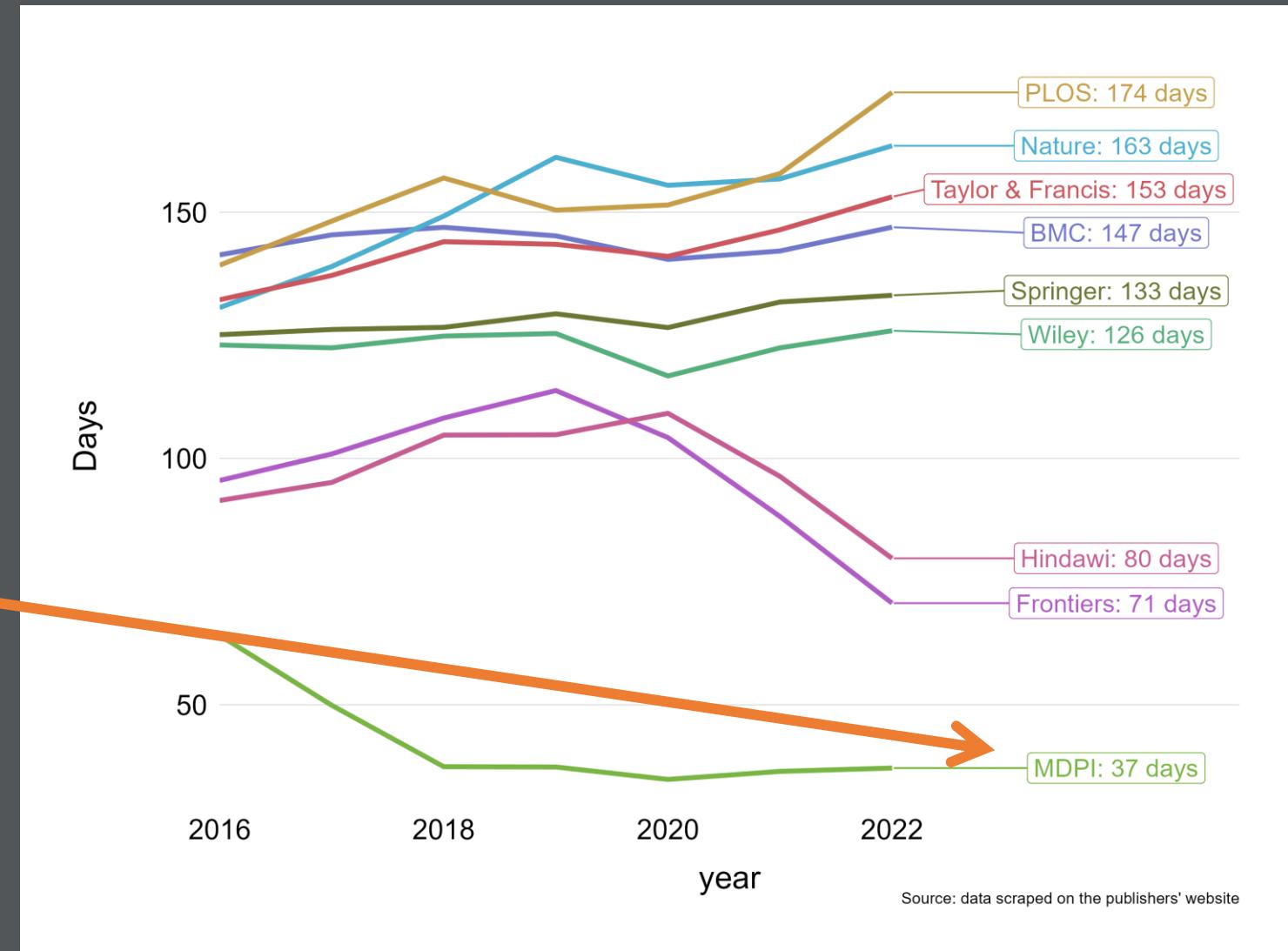
Submit → Accept
including revisions...



Not so special issues... but... that turnaround!

Submit → Accept
including revisions...

Is it really possible
to review **so fast**?

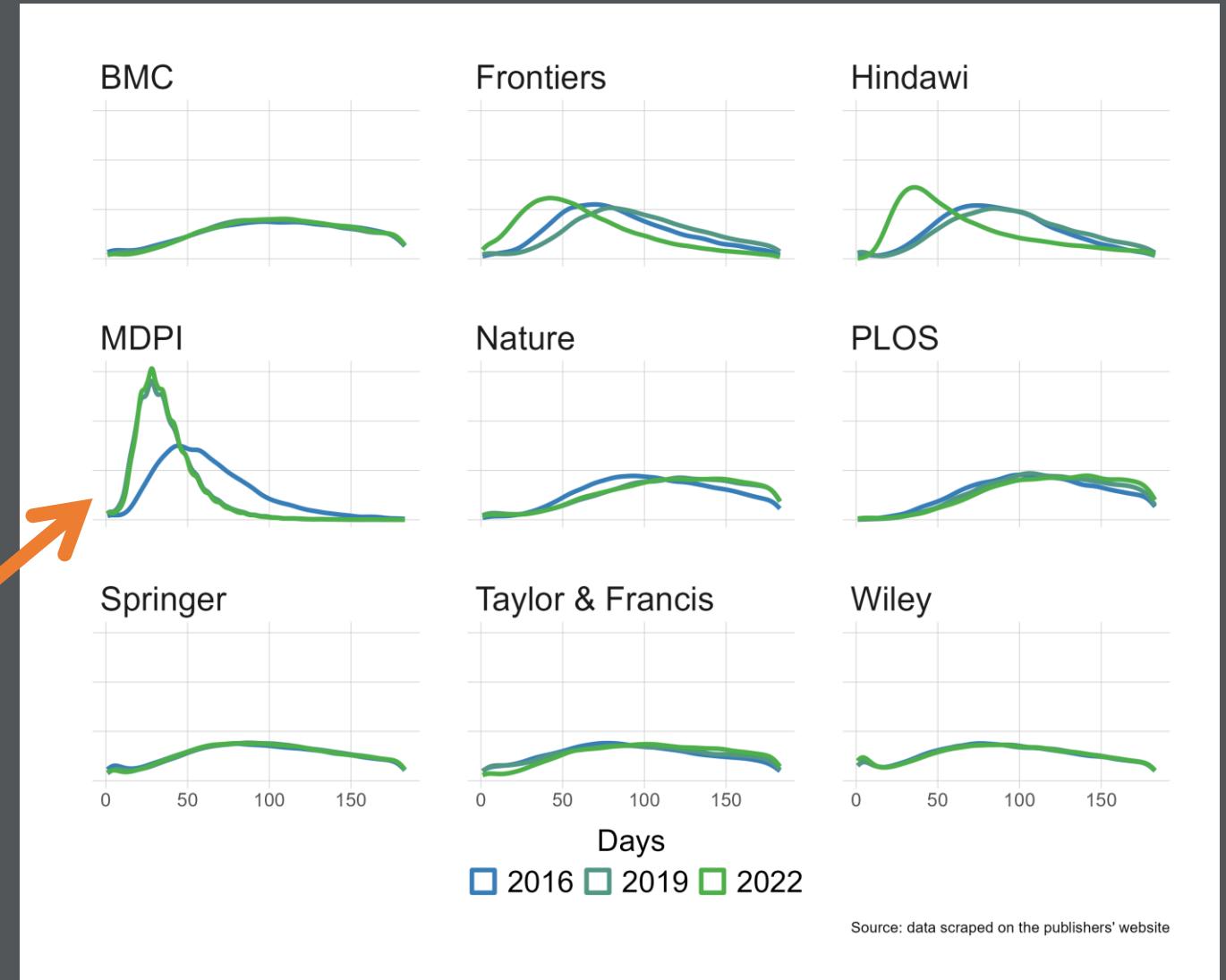


Not so special issues... but... that turnaround!

Submit → Accept
including revisions...

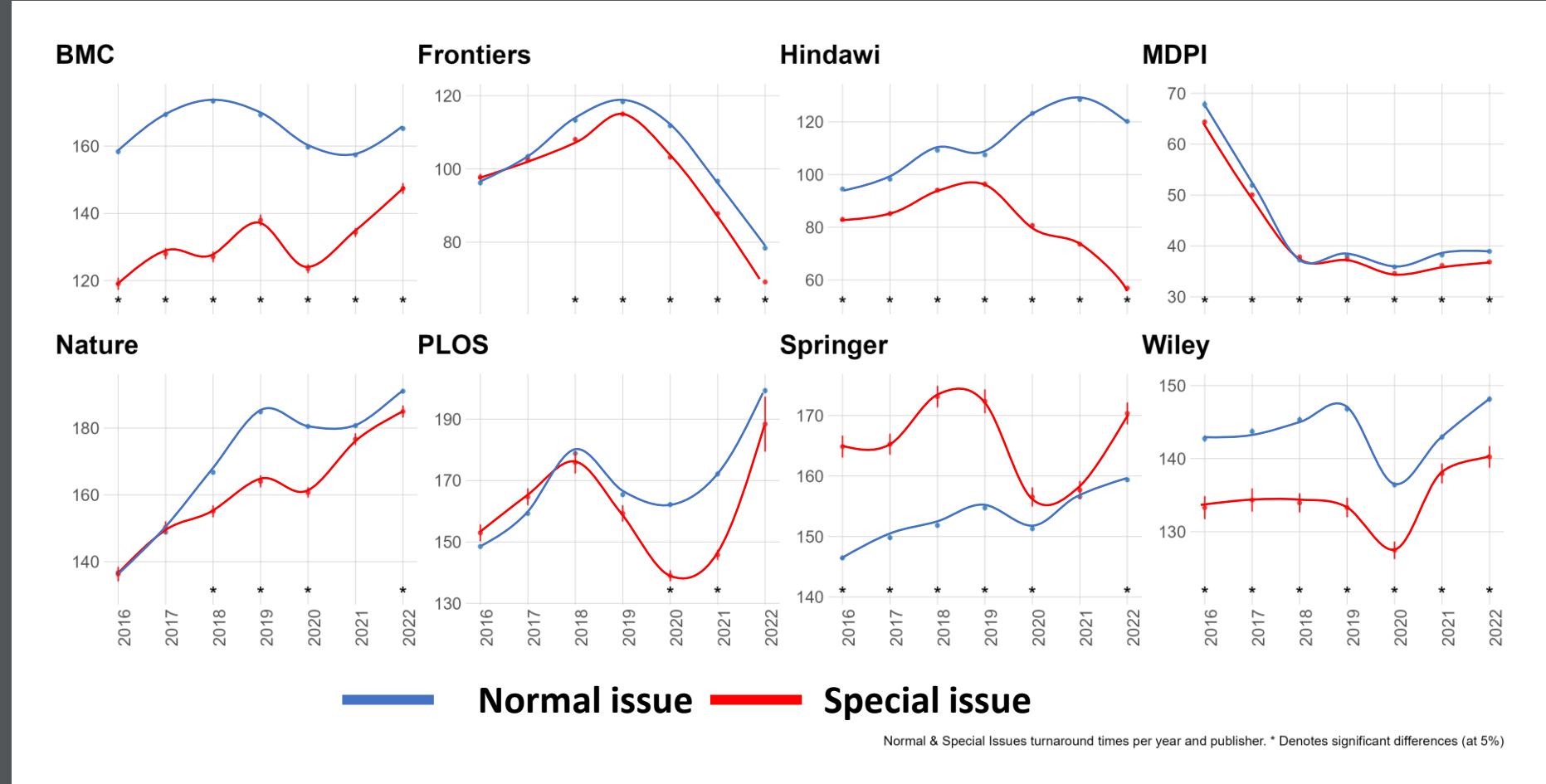
Is it really possible
to review so fast?

And so
consistently?



Not so special issues... but... that turnaround!

Special
issue
articles
published
faster



Special issues: what's going on?

Trends

- “Special” issues are a fantastic engine for growth

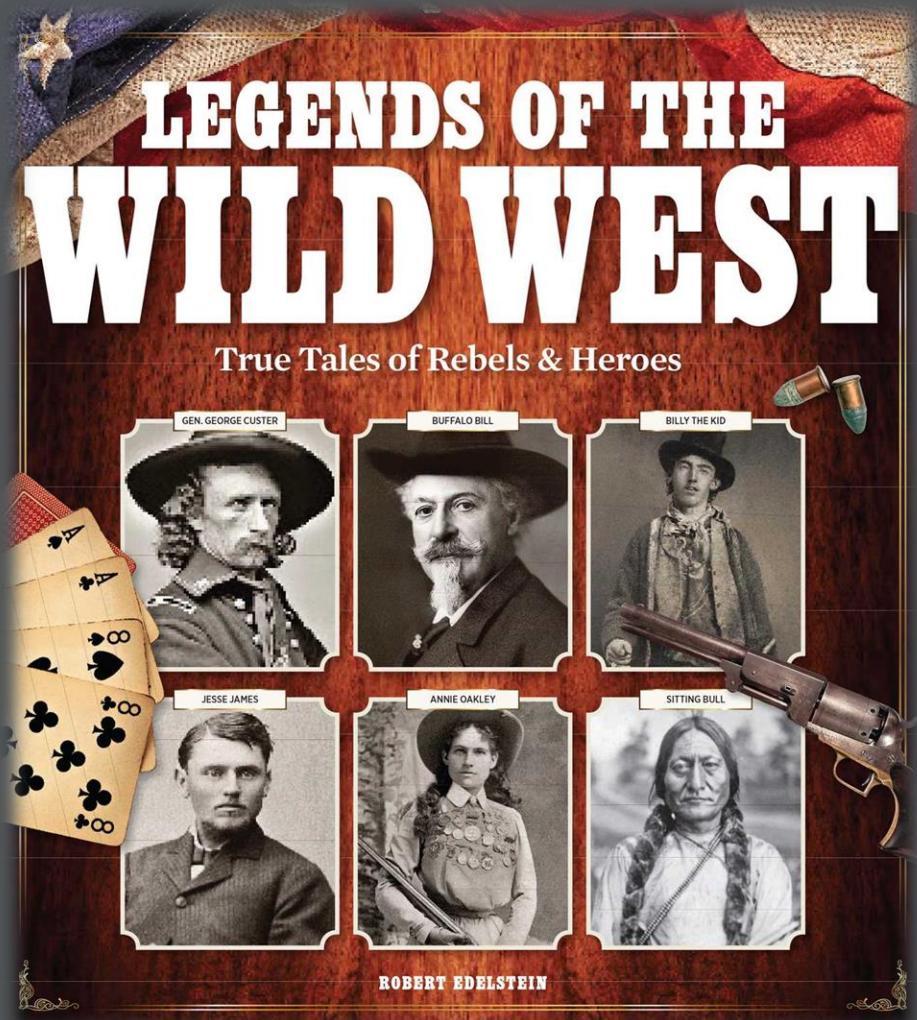
Why?

- Guest editors + reviewer networks → **scalable**

Threats

- Can one do **quality** peer review so fast?

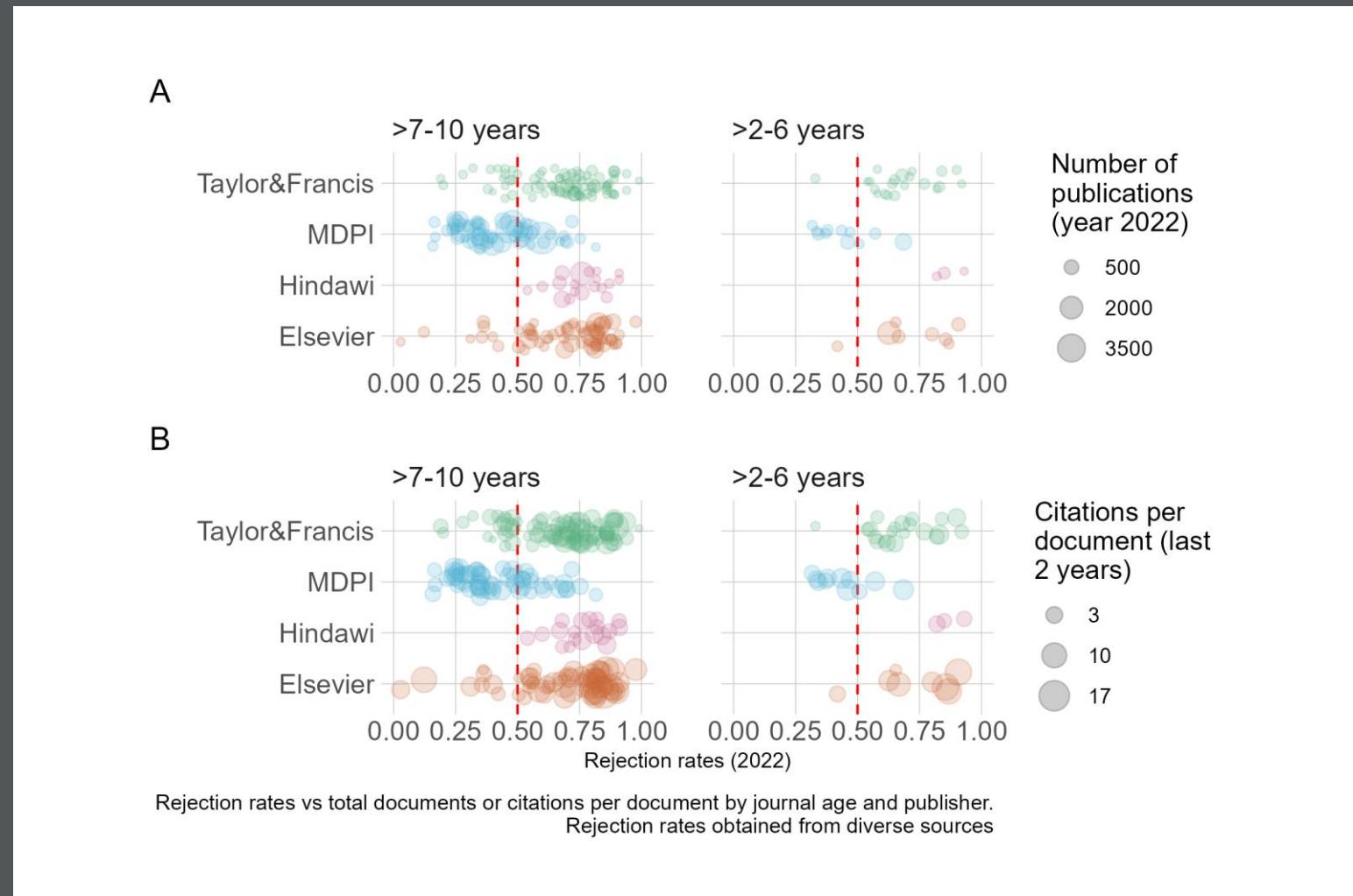
The wild west: *rejection rates*



Rejection rates: rarely public

Many caveats...

- No universal definition
- Reject + resubmit = ...?

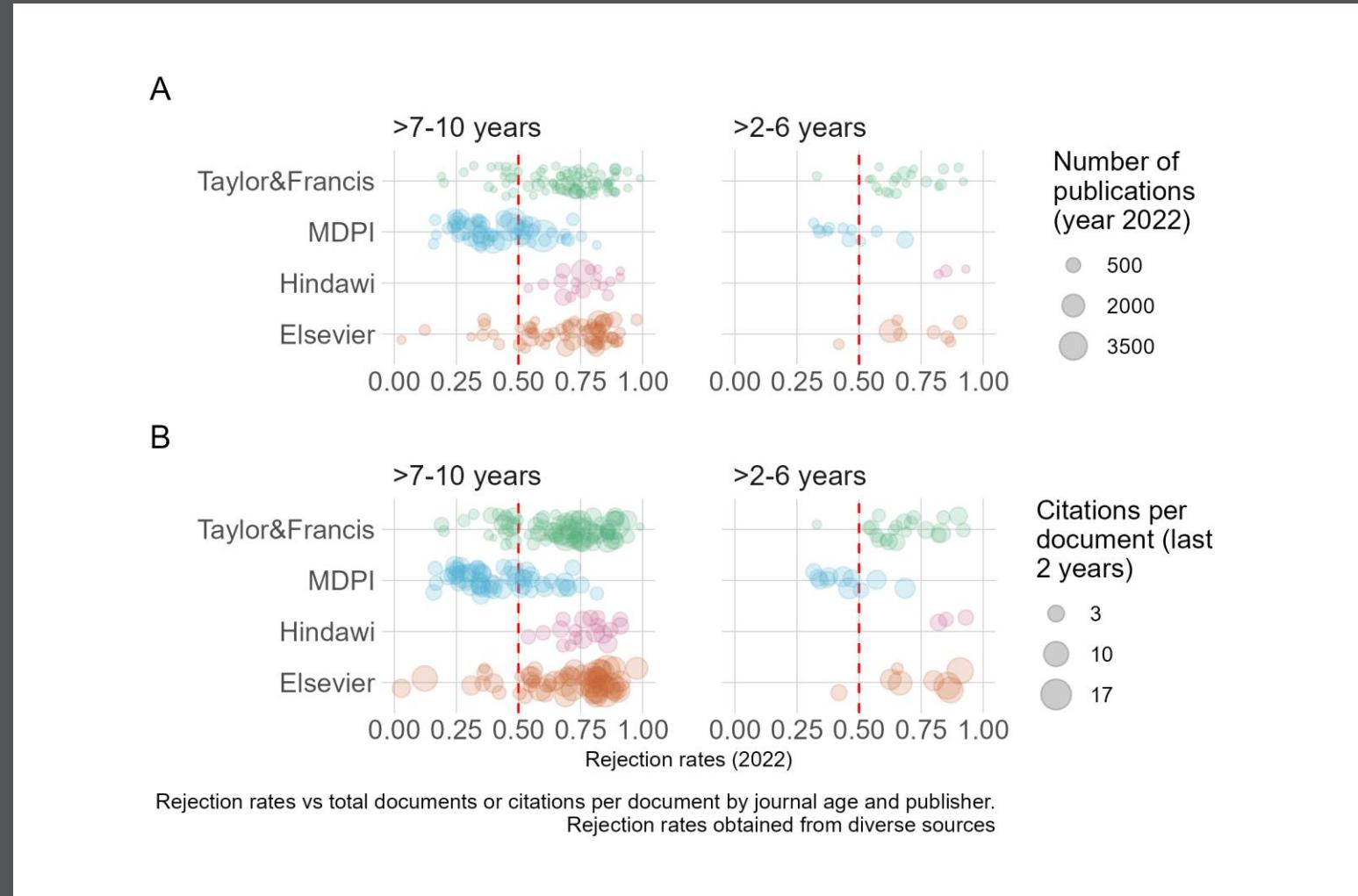


Rejection rates: rarely public

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Within publisher...?

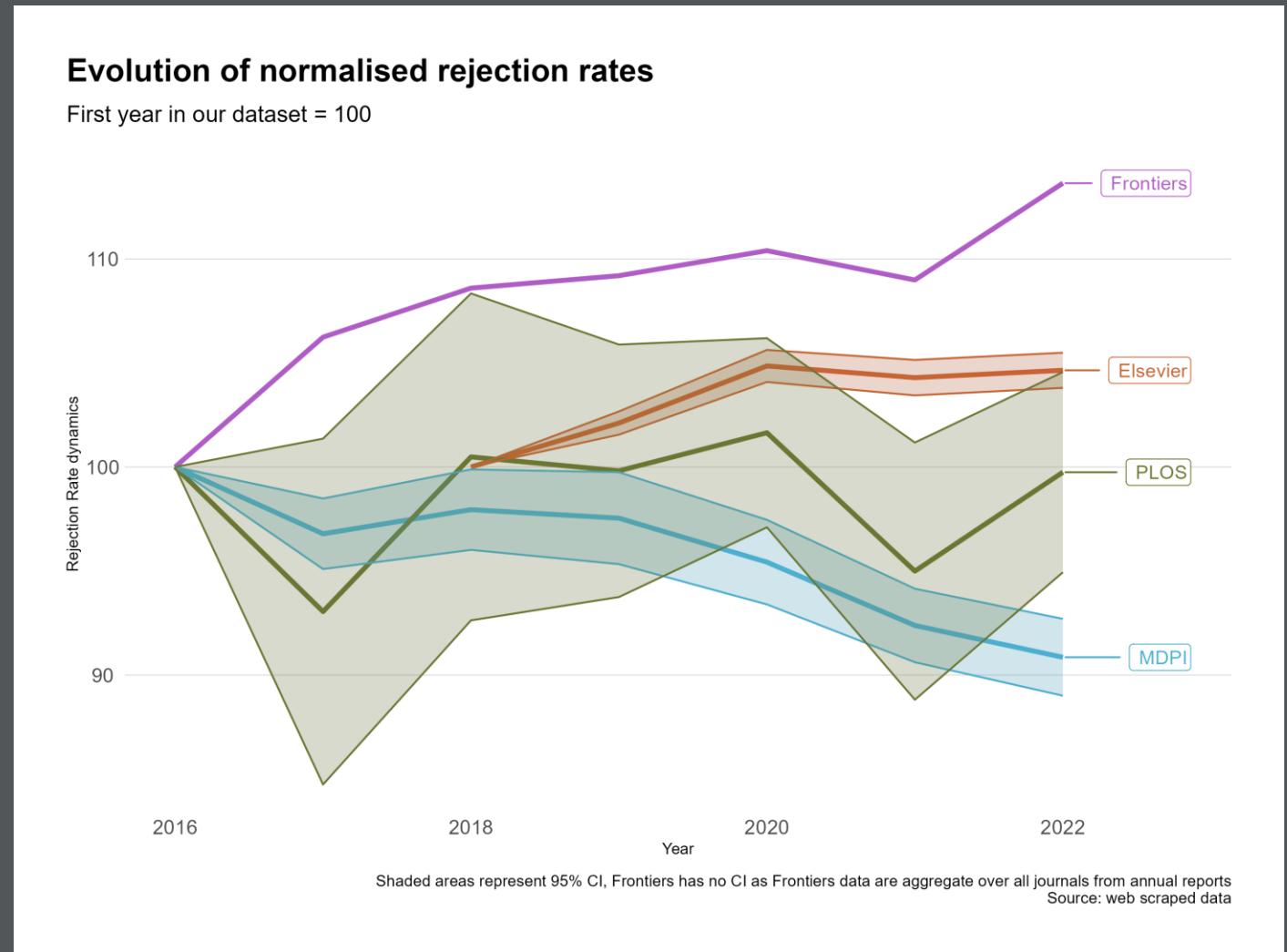


Rejection rates: rarely public

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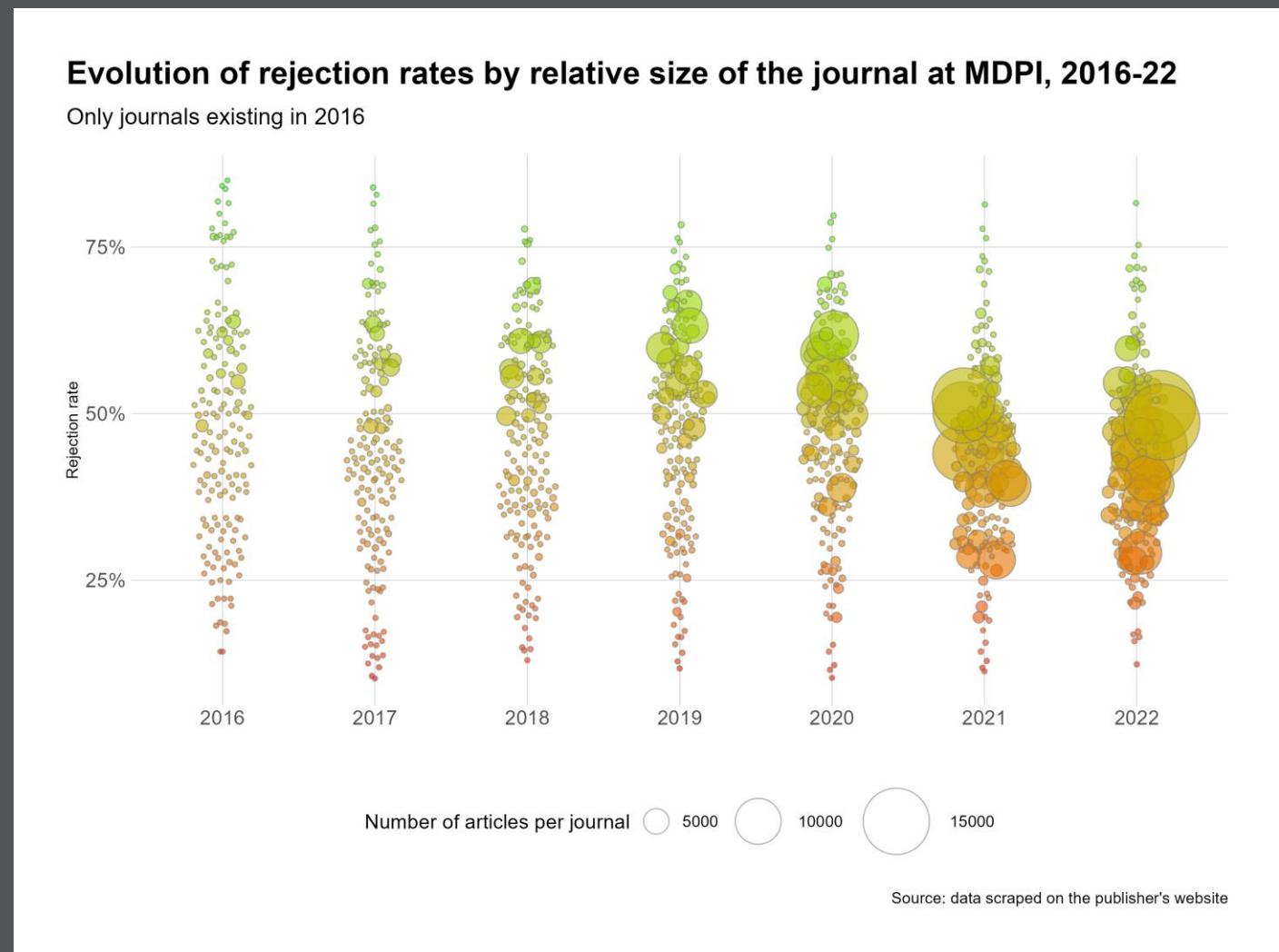
Within publisher...?



Rejection rates: rarely public

MDPI again...

- Journal scope?
- Guest editors...



Rejection rates: what's going on?

Trends

- Not transparent

Threats

- Publisher dictate **scope**

Inflation:



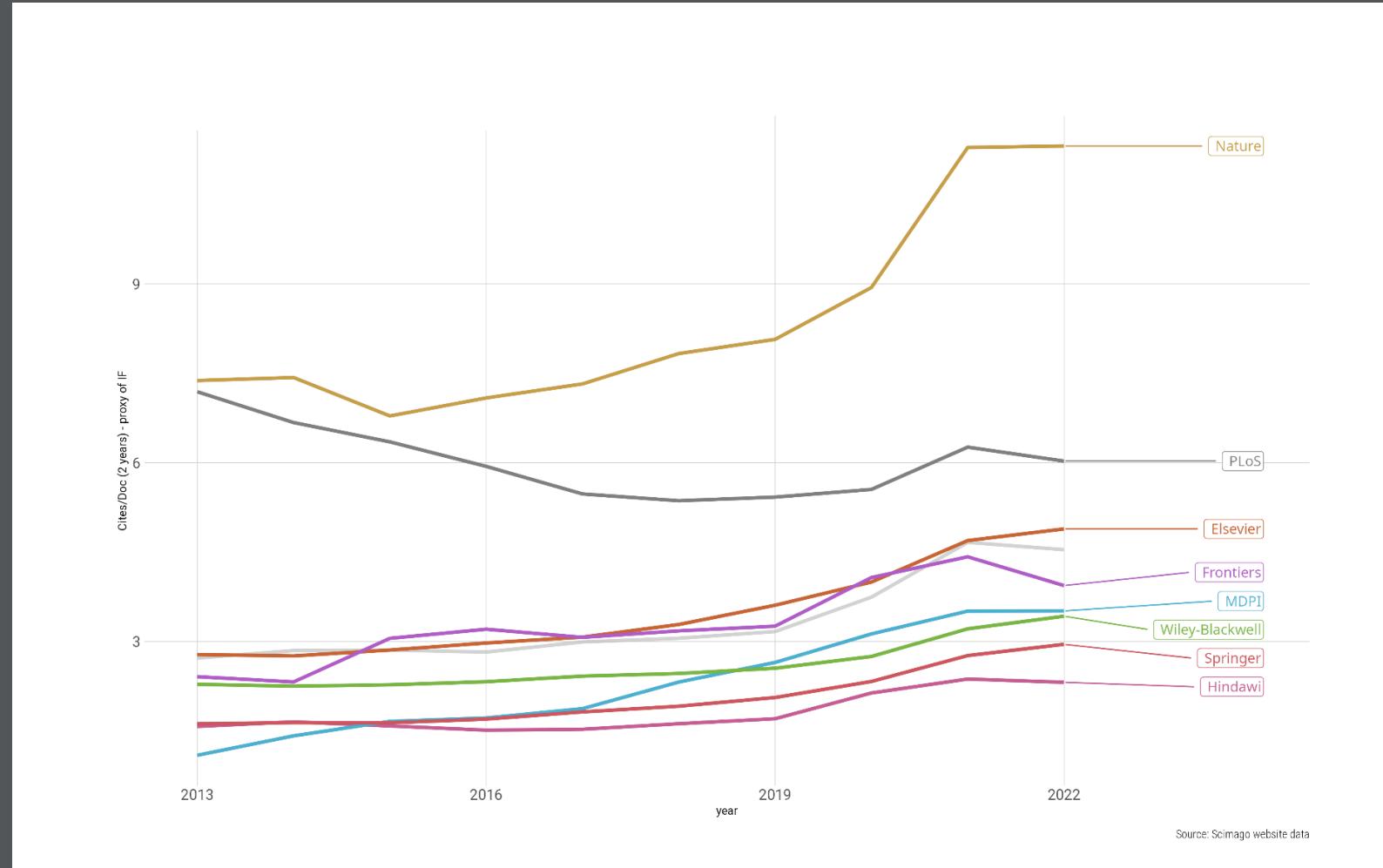
Inflation: pound sterling, but also **Impact Factor**

also housing... food... life...

Impact inflation

Impact factor

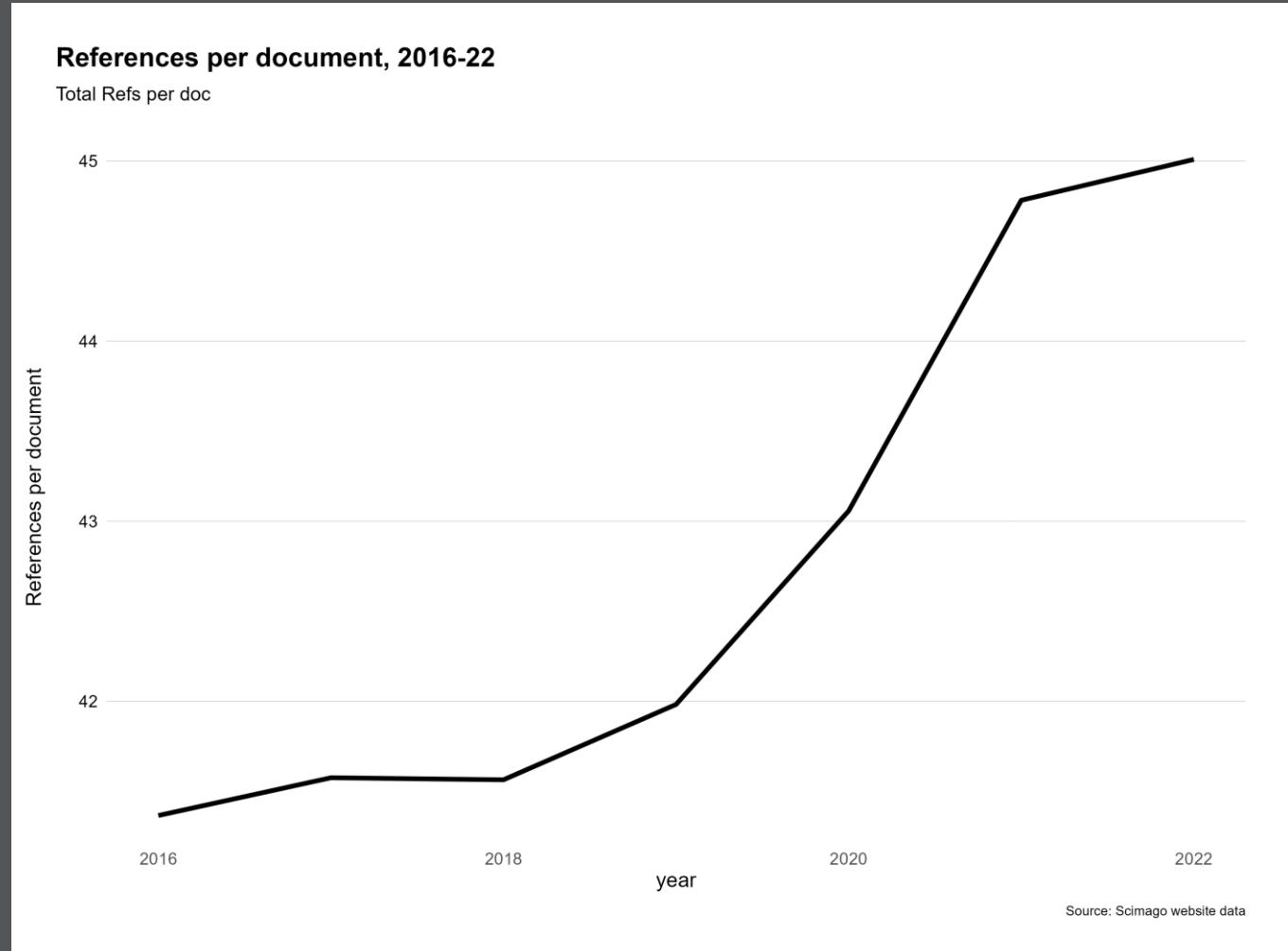
- Increased universally



Impact inflation

Impact factor

- Increased universally
- Refs per doc part of it...
- COVID (not whole story)



Impact inflation

Impact inflation

Impact Factor (IF)

- Total citations (2 years)

N citations

Impact inflation

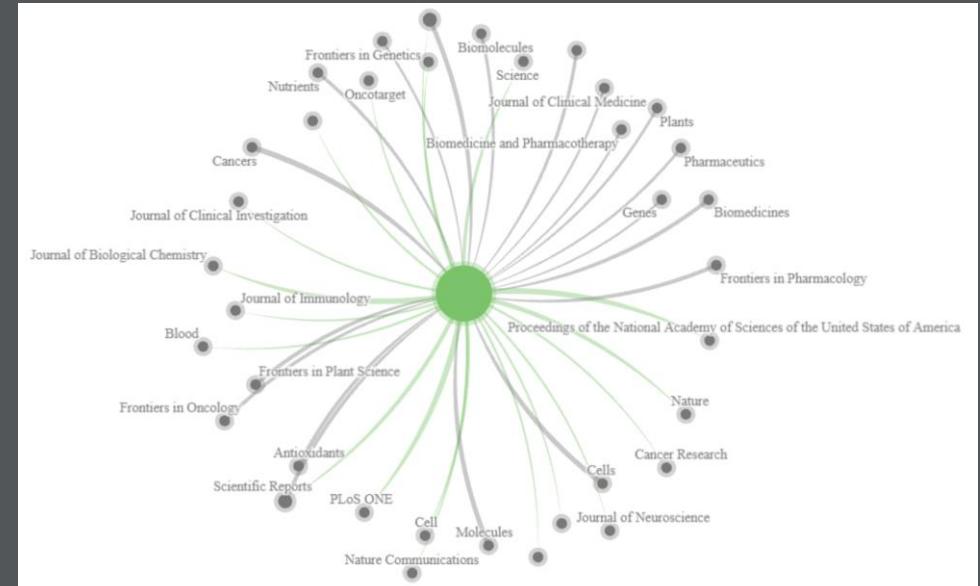
Impact Factor (IF)

- Total citations (2 years)

N citations

Scimago Journal Rank (SJR)

- Network approach
- Self-cites *not rewarded*



Impact inflation

Impact Factor (IF)

- N citations

$$\frac{IF}{SJR}$$

Scimago Journal Rank (SJR)

- Network... self-cites...



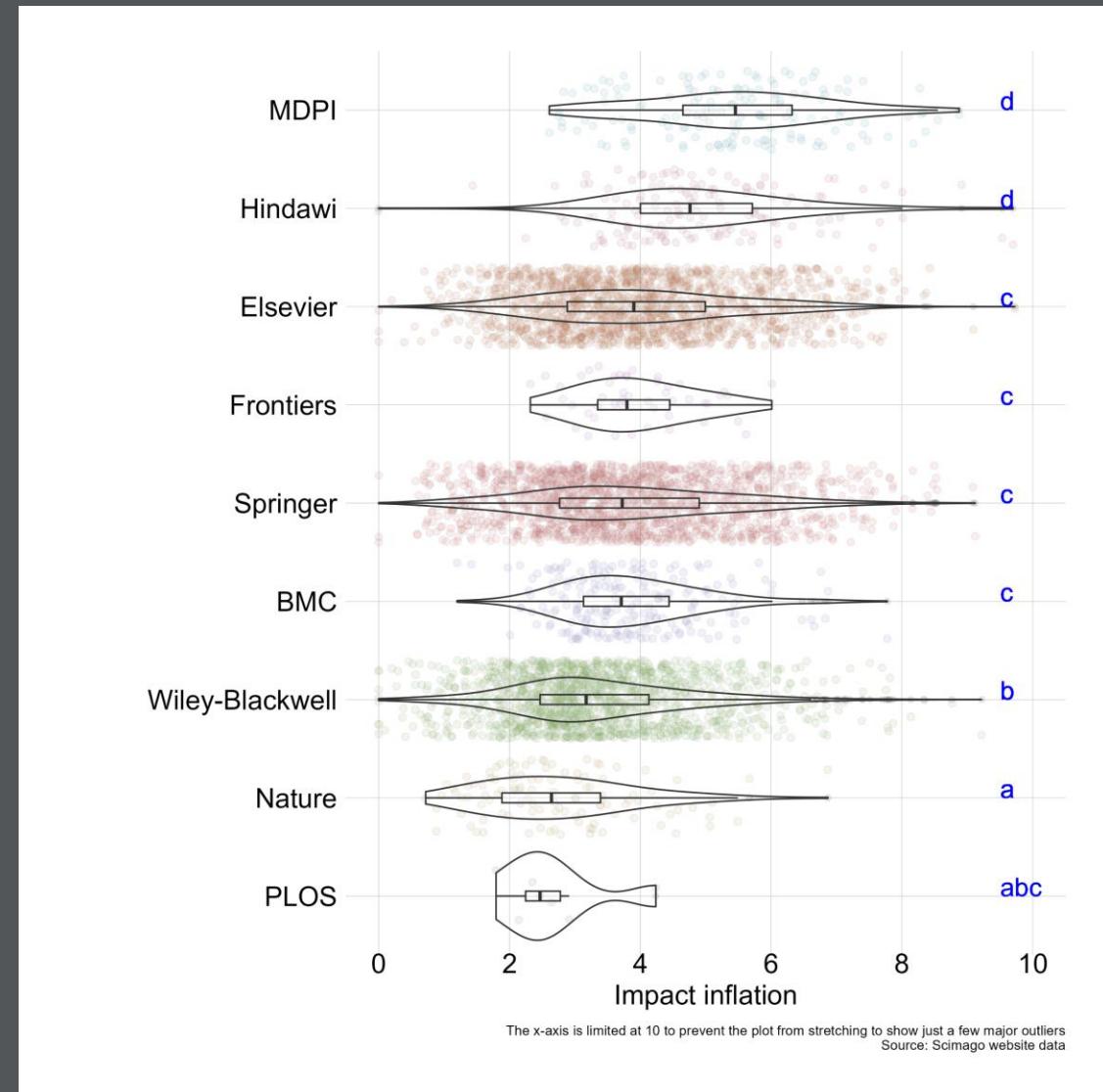
“Impact Inflation”

Impact inflation

Impact inflation

- MDPI
- Hindawi

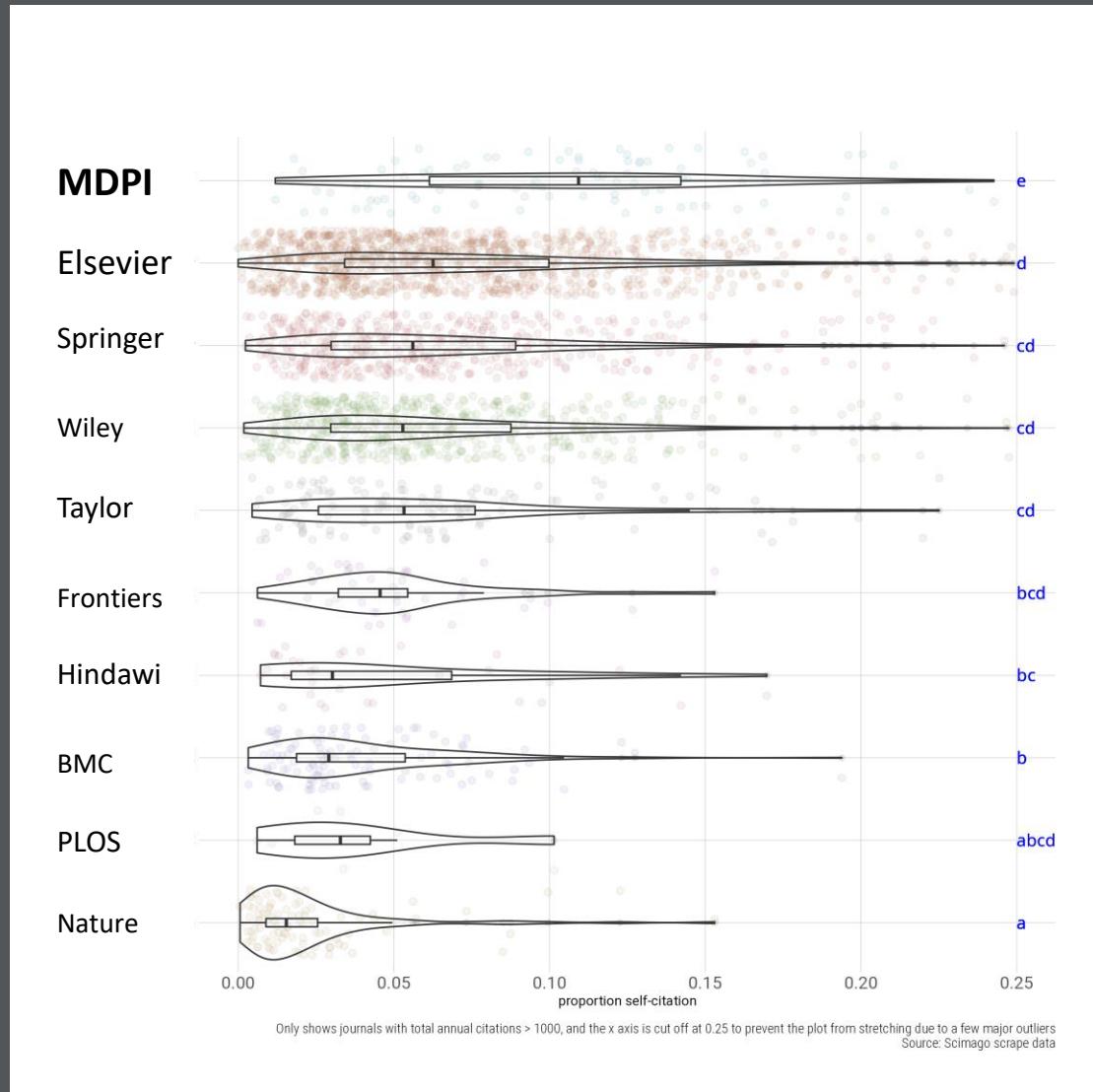
but not *Frontiers*...



Self-citations: MDPI

Self-cite rate

- MDPI

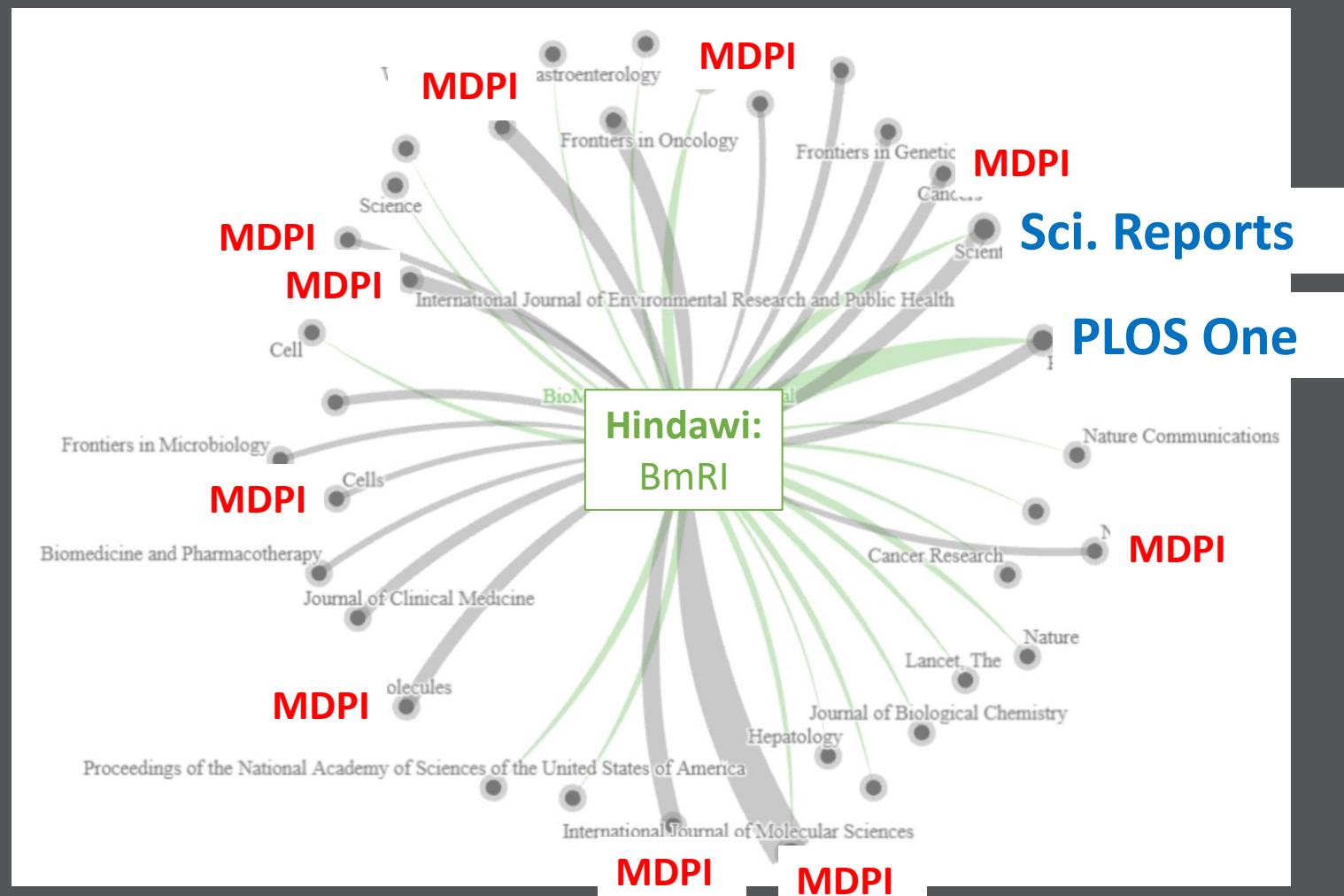


Universal impact inflation

Hindawi high Impact
Inflation due to...?

Impact Inflation

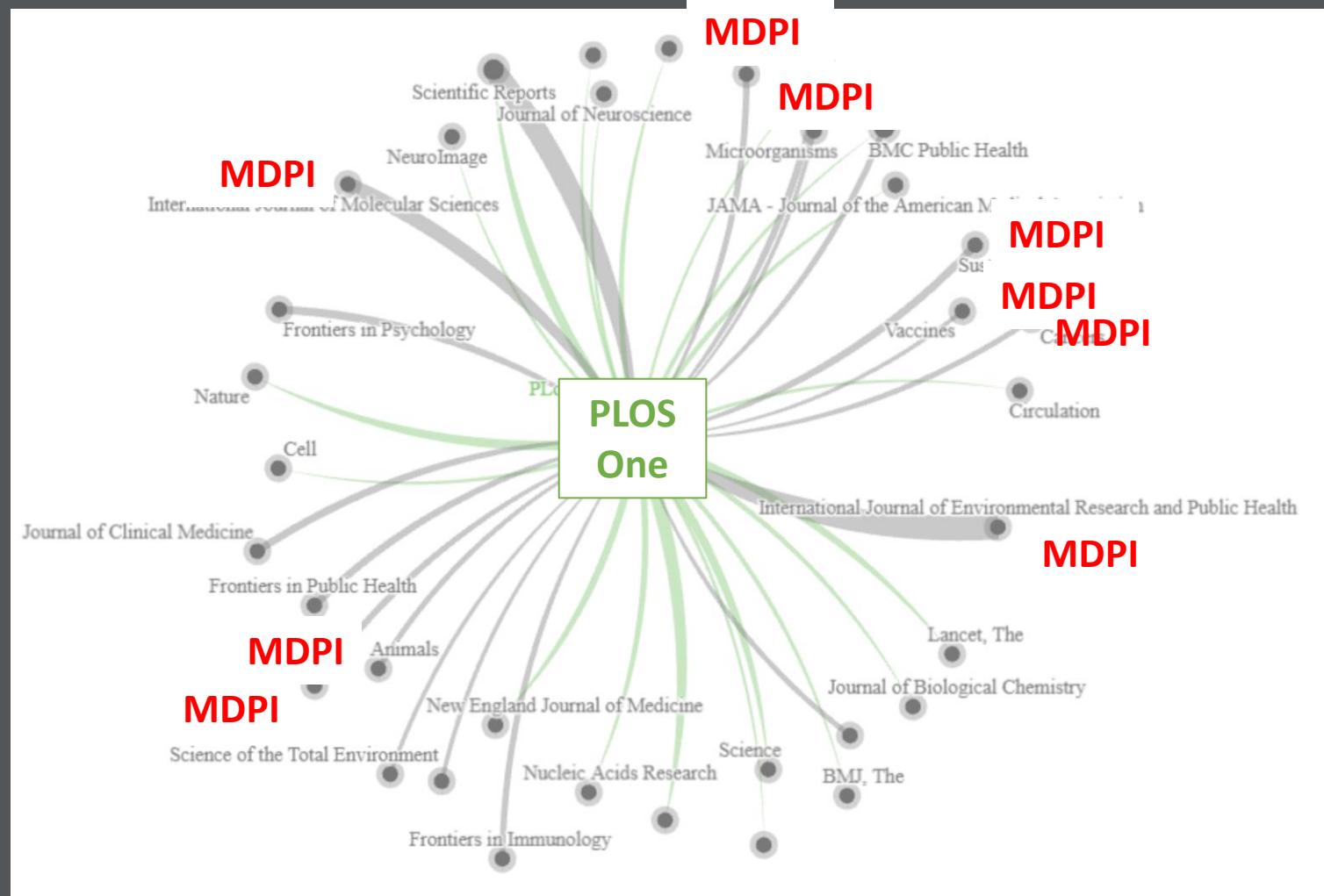
Hindawi high Impact Inflation due to MDPI



Universal impact inflation: MDPI SJRs low?

MDPI: nobody is
returning the favour...

how the math works...



What's going on?

Trends

- Everyone's IF is going up
- One group (MDPI) self-cites a lot

Why?

- Lots of citations from a few low-rank journals

Threats

- **Quality** signals distorted, threat to naïve scientists

What is going on?

Strain indicators at a glance: 2022 and evolution 2016-22

	2022					CHANGE 2016-22		
	TOTAL PAPERS	SHARE SPECIAL ISSUE	TURNAROUND TIME (DAYS)	REJECTION RATE	IMPACT INFLATION	NUMBER PAPERS	SHARE SPECIAL ISSUE	TURNAROUND TIME (DAYS)
Overall	2816k	38%	136	60%	3.3	+47%	+27pp	+2
Elsevier	498k	--	--	71%	4.0	+41%	--	--
MDPI	264k	88%	37	40%	5.4	+1080%	+14pp	-33
Springer	250k	3%	136	--	3.9	+52%	-1pp	+2
Wiley-Blackwell	231k	5%	149	--	3.3	+36%	-2pp	+4
Frontiers	114k	69%	71	48%	4.0	+675%	+20pp	-20
Taylor & Francis	105k	--	167	--	NA	+59%	--	+15
Nature	57k	11%	171	--	2.8	+32%	+6pp	+42
BMC	44k	10%	142	--	3.9	+73%	+1pp	+10
Hindawi	39k	62%	111	--	5.0	+139%	+36pp	+16
PLOS	19k	1%	170	59%	NA	-23%	-3pp	+21

pp = 'percentage points'. Source: data scraped on the publishers' website or publishers' own publications. Overall: SI, TAT, Rejection % based on publishers with available data only. N pa Scimago dataset. Elsevier: rejection rate change starts from 2018. All publishers: Special Issues sometimes named differently.

What is going on: ... one group stands out

Strain indicators at a glance: 2022 and evolution 2016-22

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Taylor & Francis	105k	--	167	--	NA	+59%	--	+15
Nature	57k	11%	171	--	2.8	+32%	+6pp	+42
BMC	44k	10%	142	--	3.9	+73%	+1pp	+10
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What's going on?

Why?

- MDPI is very successful
- Authors must *publish or perish*
- Funders place this pressure on authors

What's going on?

Why?

- MDPI is very successful
- Authors must *publish or perish*
- Funders place this pressure on authors

Threats

- Huge waste of time and money (!!!)
 - *Writing, reviewing, editing*
- **Quality signals** distorted: nobody wins

Conclusion: we need to **respond to strain**

Exponential growth is ultimately unsustainable

Funders, universities, have biggest role to regulate
the system (Wellcome, 2020)

End

**A journal's Impact Factor
tells me how good
someone's research is.
*Right? Wrong!***

**Find out how to use
metrics responsibly.**



University of Exeter

Quality signals can be informative



RESEARCH ARTICLE | Open Access |

In which fields are citations indicators of research quality?

Mike Thelwall , Kayvan Kousha, Emma Stuart, Meiko Makita, Mahshid Abdoli, Paul Wilson, Jonathan Levitt

First published: 04 May 2023 | <https://doi.org/10.1002/asi.24767> | Citations: 3

REF vs. IF: Spearman's $r =$ up to 70% !! (e.g. clinical medicine)

Quality signals can be informative



asis&t

Association for Information Science and Technology

RESEARCH ARTICLE | Open Access |

Ir
Mi
Jo
Fir

$$\text{“Impact Inflation”} = \frac{IF}{SJR}$$

even more informative...

Quality signals can be informative

*If we protect the publishing
ecosystem...*