

# The Cost of Open Access to Journals: Pay It Forward Project Findings

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# Collision Course Towards Global OA?

## North America

- Funding Agency OA Policies
- University faculty OA Policies
- White House OSTP Directive
- FASTR



## Europe / UK

- Finch Report
- APC Offset Agreements
- Netherlands Call to Action on Open Access
- OA2020



# What if it OA2020 really happens?



*Pay It Forward: Investigating a Sustainable Model of Open Access Article Processing Charges for Large North American Research Institutions*

**“build a set of financial scenarios, or models, depicting the financial implications an APC-based system of scholarly journal publishing, for the conversion of the current system of scholarly journal publishing to an APC-based system, for large North American research institutions.”**

- Perspective of large North American research institutions (U.S. and Canada)
- Models a world of 100% APC-funded open access journals



# Quantitative Research

Ivy Anderson

Mark McCabe

David Solomon & Bo-Christer Björk

Greg Tananbaum

Mat Willmott



# We got data!

- Journal expenditures by library partners (2009-2013)
- Publications by partner institution authors (Web of Science and Scopus, 2009-2013)
- Partner research expenditures (NSF Higher Ed Research and Development Survey, 2009-2013)
- Article Processing Charges and publication costs (multiple sources)



# What do articles cost to publish?

- Current range: \$500 to \$4,000
- Plausible minimum cost: **\$1,103** (including 13% surplus)
- Defensible cost: **\$1,864** (based on expenditures at partner institutions)

Poor metric... depends on

- What functions are included in “publishing” (e.g. marketing)
- Publisher’s volume of publication (economies of scale)
- Publisher’s “fixed effects” (e.g. rent)



# What will APCs cost in future?

Two publisher types today

- No correlation between “quality” and APCs (lots of these, small market share)
- Strong, positive correlation between “quality” and APCs (fewer, includes big publishers)

*Assuming* publishers set APCs relative to journal “quality”,  
SNIP = proxy metric *not an endorsement!*

Formula to estimate APC = \$1147 + (\$709.4 \* SNIP)

Baseline journal (SNIP=1.0) APC = \$1,856



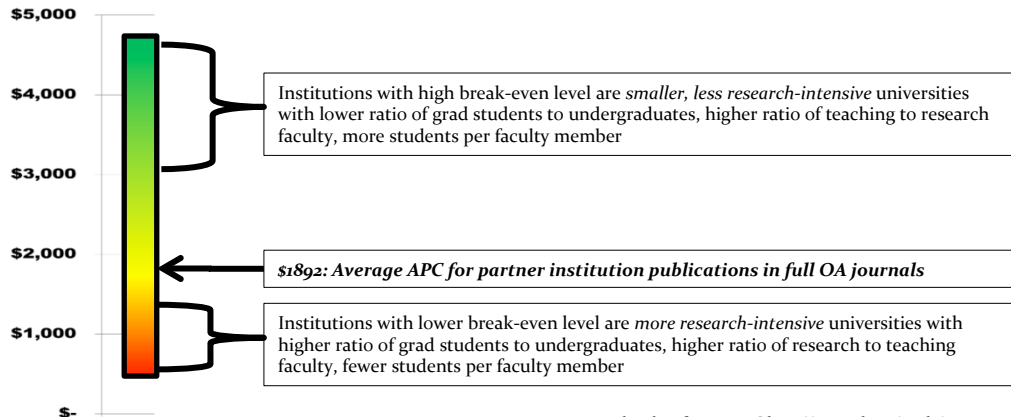
# Redirecting library budgets to APCs (example)

- Journal subscription budget: **\$4.02M**
- Published papers: **3,593**  
2,492 with associated grants, 1,101 without
- Estimated APC expenditures for *all* papers: **\$7.49M**
- Estimated APC expenditures for 1,101 papers *without grants*: **\$2.22M**





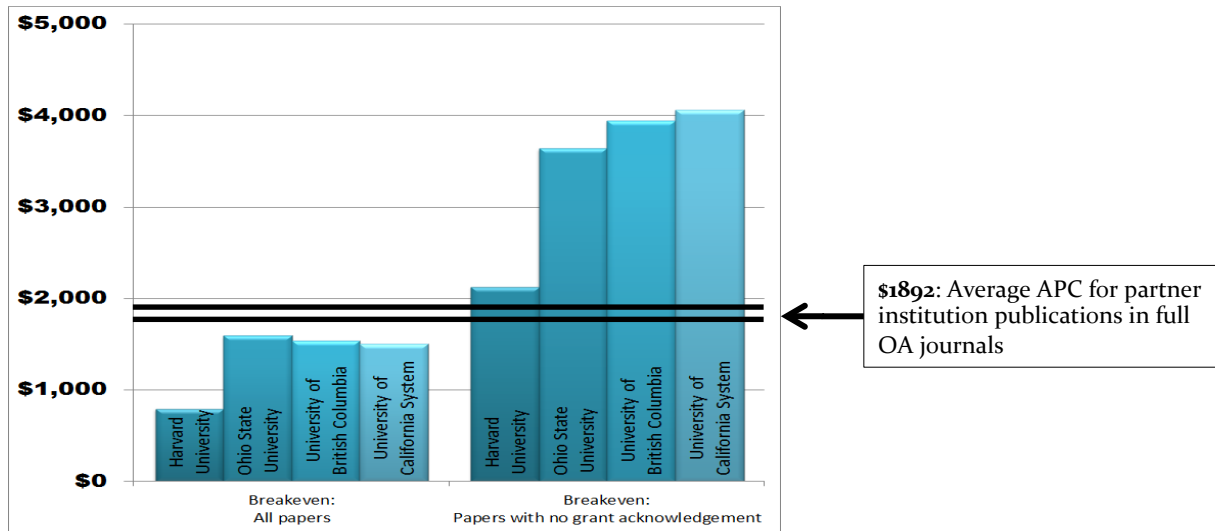
# Financial winners and losers



Demographic data from IPEDS <http://nces.ed.gov/ipeds/>



# But affordable, if grant funds applied



# We conclude

- Future APCs aren't perfectly predictable, nor disciplinary differences, crude estimations still useful and will improve over time.
- In North America, library journal budgets alone won't cover all APCs for research-intensive institutions
- But authors' grant funds at those institutions could cover the gap
- Unless APCs inflate uncontrollably, like the current journal subscription market



# So would it be sustainable?

“funding a journal with APCs is acceptable **if authors do not have to pay the money themselves.**”

...

“I think this [OA Big Deals] is beginning to happen, and that publishers are finding ways to create an APC-based market that will be as dysfunctional as the subscription-based market is. The basic problem with APCs is that publishers can charge what they like, knowing that if universities start to tell academics that they must publish in cheaper journals, there will be an uproar about the perceived threat to academic freedom. **I have never seen a convincing explanation for how a properly free market in APCs could work.**”

Sir Tim Gowers, interview with Richard Poynder, 2016



# Qualitative Research

Carol Tenopir

Allison Fish

Greg Tananbaum

ALPSP (publishers)



# Importance of factors in selecting where to publish

1. *Quality and reputation of journal*
2. Fit with scope of journal
3. Audience
4. Impact Factor
5. Likelihood of acceptance
6. Time from submission to publication
7. Editor or editorial board
8. Open Access

focus groups and surveys of >2,000 faculty, postdocs & grad students, across all disciplines

*“Taken together, it is evident that reputation building within a specific field is at the heart of what matters most to academic scholars.”*



# Authors Paying APCs Today

“Have you ever published in an open access journal?”

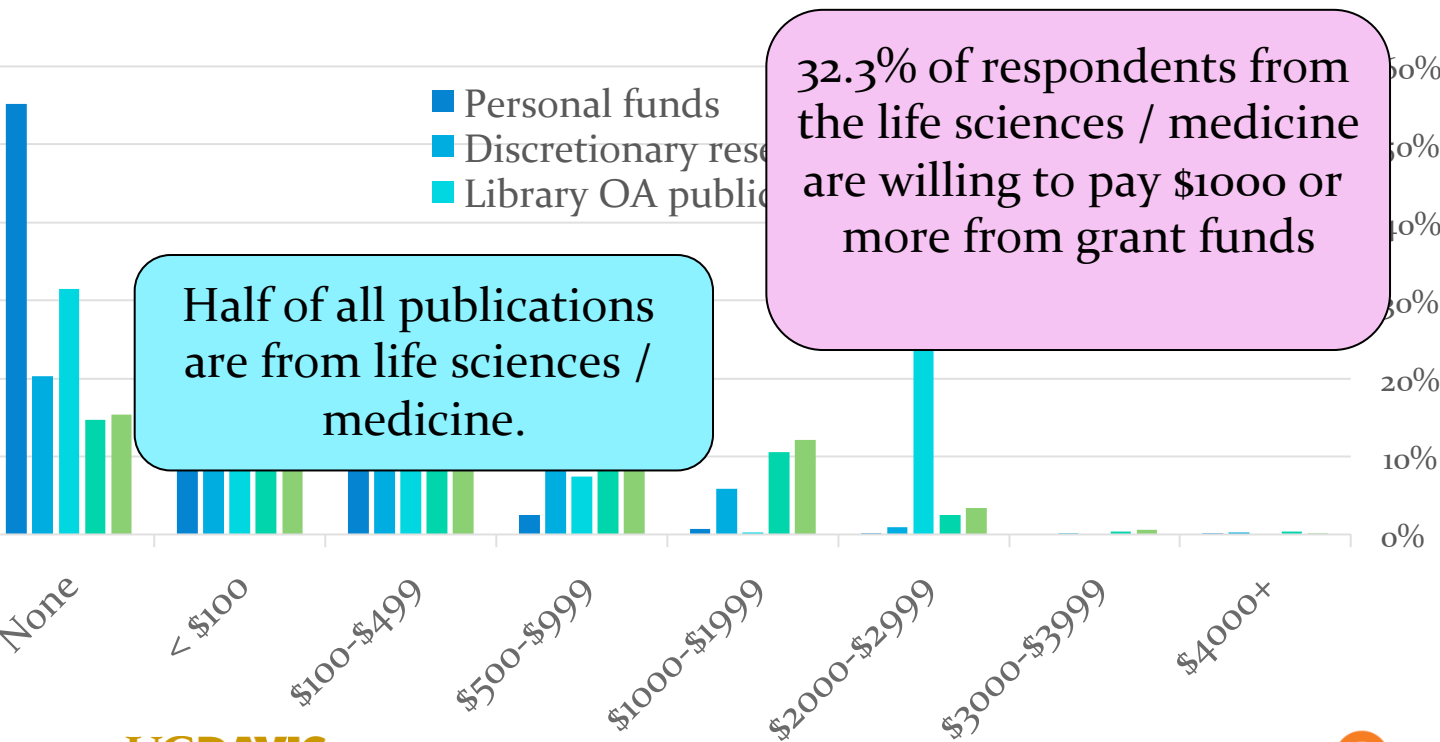
*Yes = 32%*

“Have you or your co-authors paid article processing charges (either directly or through your institution, grant, or other funds) for any of the open access articles you have published?”

*Yes = 63%*



# Author “Willingness to Pay”





# Author “Willingness to Pay”

**Personal Funds** \$100 (31.5%)

**Discretionary Research Funds** \$500 (31%)

**Grant Funds** \$500 (29%)

**Department Funds** \$500 (30%)

**Library Funds** \$0 (32%), \$3000 (26%)

**Key Observation: authors are price sensitive when they choose where to publish based on cost/quality**

**author discretion → incentive to economize**



# Achieving long-term sustainability

## Behavioral Objectives:

- **Authors** choose “best” platform for their article, given the price, funds available, platform readership, editorial quality, etc.
- **Publishers** respond to *elastic* author demand by competing for articles.

## Claim:

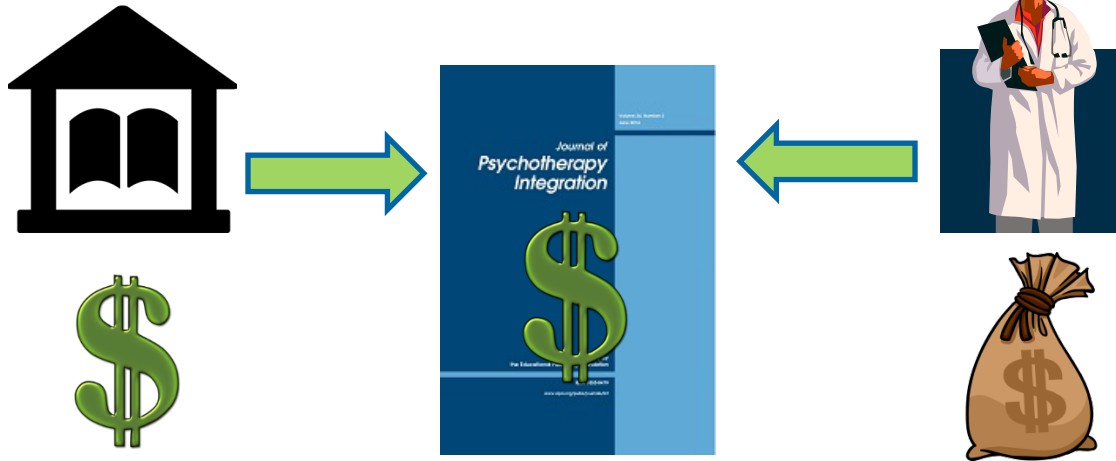
- Under *ideal* conditions **competition** in an APC environment **lowers cost** of scholarly communication
- Many mitigating factors (e.g. platform ownership concentration, delegation of APC payment responsibility, etc.)

## Implementation:

- Give authors discretionary research funds to pay APCs *or other research expenses*
- Institutional subsidies level the playing field



# Strategy: Multi-Payer Model



**Library subsidy  
(linked to average cost to publish)**

**Grants, Startup packages,  
discretionary research  
funds**

# What would this cost institutions?

*Example:* library subsidy up to \$1,164 (journal budget break-even)

- Library pays \$4M (3,593 papers)
- Grant funds cover \$2.5M (2,492 papers)
- Author discretionary funds cover \$1M (1,101 papers)

**\$1M** cost increase to institution (+25%)



# What would this cost institutions?

*Example:* library subsidy up to \$1,857 (SNIP=1.0 journal APC)

- Library pays \$6.4M (3,593 papers)
- Grant funds cover \$.8M (1,739 papers)
- Author discretionary funds cover \$.3M (666 papers)

**\$2.7M** cost increase to institution (+66%)



# Prediction

**Giving authors discretionary research funds introduces price competition, without interfering with author choice in where to publish.**

This is our best chance to

- encourage a competitive journal market,
- encourage authors to explore new options,
- drive costs down over time



# Multitude of concerns

- The rich get richer
- Many disciplines lacking research funding
- Young/independent scholars
- Authors in the Global South
- Liars and cheaters (lack of compliance tracking mechanisms)
- Stewardship roles (e.g., who ensures preservation?)



# History Lesson: page fees in high energy physics

## 1930-40s

- post-war explosion of physics research and journals
- subscription prices couldn't keep pace, 'voluntary' article page charges introduced by AIP
- initially paid by foundations to legitimize, later research 'patrons' (universities and government agencies)

## 1950s

- journals fully redefined as public goods
- page fees covered infrastructure costs, subscriptions cover distribution costs

## 1960s

- **page charges are largest source of revenue**
- public good argument weakened

## 1970-80s

- shift back to subscription revenue, private commodity argument strengthened (for-profit publishers emerge)
- rapid rise of subscription costs limits access

## 1990-2010s

- Internet, arXiv change distribution costs
- SCOAP<sup>3</sup> experiment in APC-funded OA





# Project Report, Bibliography, Data, Tools

[http://icis.ucdavis.edu/?page\\_id=713](http://icis.ucdavis.edu/?page_id=713)

Report: [bit.ly/29dJcCv](http://bit.ly/29dJcCv)

