Pay It Forward:

Investigating a Sustainable Model of Open Access Article Processing Charges for Large North American Research Institutions

MacKenzie Smith, University of California, Davis
Ivy Anderson, California Digital Library
Pay It Forward
funded by the
Andrew W. Mellon Foundation

Key Question:
Can a large-scale conversion to open access scholarly journal publishing funded via APCs be viable and financially sustainable for large North American research-intensive institutions?

Led by the University of California, Davis and the California Digital Library
Why this project, why now?
Increasing disconnect between European and North American approaches to open access

North America
- Tri-Agency Open Access Policy
- NIH Open Access Policy
- OSTP Directive
- Faculty OA Policies
- FASTR

Europe / UK
- Finch Report
- Horizon 20/20
- APC Offset Agreements
“The cumulative effect of sustained above-global-average growth in R&D spending in emerging economies has been a profound shift in the global make-up of research.”  STM 2015 Report
Local drivers:

UC Faculty Open Access Policy

Campus Open Access Fund Pilots

Faculty began asking: "Does this mean I have to pay to publish?" and "Will the library pay?"

Our Libraries wanted to understand how gold OA would impact our budgets if we were to subsidize publication.
Qualitative Analysis

Project Components

- Academic Author Surveys
- Library Subscription Expenditures
- Publisher Survey
- University Publishing Output & Potential APCs

University Partners:
- University of California
- Harvard University
- Ohio State University
- University of British Columbia

Industry Partners:
- Assoc of Learned & Professional Society Publishers (ALPSP)
- Thomson Reuters (Web of Science)
- Elsevier (Scopus)

Quantitative Analysis: Five-Year Period, 2009-2013
MacKenzie Smith, UC Davis (Co-PI)
Ivy Anderson, CDL (Co-PI and Quantitative Lead)
Greg Tananbaum, ScholarNext (Project Manager)
Mathew Willmott, CDL (Data Analyst)

Project Consultants
Greg Tananbaum, ScholarNext (Publisher surveys and costs)
Carol Tenopir, University of Tennessee (User studies)
David Solomon, Michigan State University &
Bo-Christer Bjork, Hanken School of Economics (APC research, Scenario modeling)
Mark McCabe, Boston University & SKEMA Business School (Scenario modeling, economic analysis)
1. A publicly accessible financial model that depicts what the emerging APC model would cost large research institutions under a variety of rigorously-modeled scenarios.

2. A replicable methodology that that others can adapt to a local context.
   - What level of APC is realistic and sustainable in a given discipline?
   - How might costs be distributed among institutions, research funders, authors, and other players?
Phase 1: January-March
- Finalize data specifications, begin data gathering
- Conduct focus groups
- Develop publisher survey

Phase 2: April-June
- Collect and refine data
- Conduct user surveys
- Conduct publisher survey
- Perform publishing cost analysis

Phase 3: July-December
- Complete survey analysis
- Complete financial and bibliometric data analysis
- Build and refine models

Phase 4: January-June
- Review and refine model
- Prepare documentation
- Write up findings
Preliminary Findings

Author Studies
(Carol Tenopir)
Focus Groups

• 10 sessions at Harvard, OSU, UBC, UCD & UCI

• 77 Faculty, postdocs & grad students
  
  o 46 in faculty, 31 in graduate student sessions

  o arts and humanities, physical and biological sciences, social sciences, medicine, law, and mathematics
Surveys

- 2,020 responses (OSU, UBC, UCD & UCI)
  - 935 faculty, 915 grad students, 148 postdocs, 22 other
  - every discipline, publishing frequency represented
  - majority have 3-5 co-authors, varies by discipline
## Author Study Impressions

### Range of perspectives
- True believers, skeptics, most people somewhere in the middle
- Many senior faculty already post green versions in a repository or personal website
- Support for OA as readers and as a moral good, but most have access to what they need
- Arts, Humanities, & Social Sciences faculty are less supportive of OA

### Concerns
- Where funding will come from
- Richer nations may dominate publication
- Potential for APC price increases
- Predatory / vanity publishing
- Lack of transparency – ‘publishing is broken’
- APCs too high – publishers charge what the market will bear

### Library role
- Negotiating Institutional publishing licenses
- Coordinating/administrative
Ambivalence & Questions: Faculty

- If they have a repository (green) why do they need gold?
- There is a confusing lack of transparency in APCs.
- Quality may still be costly.
- Figuring out a good model will take time.
- We have to evaluate the impact on readers and authors and different fields separately.
- We have privilege of access so perhaps we aren’t the best judges of this issue.
Importance of Factors When 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

*Listed highest to lowest
Journal quality matters, and is often defined by traditional attributes.

If authors can publish in their journal of choice, whether it’s OA is secondary.
APC Attitudes

- Of respondents who have published OA
  - majority from life and physical sciences
  - fees paid from research grants
  - author discretion → incentive to economize
Break-Even Scenarios for Partner Libraries

(Mark McCabe, Mat Willmott)
Bibliometric data:
By partner institution, Scopus & WoS

- Corresponding authorship rates:
  - Scopus: 49% - 55%
  - WoS: 58% - 62%

In ten thousands

Corresponding
authorship rates:

<table>
<thead>
<tr>
<th>Partner Institution</th>
<th>Scopus Authorship Rate</th>
<th>WoS Authorship Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>S S S S</td>
<td>49%</td>
<td>58%</td>
</tr>
<tr>
<td>W W W W</td>
<td>55%</td>
<td>60%</td>
</tr>
<tr>
<td>S S S S</td>
<td>55%</td>
<td>61%</td>
</tr>
<tr>
<td>W W W W</td>
<td>54%</td>
<td>62%</td>
</tr>
</tbody>
</table>

Legend:
- Corresponding Authored
- Non-Corresponding Authored
Bibliometric data:
By discipline, 2013

73,436 publications in WoS across our partner universities (2013)
Bibliometric data:
By article type, Scopus & WoS

In ten thousands

- S 2009: 78% Article, 86% Proceedings Paper, 7% Review
- S 2010: 78% Article, 88% Proceedings Paper, 7% Review
- S 2011: 79% Article, 89% Proceedings Paper, 7% Review
- S 2012: 78% Article, 89% Proceedings Paper, 7% Review
- S 2013: 81% Article, 89% Proceedings Paper, 7% Review

- W 2009: 78% Article, 86% Proceedings Paper, 7% Review
- W 2010: 78% Article, 88% Proceedings Paper, 7% Review
- W 2011: 79% Article, 89% Proceedings Paper, 7% Review
- W 2012: 78% Article, 89% Proceedings Paper, 7% Review
- W 2013: 81% Article, 89% Proceedings Paper, 7% Review
Bibliometric data:
Grant funding (WoS 2013)

- **Solid:** Grant acknowledged
- **Striped:** No grant ack’d.

![Bar chart showing grant funding for Harvard, OSU, UBC, UC, and All combined.](chart.png)

- **100%**
- **50%**
- **0%**
Bibliometric data: Grant funding by discipline, WoS 2013

- **Solid**: Grant acknowledged
- **Striped**: No grant acknowledged
Break-Even Point: the *average* APC an institution would be able to support from its library subscription budget, given its publication output.

- Break-even points were calculated for each partner institution, assuming that the institution is responsible for payment of an APC if the corresponding author is from that institution.
- A **high** break-even point means that the institution could support publication even if the average APC is quite high (represented in **green** in the following charts)
- A **low** break-even point means that the institution could only support publication if the average APC is very low (represented in **red** in the following charts)
Break-Even Points: Library pays for all articles

Institutions with a higher breakeven point are generally smaller, less research-intensive universities with*:
- A lower ratio of grad students to undergraduates
- A higher ratio of teaching to research faculty
- More students per faculty member

$1907$: Average APC for publication in full OA journal, from European payment databases

$1775$: Average APC for partner institution publications in full OA journals

Institutions with a lower breakeven point are generally more research-intensive universities with*:
- A higher ratio of grad students to undergraduates
- A higher ratio of research to teaching faculty
- Fewer students per faculty member

Break-Even Points:
Excluding articles with grant funding

If we assume that documents which acknowledge a grant can have their APC’s fully covered by the granting agency, then institutions can support publication at a much higher cost.

About 2/3 of all documents in our dataset which acknowledge a grant are acknowledging either NIH, NSF, DoD, DoE, or NASA, all of which do allow charging APC’s to the grant.

$1907: Average APC for publication in full OA journal, from European payment databases

$1775: Average APC for partner institution publications in full OA journals
**Author has grant $**
- Grant must be applied up to $X
- Library pays up to $X
- Author is responsible for the balance of (APC-$X), to be paid at the author's discretion out of grant funds (if available) or other sources

**Author does not have grant $**
- Library pays up to $X
- Author is responsible for the balance of (APC-$X), to be paid at the author's discretion from wherever he/she can secure funds

**Author may have grant $**
- Library pays either $Y or balance of (APC-$X), whichever is less
- Author is responsible for $Z or balance of (APC-$X-$Y), whichever is less

**Preliminary multi-stakeholder funding scenarios - including market dynamics**
Remaining Tasks

• Refine Data
  • Library Expenditure Data
  • APCs
  • Publication data (incl. WoS and Scopus differences)
  • Project growth over time

• Develop funding scenarios to encourage market dynamics
  • Role of libraries, authors and granting agencies

• Build and populate calculation tool

• Write final report
  • Will publish all data that’s publicly shareable