How Open Access Affects Competition in Scholarly Publishing Markets:
A Tale of Good Intentions,
Big Deals,
& Uncertain Outcomes

Mark McCabe
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Today’s Outline

• A Quick Econ 101 review
• Competitive Framework
• Monopoly
• Competition
• The internet and the emergence of OA
• Conditions, Costs and Benefits for/of OA Adoption
• Caveats and Concerns
Efficiency $\equiv$ Maximizing $CS + PS$
Elasticity

\[
\text{Demand Elasticity} = \left| \frac{\text{% change in the quantity demanded}}{\text{% change in the price}} \right|
\]

Inelastic demand ranges between values of 0 and 1; Demand is elastic when the above ratio is > 1
The growth in Open-access journals is fairly dramatic. The world’s largest journal, PLOS ONE, is OA.
Competitive Tactics: Porter’s 5 Forces
Journals as Platforms

• Journals are an example of multi-sided platforms (here, the focus is on authors and readers, so, 2-sided platforms)
• [Other examples: telecom and credit-card networks, newspapers, magazines, etc.]
• A defining characteristic: an author’s (reader’s) benefit from participating on the platform is increasing in the number of readers (authors).
• A platform owner maximizes profits (or readership, etc.) by optimizing 2 or more prices. In the case of journals: author charges and reader fees.
Journals as Platforms, II

• Optimal author and reader fees for a monopoly journal are contingent on the value (or willingness to pay, “wtp”) on each side of the platform.

• Asymmetric wtp, e.g. high wtp on the reader side, and low wtp on the author side, will result in relatively high reader fees, and low author fees.

• Intuition?
(Monopoly) Journal Pricing as a function of author and reader wtp

Darker **green**: OA is more profitable

Light **green** and **orange** regions: a traditional journal is more profitable

**Blue** region: either type of journal is unprofitable

[reader (author) wtp increases along the x (y) axis]

(based on the numerical example described on p. 13 in McCabe and Snyder (NBER, 2016),
What influences rivalry among (perfect) competitors:

• Content is highly differentiated: each article is unique
  As a consequence: reader demand is highly inelastic, so \( P_R \geq C_R \)
  (reader “multi-homing” is consistent with this claim)

• The positive reader “margin” \( (P_R - C_R \geq 0) \) implies that publishers have an incentive to compete for content.
  So \( P_A \leq C_A \) is likely (so long as \( P_A \geq 0 \)). That is, reader margins are weakly negative or \( (P_A - C_A \leq 0) \)

• **Prediction**: in equilibrium, low author fees, high reader fees
  [Caveat: factors that lessen competition can weaken these claims, e.g. tacit collusion, etc.]
Between 1985 and 2001, a period during which journals increasingly moved from print to Internet distribution, the ratio of the average for-profit to non-profit subscription fees more than doubled from 3.8 to 9.1 and remained at about that ratio through 2016.

The ratio of for-profit and nonprofit submission fees is much smaller than for subscription fees, and declined over time. (McCabe and Snyder, NBER (2016))
So why does (gold/green) OA emerge?

• OA was generally not observed until after the introduction of the internet in 1995.
• Similarly, Big Deals are post-1995 phenomena.
• Presumably, the decline of article distribution costs played some role.
• Many folks in the library community hoped that this negative cost shock would lead to a corresponding negative (subscription) price shock.
• Instead, incumbent *publishers’ best response* involved offering a bundle of all of their content to everyone at customer-specific prices (“perfect price discrimination”).
So why does OA emerge?, II

• With bundling, access to content improves (at least for readers associated with subscribing institutions, large and small) and publisher revenue increases.

• Meanwhile, Big Deals result in the foreclosure of traditional entrants (McCabe (2004), Edlin and Rubinfeld, (2004)).

• That is, since entrants cannot easily unlock the subscription budgets tied-up in Big Deals, OA is the **best entrant response**. (“good intentions”)
OA entry

• As a substitute: working paper repositories (arXiv, SSRN, etc) and pirated content (Sci-Hub).
• New journal platforms/publishers: PLOS, Biomed Central, etc.
• The latter case requires substantial funding to effectively supplant and/or complement traditional reader-pays platforms.
• 1. Under which conditions? 2. How costly? 3. What are the benefits?
1. Optimal Conditions: 

*Economic efficiency* as a function of author and reader wtp

Darker green: OA is more efficient (mega-journals?)

Light green: a traditional journal is more profitable but inefficient

Orange region: a traditional journal is profitable and more efficient (NEJM?)

Blue region: journal publication is unprofitable

reader (author) wtp increases along the x (y) axis)

(based on the numerical example described on p. 13 in McCabe and Snyder (NBER, 2016),
2. How costly?

• Not surprisingly, since research intensive institutions publish more, they will pay more for OA; in some cases more than was spent in the reader-pays environment. (University of California Pay it Forward Project, 2016)

• However, the level of these costs (author processing charges) is “endogenous.”

• That is, the forces of supply and demand determine APC levels.

• If author demand for publication in a specific journal is relatively inelastic, then APC levels will be high.

• if this demand is elastic then APCs will be low (since journals must compete vigorously for content).
2. How costly?, II

• Demand elasticity will increase if authors face the appropriate incentives.

• A typical incentive mechanism:
  Authors operate with a *discretionary* research budget, that can be supplemented by outside grants.

• That is, authors allocate their budget across various products and services, taking into account the *opportunity cost* of spending $5K (instead of $1K) on an APC.
Porter’s 5 Forces, again

In an OA world, reader margins are zero, but author margins are weakly positive, i.e. $P^A - C^A \geq 0$.

Discretionary research budgets reduce this margin by lowering $P^A$.

Price competition usually lowers $C^A$.

Use of this mechanism enhances the bargaining power of authors...
Reduction of $C^A$ results in a downward shift of the supply curve.

...increasing TS

[Diagram showing supply and demand curves with shaded areas for CS and PS.]
3. What are the benefits?

• The aforementioned reduction in CA, increasing TS analysis
• OA is more efficient than traditional publishing in some cases
• Antitrust enforcement more likely and effective...why?
• These *social* benefits could be substantial.
Caveats and Concerns

• There is no single best business model.

• OA Big Deals (removing author incentives) would preclude the cost savings associated with reductions in CA and impose OA in cases where it is not efficient.

• Small OA citation benefit or worse (negative effect for low quality journals, <10% for the best titles)....(McCabe and Snyder, 2013, 2014).

  This implies that the net benefits accruing to authors from the adoption of OA is very modest. OA adoption is likely to remain a top-down affair.