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

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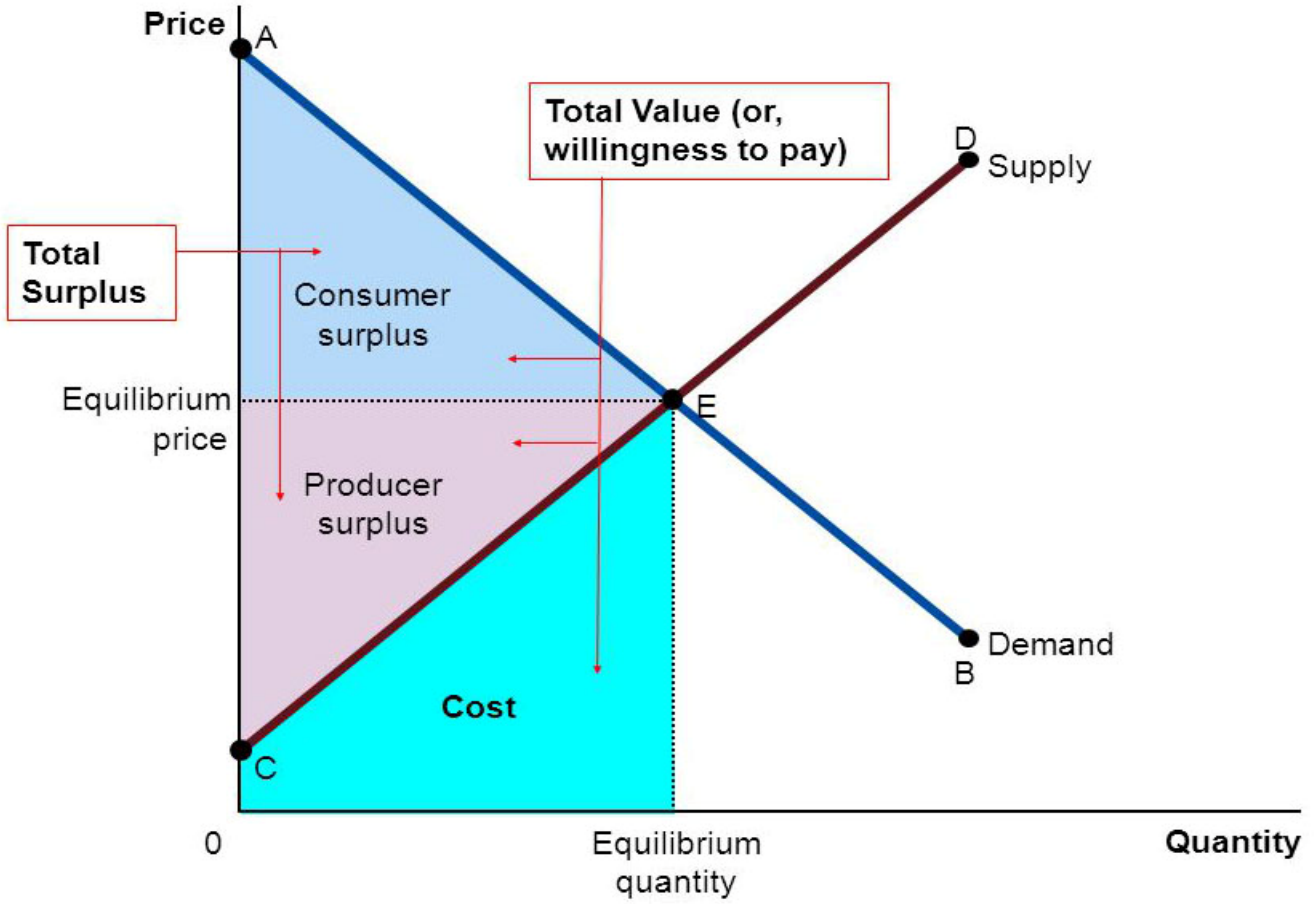
Today's Outline

- 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

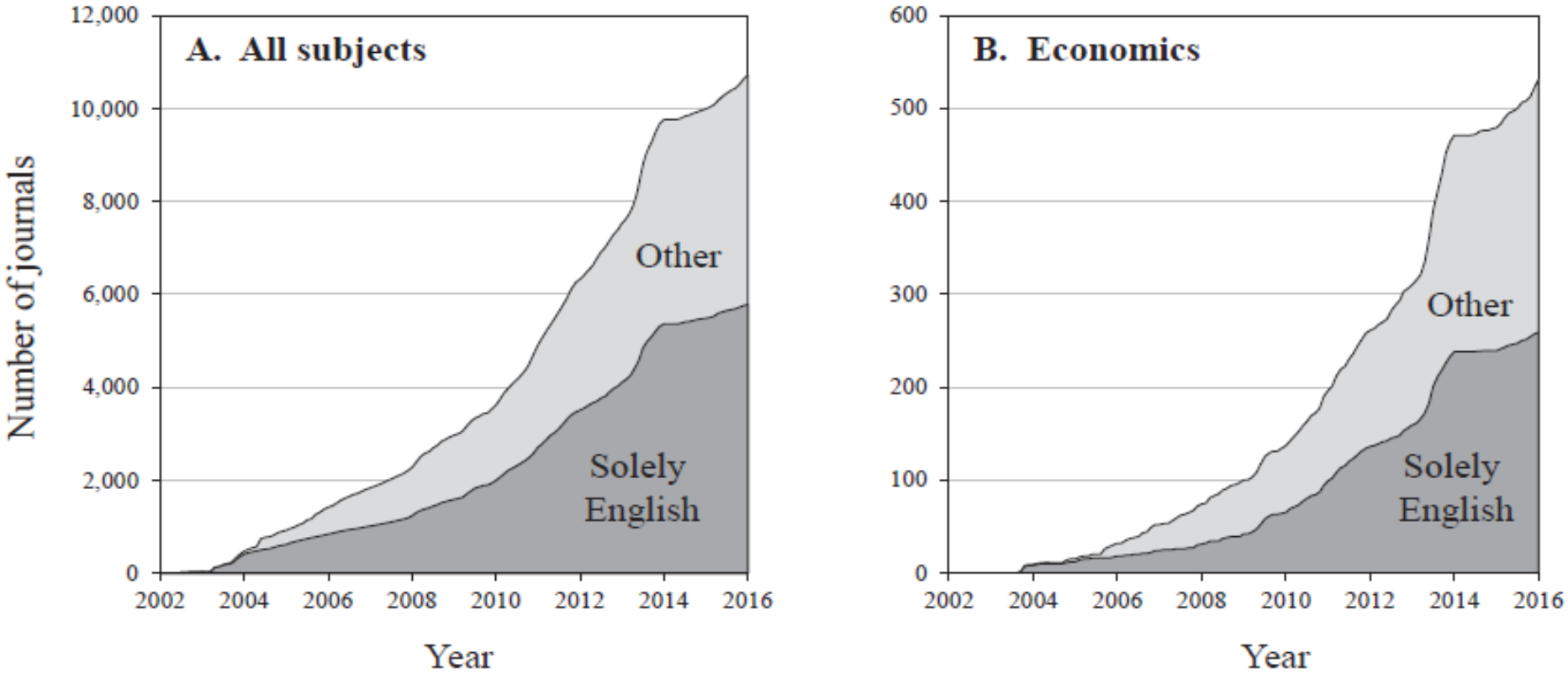
Efficiency ≡ Maximizing CS + PS



Elasticity

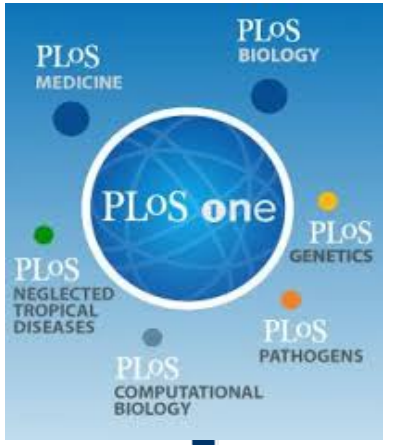
$$Demand\ Elasticity = \left| \frac{\%\ change\ in\ the\ quantity\ demanded}{\%\ change\ in\ the\ price} \right|$$

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



Authors

COMPETITION

Readers

Federal Trade Commission

Protecting America's Consumers

SCI-HUB

DEPARTMENT OF JUSTICE

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?

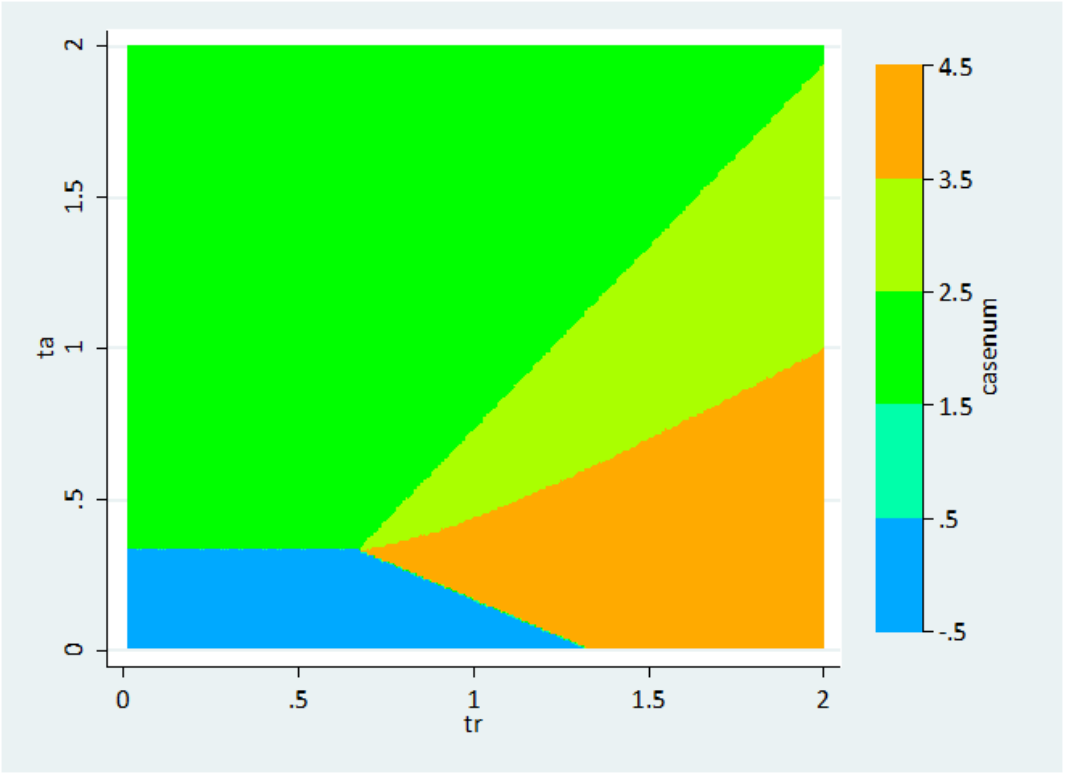
(Monopoly) Journal Pricing as a function of author and reader wtp

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.]

Table 1: Fees for Top Economics Journals by Profit Status

Journal	Subscription fee 1985	Subscription fee 2001	Subscription fee 2016	Submission fee 1985	Submission fee 2001	Submission fee 2016	Gold open-access publication fee 2016
Top five non-profit journals							
American Economic Review	33	45	105	50	150	200	—
Econometrica	87	241	550	0	0	193	—
Journal of Political Economy	50	175	559	40	50	125	2,500
Quarterly Journal of Economics	48	198	738	0	0	0	2,800
Journal of Finance	40	207	445	20	140	250	—
Mean	52	173	479	22	68	154	2,650
Top five for-profit journals							
Journal of Financial Economics	175	1,429	4,274	150	400	750	1,800
Journal of Economic Theory	410	1,800	4,347	0	0	0	1,800
Journal of Econometrics	463	2,020	4,089	25	50	75	1,800
Journal of Monetary Economics	146	1,078	3,336	75	175	250	1,800
Journal of Public Economics	398	1,546	3,975	0	50	100	1,800
Mean	199	1,575	4,134	50	135	235	1,800

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?)

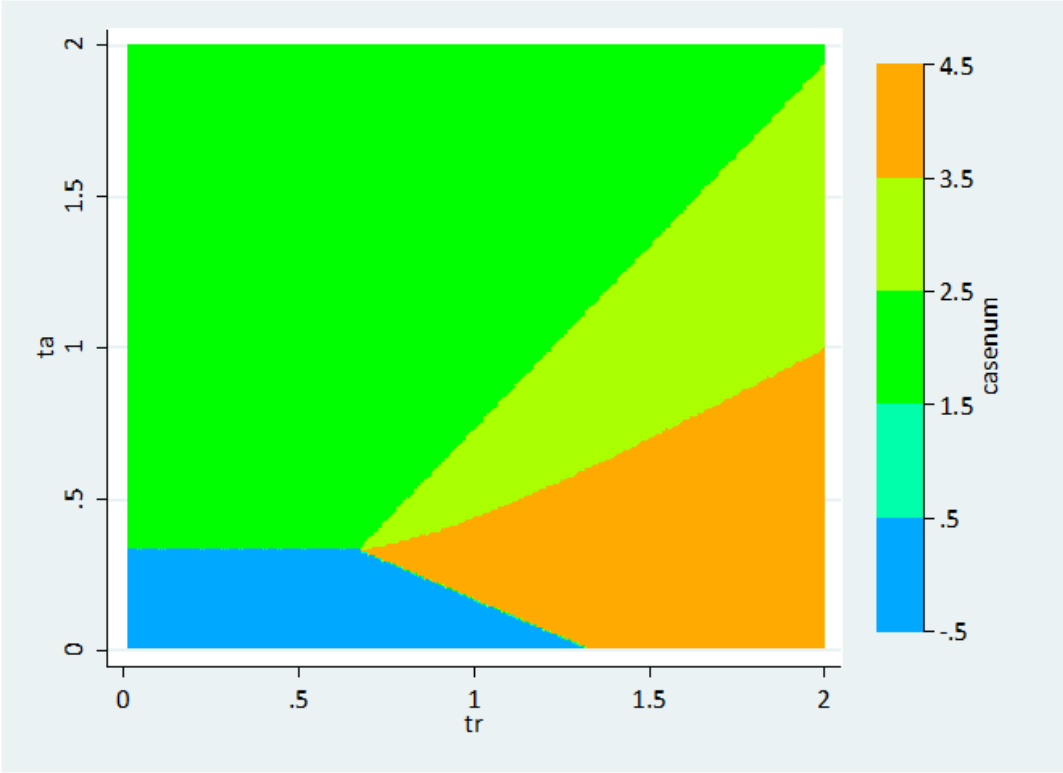
Light green: a traditional journal is more profitable but inefficient

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.

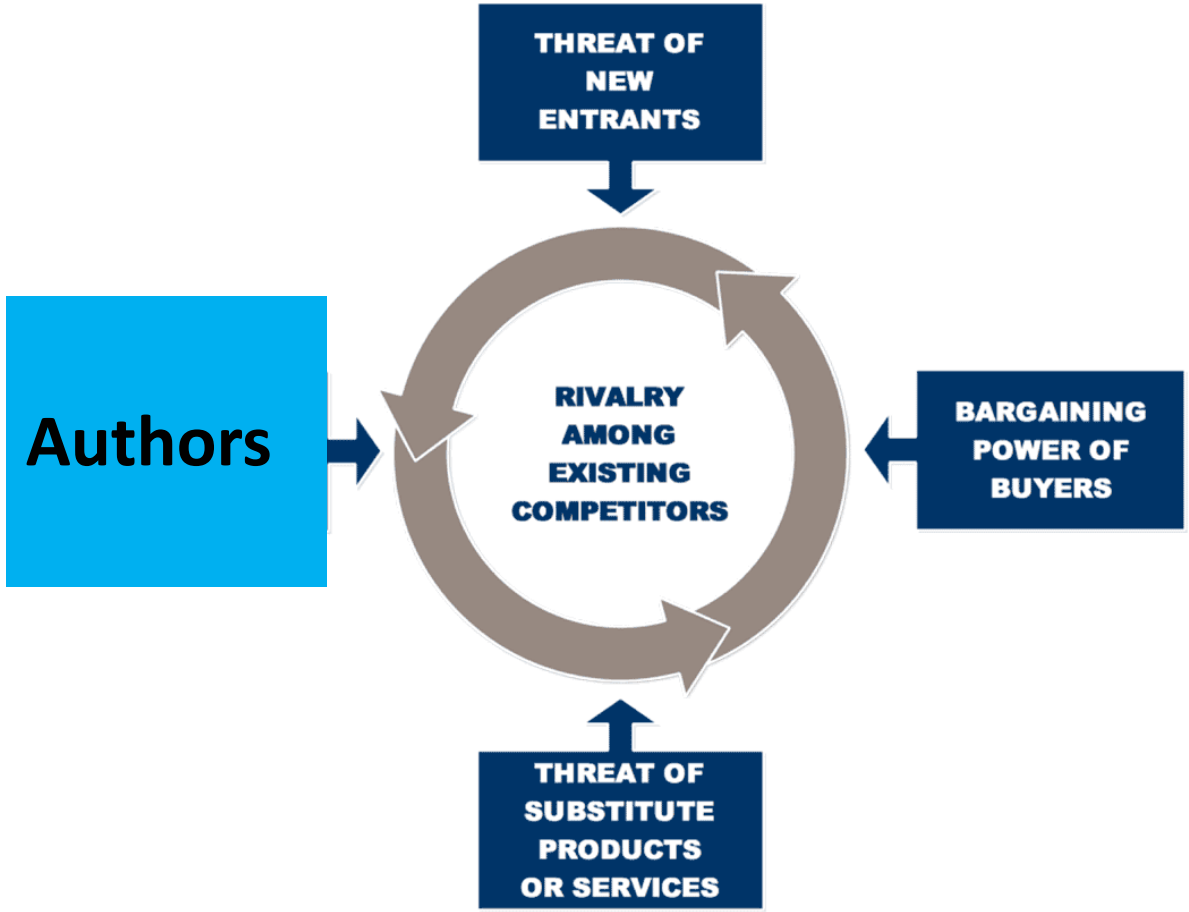
Porter's 5 Forces, again

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.

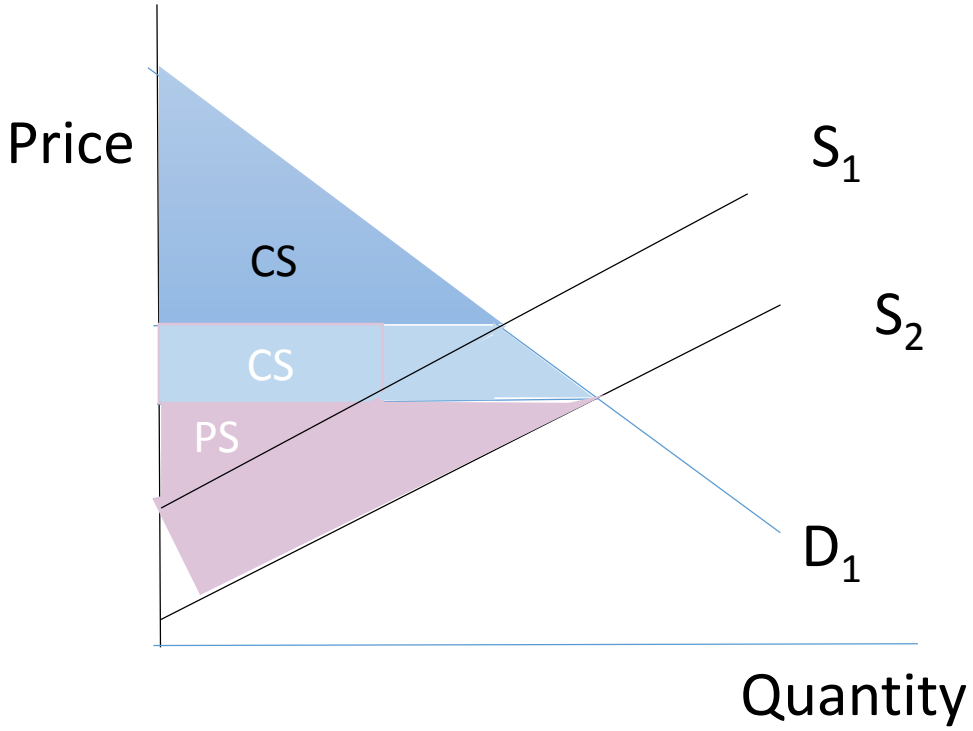
Price competition usually lowers C^A.

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



3. What are the benefits?

- The aforementioned reduction in C^A, 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 C^A 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.