



Open Access to Health Services and Policy Research

Background

Open Access (OA) literature is available online, free of charge, and often with minimal barriers to use.

OA makes research available to those without access to subscription journals – a group that includes the public as well as many decision makers.

Studies in other disciplines have found positive relationships between OA availability and research impact, as measured by use of and citations to the article.

In an attempt to increase research impact, the Canadian Institutes of Health Research now require grantees to make peer-reviewed articles OA within six months of publication.

Methods

In order to investigate the relationship between OA and citation impact in HSPR journals of relevance to Canadian researchers, we employed an article-level analysis comparing OA archived articles with non-OA (NOA) articles in the same (TA) journals. Within-journal comparison was selected to minimize article quality bias.

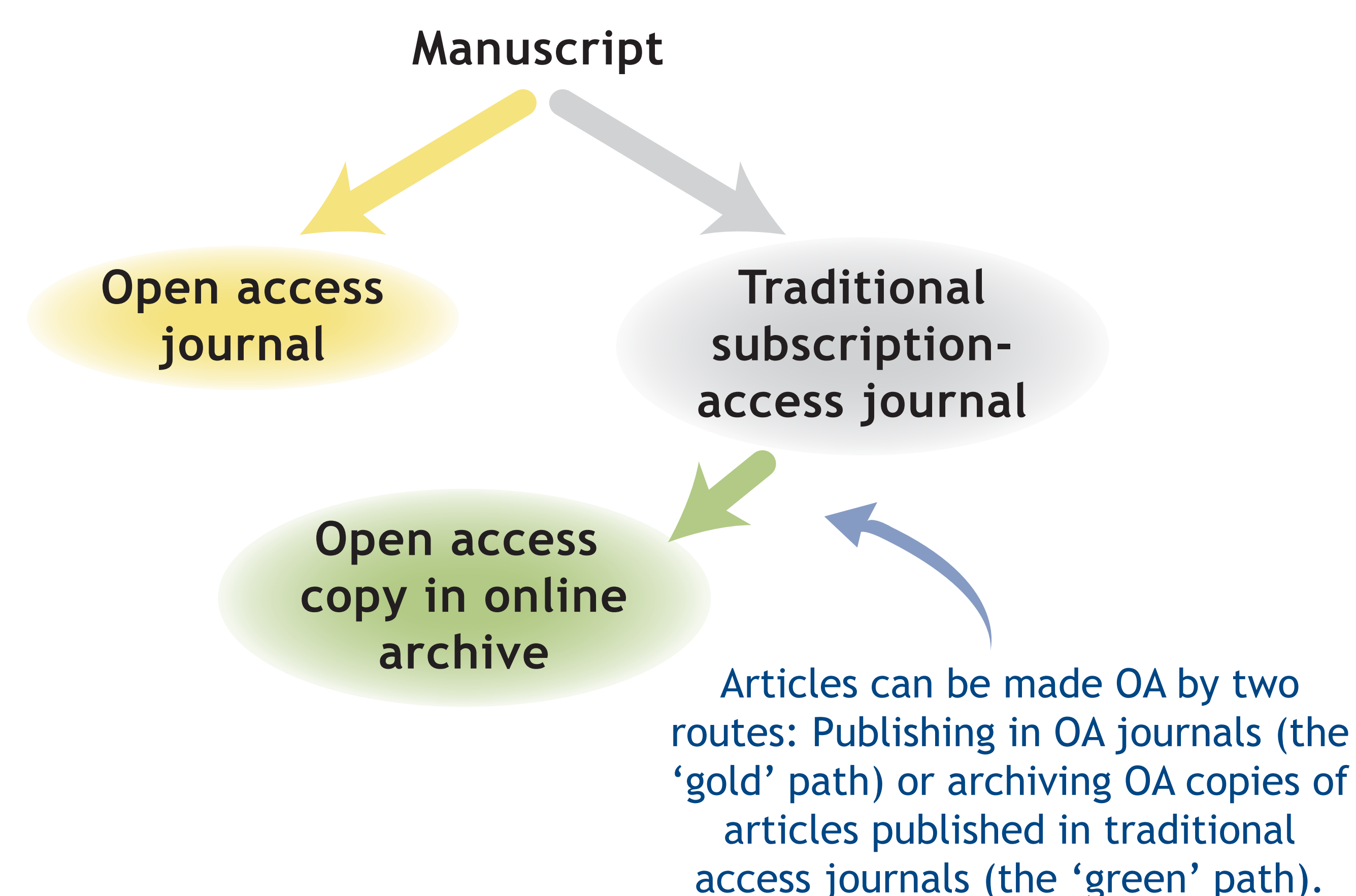
Journals identified by surveying HSPR centers across Canada for the ten journals in which their researchers most frequently publish. From those lists, any journals that did not publish OA, but permitted author self-archiving of refereed articles were considered eligible for the study.

For each of these four journals, we combined data from Web of Science and Medline to create full citation records for all original articles from the years 2003-2005. Using the article titles, we searched in Google, Google Scholar and PubMed in order to locate any OA archived copies of the articles. OA archiving location data was added to the citation records.

To analyze the data, we ran a two-stage model accounting for the discrete question of whether the article was cited and then modeling the total number of citations given that it was cited.

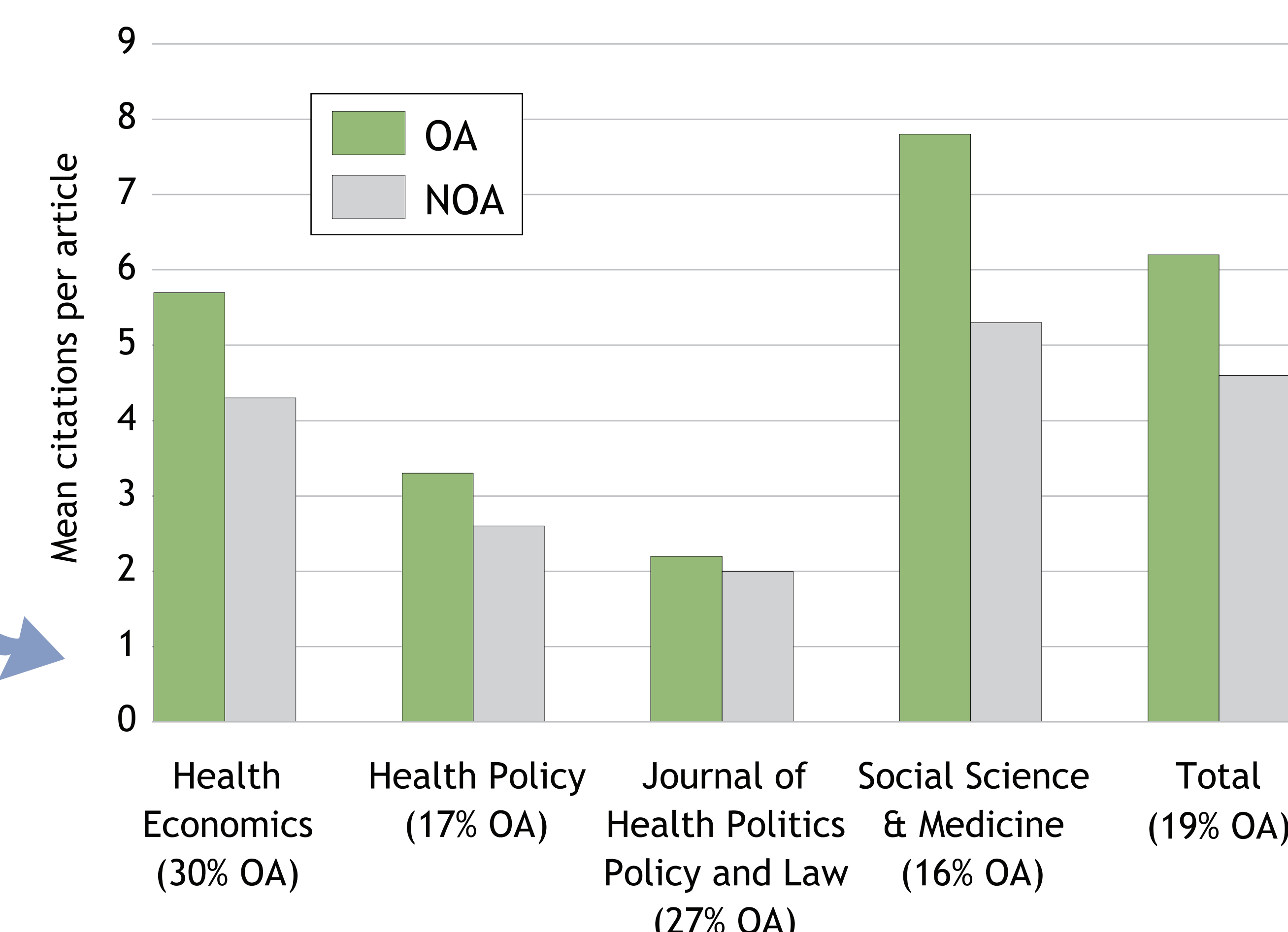
Open access increases citation impact – benefiting authors, journals, and funders

Two Paths to Open Access



While OA archiving rates varied, the OA advantage in citation rate was evident in all journals in our sample. The higher the Journal Impact Factor, the larger the OA advantage.

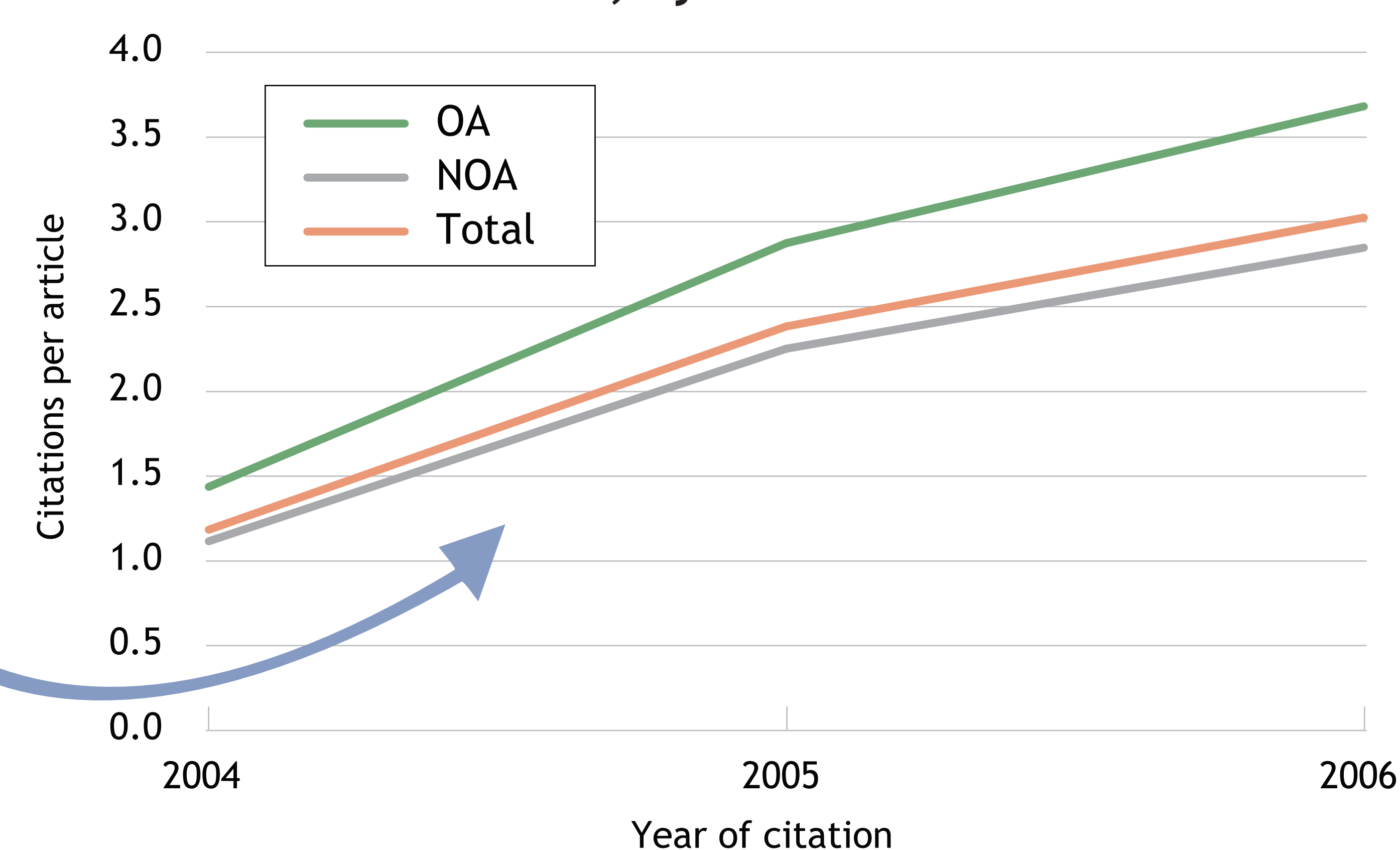
Journal Specific Citation Rates: OA vs NOA



Are OA articles cited more, or just faster?

Our study does not support the “immediacy theory” of the OA advantage – the idea that OA articles are cited more quickly, but not more overall. Our OA articles were indeed cited more immediately, but this OA advantage continued to grow over time.

Average Citations per Article, 2003 All Four Journals, by Year of Citation Made



Journal Impact Factor

Health Economics (Wiley)	1.919
Health Policy (Elsevier)	0.964
Journal of Health Politics Policy and Law (Duke U.)	0.718
Social Science and Medicine (Elsevier)	2.619

How is impact factor calculated?

A = Total cites in 2005 to journal articles
B = 2005 cites to articles published in 2003 or 2004 (subset of A)
C = Total number of “citable” articles published in 2003+2004
D = B/C = 2005 Journal Impact Factor

Results

Our results suggest that OA status has a significant and positive relationship with both whether an article is ever cited and total number of citations.

When controlling for number of authors, journal and time since publication, our results indicate that OA articles are 58% more likely to be cited and that, once cited, they are cited 2.5 times more often than NOA articles.

Conclusions

In HSPR journals of high interest to Canadian researchers, OA archiving of peer-reviewed research articles is correlated with greater likelihood of being cited, as well as with higher citation count among the cited articles.

The percentage of this “Open Access Advantage” conforms to what we would expect based on recent findings in related fields, even though the percentage of OA articles was substantially larger in our sample.

As a result:

- Authors are advised to make their articles OA, in order to maximize impact of their research findings
- Publishers are encouraged to permit authors to self-archive, as increased citations to articles can increase impact factor
- Research institutions such as funding bodies and universities are encouraged to mandate OA to research outputs, in order to maximize impact.

Next Steps

Continued work on this dataset will:

- Investigate the possibility that article subject is a confounding factor in the correlation between OA status and citations
- Analyze whether, within the subset of articles that are OA, certain types of archiving are correlated with higher citations than others.