Citation Advantage of Open Access (OA) articles

In short:
1. Citations have become a form of academic currency in the modern ‘publish or perish’ climate, and authors are understandably keen to capitalize on any method that gains additional citations for their published articles.
2. Early evidence suggested a causal relationship between article OA status and higher citation counts, but subsequent rigorous studies have shown these higher citation counts to be a by-product of other factors, such as research quality and OA status.
3. The existence of a citation advantage for OA articles relies on the idea of a significant access gap, where those likely to ever cite a given article have no access to it through a subscription or via other informal access methods; no such gap has been conclusively demonstrated.
4. Given the demonstrated lack of any OA citation advantage, it’s important to focus on pragmatic steps towards ensuring that a diversity of access models are able to sustainably co-exist to meet the needs of the diverse research community and sub-communities.

Under the most popular theory, citations are understood to indicate the payment of an intellectual debt by the authors of one article to the authors of a preceding one. However, in the modern ‘publish or perish’ academic environment, citations have become a form of currency traded between researchers; as a proxy of research quality or impact, citation counts and related metrics are increasingly used in funding, promotion and tenure reviews and in national research assessment exercises. As such, any mechanism shown to increase citation counts to published articles that does not involve any additional effort (and does not involve engagement in unethical practices such as excessive self-citation or coercive citation) would be attractive to many authors. Over the last decade, the observation that articles made freely available online have higher citation counts (claimed by some to be as high as several hundred percent) than those that do not has become a central argument for the benefit of OA to authors, under either the Gold/Hybrid or Green routes.

Starting in 2001, a series of observational studies built the case for a positive relationship between self-archiving (i.e. Green OA) and citations across various disciplines, but it soon became clear that unstated assumptions and methodological issues plagued much of this research (reviewed in 1). From 2007, the first well-controlled, methodologically sound studies began to appear (e.g. 2) and cast doubt on the causal relationship between article OA status (using either the Green or Gold/Hybrid routes) and citation counts that had been implicit in earlier reports. In a randomized controlled trial on 11 journals published by the American Physiological Society (3), Phil Davis conclusively showed that while OA articles do have higher citation counts than non-OA articles, this effect is not the result of their OA status but a by-product of other factors. Davis went on to extend this study to 36 journals in the sciences, social sciences and humanities and conclusively demonstrated the lack of an OA citation advantage (4). Recent studies showing similar findings from other authors (e.g. 5-7) have helped move the debate on the existence of a large and causal OA citation advantage to a more nuanced discussion on the interplay between article OA status, research quality and citations.

Central to the argument that article OA status directly results in additional citations that would not accrue to the same article if made available instead on a subscription basis is the idea that there exists an access gap: that amongst all potential readers of the article, that might go on to publish an article in the peer-reviewed literature and reference the original article, a significant proportion are unable to do so because they cannot access the article via a personal or institutional subscription. This argument
ignores the extremely high penetration rates of subscription journals offered by most publishers into the majority of research-intensive organizations globally (and initiatives like Research4Life to provide free or low-cost access to many of the rest), and also assumes that authors would fail to cite a relevant piece of previous research simply because their library did not have a subscription (and would not otherwise obtain a copy via inter-library loan, or request an offprint from the author(s) directly).

In the absence of conclusive evidence for a citation advantage for OA articles, it is important to make arguments for a choice of access options that can support the need of researchers to reach the most appropriate audience(s) for their work.

References