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Towards Sustainable and Coordinated Methods for Estimating Open Access Costs at Canadian Higher Education Institutions
Vers des méthodes durables et coordonnées pour estimer les coûts du libre accès dans les établissements d'enseignement supérieur canadiens

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Résumé de l'article

Les établissements d'enseignement supérieur au Canada visent à soutenir le libre accès pour les lecteurs et les auteurs. Alors que les coûts d'abonnement et de publication en libre accès continuent d'augmenter, certains établissements ont mis en place des fonds pour soutenir le paiement des frais de publication par les auteurs. D'autres ont adopté des modèles tels que des accords de lecture et de publication ou des « accords transformateurs », où les établissements paient aux éditeurs une somme forfaitaire pour les abonnements et les frais de publication des auteurs. Alors que les établissements continuent de s'abonner à des revues, de soutenir les auteurs avec la publication OA et de négocier des accords, estimer avec précision les dépenses institutionnelles en OA est impératif pour déterminer l'efficacité des accords et le soutien financier nécessaire pour les auteurs. Les méthodes d'estimation des coûts OA se sont largement développées en silos à travers le pays. Ce commentaire présente des observations dérivées du travail effectué à travers le Canada sur les défis accompagnant l'estimation OA et appelle à une approche plus coordonnée pour établir des méthodes standardisées et durables. La calibration des efforts entre les établissements peut soutenir le développement de méthodologies fiables et rationaliser les ressources pour effectuer plus efficacement la tâche souvent lourde d'estimation des coûts.



Towards Sustainable and Coordinated Methods for Estimating Open Access Costs at Canadian Higher Education Institutions

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Higher education institutions in Canada aim to provide access to knowledge through subscriptions and investments in OA publishing. As subscription and OA publication costs continue to increase, some institutions have established funds to support authors' payment of publication fees. Others have adopted models such as read-and-publish deals or "transformative agreements", where institutions pay publishers a lump sum for subscriptions and publishing fees for authors. As institutions continue to subscribe to journals, support authors with OA publishing, and negotiate agreements, accurately estimating institutional OA spending is imperative to determining the cost effectiveness of deals and necessary funding support for authors. Methods to estimate OA costs have largely developed in silos across the country. This commentary presents observations derived from work performed across Canada on the challenges accompanying OA estimation and calls for a more coordinated approach to establish standardized, sustainable methods. Calibrating efforts across institutions can support the development of reliable methodologies and streamline resources helpful for the more efficient performance of the often onerous task of estimating costs.

Keywords: open access, scholarly publishing, scholarly journals, article processing charges, transformative agreements, journal subscriptions, higher education, academic libraries, collaboration

Introduction

Academic libraries across Canada publicly proclaim support for open scholarship and seek to foster a more equitable publishing ecosystem. At the same time, there is much debate over the ability of the current Article Processing Charge (APC)-driven Open Access (OA) model to achieve this vision, as it appears to have merely redirected some of the costs of publishing onto individual researchers, thereby further disadvantaging early career scholars, students, and those from low-to-middle income countries (Fontúrbel & Vizentin-Bugoni, 2021; Istratii & Demeter, 2020). In response, open advocates have sought ways to dislodge "gold" APC-supported OA as the primary driver of OA growth (Frank et al., 2023). In Canada, research libraries have established collective efforts towards installing Open Journal Systems (OJS), for example, to support library-hosted journals, a large step forward in developing cooperative, open systems (Willinsky, 2017). Diamond OA has emerged as another means of addressing these inequities, but the costs of supporting centralized in-

frastructure have made rates of adoption slow (Mounier & Rooryck, 2024). At a time when libraries are being asked to support traditional subscription-based collections alongside APC-offsetting transformative agreements and open infrastructure projects, more accurately estimating and understanding the totality of OA expenditures can help us identify and potentially direct collective efforts toward more sustainable publishing models. APC-based models, which rely on individual payments often made directly by researchers, make it difficult to determine the total expenditure associated with academic publishing. This uncertainty may put libraries at a disadvantage when making collection decisions. Additionally, traditional measures of value and return on investment (ROI) - usage and download statistics - no longer capture the complete picture of researcher needs, as students and faculty may be accessing materials without going through traditional library platforms. Finding new ways to measure the value and impact of library investments for academic publishing is crucial in this distributed OA future. While these concerns impact every modern academic library, we can further advance the efforts within and across libraries to address the growing complexities of tracking OA costs at the national level. We believe that a coordinated approach across libraries, developed with the diversity of institutional context in mind, can benefit the value and sustainability of this work. Institutions

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can benefit by calibrating efforts aimed at developing reliable estimation methods. First, knowledge sharing can save institutions time and resources by streamlining efforts dedicated to this complicated task. This is particularly helpful as producing accurate estimates can illuminate broader challenges and barriers posed by APC-based OA models and hopefully result in the prioritization and direction of resources that best meet the needs of their institutional context. Second, libraries and institutions can learn more about how and where their community members publish, which can be achieved through a bibliometric approach in analyzing publishing practices, as well as broader trends. Finally, fostering an open discussion about the value and use of this data is worthwhile as it can encourage the community to continue to interrogate and explore developments. This commentary seeks to establish a case for why working collectively to develop shared approaches or methodological resources for estimating OA costs is necessary and desired. More than that, we believe it is achievable.

Background: The (rising) costs of open access

OA publishing initially emerged as an alternative to subscription models, with its adoption spurred forward particularly during the serials' pricing crisis (Suber 2012; Willinsky, 2009). The OA ecosystem has developed substantially over the past two decades, resulting in a complex landscape of models (e.g., gold, hybrid, green, diamond). The "author-pays" model, in which APCs are paid to make outputs open, is a favoured model for commercial publishers owing to its revenue stream and currently dominates much of the conversation surrounding OA (Solomon & Björk, 2012). This business model has shifted some of the financial obligations of OA publishing from libraries to authors who now pay costs from grant funding, or often, out of pocket (Cantrell & Swanson, 2020). Suber (2020) points out that the "author-pays" moniker can also be misleading, as institutions often support researchers to cover these costs through APC funds. In practice, this has obfuscated the true cost of scholarly publishing and created opportunities for publishers to extract more resources from the academy. The APC model is particularly unsustainable for researchers and institutions as these costs increase annually, outpacing rates of inflation (Butler et al., 2023; Haustein et al., 2024). Even more problematic, models like hybrid OA allow publishers to profit from two sources, or "double-dip" through fees paid for both reading (subscriptions) and publishing (APCs) (Eve, 2014). These costs are now being folded into read-and-publish deals, also known as "transformative agreements", negotiated between institutions or consortia and publishers to cover both access to subscription-based material and OA publication charges (Dodd, 2024). Higher education institutions are juggling a complex, evolving OA landscape with persisting challenges, all alongside shrinking budgets. Supporting sustainable and

equitable publishing within institutions is difficult without clarity on OA resource allocation; opaqueness around OA costs hinders institutions from answering key questions, such as author publishing practices, how they comply with OA policies, how much money authors direct toward different OA models, and the cost-effectiveness of read-and-publish deals. This type of information would be valuable during consortia negotiations, as it provides institutions with a direction in terms of how best to support their community while meeting budget goals. Thus, for higher education institutions across Canada (and globally), understanding how much is being spent on the costs of OA is a worthwhile and necessary task. Of significant importance is reliable data: APC list prices vary by OA model and publisher, and this information is not always made publicly available or in adequately granular detail (Pinfield et al., 2015). Additionally, many institutions do not consistently track or monitor OA fees paid by researchers due to capacity or infrastructure constraints. Obscuring this picture are waivers or discounts negotiated by institutions applied to certain journals, which is further challenged without available data indicating who paid the APC in the case of a multi-authored work. Public availability of this data would open the doors for other stakeholders (e.g., funders) to conduct analysis as well. To contend with these difficulties, Canadian librarians and researchers have begun conferring with colleagues at conferences (Hare & Butler, 2024), skillshares (Savage et al., 2024), and through other channels. This commentary first reflects on some of the challenges revealed by early attempts at estimation efforts. It then discusses why it is desirable to establish standardized, sustainable methods and calls for the advancement of collective dialogue and synergistic approaches to this work.

Current challenges and lessons learned on Canadian approaches to OA cost estimation

Despite ongoing efforts, there is not yet a clear or standardized methodology for determining APC expenditures at individual institutions. Anecdotally, we are aware of several institutions across Canada that have undertaken projects to estimate OA costs, and each has used a different approach and relied on different bespoke APC data sets. For example, the University of British Columbia applied APC averages when it was unable to locate accurate APC list prices, an approach adopted from the FORCE 11 course by Allison Langham-Putrow and Ana Enriquez called *Analyzing Institutional Publishing Output: A Short Course* (2022). The University of Ottawa (uOttawa) used an early version of the Butler et al. (2024) dataset to estimate institutional expenditure on OA costs and applied a median to gaps in APC prices.¹ In this section, we discuss challenges and lessons learned as gleaned

¹It should be noted that uOttawa greatly benefited from the support of a research assistant, a position that was co-funded by its Office of Research, Promotion and Innovation and the Library to

from engaging in the work of OA cost estimation ourselves and through discussions we have had with other practitioners across Canada who use a variety of approaches.

1. Information provided by publishers is typically difficult to collect, absent, or error-prone

An APC dataset (2019-2023) (Butler et al., 2024a) was published in 2024 alongside a data paper (Butler et al., 2024b) and an analysis of the dataset (Haustein et al., 2024). The authors found that publisher price lists provided on their websites could be inaccurate, missing key information, or at times, not made available. The authors also found the OA status of journals was often absent from price lists, as were details around embargo periods to indicate “delayed OA”, or subscription journals that make articles OA upon the expiry of a set embargo period (Laakso & Björk, 2013). Additionally, price lists were not always provided in machine-readable format, requiring substantial processing to ensure consistent and structured metadata. Another challenge is identifying diamond journals as this model is difficult to operationalize due to both metadata and conceptual issues (Fuchs & Sandoval, 2013; Simard et al., 2024). Many rely upon Unpaywall data, which indicates a \$0 APC to identify diamond journals, for example, which may introduce false positives, and does not account for the diverse and evolving criteria that understand diamond journals as community-owned/operated (Armengou et al., 2024, Consortium of the DIAMAS project, 2024).

2. Accounting for waivers or discounts negotiated through libraries or consortial agreements and linking them to authors is difficult

It is necessary to factor in specific publisher waivers or discounts (typically through the corresponding author of a publication, which is still not always accurate) to arrive at a more precise OA cost estimate. APC datasets generally do not include waivers or discounts granted to individual authors, as this information is communicated in invoices and reports issued by publishers or in financial records of institutions or funders who paid the fee (Butler et al., 2024b). This points to a further challenge:

3. Defining institutional research communities

Larger institutions often struggle to define their researcher community and account for the complex realities of research collaboration, affiliation, and funding (Purnell, 2022). Another consideration is defining language communities for Canadian institutions as bilingual or Francophone institutions face the additional barrier of identifying French language publications, which are often not captured in databases such as Web of Science. Additionally, how smaller institutions approach this work may vary, as their publication output may be lower, creating different conditions for managing OA agreements and costs.

4. This work generally requires a range of expertise and skillsets

While some librarians undertake this work independently, having a team with knowledge of the needed technical expertise and data collection and analysis skills can significantly expedite the process of estimating OA costs. Knowledge of computational methodologies and comfort with APIs and writing code, while not necessary, has proven to expedite data collection and analysis and introduces opportunities to incorporate other important and open data sources, like OpenAlex (Butler et al., 2024b). Expertise in scholarly communications and the OA ecosystem is needed to accurately analyze different publishing models, corresponding authors, and publisher-provided data.

5. This work requires financial investment

As noted in the previous point, estimating OA costs demands specific labour and expertise, often stretched across a team, which must be accounted for. Institutional size and funding influence full-time equivalents (FTEs) and organizational structure, meaning there may be a variance in the number of dedicated staff at Canadian libraries working on scholarly communication. This work can often also benefit from the support of paid research assistants. Further complicating matters, many higher education institutions across Canada are facing significant budget constraints, which may hinder or limit the execution of this work in an institution without dedicated staff or with competing priorities. Smaller institutions may lack the financial means to access needed expertise or proprietary platforms (e.g., Scopus, Web of Science, Dimensions) which are often used to provide data for these types of estimations.

While not exhaustive, these observations point to challenges faced in producing more accurate OA cost estimates. New datasets and analyses provide useful lessons learned, but most processes are internal to institutions, inhibiting the development of widespread best practices or the quicker advancement of this work. Decisions to plan and prioritize OA cost-related projects are highly contingent on the human, administrative, and technological resources available at a given institution. These challenges necessitate the need for established approaches that librarians can draw from as needed, rather than building from the ground up, or in silos, each time an estimate is needed.

Proposed action for developing sustainable, coordinated methods

Nations around the globe are advancing open science and providing leadership regarding the possibilities of collective action on this issue. The OpenAPC initiative, operated by the

execute work for an Open Science Working Group.

Bielefeld University Library, for example, exemplifies how data sharing and collation could support this work (n.d.). Canada has yet to establish such a network, and as a result, there is no designated space to have conversations concerning the resources needed to do this work or to develop collaborative initiatives that might support the creation, maintenance, and sustainability of APC estimation work. The authors propose initiating and coordinating national conversations around the various approaches Canadian libraries use to estimate APC expenditure to advance and further develop current practices. The goal would be to share best practices, address limitations, and develop sustainable solutions through established methodologies. This can be done through further skillshares, dedicated workshops at relevant conferences (e.g., Bibliometrics and Research Impact Community (BRIC)), or facilitated through national organizations such as the Canadian Association for Research Libraries (CARL) Bibliometrics and Research Impact Community of Practice (BRI CoP) or the Canadian Research Knowledge Network (CRKN), which can provide dedicated support and infrastructure to expand the scale of these conversations. Creating a space for this continued dialogue will also ensure the Canadian community can adapt to emerging developments. Finally, engaging the diversity of expertise across Canada, such as bibliometricians, librarians, and other areas of research with complimentary skills, can also enhance this work. We invite colleagues across Canada to get in touch with the authors if they wish to participate in any future conversations.

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