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Adoption of Open Access in Brazilian Scientific Production: Publication Standards and Impacts on Scientific Communication

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Abstract. This article analyzes the adoption of open access in Brazilian scientific production based on data from the Lattes Platform. Based on the identification of publications in journals indexed in the Directory of Open Access Journals (DOAJ), publication patterns, author profiles, most representative areas of knowledge and the impact of publications were examined. Using bibliometric techniques and collaboration network analysis, the study identifies trends and challenges in open access publishing in Brazil, discussing their implications for science policy and research evaluation in the context of Open Science. The results show that, although Open Access is expanding, its full adoption as a practice still faces challenges, which directly impacts the advancement of Open Science in Brazil.

Keywords: Open Access, Open Science, Scientific Production.

1 Introduction

Scientific communication plays a central role in the dissemination of knowledge and the advancement of research in various fields. Among the main means of dissemination are scientific journals, which are traditionally associated with the visibility and credibility of published studies. Historically, access to these journals has been limited by financial and institutional barriers, restricting the dissemination of knowledge to a wider audience. In this context, the Open Access movement has established itself as one of the pillars of Open Science, expanding accessibility to scientific information and promoting more transparent and inclusive practices for the production and dissemination of knowledge.

In recent years, there has been significant growth in scientific publications in Open Access journals, influenced by government and institutional initiatives that encourage this form of dissemination. Brazil, in particular, has a significant scientific output and a consolidated policy to encourage Open Access, through programs such as SciELO and the expansion of institutional repositories. However, despite the progress, there are still challenges to be overcome, such as researchers' adoption of this practice and the differences in acceptance of the model across different fields of knowledge.

This article analyzes the adoption of Open Access in Brazilian scientific production based on data extracted from the Lattes Platform, identifying publication patterns, journals used, and the profile of researchers who opt for this modality. The analysis considers the impact of scientific production published in Open Access, evaluating aspects such as scientific collaboration, author productivity, and citation impact.

By providing a comprehensive overview of Open Access scientific production in Brazil, this study seeks to contribute to the debate on policies to encourage and evaluate scientific research, assisting in the formulation of strategies that promote greater adoption of the model and amplify its impact on the academic community and society.

By aligning with the principles of Open Science, this study seeks not only to map the Open Access landscape in Brazil but also to provide support for policies and practices that strengthen the openness and democratization of science.

2 Methodology

The methodology adopted in this study is based on the analysis of bibliometric data extracted from the Lattes Platform, focusing on identifying and characterizing Brazilian scientific production in Open Access journals. To this end, the following steps were followed:

Data Collection: Information was extracted from the CVs registered on the Lattes Platform, specifically data on journal publications. Data collection and processing were performed using the LattesDataXplorer framework [1]. To identify which of these journals belong to the Open Access model, the Directory of Open Access Journals (DOAJ) database was used.

Processing and Filtering: The data were processed to remove duplicates and inconsistencies, ensuring the quality of the analysis. Publications without journal identification or those that did not correspond to the DOAJ records were excluded.

Publication Evolution Analysis: The temporal evolution of Open Access publications was analyzed to understand trends and identify possible factors influencing this growth over the years. Bibliometric Analysis: Bibliometric techniques were applied to assess the distribution of most-used journals, author productivity, and patterns of scientific collaboration. Bradford's laws (journal dispersion), Lotka's (author productivity), and Zipf's (keyword frequency) were used to assess this.

The results obtained through these steps allowed us to paint a unique portrait of Brazilian scientific production in Open Access, contributing to the understanding of publication patterns and researchers' adherence to this modality of knowledge dissemination.

3 Results

The methodological approach is aligned with the principles of Open Science, particularly in the use and reuse of open data and the use of tools that promote transparency and reproducibility.

Analysis of data extracted from the Lattes Platform revealed a continuous growth in publications in Open Access journals in Brazil over the past few years (Figure 1).

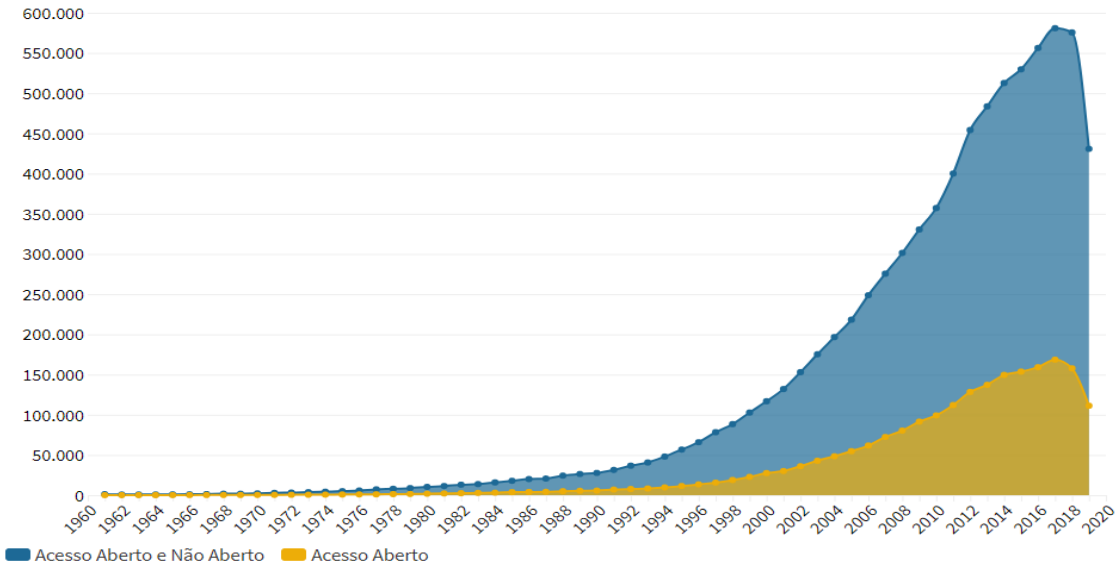


Figure 1 – Temporal evolution of the number of publications.

The number of articles published in Open Access has increased progressively, following the global trend toward greater adoption of Open Access as a means of scientific dissemination. However, the distribution of publications remains uneven across fields of knowledge, with greater representation in the exact and health sciences (Figure 2).

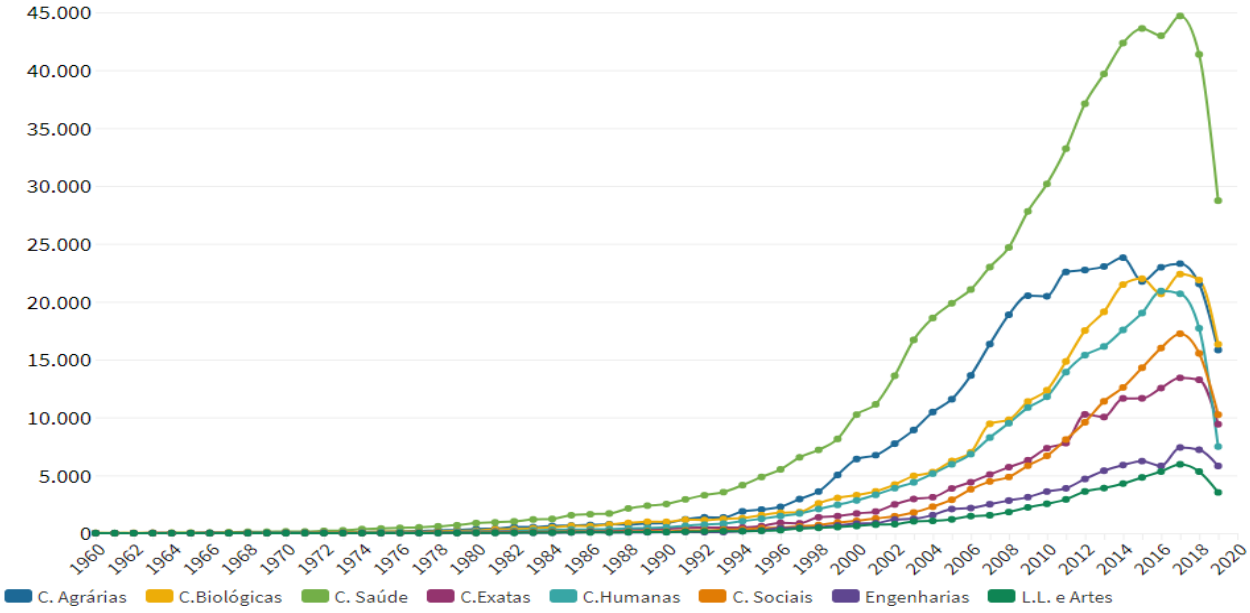


Figure 2 – Production of articles in open access journals by major areas.

The characterization of researchers revealed that the most scientifically productive authors are those who contribute the most to Open Access journals. Furthermore, it was found that the geographic distribution of researchers publishing in this model is concentrated in large research centers, especially in the Southeast and South

regions of the country.

Bibliometric metrics indicate a strong concentration of publications in a few high-impact journals. Bradford's Law indicated that a small number of journals concentrate the majority of publications, while Lotka's Law demonstrated that the distribution of author productivity follows a trend of a few highly productive researchers and a large number of authors with low publication frequency.

Regarding the impact of publications, it was observed that articles published in Open Access journals tend to receive an increasing number of citations over time. This result corroborates international studies that point to the greater visibility afforded by this publishing model. However, challenges remain related to the widespread adoption of Open Access, especially in fields that traditionally prefer subscription journals. This standard reinforces the importance of institutional policies that encourage Open Access as an essential component of Open Science, with the potential to increase the visibility, collaboration and circulation of scientific knowledge.

4 Conclusions

By highlighting trends and challenges in the adoption of Open Access, this study contributes relevant data and analysis to strengthening Open Science in Brazil, encouraging more transparent, collaborative, and inclusive practices in the scientific ecosystem.

The results of this study demonstrate that Brazilian scientific production in Open Access journals has grown consistently in recent years, indicating greater acceptance of this publishing model among researchers. The bibliometric analysis revealed that a small group of journals concentrates the majority of publications, while author productivity follows patterns characteristic of global scientific literature.

Despite the increase in Open Access publications and the positive impact observed on citations, challenges remain, especially regarding full adoption across all fields of knowledge. While some disciplines have already widely incorporated this practice, others still favor restricted or paid access journals, suggesting the need for more targeted incentive policies. Thus, this study contributes to the understanding of scientific publication patterns in Brazil and reinforces the importance of initiatives that promote the democratization of knowledge, ensuring greater visibility and accessibility to the results of research developed in the country.

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