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Advancing the evaluation of graduate education: towards a multidimensional model in Brazil

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Summary

The importance of evaluation in shaping the trajectory of the Brazilian scientific landscape cannot be overstated. It provides institutions, policymakers, and other stakeholders with tools to assess the efficacy and performance of its Brazilian National System of Graduate Education (SNPG). This system is the cornerstone of research in Brazil, and its evaluation influences funding allocation, institutional reputation, and the accreditation of graduate programs.

In the 1970s, the Brazilian Agency for Support and Evaluation of Graduate Education (CAPES) was tasked with overseeing the national evaluation system. Committed to championing research and graduate education excellence, the agency has for decades recognised and harnessed the transformative power of evaluation, consistently improving its methods through collaboration between its highly qualified staff, the academic community, and evaluation stakeholders.

However, advancing an ongoing evaluation system is a significant challenge, especially because necessary changes cannot be implemented in a disruptive way; they must be incremental. Furthermore, the rigours of public policy management pose a challenge to rethink the evaluation process, as the task is often overshadowed by everyday urgencies that can hinder the possibility of diving into the depth and breadth of available research that could support it.

This dissertation is rooted in such a context. After spending a decade as a CAPES policy officer, I had the opportunity to step away from my daily activities to explore graduate education and pathways to advance its evaluation. The chosen location for this research was the Centre for Science and Technology Studies (CWTS), the birthplace of the Leiden Manifesto for research metrics. This manifesto has significantly influenced recent reforms in Brazilian evaluation, underscoring the importance of transparency, diversity, and context in assessment. Within this nurturing environment, a rigorous research period culminated in this body of work, including articles published in various journals

and conferences. Part of the journey and my research approach are described in the [Introduction](#), with the narrative unfolding into four subsequent parts.

[Part I](#) sets the stage, focussing on understanding the Brazilian National System of Graduate Education and its evaluation system. Inspired by the theory of path dependence and its implications for science policy reform, two chapters delve into the journey of these systems, with the aim of comprehending their development over recent decades. [Chapter 2](#) embarks on a thorough exploration of the Brazilian science system, mapping its origins and growth influenced by pivotal policy decisions. [Chapter 3](#) shifts the focus to the historical landscape of the evaluation of research and graduate education in Brazil and how the system has matured into an integral component of the national scientific environment.

[Part II](#) seeks to contextualise the Brazilian system on an international stage. For this, [Chapter 4](#) provides a comparative analysis of research evaluation systems in Brazil and the Netherlands, illuminating how different trajectories and decisions have shaped their respective designs. This comparison highlights unique attributes, challenges, and outcomes; all arising from different historical and policy contexts. Brazil's performance-driven system propels its scientific endeavours, but risks fostering research uniformity, potentially stifling innovation. In contrast, the Dutch system prioritises research quality and societal relevance, encouraging diverse research paths. Lessons from both countries are valuable, but their distinct histories serve as evidence against a one-size-fits-all approach.

Another analysis carried out in [Part II](#) of the dissertation relates to the role that graduate education plays in Brazilian science. For this, [Chapter 5](#) used a wealth of resources and data to dissect the design ethos of a science system focused on graduate education, unveiling its notably high influence on academic publishing in Brazil and providing fresh insights into the differences between the SNPG and other science systems. These differences are empirically recognised and can easily be inferred from the development trajectory of the SNPG. However, this dissertation seeks to find bibliometric evidence to support them.

The following [Part III](#) delves into some of the many defining characteristics and instruments of the Brazilian evaluation system, with the aim of analysing its development and current status, and contextualising its strengths and weaknesses. In this sense, [Chapter 6](#) examines the Brazilian research classification adopted for the evaluation of graduate education. The chapter traces how the existing organisation around 49 areas was shaped from the influence of disciplinary and

administrative elements, demonstrating how their restructuring is in order to address local and international incoherences.

Chapters 7 and 8 dive into various aspects of journal publishing in Brazil, including evaluation, database coverage, and multilingualism. Central to the discussion is the Qualis classification system and its role in assessing the quality of scholarly publications in the country. Although imperfect and in need of continuous evolution, Qualis should be recognised as an important achievement of the evaluation conducted in Brazil, as it combines quantitative and qualitative methods to produce the journal classification central in the country's evaluation.

Chapter 9 expands the analysis of journal publications in Brazil, investigating some of its well-established open access practises. The study highlights the relevance of local journals and databases such as SciELO as important alternatives to allow researchers to publish both in the local language and in English, often open access without paying any Article Processing Charges (APCs). The chapter also explores the potential adoption of the Purchasing Power Parity (PPP) index to help equalise the publishing costs for Brazilian researchers in the international arena.

Finally, Part III concludes with a broader perspective on open science. Considering that openness often goes beyond access to scholarly publications, Chapter 10 reviews efforts to diversify Brazilian research output to include a series of technical and technological products destined for a wider audience than the scientific community. The chapter analyses how CAPES has evolved its evaluation system to value and induce growth in that type of production, also looking at the first observable effects of the initiative.

The final Part IV addresses challenges facing the evaluation system due to the exponential growth of the SNPG. Chapter 11 explores some of these challenges, especially the dangers of simplistic solutions to complex evaluation problems. An example of such a danger was the investigation conducted by CAPES on the possibility of implementing a multidimensional evaluation model close to that adopted by U-Multirank. The model discussed would emphasise overreliance on quantitative indicators, when a more holistic approach would be required to embrace the diverse academic landscape of Brazil. A proposed solution is in increasing the role of self-assessment in Brazilian evaluation, emphasising the need for further involvement of the country's higher education institutions (HEI) in the much needed exercise of their institutional autonomy.

The dissertation concludes with [Chapter 12](#), which synthesises the research findings and examines the Brazilian evaluation system through the lens of the ten principles of the Leiden Manifesto. From this perspective, the final chapter pinpoints vital concerns that demand attention and offers tailored recommendations to enhance the nation's assessment landscape. Central to these recommendations is the imperative to acknowledge the shortcomings of the current evaluation system. The graduate program serves as the primary assessment unit within the Brazilian system, and the SNPG is on track to encompass 5000 of these programs, spread across over 400 educational institutions. Continuing with a centralised, comparative and simultaneous national evaluation is not sustainable if the system aims to promote innovation and diversity.

The future of Brazilian evaluation requires some changes from the current top-down approach. First, it should foster partnerships with institutions for more inclusive multidimensional self-assessment strategies. Evaluation should also shift toward fostering educational and guidance-orientated outcomes instead of simply punitive or rewarding ones. Given its influential role, the Brazilian evaluation system is uniquely positioned to catalyse meaningful change, and its evolution can push the SNPG to become a more multifaceted system with room for varied research profiles, thus better addressing societal needs.