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Quantitative research assessment and its unintended consequences

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Chapter 7.

Conclusions

This concluding chapter consolidates the findings of this PhD thesis and draws out implications for research assessment policy and practice. It also offers actionable policy recommendations and suggests directions for future research.

7.1. Main findings

This PhD research addressed five research questions, each exploring a different dimension of quantitative research assessment in Lithuania.

RQ1: How have multi-actor dynamics within and outside the Lithuanian science system influenced the development and implementation of national research assessment policies?

Chapter 2 explored the dynamic interplay of actors and influences that shaped the adoption and evolution of quantitative research assessment in Lithuania. A key finding is the significant role of international research assessment experts, who advocated for the internationalisation of Lithuanian research by emphasising publication in recognised international journals, particularly those indexed in the Web of Science (WoS). This chapter also underscored some adverse effects of this reliance on external validation.

Lithuanian policymakers readily adopted this advice, believing that prioritising WoS publications would enhance the quality and impact of national research. However, this initial reliance on expert recommendations inadvertently led to an overemphasis on specific metrics and publication venues, highlighting the potential pitfalls of uncritically adopting external advice.

Furthermore, policymakers' efforts to incentivise international publishing through interventions such as the List of National Journals and the National List of Databases resulted in unintended consequences. The former led to a proliferation of institutional journals and lobbying efforts, while the latter faced challenges due to the inclusion of numerous domestic journals in commercial databases that did not meet quality expectations.

This reliance on external databases for quality control also proved problematic in other ways. The inclusion of many domestic institutional journals in WoS, driven by commercial interests, did not align with policymakers' initial goal of promoting publication in top international journals. This experience illustrates the unpredictability of delegating quality assessment to commercial entities and the potential misalignment between commercial interests and science policy goals.

The adoption of quantitative research assessment also sparked resistance from researchers in the social sciences and humanities (SSH). They argued that the stringent WoS publication requirements imposed by policymakers from the natural sciences disadvantaged their disciplines and failed to adequately reflect the quality of their research. This resistance culminated in a landmark Constitutional Court case, highlighting the agency of academics in shaping research assessment policy and advocating for a more inclusive and nuanced system.

Collectively, these findings demonstrate that research assessment policy is not a simple top-down process but a complex negotiation involving various actors with diverse interests and priorities. Policymakers in transitioning science systems must consider these multifaceted

interactions and potential unintended consequences, actively engaging with diverse stakeholders to create a more balanced and inclusive research evaluation environment.

RQ2: How have the strategies of policymakers, institutions, and researchers shaped the development of the Lithuanian Performance-Based Funding System?

Chapter 3 examined the evolution of the Lithuanian Performance-Based Funding System (PBFS) through a multi-level governance lens, considering the dynamic interplay of state, institutional, and individual actors. This research contributes to theoretical frameworks for policymaking within public science systems by analysing how these actors, with their diverse motivations and strategies, have shaped the PBFS and its outcomes.

While the Lithuanian PBFS aimed to improve research quality and accountability, this study reveals inherent tensions and unintended consequences within the national system. A key factor is the significant influence of authoritative academics who occupy powerful positions across all levels of governance—the Ministry, Research Council, and universities. This concentration of influence, while offering valuable expertise, has also led to unexpected outcomes.

One such outcome is the conflict between policymakers' drive for internationalisation, which initially prioritised publication in Western-controlled Web of Science (WoS) journals, and the capacity of Lithuanian universities to compete effectively in this global publishing arena. This pressure prompted universities to adopt alternative strategies, such as establishing and promoting their own institutional journals to secure state funding.

In some instances, influential academics (often journal editors) successfully lobbied for the inclusion of their institutional journals in WoS databases. This created an uneven playing field, as not all universities achieved this distinction, leading to disparities in access to public funding. Ironically, this outcome stemmed from policies initially championed by authoritative academics in policymaking roles, who ultimately became dissatisfied with these unintended consequences.

This dissatisfaction led to public critiques and the introduction of the journal suspension policy; a controversial measure aimed at curbing the influence of these newly prominent institutional journals. This policy highlights the complexities of quantitative research assessment and the unintended consequences of policy interventions, underscoring how the pursuit of specific metrics can shape institutional behaviour in unforeseen ways.

Moreover, the journal suspension policy exemplifies the tension between internationalisation goals and institutional funding imperatives. While intended to improve research quality and encourage publication in international journals, its unpredictable implementation and disproportionate impact on domestic journals generated unintended consequences. For instance, many Lithuanian researchers shifted towards potentially controversial publication venues, such as those offered by MDPI, raising concerns about whether national research quality genuinely improved.

Adding to these challenges, the limited power of state-level governance to influence institutional practices, due to university autonomy, further complicated the policymaking

landscape. Repeated legal challenges brought by academics against the government before the Constitutional Court led to the establishment of the principle of “legitimate expectations” in Lithuanian research policymaking. This principle, stemming from the court’s recognition of the need for consistent and predictable policies, has fostered a risk-averse policy environment, hindering flexibility and innovation in research assessment policymaking.

In conclusion, the evolution of the Lithuanian PBFS demonstrates the challenges of managing competing interests and the unexpected outcomes of concentrated influence in research assessment within a multi-level governance structure. To foster a more balanced and effective system, Lithuania needs to encourage the active participation of diverse stakeholders, including independent researchers and lay citizens, in the policymaking process, drawing on evidence from independent research to inform policy development.

RQ3: How do European countries evaluate books submitted as research outputs, and how consistent are these evaluation practices across different countries?

Chapter 4 investigated book evaluation practices across various European countries, examining the diverse approaches employed to assess books submitted as research outputs for performance-based funding systems. This analysis reveals a diverse landscape characterised by both qualitative and quantitative approaches, each with its own set of challenges and limitations.

In the United Kingdom, policymakers have sought to address these challenges by introducing open access mandates for monographs and advocating for a shift away from considering publisher prestige in book evaluations. Conversely, countries employing quantitative systems grapple with the unintended consequences of metrics-based assessments, such as the inappropriate use of institutional-level metrics for individual researchers and the potential for gaming the system. The termination of the Danish Bibliometric Research Indicator at the end of 2021 exemplifies these concerns. Despite ongoing debates, a critical gap remains in understanding the implications of publisher rankings used for book assessment in certain countries.

Chapter 4 reveals that publisher rankings typically rely on criteria such as ISBN prefix, external peer review, a scientific publishing program, and the national or international scope of the publisher. However, these rankings often lack transparency regarding approval procedures and peer review practices. This opacity hinders a clear understanding of how publishers are selected and ranked, especially given that academics serving on expert panels usually make these decisions. This lack of transparency undermines the credibility of these assessments and raises concerns about the ability of academics to confidently navigate the book publishing landscape.

Moreover, Chapter 4 highlights inconsistencies in expert opinions on publisher prestige across different countries. A publisher considered prestigious in one country may be ranked lower or even deemed ineligible in another. This lack of consensus underscores the subjective nature of these rankings and raises questions about their reliability in assessing research quality.

Furthermore, the analysis reveals that both qualitative and quantitative approaches to research assessment often overlook the crucial role of dissemination in book evaluation. While publisher rankings focus on content quality, they rarely consider factors such as book metadata availability, digital book formats, and long-term preservation strategies, all of which contribute to the wider dissemination and impact of research published in books. This neglect of dissemination raises concerns about the comprehensive evaluation of research impact and the long-term accessibility of scholarly work.

RQ4. How can the ISBN Manual and the Global Register of Publishers (GRP) be utilised to identify the actual publishers of books and their roles in book production?

Chapter 5 demonstrates that the ISBN Manual and the Global Register of Publishers (GRP) are valuable resources for understanding the intricacies of book publishing and identifying the roles of various actors involved in the process. The ability to identify publishers and their roles is particularly relevant for research assessment systems, which must often evaluate books as research outputs.

The ISBN system, as detailed in the ISBN Manual, provides a standardised method for identifying publishers through the assignment of unique publisher prefixes incorporated into ISBN codes. These prefixes act as a key to unlock publisher information in the GRP database. Using the publisher prefix extracted from a book's ISBN, one can search the book publishers in the GRP database and reliably identify the specific publisher associated with that book. Such a process enables accurate attribution of publications, even in scenarios where numerous entities might be involved in a book's production and distribution.

Beyond simply identifying publishers, the ISBN Manual and the GRP help in understanding the roles of publishers in book production. The ISBN Manual outlines specific responsibilities of actors involved in publishing, including those of established publishers, authors and self-publishers, printers and printing services, and distributors of printed and digital copies, along with their rights and responsibilities. Identifying specific roles provides a framework for understanding the different actors and their contributions to the book publishing process. The metadata of ISBN codes accumulated in the GRP database complements this information by providing further details about each publisher, such as their names, country of operation, website URL and contact information. Analysing the GRP data allows for the categorisation of publishers into different types, such as university presses, university departments, professional academic publishers, or various other organisations. This categorisation helps to elucidate the primary functions of the book publishers and how they contribute to the production and dissemination of scholarly works.

The GRP also allows for the identification of “parent” publishers and their subsidiaries by analysing publisher prefixes and their interrelationships. This helps unravel the web of publishing structures and understand the connections between different publishing entities. In cases where the GRP metadata alone does not provide a complete picture, additional resources such as library catalogues and online searches can be used to uncover further details about publisher involvement. Book-related metadata, increasingly available from sources beyond library catalogues, provides a more comprehensive view of the book publishing landscape,

including discoverability, long-term preservation, and other aspects. This additional information, compiled from diverse sources, can benefit academics involved in research assessment by offering a more accurate and nuanced understanding of the research outputs' value.

The ability to accurately identify publishers and understand their roles is crucial for developing informed and effective research assessment practices. By utilising the ISBN Manual and the GRP, research assessment systems can move beyond simplistic evaluations based solely on publisher reputation. Instead, they can consider publishers' specific contributions to the quality and dissemination of research outputs. This nuanced approach promotes fairer and more effective research assessment practices.

RQ5. To what extent does WorldCat metadata reflect the effectiveness of Lithuanian research assessment policies in enhancing the visibility of nationally authored books?

Chapter 6 examined the role of WorldCat metadata in quantifying Lithuanian policymakers' success in gaining a wider platform for nationally authored books. The analysis reveals that while WorldCat offers a valuable platform for showcasing research outputs, its metadata practices present both opportunities and challenges for accurately representing the impact of these policies.

WorldCat metadata provides a valuable, albeit incomplete, reflection of the effectiveness of Lithuanian research assessment policies in enhancing the visibility of nationally authored books. A key finding is that WorldCat and OCLC databases contain metadata for only two-thirds of Lithuanian book outputs, rendering a significant portion invisible to the global academic community.

While WorldCat boasts near-complete coverage of essential metadata elements such as titles, languages, and publication years—crucial for automated processing and bibliometric analysis—it falls short in capturing information specifically relevant to Lithuanian research assessment policies. Notably, two key elements, book genre and peer review status, are often absent. This omission hinders the accurate representation of Lithuanian research outputs, as these elements are specifically defined and prioritised within national assessment frameworks.

This discrepancy is exemplified by contrasting the Lithuanian Academic Electronic Library (eLABa) catalogue, which includes dedicated metadata fields for book genres aligned with national policies, with WorldCat's lack of such standardised genre classification. This suggests that WorldCat's metadata model may not fully align with the specific requirements of the Lithuanian research assessment system, potentially limiting its ability to accurately reflect the impact of these policies on book visibility.

Furthermore, Chapter 6 reveals a significant gap in the visibility of Lithuanian books within WorldCat. Only two-thirds of Lithuanian books have MARC21 metadata and are discoverable in WorldCat, primarily due to the absence of Lithuanian institutions contributing metadata to OCLC. Reliance on foreign institutions, particularly German, American, and Polish data providers, for the visibility of Lithuanian research outputs constitutes a critical dependence on external actors.

This situation contrasts sharply with the UK experience, where all books submitted for the Research Excellence Framework (REF) have MARC21 records and are visible in WorldCat, largely due to the significant contributions of national libraries outside the UK as major metadata providers. This disparity underscores the need for greater involvement of Lithuanian institutions, particularly the National Library, in contributing metadata to WorldCat to enhance the visibility of national research outputs.

In conclusion, while WorldCat's limitations regarding peer review, genre, and open access information present challenges for accurately reflecting the effectiveness of Lithuanian research assessment policies, its potential for enhancing book visibility is undeniable. By addressing these limitations and encouraging active participation from Lithuanian libraries or other institutions in metadata provision, WorldCat can become a more powerful tool for showcasing and promoting Lithuanian research on a global scale. This highlights the need for closer collaboration between Lithuanian research institutions and OCLC to ensure the comprehensive representation and discoverability of Lithuanian scholarship.

7.2. Fulfilment of research objectives

By addressing the research questions discussed above, this PhD thesis focused on three core objectives. First, it aimed to understand the evolving landscape of research assessment in science systems transitioning from the Soviet era to the international landscape, as has been the case in Lithuania. Second, it aimed to contribute to the development of more effective and responsible research assessment frameworks, specifically for “low R&I performing” (or “widening”) countries navigating the challenges of research internationalisation (European Commission 2024). Third, it aimed to contribute to the development of policymaking theories and understanding of policy dynamics within public science systems, with implications for underperforming countries seeking to improve their international standing.

This PhD research addressed its first objective by analysing the evolving research assessment landscape in transitioning science systems, with a focus on Lithuania. It highlighted the complex interactions among policymakers, higher education institutions (universities), and scientific elites, who act as both independent and collective actors representing their institutions and intermediary organisations (such as the Research Council). These collective actors, with their distinct voice and mediating role between the state and the science community, have significantly shaped the public science system and, in particular, the research assessment system. This PhD thesis uncovered unintended consequences arising from the adoption of quantitative assessment methods at university and individual levels, especially those that overemphasised high-impact journals indexed in Web of Science databases. This overemphasis, coupled with strong financial incentives, led to an unforeseen surge in institutional journals subsequently indexed in those desired databases. Furthermore, it led to strategic adaptations of publishing behaviours, resulting in the dominance of national papers in MDPI journals. Additionally, the initial unsuitability of mandatory assessment criteria for social sciences and humanities (SSH) triggered Constitutional Court cases, creating a risk-averse policy environment and slowing down internationalisation of the SSH disciplines. Ultimately, this research demonstrates the multiple dynamics at play when transitioning

science systems such as Lithuania's employ quantitative research assessment in pursuit of rapid global integration and quick tangible results. The influence of scientific elites seeking to defend their interests has substantially shaped the research assessment system and the public science system in general. The challenges and unintended consequences identified in this PhD research emphasise the importance of developing context-sensitive and responsible research assessment frameworks that support, rather than hinder, the internationalisation efforts of smaller science systems.

This PhD thesis also contributes to the development of responsible research assessment frameworks by exploring various lists of national journals, international databases, suspended journals, and prestigious book publishers, revealing their emergence, closure, and outcomes. Notably, this research pioneered the exploration, for research assessment purposes, of the Global Register of Publishers, a first-hand source of reliable primary data maintained by the International ISBN Agency. This database was used to test whether policymakers achieved their goal of publishing with internationally recognised publishers to gain better visibility for national books. The research found inconsistencies in the awarding of prestigious rank to book publishers and revealed that universities and academics themselves published half of the books submitted as national research outputs. This finding was further corroborated by examining book metadata in WorldCat, which demonstrated the limited international visibility of books authored by Lithuanian researchers. Furthermore, this PhD research shows that national libraries and other book metadata providers, rather than book publishers, contributed to the availability of national book metadata in WorldCat and its long-term preservation. The introduction of the Global Register of Publishers as a valuable data source for scientometric research directly supports the development of responsible and effective assessment practices. This is because the Register offers unrestricted access to primary data for any registered ISBN worldwide, enabling more accurate and comprehensive analyses of publication patterns. By providing reliable information on publishers, including their location, size, and output, the Register helps to contextualise research outputs and avoid biases inherent in relying solely on established proprietary databases or journal lists. This, in turn, allows for more nuanced and equitable assessments that consider the diverse publishing landscapes of different research communities. By alerting developers of responsible research assessment frameworks to the multiple issues and constitutive effects of various lists of journals, databases, and book publishers, this PhD research contributes to the development of more effective and responsible research assessment practices.

Finally, this PhD research contributes to the theoretical understanding of policymaking dynamics within transitioning science systems. Drawing on theoretical frameworks such as the Advocacy Coalition Framework, the Multiple Streams Framework, and the Multi-level, Multi-actor, and Multi-issue Framework, this thesis empirically analysed the policy dynamics among policymakers, scientific elites, and research institutions. One of the main contributions lies in its empirical examination of the role of scientific elites in shaping research assessment policies within a relatively small academic community. The study revealed how scientific elites, often holding influential positions in both academia and government, exerted significant influence on the development and implementation of research assessment approaches and

policy instruments that policymakers applied to overcome unintended consequences. As this PhD research revealed, scientific elites mobilised institutional resources, built professional coalitions, leveraged their expertise, and even stepped into political roles to influence the development of research assessment and the national science system. Uniquely, this PhD thesis provides empirical evidence for the applicability of theoretical frameworks with multi-actor implementation in analysing the intertwined dynamics within science policymaking in small, transitional, and/or underperforming countries. By examining the interactions among different levels of governance, diverse actors, and multiple policy issues, this PhD research sheds light on the factors that shape research assessment policies, informing the development of theoretical frameworks for policymaking in public science systems, especially in “low R&I performing” or transitioning countries.

In conclusion, this PhD dissertation has fulfilled its research objectives by providing a comprehensive analysis of the Lithuanian research assessment system and its implications for transitioning science systems of “low R&I performing” (“widening”) countries. The findings offer insights for policymakers, research institutions, and researchers, particularly in smaller countries, who are navigating the challenges of internationalisation. By highlighting the complexities and unintended consequences of quantitative assessment approaches, this research contributes to the ongoing dialogue on responsible research evaluation and the pursuit of more nuanced and equitable assessment frameworks.

7.3. Policy recommendations

The following recommendations, based on the findings of this thesis, represent potential improvements to the Lithuanian policymaking landscape and book evaluation practices.

7.3.1. Science policymaking

Reduce reliance on external expertise. As demonstrated in Chapters 1 and 2, science policymakers have often relied on reports from foreign organisations and domestically produced or commissioned studies to shape the Lithuanian research assessment system—a strategy that ultimately proved ineffective and even led to Constitutional Court cases. This over-reliance on commissioned studies has resulted in a critical gap—the absence of independent research within Lithuania to systematically study the national science system. When developing science policies and aligning them with international trends, policymakers should prioritise internal expertise, encouraging independent research and focusing on national research priorities. This approach fosters local research capacity, promotes national priorities, and ensures policy relevance. While international collaboration and benchmarking remain valuable, the government should:

- Promote critical reflection on external recommendations, considering their alignment with the national context and potential disciplinary biases or even geopolitical considerations.
- Establish clear guidelines for incorporating external expertise, ensuring it informs, but does not dictate, national strategies.

Strengthen independent expertise on the Lithuanian research system. To foster self-sustaining, locally driven research evidence for policymaking and avoid legal challenges from academia, the government should establish an independent, multidisciplinary research unit within a university setting, ensuring its autonomy from direct government influence. This unit should foster collaboration among researchers from various Lithuanian universities and diverse disciplines, including (but not limited to) sociology, anthropology, philosophy, and history, to conduct research on the Lithuanian research system. To compensate for the current lack of local expertise in fields such as scientometrics, research policy, science policy literature, and economics of innovation, the unit should actively invite leading international scholars in these areas to collaborate with Lithuanian researchers. This approach leverages the diverse expertise within Lithuania and the broader international community, creating a centralised hub for generating independent knowledge about the national research landscape.

This dedicated unit should also perform three main tasks:

- Engage in comparative studies of research assessment policies and practices in Lithuania and other countries.
- Participate actively in international research assessment forums and help develop global best practices.
- Disseminate its research findings to inform policy development and foster a culture of research integrity and responsible evaluation practices in Lithuania.

To achieve these goals, the government should:

- Provide funding for the establishment and operation of the research unit. This could include support for staffing, research projects, infrastructure, and dissemination activities.
- Facilitate collaboration between the unit and relevant stakeholders. This could involve encouraging partnerships with other universities, research institutions, and government agencies.
- Support the development of national research databases and evaluation frameworks that reflect the diversity of Lithuanian research and encourage collaboration within the country. These databases should provide open access to relevant research information, enabling science policy decisions to be made based on transparent evidence and inclusive data.

Mitigate risk aversion in policymaking. To avoid legal challenges, government institutions should promote a more flexible and innovative policy environment. To achieve this, the government should:

- Empower the above-mentioned research unit to pilot projects that develop quantitative and qualitative approaches that allow the proper understanding of the Lithuanian science system and its context, allowing for more contextualised research assessment systems. The unit should communicate its findings to academia and broader audiences. By organising these pilots, the research unit will generate independent evidence to inform policy development and complement recommendations by international

experts. This combined evidence base will ensure the Lithuanian research assessment system remains innovative and responsive to local and international needs.

- Foster inclusive policymaking by engaging diverse stakeholders in open dialogue when developing research assessment policies. These stakeholders include not only state agencies, research organisations, and individual researchers inside academia but also stakeholders outside academia and civil society representatives interested in national science development. This inclusive approach will ensure diverse perspectives are considered, enrich discussions, and increase transparency in lobbying activities.
- Create transparent and inclusive processes for developing and revising research assessment policies. Such a process builds trust among academics and other stakeholders and reduces the likelihood of legal challenges.

Implementing the above actions will help Lithuania create a more independent, robust, and internationally recognised research system that effectively supports the country's long-term development goals.

7.3.2. Book evaluation and global visibility for Lithuanian research

This PhD research further demonstrates that incentivising publication with prestigious publishers has not effectively promoted the internationalisation of Lithuanian research. Local universities or self-publishing services publish most academic books, limiting their international visibility and reach. Even when books are published by international publishers, their “prestige” is questionable, and book metadata is often unavailable in international library databases. This hinders discoverability and undermines the effectiveness of current policies in promoting Lithuanian research internationally. Furthermore, the inconsistent and opaque practices that determine “prestigious publisher” rank raises concerns about their reliability and fairness in assessing research quality.

Therefore, to avoid the biases and inconsistencies inherent in prestige-based rankings, Lithuania should abandon its current book evaluation system that relies on publisher prestige as the primary criterion for research quality, instead prioritising open access, discoverability, and long-term preservation as the minimum foundational criteria for book evaluation. By focusing on these core aspects, the evaluation system can ensure wider dissemination, easier access, and the lasting availability of research presented in scholarly books. This initial focus provides a strong foundation for a more comprehensive and equitable book evaluation framework. This framework should be developed in close consultation with the Lithuanian academic community, ensuring it remains dynamic and responsive to the evolving landscape of scholarly communication, as described in the Vision for Scholarly Communication in the 21st Century (Kraker et al., 2016). Future research should investigate the long-term impacts of these reforms on research practices in Lithuania and the international dissemination of knowledge generated by Lithuanian scholars.

The following actions are recommended to enhance the global visibility of Lithuanian research presented in scholarly books:

Prioritise open access. Research assessment policies must ensure that scholarly books submitted for state funding are freely available and accessible to a global audience.

Enhance discoverability. Lithuanian research institutions should improve the discoverability of their scholarly books by supporting comprehensive metadata creation and encouraging the use of diverse digital formats compatible with current accessibility requirements. This includes:

- Publishing in institutional repositories.
- Promoting the inclusion of Lithuanian research in international library catalogues and databases.
- Preparing digital formats suitable for automated translation technologies, especially for books written in Lithuanian.

Support long-term preservation. Research institutions, with support from the government and in collaboration with national and academic libraries, should incorporate long-term preservation strategies to ensure the enduring availability and accessibility of Lithuanian scholarly books.

To enhance the internationalisation of Lithuanian research, the government should actively promote and support the recommendations outlined above. This will ensure that Lithuanian scholarly books are discoverable and accessible to a global audience, fostering greater international collaboration and recognition.

7.4. Directions for future research

7.4.1. Science policymaking

To further support the policy recommendations outlined in Section 7.3.1, future research could:

Investigate the origins and impact of the “lagging behind” narrative in Lithuanian science policy. Future research could investigate how this negative narrative emerged, how it influences policy decisions, and whether it is unique to Lithuania or a common theme in other countries’ science policy. A comparative analysis of policy recommendations issued by international organisations for different countries might reveal valuable insights.

Identify and evaluate alternative models for incorporating external expertise. Future studies could also explore how other countries effectively utilise external expertise to support self-sustaining and locally driven research systems, while avoiding the pitfalls identified in this study. The dedicated research unit proposed in Section 7.3.1 could play a key role in this investigation by analysing international best practices and identifying models suitable for the Lithuanian context.

Analyse the impact of national policies on local research communities. Finally, future research could explore how national policies, especially those shaped by external experts, have influenced institutional and individual behaviour within Lithuanian academia, paying close attention to potential disciplinary differences. A mixed-methods approach, combining bibliometric analysis with qualitative data from interviews and surveys, could provide a deep understanding of the impact of these policies on research output, collaboration, and researcher experiences. For example, future research could analyse variations in impact across disciplines and delve into the reasons behind these variations. It could also investigate why internationalisation, as measured by collaborative papers, did not develop as expected even though the number of domestically published articles significantly decreased. Future research could also examine the reasons behind the emergence of certain publishing patterns, such as the dominance of articles in MDPI journals.

7.4.2. Book evaluation

To further support the policy recommendations outlined in Section 7.3.2, future research could:

Investigate both pre- and post-publication peer review practices for scholarly books. Future research should examine the origins and practical implications of the peer review practices surrounding scholarly book publication, as well as these practices' contributions to transparency and quality assurance in book evaluations. How do different peer review models (e.g., non-anonymous vs. anonymous reviews) influence these aspects? A comparative case study could analyse how non-anonymous pre-publication peer review, common in Eastern European countries, was formalised and implemented, contrasting it with practices in Western countries and exploring the associated challenges and controversies. For example, this research might delve into the unintended consequences of policy decisions, such as mandating Western-style post-publication book reviews for “research quality” in Lithuania. Did this policy, intended to signal research significance, inadvertently incentivise the publication of a large volume of often superficial reviews, creating an unnecessary burden on the scholarly publishing system? Finally, it is essential to consider the specific challenges of evaluating books in multilingual contexts such as Lithuania, where peer review practices and expectations may vary significantly across different language communities.

Develop a comprehensive framework for book evaluation that moves beyond publisher prestige and embraces open science principles. Future research could explore how to move beyond reliance on publisher prestige by developing a comprehensive framework grounded in the Vienna Principles for the future of scholarly communication, along with other relevant open science declarations and recommendations. It might investigate how to incorporate factors such as discoverability, availability in diverse digital formats, and long-term preservation strategies into the research assessment process, recognising the contribution of these features to the dissemination and impact of scholarly work. This research could also involve surveying and interviewing academics involved in policymaking and publisher rankings to gauge their perspectives on newly proposed evaluation criteria.

Investigate a wider range of book metadata sources. Future research could go beyond traditional library catalogues such as WorldCat and explore the potential of platforms and services such as Google Books, Open Library, Wikipedia, Directory of Open Access Books (DOAB), Crossref, and others to provide richer and more nuanced information about books. This investigation should include an examination of national library repositories, which preserve legal deposit copies and serve as primary data providers to WorldCat. Utilising the same dataset of ISBNs used for testing WorldCat data would ensure comparability across different sources. This research could:

- Evaluate the quality and completeness of metadata provided by different sources.
- Identify strategies for improving data accuracy and consistency.
- Explore the extent to which books are already published as open access, providing insights into the availability and accessibility of scholarly works.
- Contribute to a deeper understanding of the evolving book publishing landscape.
- Enhance research assessment criteria and support more effective research evaluation.

The research directions outlined above offer avenues for advancing the understanding of science policymaking and book publishing landscapes, promoting positive change in research assessment and scholarly communication. These directions provide a roadmap for future research that can further support the implementation and refinement of the policy recommendations outlined in Section 7.3.