# Quantitative research assessment and its unintended consequences

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# Chapter 3.
# Incentivising, excluding, and enduring: The policy dynamics of quantitative research assessment in Lithuania

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## 3.1. Introduction

Performance-based funding systems (PBFSs) aim to enhance research quality and accountability by linking funding to demonstrable, and often quantifiable, research performance. Discussions around performance-based funding emerged in the late 1990s (Anderson et al., 1996; de Boer et al., 2015; Gläser et al., 2002), and driven by global trends towards accountability and new public management ideologies, many countries introduced national PBFSs (Hicks, 2012; OECD, 2010), pioneered by the UK (Barker, 2007) and Australia (Taylor, 2001). By 2015, sixteen EU countries had implemented a PBFS, applying three different assessment approaches: 'limited PBFS', 'quantitative formula with bibliometric assessment', and 'peer review' (Zacharewicz et al., 2019). The growing global interest in PBFSs is further emphasised by a review of over 350 papers on institutional performance-based research evaluation in 37 countries (Thomas et al., 2020). This review also summarises limitations of the PBFS literature, such as the overreliance on self-reported data at the institutional level, limiting the ability to attribute changes directly to the macro level of PBFSs and to understand broader systemic effects.

Additionally, the literature on PBFSs often overlooks the nuances and diverse approaches to PBFS implementation in smaller countries. The Lithuanian PBFS is an example, as it is frequently misclassified as relying solely on peer review assessments (Sivertsen, 2017). This misclassification arises from a lack of in-depth understanding of the Lithuanian system, which primarily relies on a quantitative formula with bibliometric assessment, even though it also incorporates expert panels. The role of these expert panels is often overemphasised, leading to an inaccurate categorisation of the Lithuanian PBFS. In practice, the main role of the panels is to recommend changes to PBFS models or instruments in response to questionable practices, such as excessive publication in institutional journals or artificial inflation of Journal Impact Factor (JIF) scores. The panels have no role in directly evaluating individual research outputs.

The misclassification of Lithuania does not stand alone. With some notable exceptions (Kulczycki et al., 2017, Good et al., 2015, Stöckelová, 2012) there is a predominant focus on Western European countries in the literature on public science systems and the place of policy dynamics therein. In this paper, we present a detailed study of the development of Lithuanian PBFS policies. Our study aims to contribute to a more in-depth understanding of the roles various stakeholders play in shaping national PBFSs. We adopt a multi-level, multi-actor, and multi-issue framework (Chou et al., 2017) to analyse the interactions between different stakeholders (R. Whitley et al., 2010) and to examine their decision-making processes.

Figure 1 illustrates the multi-level governance, the multi-actor involvement, and the multi-issue interdependence in the development of Lithuanian PBFS policies. In this paper, we first identify and characterise the key actors shaping the evolution of the Lithuanian PBFS and, then, we show the implications of their interactions for policy outcomes. Specifically, we analyse the interactions among state institutions, higher education authorities, politicians, civil servants, scientific elites, and non-state actors, exploring how their diverse interests and perspectives influenced the PBFS landscape. Second, we examine how Lithuanian policymakers navigated the tension between international aspirations and domestic realities while shaping the development of the PBFS and addressing unintended consequences of their

policy decisions. Finally, we elucidate how Lithuanian universities and individual researchers adapted their publication strategies in response to the evolving PBFS landscape and we explore the implications of these adaptations for the research outputs produced in Lithuania.

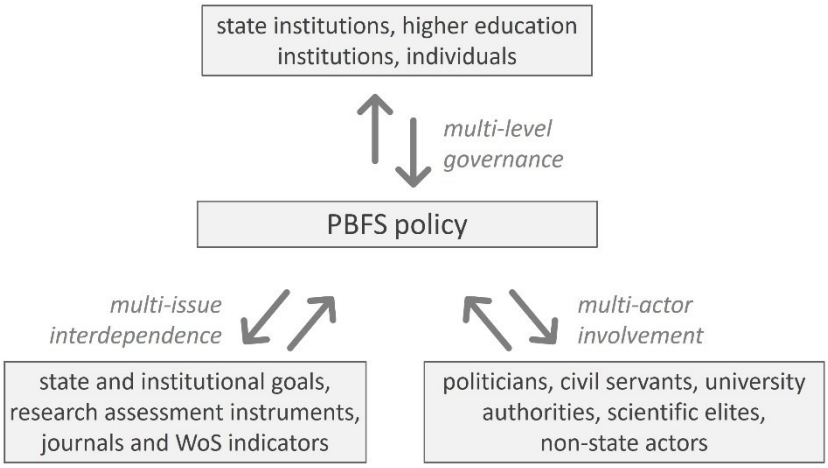


Figure 1. Development of Lithuanian PBFS policies through the lens of a multi-level, multi-actor, and multi-issue framework.

By examining research assessment policies, shifts in performance indicators, and the responses of various actors within the Lithuanian PBFS, this study addresses the key questions of who shapes the PBFS, how policymakers navigate competing pressures, and how universities and researchers adapt their strategies. Our work aims to illuminate the complex interplay of actors and strategies, offering insights into how PBFS policies evolve and how they impact research practices and outcomes in the context of a smaller country. The present study complements a previous study on multi-actor policy dynamics (Dagienė et al., 2024) in which we explored the motivations behind the adoption of a quantitative approach to research assessment in Lithuania, including the influence of journal publishers and the Web of Science database.

## 3.2. Literature review

Performance-based funding, which allocates resources based on evaluations of research outputs, has become a prevalent policy tool in national scientific systems. Many countries have implemented national PBFSs, which has fostered research regarding their efficacy, unintended consequences, and the roles various actors play in shaping research practices. This literature review first explores the diverse models, goals, and policy dynamics associated with national PBFSs and then turns its focus to the specific context of Lithuania.

### 3.2.1. Models, goals, and indicators in national PBFSs

National PBFSs, used to allocate research funding based on performance, are structured around various models and goals, leading to their continuous evolution. PBFSs can be categorised as *ex-ante* (before research activities) or *ex-post* (after research activities), and they may employ bibliometrics (quantitative formulas using publication metrics) or peer

review (assessments by experts) as evaluation methods (Geuna & Martin, 2003). Bibliometric models are often favoured for organisation-wide evaluations (Good et al., 2015; Haugen & Sandnes, 2016), while peer review is common for department- or group-level assessments, as seen in the UK and Italy (Martin, 2011; McNay, 2003; Rebora & Turri, 2013).

Despite the ongoing debate surrounding evaluation methods, the underlying logic of PBFSs remains consistent across different implementations. The choice between these models is debated, with no consensus on superiority (de Rijcke et al., 2016; Sivertsen, 2017; Traag & Waltman, 2019). Consequently, some nations combine both, allocating funding based on a mixture of bibliometrics and peer review (de Boer et al., 2015; Kulczycki et al., 2017; Nelhans, 2022). Efforts to integrate bibliometrics into peer review suggest that peer review informed by bibliometric indicators may be optimal (Franceschet & Costantini, 2011; Wouters et al., 2015).

The underlying logic of PBFSs includes rewarding research performance, redistributing resources for efficiency, and improving management for informed change (Gläser et al., 2002; Gläser & Laudel, 2016; Martin, 2011). This has led to strategic shifts within universities, focusing on optimising research portfolios and aligning with funding priorities (Whitley, 2008). In response to these pressures, universities have adopted various strategies within the framework of PBFSs. To succeed in their national PBFS, universities often implement their own performance-based funding models internally to redistribute resources to researchers or departments (Aagaard, 2015; Aagaard et al., 2015; Mouritzen & Opstrup, 2020; Rowlands & Wright, 2021; Woelert, 2021). Even without a national PBFS, universities and departments in the Netherlands apply their own performance-based funding allocation to research groups (Dix et al., 2020; Leišyte et al., 2008).

Fourteen countries had adopted a national ex-post PBFS by 2010, using institutional research outputs for state funding allocation (Hicks, 2012). The goals and models of PBFSs have evolved over time. Initially emphasising quantity of outputs, many national systems have transitioned towards prioritising research excellence and impact (Hammarfelt et al., 2016; Moore et al., 2017). For example, in Poland, the PBFS focus moved from ‘strengthening scientific performance’ to ‘identifying various aspects of excellence’ (Kulczycki et al., 2017).

The indicators used in PBFSs have also evolved. Many national PBFSs, including those of Czechia (Good et al., 2015), Poland (Kulczycki et al., 2017), and Slovenia (Mali et al., 2016), initially relied heavily on the JIF for funding allocation, favouring publications in journals indexed in Web of Science (WoS). Later, they also incorporated other databases such as Scopus and ERIH, though with lower weights.

Beyond database metrics, numerous countries have developed national journal ranking systems. Among those, the Publication Indicator in Norway (Aagaard, 2015; Bloch & Schneider, 2016; Haugen & Sandnes, 2016; Sivertsen, 2018) has had international impact and was subsequently adopted (and adapted) by Finland and Flanders (Pölönen et al., 2020) as well as Denmark (Deutz et al., 2021; Pedersen, 2010) and Sweden (Hammarfelt & Haddow, 2018; Nelhans, 2022). The Excellence in Research for Australia initiative employed a journal ranking system maintained by the Research Council; while influential, it faced criticism for

such issues as disciplinary bias and lack of correlation with established metrics (Vanclay, 2011). Similarly, the Polish 2015 journal ranking system used various metrics but emphasised influence of expert evaluation (Kulczycki & Rozkosz, 2017). Meanwhile, Serbia has also created its own citation index (Šipka, 2005).

Studying the development of journal ranking systems, Pontille and Torny (2010) highlighted challenges in defining quality, balancing disciplinary diversity, and preventing misuse. Despite these criticisms, journal rankings and indicators such as JIF persist, and can be associated with manipulation attempts. Hickman et al. (2019) argued that such manipulation could be illegal due to misrepresentation of research impact. Meanwhile, Butler and Spoelstra (2020) criticised the "publication game" metaphor, suggesting it masks a deeper "lusory attitude" driven by institutional pressures that harm research quality.

These complex interactions emphasise the need to consider policy instruments, actors, and governance levels when analysing unintended consequences and strategic responses within PBFSs (Flanagan et al., 2011).

### 3.2.2. Dynamics between actor groups in PBFSs

While many theoretical frameworks have been developed over recent decades (van der Heijden et al., 2021), the causal-mechanism movement is not generally embraced in policy-process theorising. Science policy literature have proposed delegation models in research funding as potential solutions to the paradox inherent in research policies (Braun, 2003; Rip & van der Meulen, 1996). These models seek to balance the state's desire for control with the need for institutional autonomy and scientific freedom (Rip & van der Meulen, 1996). Policymaking in the realm of public science systems involves a complex interplay of various actors, each with their own interests and influence on policy outcomes (Weible & Workman, 2022). Research on public science policymaking identifies three ideal types of systems based on the dominant actors: state-dominated, state-delegated, and employer-dominated (R. Whitley et al., 2010).

Within PBFSs, the main actors of the public science system are readily identifiable. *Ministries* (state agencies) set assessment rules and overarching goals for research, listen to signals from the research system, and stimulate bottom-up agenda-building processes (Rip & van der Meulen, 1996). *Universities* (employing organisations) submit research outputs for evaluation and are directly affected by funding allocations (Kivistö & Mathies, 2023). *Scientific elites* are the senior researchers who serve on various expert panels and play a crucial role in shaping research assessment policies and their own behaviour (Waitere et al., 2011; Whitley, 2016). Their influence can sometimes lead to tensions, as senior researchers may also resist changes to PBFSs that they perceive as misaligned with their interests (Nelhans, 2022). This can create a pushback dynamic in which researchers advocate for alternative metrics or evaluation approaches that better reflect their disciplinary values and priorities. Research also highlights the role of *research councils* as intermediaries between the state and scientists (Martin, 2011; Slipersæter et al., 2007; van der Meulen, 2003). They often manage research assessments and can mediate conflicting interests between the government and the research community.

The complex interactions among these formal actors often exhibit multi-actor and multi-level dynamics (Chou et al., 2017). While the multi-level characteristic focuses on the distribution of authority across governance levels, the multi-actor characteristic reflects the heterogeneity of the state and the involvement of more actors influencing the evolution of PBFSs. Here, *professional organisations* of academics can exert influence through collaboration and lobbying (Whitley & Gläser, 2014), while university councils and boards exert indirect influence (Antonowicz et al., 2024; de Boer et al., 2010; Kwiek, 2015).

Beyond these formal actors, *industry* and *civil society* are increasingly involved in shaping science policy (Gläser, 2019; Gläser & Laudel, 2016). Their influence can be seen in the growing emphasis on research impact and societal relevance in many PBFSs. At the micro-level, researchers themselves respond to PBFSs through their publication strategies (Johann et al., 2024) and engagement with accountability mechanisms (Hansen et al., 2019), revealing the effects of PBFSs on individual behaviour.

Understanding this interplay is crucial for comprehending the evolution and impact of PBFSs, as the advocacy and strategic adaptations of the above-mentioned actors significantly influence PBFSs and, consequently, the direction and nature of research activities within a nation.

### 3.2.3. The Lithuanian PBFS through research assessment reforms and policy dynamics

The literature on policy dynamics within public science systems generally focuses on Western European countries, leaving a gap in understanding the experiences of Eastern European nations transitioning from Soviet-era systems. Lithuania's journey provides valuable insights into this understudied context. Lithuania's deliberate attempt to break away from its Soviet-oriented science system and integrate with the international scientific community represents a significant policy shift. This transformation, in turn, highlights the challenges and opportunities faced by countries undergoing such radical reforms.

The rapid changes in Lithuania's research assessment system, including the introduction and subsequent withdrawal of national journal lists and databases, offer a clear view of the dynamics between different actor groups (e.g., policymakers, universities, researchers). These dynamics, marked by conflict and negotiation, are often less visible in more established systems.

Lithuania's experience resonates with other countries in the region, such as Czechia, Poland, and Slovenia, whose PBFS models and indicators have already been explored in the literature quite extensively. Understanding the Lithuanian case can thus offer valuable insights into the challenges and successes of research assessment reforms in similar contexts.

Following independence, Lithuania's research landscape faced significant challenges (Allik, 2003; Želvys, 2003). Despite the establishment of university autonomy and state-level bureaucratic structures, modern research management practices were slow to develop (Leišytė & Kiznienė, 2006). Assessments in the late 1990s revealed a substantial gap in Lithuanian research output, particularly in English-language publications and those indexed in WoS databases (European Commission, 2001, 2007; Research Council of Norway, 1996; World

Bank, 2003). In response, Lithuania prioritised internationalisation efforts and research assessment reforms to align with global standards (Crăciun & Orosz, 2018; Daujotis et al., 2002; *Lithuanian Science and Technology*, 2002).

The early 2000s saw a heavy reliance on publication indicators, particularly the number of articles in WoS-indexed journals. The focus on WoS articles aimed to increase the internationalisation of Lithuanian research, but it also sparked debate as the social sciences and humanities were poorly represented in WoS (Norkus, 2001; Subačius, 2001). After unfruitful debates, scientific elites brought the government to the Constitutional Court, whose ruling (Constitutional Court, 2007) relaxed strict WoS requirements for these disciplines until 2015.

To address the challenges, Lithuania introduced two policy instruments: the List of National Journals (1993–2004) and the National List of Databases (2005–2009). The former incentivised publishing in peer-reviewed journals but faced criticism for prioritising quantity over quality (Subačius, 2003). The latter aimed to promote international publications but also inadvertently incentivised Lithuanian journals to switch to English and seek inclusion in these databases. These efforts led to a rapid increase in the number of domestic but internationally indexed journals (Kraniauskas & Gedutis, 2016). Policymakers, who initially saw the lists as ways to promote national research, were later concerned about the lack of rigorous peer review (Daujotis et al., 2002) and limited international recognition (MOSTA, 2015). This, coupled with the expansion of WoS and the subsequent dominance of domestic journals in Lithuanian WoS outputs, prompted policymakers to cancel both lists.

Despite all these challenges, Lithuanian research output in WoS-indexed journals increased significantly, demonstrating the impact of policy measures aimed at increased research performance (Chankseliani et al., 2021). However, this growth was not without its drawbacks. Foreign researchers noted quality issues and the emergence of questionable practices in Lithuanian research (Grančay et al., 2017; Lauk & Allik, 2018). These findings echo the experiences of other countries implementing PBFSs, highlighting the potential for unintended consequences when quantitative metrics are prioritised (Elton, 2000; Johann et al., 2024; Taylor, 2001).

The Lithuanian experience underscores the complex and dynamic nature of research assessment reforms. The interplay of policy instruments, institutional actors, and individual researchers, combined with the unique challenges of transitioning from a Soviet-era system, have shaped the evolution of Lithuania's research landscape. The case study presented in this paper serves as a lens through which to examine the broader implications of the quantitative bibliometric model of PBFSs and research assessment policies in post-Soviet and transitioning countries.

### 3.3. Data and methods

To understand the development, performance and dynamics of the Lithuanian PBFS, this study employs a mixed-methods approach, combining policy analysis, bibliometric analysis, and semi-structured interviews, and supplemented by grey literature identified by interviewees.

Using the data and methods explained below, we sought to gain a comprehensive understanding of the specific case of the Lithuanian PBFS by analysing the intricate relationship between policy, institutional practices, and individual researcher behaviour.

*Policy document analysis*. PBFS regulations from 2004 to 2024 were obtained from Lithuania's national register TAR (https://www.e-tar.lt/portal/en/index). Examining national PBFS regulations, we traced the evolution of the PBFS framework and identified major shifts in performance indicators and policy instruments, such as maintenance of national journal lists and rejection of journal outputs suspected of artificial citation inflation. The latter policy instrument, allowing expert panels to reject institutional outputs, was selected for in-depth analysis. This choice was due to its potential to illuminate policy dynamics in quantitative research assessment, as it directly affected institutional scores by rejecting suspect publications. To explore the impact of this policy instrument, 'lists of suspended journals' (journals whose articles were rejected, resulting in no points for institutions) were obtained from the Research Council of Lithuania website (https://lmt.lrv.lt/en/science-quality/). These lists consisted of the 156 journals suspended between 2012 and 2019. Since 15 journals were indexed only in Scopus, only 141 journals indexed in WoS are the focus of our study.

*Analysis of semi-structured interviews*. Fifty-seven semi-structured interviews were conducted with policymakers, civil servants, research administrators, and individual researchers (Figure 2) to gather insights on research evaluation in Lithuania, including the PBFS. Interviews explored stakeholders' expectations regarding research assessment policy instruments, their experiences with implementation, and their perceptions of the research assessment system's strengths and weaknesses. Policymakers were asked to share their experiences developing national research assessment policies, while other stakeholders were asked about their experiences complying with research assessment requirements. Anonymity was assured to encourage candid responses. Interviews were conducted from mid-2019 to mid-2023. Follow-up questions were asked as needed for clarification, and responses were incorporated into the corresponding interview transcripts.

All interviews were audio-recorded, transcribed verbatim, and partially translated. Transcripts were then imported into the Atlas.ti qualitative data analysis software. Through inductive analysis we systematically identified and interpreted patterns of meaning across the interview data, following established qualitative research guidelines (Thomas, 2006). This process allowed for the identification of rich and nuanced insights into the perspectives of stakeholders at all levels, revealing their motivations and challenges as well as their perceptions of the effectiveness of the Lithuanian PBFS.

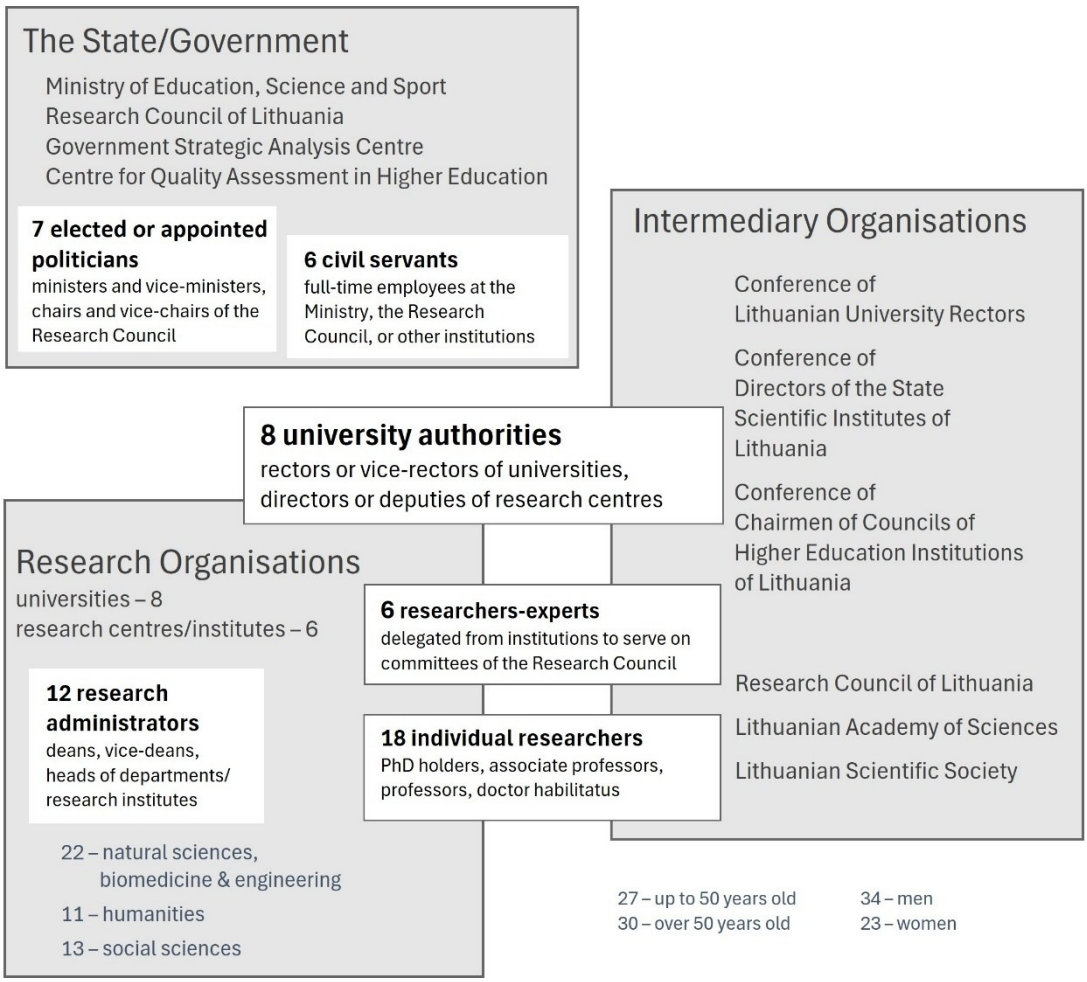


Figure 2. The composition of interviewees and their roles in the Lithuanian research assessment landscape.

*Bibliometric analysis*. We used the in-house version of the Web of Science (WoS) database maintained by the Centre for Science and Technology Studies (CWTS) at Leiden University, including the following WoS citation indexes: Science Citation Index Expanded, Social Sciences Citation Index, Arts & Humanities Citation Index, and Emerging Sources Citation Index. We analysed all WoS articles and reviews authored by at least one Lithuanian researcher in 2005–2022, as well as those published in 141 journals that were suspended in 2012–2019 and, at that time, were already in WoS citation indexes. We conducted bibliometric analyses at the national, institutional, and individual levels. Data on journals' quartiles (Q1, Q2, Q3, Q4) in their designated WoS categories were obtained from Clarivate's Journal Citation Reports (see subsection 3.5.4). Additional document searches in the WoS user interface identified the publishers of journals used by researchers most affected by the suspension policy. Bibliometric analysis revealed quantitative evidence of the impact of this policy on publication patterns, highlighting shifts in journal choices and potential gaming strategies (see subsection 3.5.2).

### 3.4. Stakeholders and their decision-making strategies

To understand the dynamic forces shaping Lithuania's PBFS, we first examine the roles and influence of its key players—policymakers, universities, and researchers—dissecting the landscape of this system and drawing insights from research assessment policies, interviews, and grey literature.

Formally, the PBFS operates on an annual cycle. The Ministry of Education, Science, and Sport (*the Ministry*) initiates this cycle by issuing a decree that outlines funding formulas and eligible research outputs. *The universities* then submit their research to the Research Council of Lithuania (*the Council*), which coordinates expert evaluations. Senior researchers (*scientific elites*), serving as experts, assess the submitted outputs against the Ministry's defined indicators. Universities receive results after several months and have the option to appeal through the Council. The final results are then disseminated to the Ministry, the universities, and the public. The following subsections delve into the specific influence of each actor. Figure 3 illustrates the process and the wider network of stakeholders influencing the PBFS.

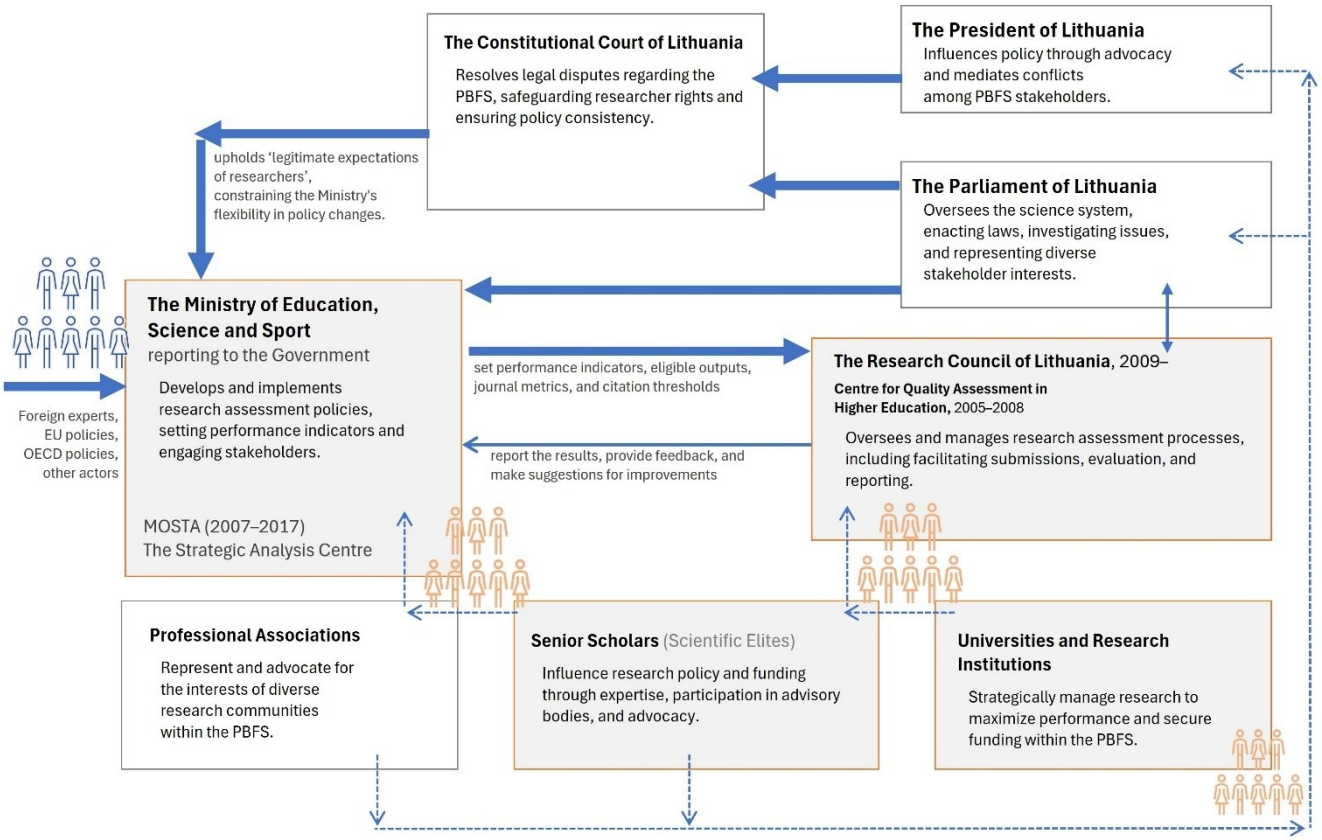


Figure 3. The Lithuanian PBFS in action: A structural map of stakeholders, roles, and decision-making processes.

#### 3.4.1. The Ministry's policy leadership and challenges

The Ministry is the primary policymaker for Lithuania's research and innovation system (Paliokaitė et al., 2018), playing a central role in designing and implementing the PBFS

through its Higher Education, Science, and Technology Department. The Ministry previously housed a higher education monitoring and analysis centre (MOSTA) from 2007 to 2017, which was instrumental in piloting a peer-review model for the PBFS in 2015 (Arnold & Angelis, 2014). However, MOSTA was later reformed and discontinued in 2017, reportedly due to pressure from scientific elites.

The Ministry, as the leader in science policymaking, shapes the PBFS's overall direction by developing policies and translating them into practical measures, defining the specific criteria and metrics used to evaluate research performance and setting standards for quality and impact. The Ministry also outlines eligible research outputs through legal acts, aiming to prioritise high-quality, relevant research, to foster international collaboration, and to incentivise Lithuanian researchers to publish in prestigious journals.

Despite the Ministry's claims of actively engaging stakeholders in refining research assessment, challenges persist. Research administrators at the institutional level report feeling unheard and express dissatisfaction with the Ministry's responsiveness. This aligns with previous research (Paliokaitė et al., 2015) suggesting a lack of effective communication and issue resolution. Interviews with civil servants further confirm these challenges, describing stakeholder engagement as unproductive and often leading to decisions that defer to the Ministry's own priorities.

### 3.4.2. The Council's implementation and expertise

While primarily an advisory and analytical body, the Council is a key institution in implementing science policy. Its publicly stated aims include increasing the value, efficiency, and impact of science through expert evaluations of scientific performance, administering programs for the development of Lithuanian science, representing Lithuania's interests in science and research at the European Union and international levels, and implementing competitive funding programs for science. The Council's unique blend of expertise and implementation capacity has made it pivotal in the PBFS since 2009.

The Council relies on two groups of experts to assess research: members of its permanent expert committees (delegated by institutions) and invited experts. Ensuring true independence of these experts within Lithuania's small research community is a challenge. Potential biases and conflicts of interest may arise due to these experts' affiliations with Lithuanian institutions. As one interviewed researcher put it, the concept of an 'independent expert' in this context seems paradoxical. Since experts are often affiliated with Lithuanian institutions, they may be inclined to favour decisions that benefit their own institutions, even if indirectly. To increase fairness and minimise bias, expert panels are often composed of senior Lithuanian researchers residing abroad and working for foreign universities.

Despite these concerns, the experts work anonymously to avoid institutional pressure, following the General Rules (Research Council, 2018). These rules outline the types of experts, requirements for becoming an expert, and the principles and procedures governing their work, including remuneration and conflict of interest protocols. The experts assess research outputs based on criteria outlined in ministerial regulations, including publisher or

journal requirements. While pre-calculated scores based on JIFs and journal citation thresholds are provided, experts have the authority to raise concerns and adjust scores if they believe the metrics do not accurately reflect research quality.

### 3.4.3. Role of universities in shaping PBFS policy

The Universities (higher education and research institutions) actively participate in the Lithuanian PBFS, both responding to its incentives and shaping its outcomes. They strategically select and submit research outputs for evaluation, aiming to maximise recognition and funding. They actively appeal unfavourable assessment decisions—but rarely succeed, as research administrators complained.

To enhance their PBFS performance, universities develop strategies to align their research priorities with assessment criteria and metrics. They create internal incentive systems to reward researchers whose work contributes to securing state funding through the PBFS. Universities directly influence and challenge the PBFS goals by launching peer-reviewed journals to publish their researchers' papers and subsequently submitting these papers for state funding. They also invest in training and resources to support researchers in producing outputs favoured by the PBFS.

University leaders and senior scholars often perceive themselves as possessing unique expertise within the science system, given that only senior researchers can be elected as university rectors or directors of research institutes. This confidence, coupled with their institutional strategic efforts, empowers them to actively engage in collective advocacy at the national level through professional organisations. The Rectors' Conference, in particular, exerts considerable pressure on the Ministry, often complaining against research assessment policies.

The Rectors' Conference simultaneously shapes new policies and resists unfavourable changes, creating tension within the system. This tension stems from confusion among university leaders about who holds ultimate authority over PBFS rules; representatives of some universities blamed the Ministry for bad decisions, while those of other universities blamed the Research Council for the same decisions, so both the Ministry and the Research Council were criticised for perceived incompetence in setting criteria.

### 3.4.4. Influence of scientific elites and resulting tensions

Senior scholars (the scientific elites), usually individual researchers employed at universities, play a central role in the national PBFS. They are both prolific producers of assessed outputs and members of evaluation committees, highlighting the dynamic interplay between individual researchers and the broader research assessment system. The scientific elites exert significant influence in shaping the PBFS through various avenues:

*Leadership and expertise at the Council*, which is composed of senior researchers and PhD-holding civil servants and plays a pivotal role in shaping research assessment policies. The involvement of the scientific elites in all layers of the Council ensures their expertise directly informs policy.

*Institutional leadership at universities* as rectors, vice-rectors, deans, and chairs of influential committees who shape institutional strategies for research production, dissemination, and internal incentive structures.

*High-level political engagement*, as many chairs of the Committee on Science, Education and Culture at the Lithuanian Parliament (the *Lietuvos Respublikos Seimas*) as well as elected ministers or assigned vice-ministers for research at the Ministry of Education, Science and Sport have come from academia, reflecting the sector's influence. Interviews also revealed that members of the Seimas and Government, often under the influence of the scientific elites, have demanded explanations from civil servants and policymakers regarding specific research assessment instruments; this pressure has sometimes led to resignations of civil servants.

The involvement of *the President of Lithuania* in research assessment policy debates further exemplifies the influence of the scientific elites. For instance, scholars convinced the President to request that *the Constitutional Court* investigate the 2003 requirement mandating that seekers of professorships or Doctor Habilitatus degrees publish in WoS-indexed journals (Constitutional Court, 2007, 2008; Dagienė et al., 2024). Even though this case focused on minimum requirements for researchers, it had a lasting impact on the PBFS performance indicators. After the Court issued it rulings about the feasibility and fairness of minimum requirements for SSH disciplines, the highest funding points for WoS papers in the social sciences and humanities established in the 2006 and 2008 methodologies were removed from the 2009 methodology and subsequent versions until 2015. Interestingly, these highest point value allocations for WoS papers reappeared in the list of eligible outputs in 2015 for research in the social sciences and humanities but have been retained only for the social sciences since 2017. A civil servant attributed this difference to the humanities' stronger lobbying efforts against such requirements.

Repeated legal challenges brought by the scientific elites against the government before the Constitutional Court further complicated the PBFS landscape and led to the establishment of the principle of 'legitimate expectations' in Lithuanian research policymaking. A judge of the Constitutional Court has even noticed the prevalence of academia's disputes brought before the court, requiring the Ministry to maintain consistent and predictable policies. These 'legitimate expectations' lead to a reluctance among civil servants and policymakers to introduce changes, fearing further legal repercussions.

These diverse avenues of engagement showcase the substantial power the scientific elites wield within the PBFS. Their expertise, advocacy, and access to decision-makers enable them to influence research assessment and state funding allocation in Lithuania. The analysis reveals the dominant role of the scientific elites in shaping the PBFS landscape, resulting in tensions between all stakeholders and prompting their reactions.

### 3.5. Policymakers navigating international aspirations and domestic realities

Behind the complex formulas and indicators of the Lithuanian PBFS lies a narrative of competing interests, national ambition, and the quest for excellence in Lithuanian research (*Lithuanian Science and Technology*, 2002). The evolution of the PBFS reflects an ongoing

dialogue between policymakers striving to align funding with national goals and universities adapting their strategies to maximise their share of public resources. This section delves into the actions and motivations of each stakeholder group, exploring how policymakers navigated international aspirations and domestic realities while universities and researchers adapted to the shifting policy landscape.

At the Ministry and the Council, interviewed civil servants and policymakers demonstrated a thorough understanding of European and global trends in research assessment, ensuring alignment with international best practices while representing the nation's unique interests. The impressive reference lists in the monograph *Lithuanian Science Policy in the European Context* (Daujotis et al., 2002) demonstrate policymakers' deep awareness of prevailing science policymaking when designing and implementing the national PBFS in 2006. This monograph encompasses OECD, UNESCO, and EU recommendations, then-current scientometric research, and various national policies.

### 3.5.1. Shifting the focus to international publications

In the early 2000s, Lithuanian policymakers found themselves at a crossroads (Dagienė et al., 2024). Even though Lithuanian researchers, like those in many developing countries, often published their findings in local journals (Wagner et al., 2001), it was becoming increasingly clear that publications in WoS-indexed journals were the currency of the international scientific community. This was a currency Lithuania sorely lacked (World Bank, 2003), lagging behind the European Union average in research productivity relative to public investment (European Commission, 2001, 2007; Thorn & Mogensen, 2009).

Aware of this situation, policymakers sought to 'make Lithuanian research better' not only by increasing the quantity of publications, but also by improving their quality and impact. The vision was clear: Lithuanian research would be published in the most prestigious, high-impact journals—a goal explicitly stated in policy documents from 2008 and 2017.

Driven by ambition and a desire for rapid results, policymakers crafted a PBFS incentivising research through direct financial rewards tied to annual quantitative research assessments. The centrepiece of this system was a heavy emphasis on journal publications, particularly those in WoS-indexed journals, which received the highest scores and the most state funding.

### 3.5.2. Balancing quality, rigour, and unintended consequences

While the intent behind this policy was clear, its implementation and impact raised important questions due to inconsistencies in its application and potential unintended consequences. Policy analysis reveals a dramatic shift in how Lithuania utilised quantitative metrics to incentivise the highest-quality research. Initially, from 2006 until 2009, no other WoS metrics (apart from indexing) were mentioned in research assessment policies: WoS indexing alone was deemed a sufficient marker of quality, hence articles in WoS journals received the highest scores and the most state funding.

Following the implementation of the PBFS in 2005, most Lithuanian WoS outputs were published in international journals. However, starting around 2009, the unexpected inclusion

of numerous Lithuanian journals in the WoS indexes (Figure 4), combined with their predominantly domestic authorship (Dagienė & Sandström, 2015), forced policymakers to reconsider the PBFS metrics.

Moreover, as newly WoS-indexed Lithuanian journals achieved their first JIFs around 2009, with some even reaching the top quartile of their WoS categories, institutions publishing in their institutional journals received increased funding, which some of the interviewed policymakers and civil servants considered unfair. This prompted them to turn to bibliometric indicators such as the JIF and Aggregate Impact Factor (AIF) to differentiate between high- and low-quality journals.

From 2010 onward, policymakers introduced complex citation thresholds based on both JIF and citation patterns, aiming at further refining the quality threshold for research funding eligibility. The PBFS regulations required eligible papers to be published in journals that not only had a JIF higher than 20% of the AIF of their respective WoS categories, but also more than 20% of their citations coming from journals with JIFs exceeding the AIF of their own categories (Maskeliūnas et al., 2015). As most Lithuanian journals did not meet these stringent criteria, universities were ineligible for state funding for publications in these journals after 2010.

Interviews with policymakers and civil servants revealed that these thresholds were based on a combination of empirical analysis of citation patterns and a desire to encourage researchers to publish in internationally recognised journals. One policymaker, citing an analysis of Lithuanian WoS-indexed journals, noted that '...only *Baltic Astronomy* passed this threshold at that time'. Another policymaker echoed this point, mentioning that they had been inspired by the Leiden Ranking's list of core and non-core journals, which then listed only *Baltic Astronomy* as a core journal. As this policymaker said, they ultimately abandoned using this list as it failed to align with their empirical examination of Lithuanian research outputs: '... too few Lithuanian articles have been published in core journals to apply that list'.

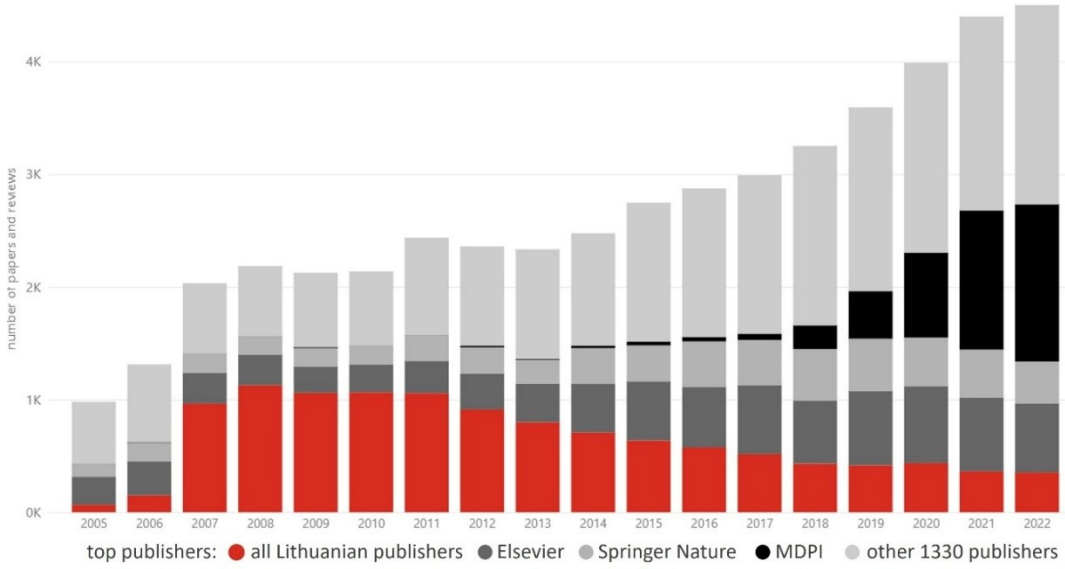


Figure 4. Top publishers of Lithuanian outputs, 2005–2022,
WoS (SCIE, SSCI, A&HCI, ESCI).

The mistrust of domestic journals and the desire for Lithuanian researchers to publish abroad were evident in interviews and even in public statements by civil servants. Some policymakers highlighted mass media articles that exposed questionable practices in university journals, signalling a clear message that institutional strategies needed to change.

### 3.5.3. Responding to public scrutiny and policy pressure

In 2011, while Council experts were assessing institutional submissions, the most popular Lithuanian mass media portal published three critical opinion pieces, targeting the country's three largest universities. These critical pieces, written by a Lithuanian research fellow working at a foreign university, were intended to spark a public scandal and attract the public's attention to unethical strategies.

The first piece (Lašas, 2011a) criticised an institute at the largest Lithuanian university (here termed Univ1) for its lecturers' lack of publications in foreign outlets. Lašas argued that publishing in foreign journals was crucial if the Minister sought to strengthen Lithuanian universities.

The second piece (Lašas, 2011b) targeted the third largest university in Lithuania (Univ3), whose rector had recently boasted of the university's 'extraordinary successes in scientific publishing'. Lašas revealed that Univ3 published 19 journals, six of which were edited by the current and former rectors. He argued that Univ3 had created a 'self-contained publishing machine' that inflated citation metrics through self-citation and other practices, potentially compromising the quality and integrity of Lithuanian research.

The last piece (Lašas, 2011c) focused on similar practices at the second Lithuanian university by size (Univ2). Lašas cited an anonymous source who described the inner workings of this system, revealing a directive instructing faculty to cite specific publications to artificially boost citation metrics. He also called for actions from the President and the Government.

However, even though universities, including Univ2 and Univ3, admitted to manipulation and promised changes (Jackevičius, 2011), no public action was taken by the Government, President, or Ministry. As one policymaker suggested, 'because of university autonomy, no one from outside could tell the university what to do if a university isn't willing to address the issue'.

Despite public scrutiny and criticism, a three-year hiatus (2012–2014) in annual quantitative assessments suggests persistent challenges. This pause likely resulted from policymakers grappling with inflated JIFs in domestic journals, as some interviewees indicated a desire to see institutional publishing practices improve before resuming evaluations. However, a 2014 newspaper article by Darius Čeburnis (2014), another Lithuanian researcher working at a foreign university, revealed that questionable practices continued. Čeburnis detailed how institutional journals were used to artificially inflate publication and citation counts, negatively impacting Lithuania's research standing globally. He emphasised the detrimental effect on honest scientists, whose work was 'drowned in a swamp of low-value outputs'. Although these tactics did not go unnoticed by the Ministry and the Council, leading to the

downgrading of institutional journals in research evaluations, the issue remained a significant concern.

The above-mentioned mass media posts, supposedly authored by potentially members of the Association Futura Scientia, highlighted the potential of diverse actors to influence institutional practices through public scrutiny of unethical behaviours. Founded by Lithuanians who obtained their PhD abroad and primarily work for foreign universities, Futura Scientia actively monitors the nation's research landscape and advocates for reforms to enhance research quality (http://www.futurascientia.lt/en/about-us). Their advocacy, combined with actions taken by the Ministry and the Research Council, creates a dynamic interplay of pressures that can compel institutions to change undesirable publishing strategies.

In response to these issues, the 2015 model of PBFS removed the complex citation requirements of 2010 and 2011, returning to the JIF > 20% AIF criterion. It also introduced a new policy instrument: a special list for journals with artificially inflated citation rates.

### 3.5.4. The suspended journals controversy

In 2015, Lithuania's research evaluation methodology introduced a new mechanism to address concerns about research quality and unethical practices: an annual list of 'suspended' journals whose articles would be omitted from research assessment results and thus from funding point calculations. According to the PBFS policies, these journals were identified based on low quality (JIF lower than 20% of AIF), inflated citation rates, or other questionable practices. Although primarily focused on journals publishing Lithuanian research, the list also included 130 journals from 33 other countries, including journals from well-known publishers such as Springer Nature, Elsevier, and Taylor & Francis. Thus, the assessment criteria were applied to both domestic and international publications authored or co-authored by Lithuanian researchers.

While aiming to improve research quality, the policy's implementation raised concerns due to its inconsistencies. Firstly, our bibliometric analysis revealed that many suspended journals appeared on the list only in one year, with papers in the same journals in other years not facing rejections. Overall, 11 domestic journals had 675 rejected papers from 2012 to 2019. Likewise, 130 foreign journals had 334 rejected papers, and only a few had significant numbers of suspended articles (Figure 5).

Most foreign journals had only one or a few rejected papers, suggesting that issues were often specific to certain publishing countries, specific institutions, or particular authors, rather than reflecting overall journal quality as it was stated in the PBFS policies. Secondly, since the Lithuanian policymakers' quality requirements (JIF > 20% AIF) can be compared with the journals' quartiles in Clarivate's Journal Citation Reports, we analysed in which quartiles suspended journals were at the time of their suspension. Figure 5 shows that journals with volumes in higher quartiles (Q1–Q3), were sometimes suspended, while some journals with lower quartile volumes (Q4) were not, indicating not only inconsistencies but unpredictability as well.

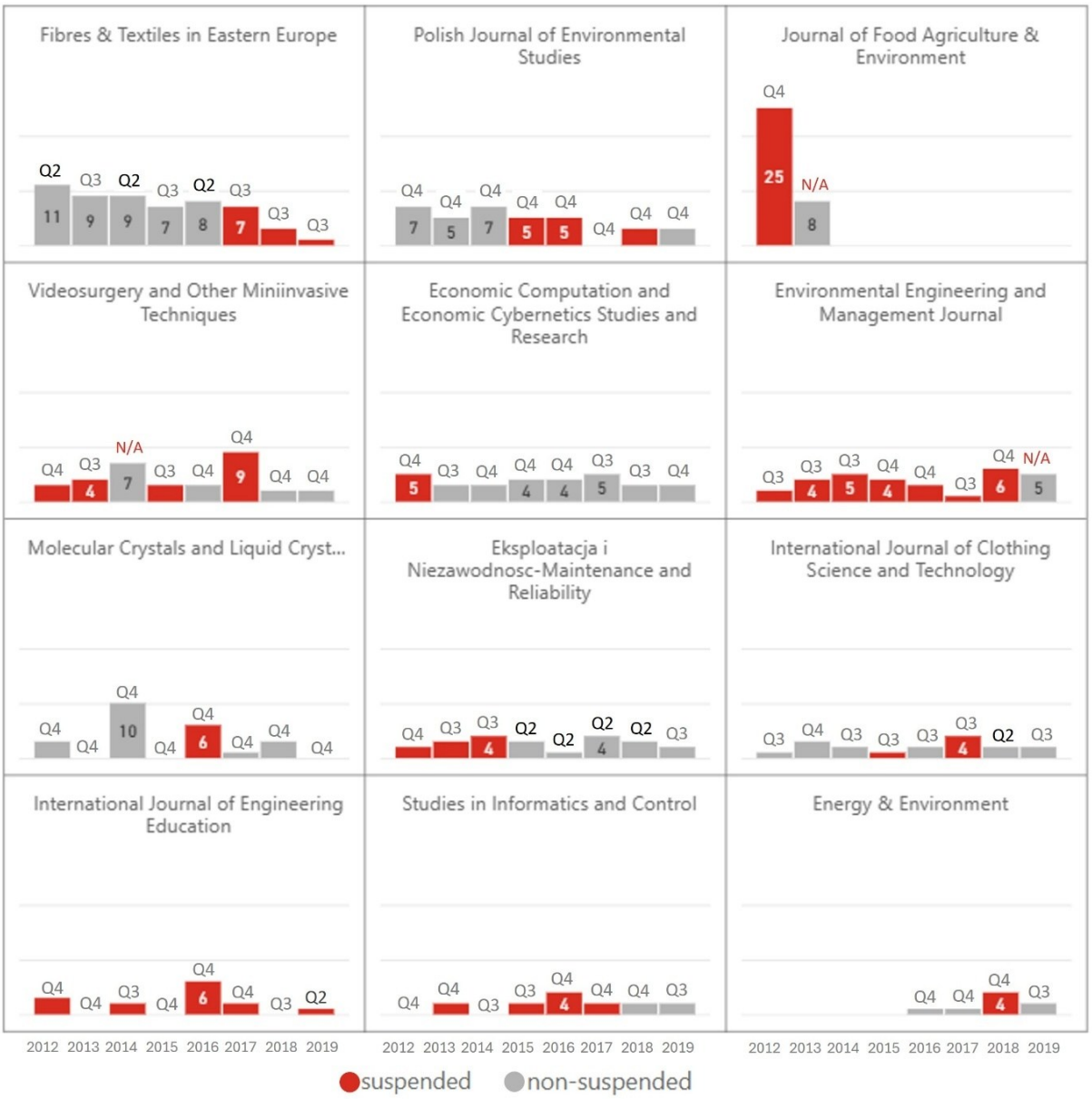


Figure 5. Foreign journals with four or more suspended Lithuanian articles (2012–2019). Red and grey bars denote suspended and non-suspended volumes, respectively.

Within Lithuania, 11 journals—predominantly owned by the largest Lithuanian universities—were included in the list. These domestic journals accounted for two-thirds (2,034) of all Lithuanian articles (2,968) published in suspended journals from 2012 to 2019. The high number of rejected articles in the early years (2012–2015) suggests a concerted effort to address potential country-specific issues within the domestic journal landscape. Yet, as Figure 6 shows, researchers continued to publish in these journals without institutions facing consistent penalties.

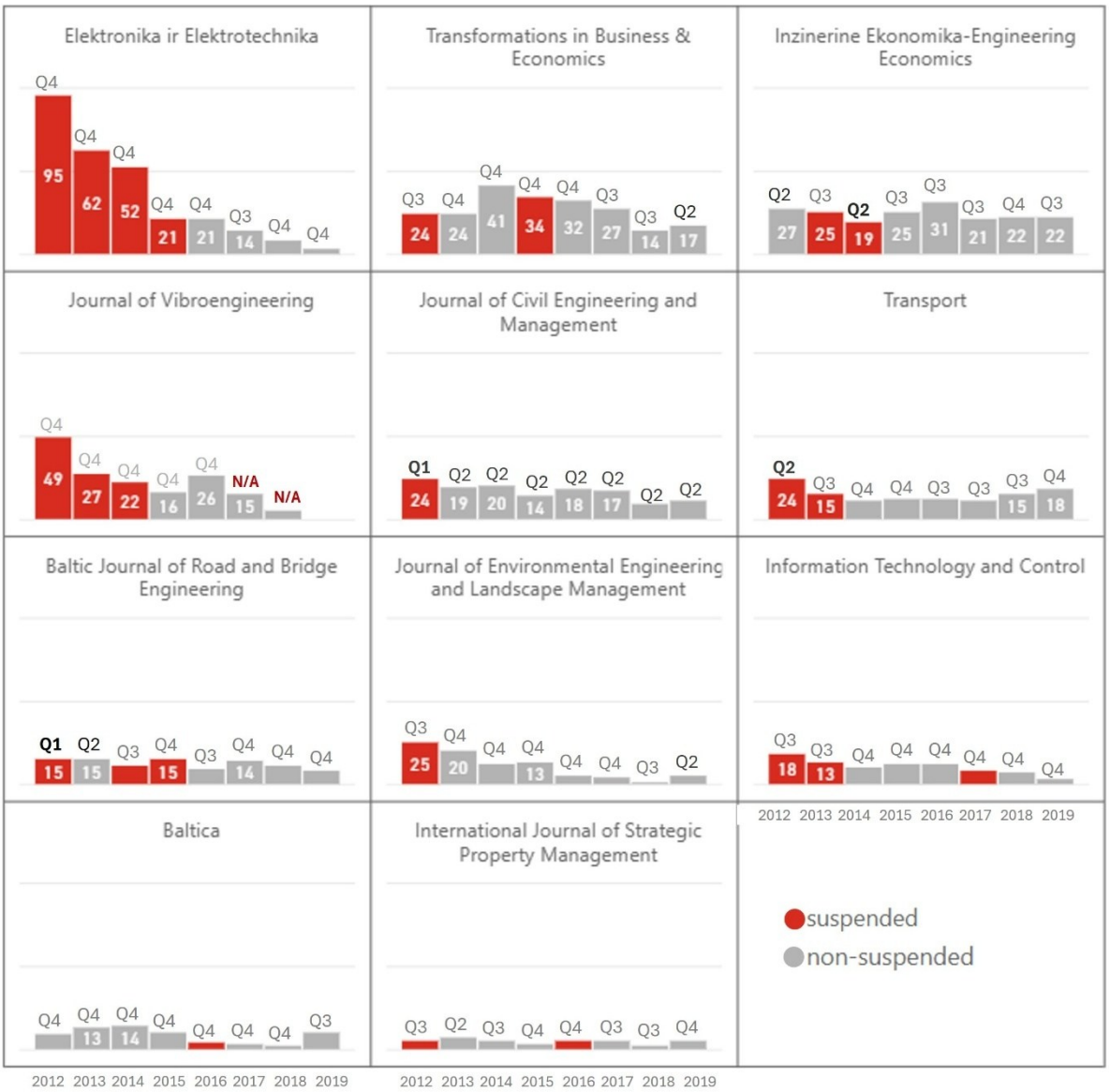


Figure 6. Lithuanian journals with the highest number of suspended Lithuanian articles (2012–2019). Red and grey bars denote suspended and non-suspended volumes, respectively.

Interestingly, nine of the most frequently suspended Lithuanian journals were linked to universities implicated in a 2011 scandal regarding questionable publishing practices, raising questions about a potential connection between the scandal and the subsequent targeting of these journals. This connection underscores the ongoing challenges in maintaining research integrity and the complex interplay between institutional incentives and policy measures.

In a 2016 report following the 2015 assessment (Pečiūra et al., 2016), the Council clarified the two main reasons for journal suspension: (1) inflated citations by the establishment of a citation cartel and (2) low JIFs. They identified ten Lithuanian journals with inflated citations, nine of which also had low JIFs. The report also highlighted that Univ3 had the highest proportion of rejected papers during 2012–2014 (Figure 7).

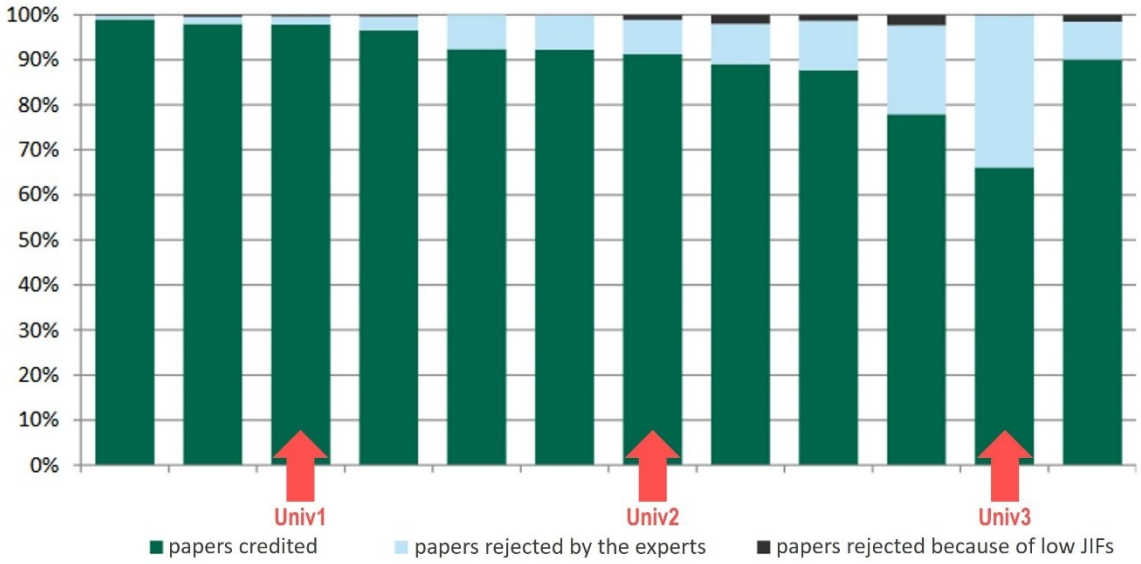


Figure 7. Percentage of credited and rejected papers
by institution in 2012-2014 (Pečiūra et al., 2016).

The suspended journal lists were discontinued in 2020, coinciding with Clarivate's new policy for title suppressions (Clarivate Analytics, 2023). However, the journal suspension procedure remains in the latest regulations, leaving the door open for potential future reinstatement. These findings raise important questions about the effectiveness of the suspended journal lists and their impact on the Lithuanian research landscape.

With a clearer understanding of the policymakers' perspectives and actions, we now turn our attention to the universities and their responses to the evolving PBFS landscape.

## 3.6. Evolving university strategies in the PBFS landscape

While policymakers grappled with the challenges of aligning national research goals with international standards, universities and research institutions were also actively adapting their strategies to navigate the evolving PBFS landscape. This section delves into the diverse institutional responses and their implications for the broader research landscape.

### 3.6.1. Institutional responses to policy changes

The introduction of journal suspensions in 2015, a policy measure aimed at addressing concerns about research quality and unethical practices, reverberated throughout Lithuania's academic institutions, with every university and research institution experiencing dozens if not hundreds of rejected publications. While other institutions were less affected, Univ2 (357), Univ3 (310), and Univ1 (152) experienced the most rejections, suggesting a disproportionate impact of the policy instrument on the biggest universities (Figure 8).

A closer look at Figure 8 reveals that the policy predominantly targeted institutional journals, with the majority of Univ2's and Univ3's rejected papers published in Univ2 and Univ3 journals, respectively. Interestingly, the presence of black and blue bars in both the Univ3 and

Univ2 plots indicates cross-publishing between these institutions, with Univ3 researchers publishing more frequently in Univ2 journals than vice-versa. Notably, the *Journal of Vibroengineering*, independently published by a Lithuanian academic affiliated with Univ2, also saw papers rejected from both institutions.

This focus on institutional journals, according to research administrators, may have stemmed from the fact that Univ2 and Univ3 had the largest number of WoS-indexed journals at the time, potentially creating a perceived disadvantage for other institutions that also published in their own journals but lacked WoS indexing (and avoided suspensions). Despite this potential bias, the declining trend in rejected papers across all institutions over time suggests that the policy may have had a broader impact on publication choices beyond simply penalising certain institutions.

Further bibliometric analysis demonstrates that, despite a declining trend in rejections, researchers continued to publish in suspended journals with three leading universities (Figure 9): Univ3 with 835 articles (310 rejected vs 525 credited), Univ2 with 742 papers (357 vs 385), and Univ1 with 391 papers (152 vs 239) in suspended journals. However, the degree to which they persisted varied across institutions: Univ3 and Univ1 only slightly decreased their publication numbers, while Univ2 significantly reduced theirs. This persistence, however, did not apply to the remaining institutions, which had insignificant numbers of articles in suspended journals. Because the suspension policy was unpredictable (akin to a 'lottery'), institutions often submitted all papers for PBFS evaluation, regardless of journal suspension status, while simultaneously encouraging their researchers to seek out publication venues abroad that were less likely to be suspended.

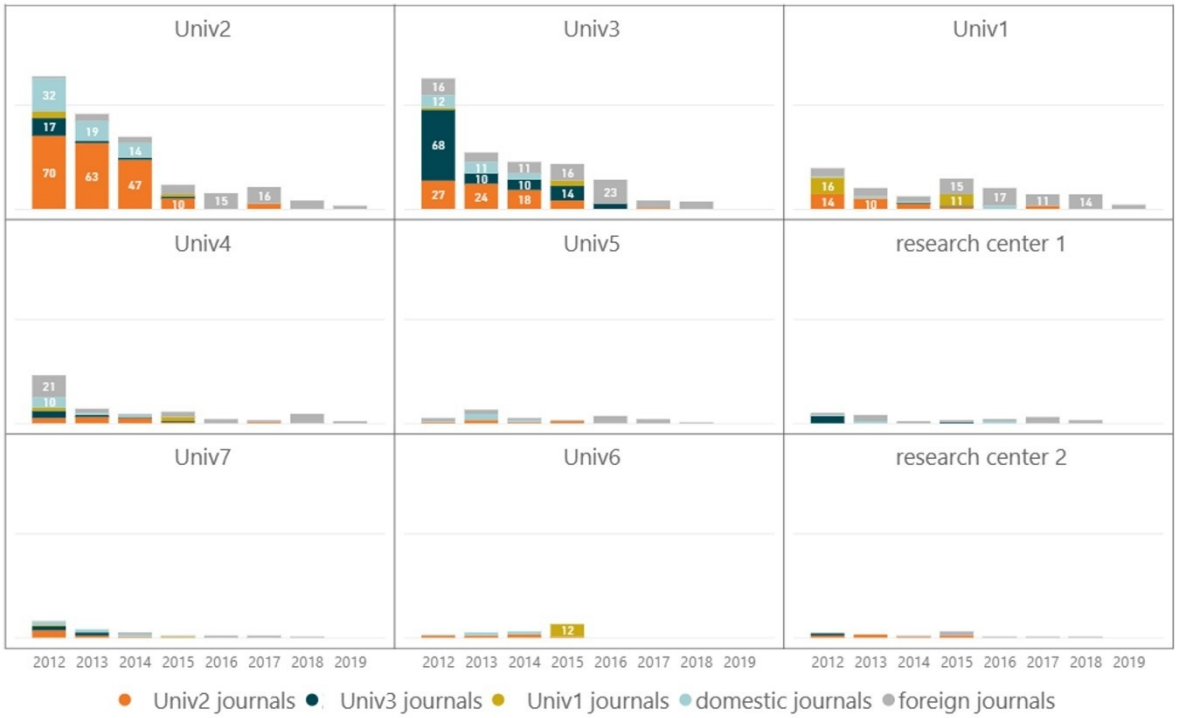


Figure 8. Number of rejected papers by journal publisher for institutions with the highest cumulative numbers of rejected papers (2012–2019).

Institutional strategies extended beyond research itself, encompassing the publication of peer-reviewed journals and the elevation of senior scholars to powerful gatekeeping roles as editors-in-chief (EICs). For journals published by Univ3, for instance, the position of EIC was exclusively reserved for influential senior researchers from Univ3. While public sources (Lašas, 2011-07-25) highlighted that the rector edited three institutional journals and the former rector oversaw three more, interviews revealed a broader influence. The former rector reportedly 'patronised' all institutional journals at Univ3, along with a few at Univ2 and Univ1. At the time, deans at Univ3 also managed one or two journals each in their respective fields.

The hierarchical culture of the university authorities becoming the EICs of journals published by the university was less pronounced at Univ1 and Univ2, but even there, only senior researchers close to the university rectors, vice-rectors, or deans typically ascended to EIC roles. This practice persists in some Lithuanian universities today, where EICs and often entire editorial boards are appointed by university senates, precluding ordinary (non-influential) researchers from assuming journal leadership positions. Nevertheless, addressing the publicly expressed concerns about institutional journals and their EICs, some institutions took action and the EICs either stopped publishing in the journals they edited or formally stepped down, allowing other institutional researchers to become EICs. Other institutions simply appointed editors' close colleagues to these gatekeeping positions at institutional journals.

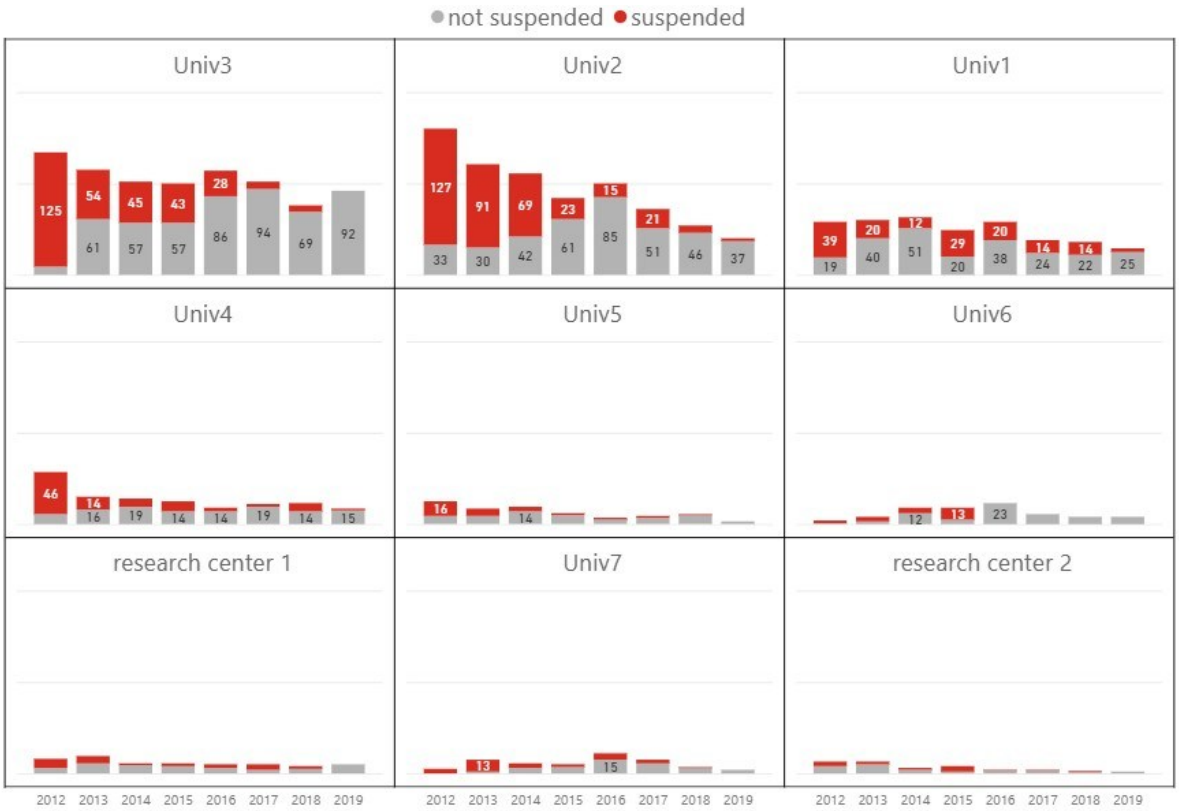


Figure 9. Institutions with the most papers in suspended journals (2012–2019). Articles in suspended volumes in red, those in non-suspended volumes in grey.

University authorities explained in interviews that the pressure to expand institutional journal publishing stemmed from several intertwined factors, primarily the PBFS, which from 2006 to 2018 allocated 100% of state funding for research, with publications accounting for 55% (sciences) to 80% (social sciences and humanities) of this funding in 2012–2018 (Paliokaitė et al., 2015; Zacharewicz et al., 2019). Launching and publishing institutional journals became crucial for institutional survival. With the implementation of the journal suspension policy in 2015, each rejected article from an institutional journal represented a substantial financial loss, prompting the adjustment of institutional strategies.

Concurrently, as policymakers publicly emphasised the internationalisation of Lithuanian research through publishing in foreign journals, universities publishing their journals actively sought out collaborations with 'friendly' journals in countries such as Poland, Romania, and the Czech Republic, often through reciprocal publication agreements. Institutional journals, in turn, became valuable assets for establishing these international partnerships, as they offered a platform for collaboration and exchange with foreign universities, particularly those in post-Soviet countries where politicians also aimed to boost international publications.

*Medicina*, a never-suspended journal owned by a Lithuanian university and not yet mentioned, offers a noteworthy example of an institution successfully adapting the publishing strategy of one of its journals to the changing policy landscape. After joining WoS, *Medicina* partnered with Elsevier, receiving its first JIF in 2014 and improving its ranking from Q4 to Q3 in 2018. A subsequent partnership with MDPI further boosted its JIF (Q2 in 2020) and publication numbers (from 109 articles in 2018 to 1840 in 2022, according to Clarivate's Journal Citation Reports).

Another interesting case is provided by the *Baltic Journal of Road and Bridge Engineering*, published by Univ3 and implicated by policymakers in a citation cartel. The journal was suspended three times, in 2012 (then a Q1 journal), 2014 (Q3), and 2015 (Q4). In 2018, the journal was transferred from Univ3 to a university in close proximity, possibly in an attempt to escape the media criticism and fluctuations in national research assessments associated with the suspensions of Univ3 journals. Some Univ3 authors continued to publish in the journal, even though this probably did not offer them the level of recognition they would get from publishing in top-tier international journals.

Finally, the interviewed research administrators also proudly pointed to a way to increase foreign authorship in institutional journals: organising international conferences and suggesting institutional journals as outlets for the best conference papers. Research administrators noted that some new journals emerged from the proceedings of regularly held conferences, a practice that warrants further investigation to fully understand its impact on institutional publishing strategies and the broader research landscape.

### 3.6.2. Researchers' responses to policy changes

While institutions adapted their strategies, individual researchers also faced challenges and developed their own responses to the policy changes. Our bibliometric analysis identified 4,891 unique authors (both Lithuanian and foreign) on Lithuanian papers published in journals

that appeared on the suspended lists between 2012 and 2019. Of these, over half (2,612) were likely unaffected by the suspensions, having published only in non-suspended volumes. The remaining 2,279 authors had at least one paper in suspended volumes, with 1,296 having published exclusively in suspended volumes and 983 in both suspended and non-suspended volumes.

Among the 2,279 authors directly affected by the policy, 1,609 had only one paper in a suspended volume, 384 had two rejected papers, and 272 had three to eight rejected papers. This suggests a limited individual impact, reinforced by the fact that nearly a thousand researchers continued publishing in once-suspended journals. Interviews with researchers suggest this persistence is due to the crucial role of WoS publications in their academic careers. In Lithuania, WoS publications are essential for doctoral defences, promotions to professorship, maintaining minimum qualifications, and participating in expert evaluations and competitive funding programs. Since academic advancement often depends on the number of WoS publications and is managed by institutions that have not yet integrated these unpredictable suspension policies into their regulations, many researchers were relatively unconcerned about the policy's potential impact on their careers.

Importantly, some interviewed scientists mentioned that highly productive researchers often facilitate the career advancement of colleagues through co-authorship opportunities and professional networks. They can offer collaborations, mentorship, and access to publication venues, particularly if they hold editorial positions. This can be especially helpful for less productive colleagues seeking tenure or promotion. These prolific authors also benefit research administrators by contributing to the university's overall research output and reputation in various rankings. However, the extent and impact of these practices warrant further investigation.

Notably, a micro-level bibliometric analysis identified 13 Lithuanian researchers from the three largest universities with more than eight—in one case, as many as 32—rejected articles in the period 2012–2019. However, some of these researchers still contributed significantly to their institutional outputs by having twice as many non-rejected articles in the suspended journals during 2012–2019. The following subsection demonstrates how the most suspended researchers adjusted their publishing behaviour before and after the journal suspension policy was introduced.

## 3.7. Case studies of researcher responses

Almost all researchers with more than eight articles rejected due to journal suspensions were affiliated with Lithuania's three largest universities: Univ3 (2 individuals / 46 rejections), Univ2 (8/66), and Univ1 (2/24). We now take a more detailed look at these researchers to gain further insight into their experiences and responses to the journal suspension policy.

### 3.7.1. Univ3 case

Univ3 is home to the two authors with the most rejected papers: Author111 (32 of 111 papers) and Author39 (14 of 39). Author111, a former rector at Univ3, published across 18 journals

(five owned by Univ3, where he served as EIC for three) in business and economics, engineering, computer science, and other disciplines. The two authors co-authored 11 of their rejected papers and were both recognised as Highly Cited Researchers by Clarivate.

Media scrutiny and the suspension policy may have led Author111 to resign as EIC from one and later from all three journals, yet he remains listed as the founding editor and deputy editor of these journals in economics, management, and engineering. His frequent co-author, Author39, now leads one of these journals. This suggests a strategic shift to maintain influence within the publication landscape while adhering to the new policies.

Author111's papers have 166 co-authors, most of whom are from Iranian universities and thus unaffected by the suspension. Among these co-authors, 115 appeared only in non-rejected articles, 25 in both rejected and non-rejected articles, and 26 exclusively in rejected articles. This latter group includes the rector of Univ3. These figures suggest Author111 played a significant role in facilitating publication for a range of researchers, including high-ranking officials. Since 2019, Author111 has shifted focus towards international journals, for instance published by MDPI (52 articles), Elsevier (23), and Springer Nature (14), while maintaining a smaller presence (11 articles) in Univ3 journals.

Policymakers and interviewees from other universities described Author111 as influential at Univ3 despite negative perceptions of the institution. The rejection of Author111's articles co-authored with the Univ3 rector or with EICs of other university journals, along with other rejections involving vice-rectors or deans and published in Univ3 journals, suggests that the Council experts may have targeted high-ranking officials publishing in institutional journals.

This Univ3 case highlights the broader systemic effects of state-level policy interventions and the difficulty of overcoming existing power structures at institutions.

### 3.7.2. Univ2 case

Between 2012 and 2019, eight Univ2 researchers published a total of 85 papers in suspended journals, of which 66 were rejected. These articles were exclusively in Univ2's institutional journals. Two groups of researchers can be distinguished. The first group consists of six less productive authors in engineering disciplines. They primarily published in institutional journals, both before and after the suspension, with a recent shift towards MDPI journals. The second group comprises two highly productive authors in computer science and engineering. After their papers in domestic journals were rejected, they shifted their focus to international journals. Despite having no co-authored papers in the suspended journals, these two authors have co-authored 114 papers since 2019, focusing on journals published by MDPI, Springer Nature, and Elsevier. Notably, one of the authors has a total of 167 papers in MDPI journals.

The reasons behind these differing responses to the suspension policy remain unclear. The continued publication in domestic journals by the less productive authors might be attributed to fulfilling academic requirements or career advancement needs, particularly as all six are currently professors. In contrast, the highly productive authors strategically shifted to international venues, thereby maintaining their publication records and contributing to the

increase in Lithuanian papers in international journals. The divergent paths taken by the two groups of authors suggest a lack of a clear institutional policy in response to the suspensions.

The Univ2 case highlights the importance of understanding individual-level responses to state-level interventions when aiming for effective policy implementation.

### 3.7.3. Univ1 case

Univ1 is represented by two researchers with distinct publication patterns. The first researcher, working in business and economics, has 54 papers (10 rejected) across six suspended journals. He also has numerous affiliations and serves as EIC of a Univ1 journal. This researcher ceased publishing in the Univ1 journal after 2017 but maintained his editorial position. This shift may reflect efforts to address concerns about publication practices. Since 2019, this researcher has focused on publishing in MDPI (81 papers), Elsevier (74), Wiley (25), and Springer Nature (18) journals.

The second researcher, working in the medical sciences, has 17 papers in suspended journals. 13 papers in one journal were rejected, and one paper in another journal was rejected. Since 2019, this researcher has published predominantly in MDPI journals (37), including ten articles in the Lithuanian journal *Medicina* discussed in subsection 3.6.1.

This Univ1 case highlights the importance of considering contextual factors such as disciplines, researchers' productivity, and their ability to publish abroad as well as their EIC positions when evaluating the impact of policy interventions on individual-level publishing strategies.

The three cases discussed in subsection 3.6.3 reveal that researchers' responses to journal suspensions are not uniform and may, for instance, depend on disciplinary norms and researchers' productivity. While some researchers strategically shifted to international venues, others continued to rely on suspended journals, with their motivations and institutional policies remaining unclear.

## 3.8. Discussion and conclusions

This study reveals the dominant role of scientific elites in shaping the Lithuanian PBFS from 2005 to 2022, both through their direct influence and through the institutional strategies they promote. The policy dynamics we have studied encompass multiple levels of governmental, institutional, and individual action; diverse participants such as politicians, civil servants, university authorities, scientific elites, and non-state actors influencing the development of the PBFS; and multiple interdependent issues including the conflict between state and institutional goals, the variety of research assessment instruments, and the prioritisation of quantitative indicators. Our empirical findings offer detailed insights into the policy dynamics through which the quantitative bibliometric-based PBFS developed over a seventeen-year period, enriching our understanding of the complex policy processes at play. Moreover, they contribute to the evolution of theoretical frameworks for policymaking within the public science system.

The evolution of the Lithuanian PBFS can be understood in terms of *multi-level*, *multi-actor*, and *multi-issue* dynamics. As our findings show, *multi-level governance*—state, institutional, and individual—played a significant role in the development of the Lithuanian PBFS, which aimed to improve research quality and accountability. The Ministry, often led by elected researchers, held the formal power to set policy and funding formulas. However, the Council, primarily composed of scientific elites, wielded significant influence in implementing and shaping these policies through their expertise and advisory role. Universities, driven by the incentive to secure state funding, also actively participated in shaping the PBFS. They strategically published their own journals, appealed unfavourable requirements, and influenced policy through collective advocacy.

Moreover, examining *multi-actor involvement* reveals that scientific elites wielded significant power at all levels of governance within the Lithuanian PBFS. They held key positions in the Ministry, the Council, and the universities. Through all of these, they exerted political influence, leading them to act on every level of governance. Scientific elites sought and obtained the involvement of actors from outside Lithuanian academia, such as the President of Lithuania and members of the parliament, to settle a dispute over research evaluation in the Constitutional Court (Dagienė et al., 2024). Furthermore, some of them employed questionable strategies to compete for research funding, attracting the attention of independent researchers and leading to public scrutiny—and ultimately to the journal suspension policy. As our results show, with the journal suspension instrument policymakers primarily targeted domestic journals, exceptionally prolific authors, and university authorities. The behaviour of scientific elites across all levels of governance has been instrumental in shaping PBFS models and performance metrics, contributing to the multiple issues within the PBFS.

Additionally, *multiple interdependent issues* stemmed, firstly, from the clash between the PBFS goal of promoting quality and internationalisation and the institutional imperative to maximise state funding. This conflict bore unintended consequences, such as the proliferation of institutional WoS-indexed journals and strategic publication practices aimed at gaming the system. The journal suspension policy, introduced to address both issues, further illustrates their interdependence. While intended to improve research quality, the suspension policy's unpredictable implementation and disproportionate impact on domestic journals created new challenges of its own. Consequently, Lithuanian researchers shifted towards potentially controversial journals published by MDPI (Oviedo-García, 2021; Stefenelli, 2021), raising questions about the actual improvement in research quality.

Overall, our findings highlight the limited power of the Ministry-level governance to influence institutional practices due to university autonomy, underscoring the complex interplay between state-level policy and institutional-level responses. After years of relying on quantitative formulas and bibliometric assessment, the Ministry successfully (even though with resistance) piloted a UK-like peer-review PBFS model in 2014 (Arnold & Angelis, 2014). However, after the introduction of the state funding 60/40 split between peer-review and metrics-based PBFS models in 2018, the scientific elites once again challenged the Ministry in the Constitutional Court (Constitutional Court, 2020). The legal challenges following almost every major change in research assessment policies led to the 'legitimate expectations'

principle often mentioned by interviewed policymakers, creating a risk-averse and potentially stagnant policy environment and hindering flexibility in the Lithuanian research assessment landscape.

All in all, the evolution of the Lithuanian PBFS serves as a cautionary tale, demonstrating the potential pitfalls of a research assessment system dominated by a single group of interested actors (scientific elites) acting at every level of governance. Although scientific elites possess invaluable expertise, their influence has resulted in undesirable outcomes: proliferation of institutional journals, questionable publishing behaviour, and a cautionary policymaking environment. To overcome these undesirable outcomes, the policymaking landscape requires not only expertise but also the active participation of diverse stakeholders, including independent researchers and citizens. As a small country with such a rich policymaking experience, Lithuania has the potential to develop its own approach, in alignment with international best practices.

## Data availability

This paper is based on three types of data – Lithuanian research assessment policies, interviews with Lithuanian policymakers and scholars, and WoS bibliometric data. The Lithuanian research assessment policies are freely available in the Register of Legal Acts managed by the Office of the Seimas of the Republic of Lithuania (see https://www.e-tar.lt/portal/en/index). We promised the interviewees that they will remain anonymous, so the interview data is unavailable. The WoS data is of a proprietary nature and therefore cannot be shared. Accessing the data requires a WoS subscription.