Quantitative research assessment and its unintended consequences

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Chapter 2.
Multi-actor policy dynamics in research evaluation: Experts, databases, and academics

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2.1. Introduction

When Lithuania regained independence in 1990, its academic community was largely isolated and geared towards Soviet patrons (Allik 2003; Želvys 2003). A decade later, Lithuanian universities had substantial autonomy and a quite elaborate bureaucratic structure of science policymaking. In the meantime, Lithuanian higher education policies had undergone intense development, with internationalisation as a primary goal (Greblikaitė, Barynienė, and Paužaitė 2015; Urbanovič and Wilkins 2013). This push led to the adoption of quantitative research assessment, specifically author- and journal-based metrics, to drive decisions about research funding, recruitment, and promotion.

With its emergent focus on internationalisation and quantitative research assessment, Lithuania was part of a global development in which national governments fostered international cooperation to strengthen their research systems (Crăciun and Orosz 2018). The Lithuanian reform process, though not linear, was underway. It ignited complex policy dynamics between actors within and outside the science system, caught between Soviet academic traditions and new public management ideas (Leišytė and Kiznienė 2006). By examining how these multi-actor dynamics unfold over a longer timeframe, this paper aims to understand the resulting developments in the conduct, publication, and assessment of research.

In the various subfields of research on research—e.g., sociology of science, science policy literature, and scientometrics—longer-term multi-actor dynamics do not always obtain the empirical attention they deserve. Sociologists of science, for instance, tend to examine the centralised management of knowledge production and university governance. They perceive the science system as state- and employer-dominated, with a focus on state agencies shaping policies, funding research, and driving university changes (Whitley and Gläser 2014; Whitley, Gläser, and Engwall 2010; Whitley, Gläser, and Laudel 2007). When sociologists do study relations among multiple actors, they favour a more unidirectional approach—as in the influence of science governance arrangements on the production of knowledge—over a dynamic one (Gläser 2019; Gläser and Laudel 2016).

Science policy literature understand science policymaking in terms of delegation (Rip and Meulen 1996). In an economics-infused understanding of science policy, one actor group is referred to as the 'principal' (usually the government), who then delegates to 'agents' (usually researchers) a 'task'—say, publishing scientific articles in high-ranked international journals—they must accomplish to meet the principal's demand (Borrás and Edquist 2013; Braun 2003; Potì and Reale 2007). While there is much to gain from these studies, the emphasis on delegation makes it challenging to understand dynamic science policy processes where multiple actor groups interact, and where the definition of an academic task is exactly what is at stake.

In scientometrics, finally, methodological discussions on indicator development tend to trump multi-actor policy dynamics. The scientometric literature on internationalisation, for instance, offers rich discussions on bibliometric indicators for international cooperation (van den Besselaar et al. 2012; Kehm and Teichler 2007; Robinson-Garcia and Ràfols 2020). Many

studies point out that indicators used in the (political) assessment of research are complicated (Wilsdon et al. 2015; Wouters 1997; Wouters et al. 2015), even problematic, measures to capture internationalisation (Gazni, Sugimoto, and Didegah 2012; Katz and Martin 1997; Wagner et al. 2001; Wagner, Park, and Leydesdorff 2015). While methodologically sophisticated, the scientometric literature is only loosely connected to real-world science policy.

Due to the emphasis on single organisational units, delegation, and indicator methodology, there is relatively little systematic social scientific research on the policy dynamics through which quantitative performance indicators are developed, used, contested, and altered over time. To make up for that lacuna, this paper draws its methods from literature on multi-actor policy dynamics beyond the domain of higher education. This literature includes, among others, the Advocacy Coalition Framework, which traces how different actor groups interact and to what consequence for public policymaking (Sabatier 1988; Sabatier and Weible 2007), and the Multiple Streams Framework, which aims to understand policy processes with a particular focus on the process of agenda-setting (Guidara 2021; Knaggård 2015; Zahariadis 2007).

In line with these frameworks, we specify four actor groups that are pivotal to understanding Lithuanian policymaking processes in higher education: science policymakers, research assessment experts, publication data providers and academic researchers. We identify three distinct multi-actor dynamics relevant for the development of Lithuanian science policy (Figure 1). First, we discern an expert dynamic between domestic policymakers and international research assessment experts. Here, we focus on the attempt of national policymakers to actively translate international standards of excellence, brought in by international expert judgement, to new domestic contexts. Second, we elaborate on a database dynamic among science policymakers, publication data providers and journal editors and publishers. The dependency of science policymakers on publication databases and journal publishers for quantitative assessment creates a dynamic on its own. Finally, we study an academic dynamic in which policymakers and researchers at universities respond to one another. That is, researchers are not passive recipients of policy changes but vocally problematise and challenge the bibliometric assessment of their work.

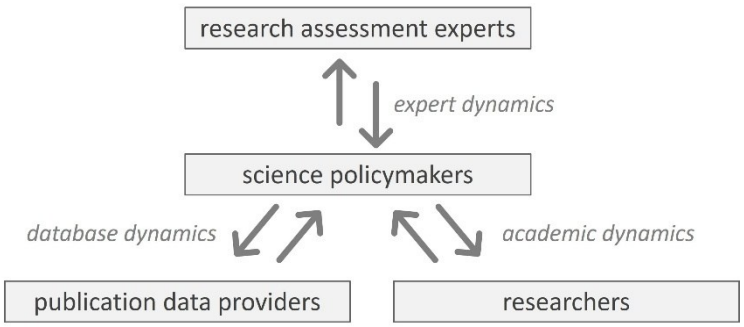

Figure 1. Three multi-actor dynamics in science policymaking.

Within the context of these dynamics, we empirically trace longer-term developments in the Lithuanian science policy agenda. For reasons of feasibility, we focus on the first phase of quantitative assessment between 1996 and 2008, showing where the policy push for quantitative research assessment originated and how it developed over time through interaction between science policymakers and the other three actor groups. While we concentrate on a particular period in the development of Lithuanian science policy, our findings can provide insight for understanding developments in metrics-based research assessment more generally—for instance, in ongoing developments related to the Coalition for Advancing Research Assessment (CoARA), established by the European Commission together with the European University Association and Science Europe in 2022.

2.2. Data sources and methods

We employed a mixed-methods approach to analyse dynamics within the science system as the formal system for producing, evaluating and coordinating scientific knowledge (Gläser and Laudel 2016). We used data from a range of sources: policy documents, bibliometric data, semi-structured interviews, and relevant grey literature on Lithuanian research and research assessment. Below we discuss these data sources in more detail.

2.2.1. Lithuanian documents on research assessments

We started by analysing Lithuanian regulations, decrees, and policies on research assessment. These policy documents set criteria for evaluation of Lithuanian researchers, universities, and research institutions; the results of those assessments substantially influence researchers' advancement in academia and the allocation of institutional research funding by the government. After examining legal acts, we identified four types of national-level resolutions relevant to different research assessments:

1. The Law on Higher Education and Research.
2. Policy documents on the doctorate process, scientific degrees (PhD, Doctor Habilitatus), and pedagogical titles.
3. Regulatory documents on minimum qualification requirements and salaries of researchers and lecturers employed at state academic institutions.
4. Regulations of the Performance-Based Funding System used to allocate state funding for institutions.

The text of these statutes and regulations is freely available in the Register of Legal Acts managed by the Office of the Seimas of the Republic of Lithuania; however, the majority of them are in Lithuanian only (see https://www.e-tar.lt/portal/en/index).

2.2.2. Bibliometric analysis

The Lithuanian research assessment regulations sought to incentivize Lithuanian researchers to publish in international journals, thereby gaining better visibility for Lithuanian research. The most valued outputs were papers published in journals indexed by the Web of Science (WoS) databases. Hence, to oversee the results Lithuania achieved between 1996 and 2008,

we collected the number of articles and reviews with at least one coauthor affiliated with any Lithuanian institution from the CWTS in-house version of the WoS databases: the Science Citation Index Expanded (SCIE), the Social Sciences Citation Index (SSCI), and the Arts and Humanities Citation Index (A&HCI). To better understand the introduction and development of quantitative performance indicators, we also conducted a wide range of semi-structured interviews with politicians, civil servants, and researchers.

2.2.3. Semi-structured interviews

We conducted fifty-seven face-to-face or Teams interviews, about 60 minutes each, in Lithuanian and English from July 2019 to September 2023. All conversations were audio-recorded. Verbatim transcriptions of Lithuanian-language records were translated into English and coded first thematically, then analytically using the software Atlas.ti. We sought further explanations via emails or follow-up meetings if clarifications to emerging categories were needed. Figure 2 provides a detailed breakdown of interviewees, along with their institutional positions and organisational affiliations.

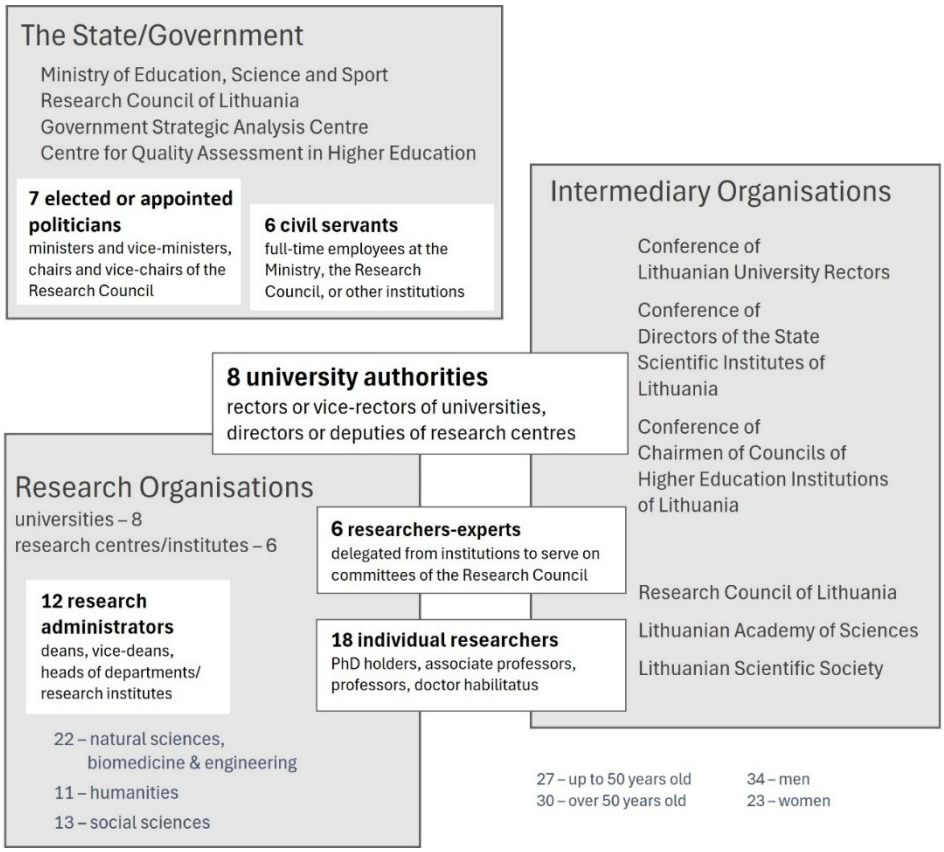

Figure 2. Composition of interviewees.

We categorised respondents into three main groups, building on public science systems research that highlights the different roles played by different actors. Policymakers (13 participants), the first group, comprise national-level politicians and civil servants, including those in government institutions. Our analysis revealed that this group also encompasses the

chairs and vice-chairs of the Research Council of Lithuania, who, despite their formal mediating role, often aligned with the state's perspective.

Scientific elites (32 participants) are those who, as highlighted by Whitley and Gläser (2014) and Whitley et al. (2010), possess both academic authority in their fields and institutional authority in science policymaking. This group includes academics serving on three expert committees within the Research Council: Humanities and Social Sciences; Natural and Technical Sciences; and Science and Studies Policy. It also extends to academics holding leadership positions within universities and research centres as well as representing their institutions at the Conferences of Lithuanian University Rectors and similar associations. While not policymakers in the strictest sense, their involvement in those intermediary organisations grants them a voice in political discourse and a collective agency to shape science policy, as described by Rip and Meulen (1996) and Henriques and Larédo (2013). Finally, academics (12 participants) are those involved in policymaking within their own institutions (universities and research centres), indirectly contributing to the development of Lithuanian research assessment policies.

The semi-structured interviews we conducted were designed to allow interviewees to elaborate on aspects of research evaluation they considered most important, appealing, or problematic. Sensitive to the different categories of interviewees, we asked respondents to share their expectations in setting research assessment rules (e.g., policymakers) and their experiences with implementing newly introduced requirements (all). The interviewees offered insights into why indicators of internationalisation were demanded and explained the logic behind the national and institutional policies that pushed researchers to publish with prestigious publishers and in the most reputable WoS-indexed journals. We promised the interviewees anonymity to enable them to share beliefs, justifications, and interpretations of situations openly.

2.2.4. Additional rulings and grey literature

We also investigated documents whose relevance became apparent when legal acts and interviews were analysed, such as the rulings of the Constitutional Court of Lithuania, reports prepared by foreign experts, and social media records related to discovered facts or information provided.

2.3. The expert dynamic: Introducing international standards of excellence in research evaluation

Policymakers, upon Lithuania's independence in 1990, sought to reorganise the entire Soviet-era science system. In the decade following initial academic reforms, Lithuanian policymakers revealed greater ambitions: successfully integrating researchers into European and global scientific knowledge production. Many Lithuanian politicians maintained a public stance that "national science doesn't exist, so internationalisation is our priority," attesting to the desire to become part of the international scientific community. Nurturing such ambitions, politicians and civil servants began to implement international practices in Lithuania.

2.3.1. Trying out qualitative evaluation from within

The first national research assessment in Lithuania took place in 1994. Policymakers intended to present the results to the government as a basis for funding allocation. As one politician explained, "Before then, the state funds for higher education and research institutions were distributed under unclear principles ... interested parties, such as state-funded institutions [universities and research centres], used to meet together and start such a tug-of-war." To develop new funding principles, the Lithuanian academic community was tasked with leading the first research assessment in January 1994 (Daujotis et al. 2002, 177). First, faculties and institutions were asked to prepare self-analysis reports. Two groups of local expert panels (peer committees) worked in parallel to evaluate the same research units and their outputs—papers, patents, and industry-academia cooperation—submitted by the institutions. The panels obtained disparate results. As one civil servant mentioned, "These chosen indicators corresponded with globally recognised measures of excellence, but our academics at that time lacked understanding of research papers." Most submitted articles had been published in domestic journals, some in the Soviet Union, and only a few in Western periodicals (Daujotis et al., 2002, 176–177).

More importantly, isolation from the West under the Soviet regime profoundly affected the culture of research assessment: the higher the academic rank of authors, the better local experts scored the authors' publications. This culture complicated Lithuanian policymakers' attempts to apply procedures, criteria, and outputs accepted by the Western scientific community. Even when expert groups working in parallel reached the same conclusion about the quality of submitted works, policymakers considered results in some disciplines unreliable simply because of the variety of output types institutions submitted for evaluation; institutions which reported everything from newspaper articles to items in domestic magazines, but no formal scholarly papers, outscored those submitting only scholarly literature (Daujotis et al., 2002, 178).

The unsatisfactory dynamics between science policymakers and national expert groups led the former to conclude that calling on people "from within" the national academic community was ineffective. After national-level consultation and research evaluation had failed, an "outside" perspective was needed to get things going. As one politician put it: "It was necessary to restructure that old science system. Everything required a specific look from the outside."

2.3.2. Inviting foreign expert judgement

Lithuanian policymakers sought this "look from the outside" in three ways. First, they decided to follow the lead of Latvia and Estonia, who, themselves newly independent, asked the Danish and Swedish research councils to evaluate their respective research systems. In 1995, Lithuanian policymakers brought in experts from the Norwegian Research Council for an external assessment. Second, that same year, Lithuania applied for EU membership. In so doing, Lithuanian policymakers began to engage with European policymakers to provide information on their national research system and its development. Finally, Lithuania's recently gained independence brought policymakers into contact with World Bank experts.

Foreign expert reports all reached a similar conclusion. The Norwegian experts pointed to a feature of Lithuanian researchers' publication practices they deemed problematic: "Too few research results are published in languages that allow communication with international academic communities. This hampers an international peer review of Lithuanian research" (Research Council of Norway 1996, 18). In line with that verdict, the Norwegian experts argued that important measures were needed "to increase international contacts and cooperation substantially through publishing in international, peer-reviewed journals (when appropriate)" (ibid., 29). In a similar vein, EU policymakers (Daujotis et al., 2002, 169) and World Bank experts (2003, 70) advised the government to bring about significant changes in the stagnated research system through international standards in research evaluation and the promotion of international cooperation.

This advice was not lost on the Lithuanian government. One civil servant could still recall the verdict of EU-commissioned consultants: "The expert from Coopers and Lybrand told us, 'Listen, annually, from all over Lithuania, you make three hundred articles [in ISI journals], and the rest—somewhere else.'" The civil servant added, "Obviously, we wanted to get more of those ISI articles." Similarly, one politician stated, "After the World Bank indicated insufficient outputs and improvements needed, we immediately submitted their recommendations to the government for implementation."

2.3.3. Pressure to comply with international standards of excellence

From interaction with EU-commissioned and Norwegian experts, Lithuanian policymakers learned that their national outputs were insufficient. Politicians explained that "we needed those ISI papers because the world was already taking data from the Institute for Scientific Information and looking at articles only in those journals." Meanwhile, civil servants said they constantly monitored ISI indicators and reported to policymakers because "everyone was unhappy with national achievements." One of the civil servants added, "the country's results were miserable," and both pointed to the EU report Key Figures 2001: Towards a European Research Area (European Commission 2001). This report does not mention Lithuania but analyses national performance of EU member states using the number of ISI papers among other indicators.

To inform academia's approach to improving Lithuania's standing in the EU, the Lithuanian Academy of Sciences prepared a white paper that served as a basis for the Long-Term Research and Experimental Development Strategy, officially approved by the government in 2003. The white paper deemed it "necessary to pay more attention to the coordination of the country's R&D policy with the EU" as "Lithuania is lagging behind its neighbours" (Lithuanian Science and Technology, 2002, 97). The paper most likely drew on the World Bank report stating that "the number of articles published in scientific periodicals per researcher in highly developed countries usually comes to 0.5 a year. According to data available for 2000, this indicator in Lithuania was as low as 0.05" (World Bank, 2003, 64).

The dynamics between Lithuanian science policymakers and foreign experts were consequential for subsequent reforms. Through their interaction with these experts, Lithuanian policymakers knew they must confront the insufficient internationalisation of the national

research system and the lack of developments in research assessment. The white paper confirms their aim: "the internationalisation problem in Lithuania should be transferred from the level of institutions or the Department of Science and Higher Education to the state level" (2002, 97). A civil servant shared impressions of interacting with foreign experts: "At all levels, national or institutional, eighty per cent of the research assessment value is self-assessment ... what we always did ... not someone from outside coming in and saying what to do." The foreign experts reflected that "it is a strength of the Lithuanian system that policymakers are ready to acknowledge weaknesses in their system and consider a change" (Edler et al. 2007, 6). At that time, the processes and actors involved in Lithuanian policymaking corresponded to what was later deemed as the "OECD model of science policymaking" (Henriques and Larédo 2013).

2.3.4. Attempts to shape national policies by borrowing foreign practices

Interviewed politicians and civil servants said they explored research assessment practices by visiting Western countries to acquire experience and learn informally how research assessment was performed there. This close collaboration with peers in Western countries shaped the national research assessment system and set its direction. Subsequently, Lithuanian policymakers predominantly opted for quantitative measures to assess institutions and researchers. This development arose for three principal reasons. First, because of the small size of the Lithuanian research community, finding unbiased experts for qualitative research assessment seemed impossible after the first attempt (Daujotis et al., 2002, 179), a problem confirmed by the interviewed politicians. Second, Lithuania lacked research outputs in English, especially "internationally recognised academic works." According to the civil servant's reflections, "the country looked sad, and we wanted to encourage them not to be lazy but to publish in ISI journals." Third, Lithuania "had no research assessment culture at all, so quantitative measures seemed the only possible starting point," as another civil servant observed.

The political orientation towards quantitative measures and Western journals began with the awarding of scientific degrees and academic titles, which now required at least fifteen scientific papers published in so-called recognised scientific outlets. These covered three categories of publications: (1) articles in foreign peer-reviewed journals with prominent researchers in the relevant field on their editorial boards; (2) articles in proceedings of conferences organised by international scientific societies; and (3) articles in journals included in the National Journals List. One politician recalled that institutions themselves suggested that research papers should be published in "meaningful outlets." Meanwhile, several civil servants seconded, "researchers should get used to publishing their papers in typical peer-reviewed journals read by the broader scientific community, not only our compatriots."

In parallel with quantitative research assessment for individual researchers (*Minimum Qualification Requirements*), in 2005 a metrics-based system—the *Performance-Based Funding System* (PBFS)—was announced for the distribution of state funding to institutions. From the beginning, research papers, patents, and applied research activities were deemed eligible outputs. Since then, state funding has always been distributed using complex formulas

and calculations. Several civil servants agreed that these calculations can be challenging to understand, but they were sure that "funding should be distributed honestly." The formulas used in the PBFS guaranteed that papers in ISI journals earned the largest share of state funding for institutions.

Over the first decade after the country's independence was regained, Lithuania developed two national quantitative research assessment systems where ISI papers became core research outputs. This happened because all interviewed politicians and civil servants agreed that "since science is international ... assessment involving global publishers, editors, and databases is more reliable than national ones—simply a matter of credibility." Policymakers choosing journal papers as the core of their quantitative measures thus became dependent on journal publishers and databases driven by goals of their own.

The expert dynamic discussed above is further intertwined with a second dynamic involving as many as three parties.

2.4. The database dynamic: How policymakers, journal publishers and publication data providers interact

Lithuanian policymakers, recognising a shortage of articles published in ISI journals, sought to transform researchers' publishing practices by constructing a system of quantitative research assessments. This system involved establishing incentives tied to publication in "recognised scientific outlets," primarily ISI journals. As one civil servant explained, "policymakers knew that researchers' publishing habits would not be changed overnight, but incentives always do their work." To implement this system, policymakers introduced and iterated on lists of approved journals, navigating the dynamic landscape of scientific databases with the aim of "bringing researchers closer to European practices." As shown in Figure 3, this process began with the List of National Journals and later evolved to include the National List of Databases, with a growing emphasis on the Web of Science (WoS) databases introduced in 1995.

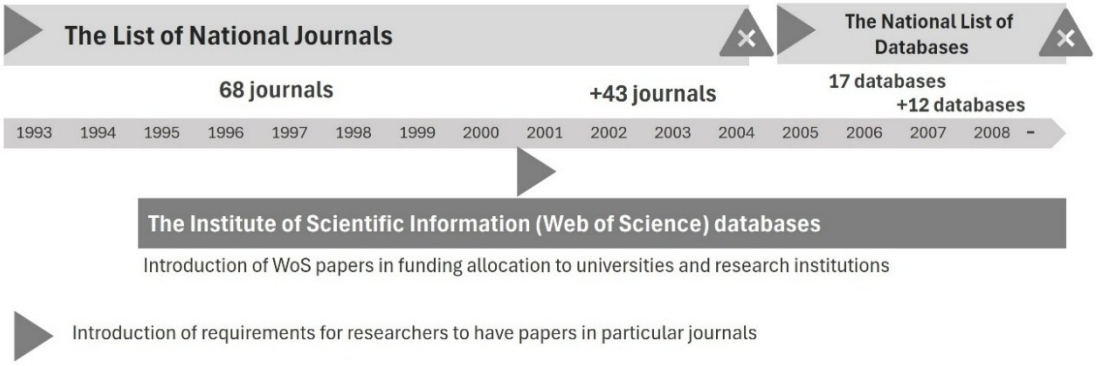

Figure 3. Timeline of major developments in the Lithuanian quantitative research assessment system.

In this section, we explore how these policy decisions, along with the actions of journal publishers and database providers, shaped the trajectory of Lithuanian research assessment.

2.4.1. Maintaining the List of National Journals

The List of National Journals was formally launched in 1996 following an external evaluation (Research Council of Norway 1996), though its development began earlier with a 1993 decree emphasising publications in "prestigious Lithuanian and foreign or international journals." After a year, the just-established Research Council of Lithuania started compiling the list of recognised Lithuanian journals.

Immediately, the list faced criticism from scientific elites. Subačius (2001) argued that "national journals would be mediators between the humanities and social sciences and society if policymakers did not force researchers to crowd into a narrow dorm of approved journals." This criticism intensified as freshly launched institutional journals became eligible for research assessment despite a perceived lack of quality, "having no clear aims and scope, no respected editor or scientific value, but intended solely for the institutional purpose of getting more funding points" (Subačius 2003).

Meanwhile, policymakers also encountered challenges in managing the list. The rapidly growing numbers of included journals (from 68 in 1996 to 109 in 2002) fuelled what policymakers deemed a "nightmare of institutions heavily lobbying their journals." Despite this growth and the adoption of strict quality criteria modelled after the Thomson ISI Journal Selection Process (Testa 2003), policymakers remained sceptical of the quality of domestic publications. They referred to a lack of "Western journal peer-review legacy" and the prevalence of personal relationships influencing reviews as key concerns. As one policymaker noted, "in fact, sooner or later, virtually all manuscripts written by Lithuanians are published in one or another domestic journal" (Daujotis et al., 2002, 151), although some policymakers thought that having policies selecting and accepting Lithuanian journals was reasonable (ibid., 83). Several civil servants acknowledged that institutionally published peer-reviewed journals meant securing survival for institutions with deficient research potential and practising Western rules demanded in the List of National Journals.

Policymakers cancelled the List of National Journals after nearly a decade, citing several reasons for their decision. According to one report (MOSTA 2015), they believed this list "encouraged the launching and survival of national journals and discouraged researchers from publishing in international journals." Furthermore, as one politician suggested, "an entrenched habit of Lithuanian researchers primarily publishing domestically, and often in the Lithuanian language, formed a kind of separation from the international community." One civil servant explained why policymakers felt Lithuanian journals were not recognised as impactful by leading international researchers: "Even though they complied with our formal requirements for peer review, editorial board, and authorship, Lithuanian journals remain insignificant on the international scale." In addition to these concerns, Estonian researchers (Lauk and Allik 2018) noted that Lithuanian institutions had "created [their] own cottage industry of scientific journals instead of competing with the rest of the world for publishing in the leading international journals." In response, policymakers introduced the National List of Databases, shifting the responsibility for journal selection to external entities. This shift represented a significant policy change, aiming to redirect researchers towards international publications and English-language journals.

2.4.2. Shifting journal selection responsibilities to databases

A decree introducing the National List of Databases was issued at the end of 2005; its stated goal was "to promote the international dissemination of the results of scientific research carried out in Lithuanian scientific institutions and to enable scientists to publish articles in peer-reviewed and widely recognised scientific journals." The order announced that the National List of Databases would comprise only databases performing a qualitative selection of peer-reviewed journals and indexing the most important internationally recognised journals or conference proceedings; the Research Council was appointed as a proxy to annually review and revise the list.

Initially, the databases included in the National List of Databases covered only a limited number of Lithuanian journals. One politician mentioned that the list of databases was "quite a clever way to encourage scientists to publish abroad and avoid domestic journal lobbying for inclusion." However, a civil servant added that the list also offered opportunities for domestic journals: "Since we haven't separated Lithuanian journals in research evaluation policies, we gave them a chance to go international." As the academics noticed, researchers and institutions were forced to publish abroad, submitting manuscripts to foreign journals, as domestic journals were rarely indexed in the selected databases.

In response, many Lithuanian journals, experiencing a decline in submissions, changed their publishing language from Lithuanian to English to attract foreign authors and improve their chances of inclusion in nationally listed databases. In 2005, only 13 domestic journals were indexed in such databases; a year later, over 60 Lithuanian journals were included in databases recognised by the Research Council (Kraniauskas and Gedutis 2016). As one politician suggested, "We had disdained some domestic journals although they were included in the List of National Journals, but after national outlets fulfilled our strict requirements, they looked respectable for foreign databases."

Despite policymakers' wish to avoid lobbying, the National List of Databases led to a flurry of such activities. Representatives of foreign databases seeking to expand subscriptions joined local institutions clamouring for the addition of databases indexing journals in which those institutions published. A year after its launch, the National List of Databases, initially containing 17 databases, was supplemented with 12 additional databases. Though gratified by the list's launch, policymakers did not achieve the desired result: a jump in the number of articles in widely recognised scientific journals. Civil servants expressed deep dissatisfaction that quantitative research assessments "were flooded with articles in domestic or low-impact foreign journals." Policymakers withdrew the National List of Databases in 2009, when almost twenty Lithuanian journals became WoS-indexed journals.

2.4.3. The Web of Science as source of unintended consequences

In 1995, policymakers began exploring research quality assessment through ISI (later WoS) journal publications. By 2002, a modest growth in Lithuanian articles in the ISI databases could be observed (Daujotis et al., 2002, 86). However, this growth can only partially be attributed to the new incentives. The 1997 transition of Thomson ISI to the online WoS

(Clarivate Analytics 2018), incorporating multiple citation indexes and expanding journal coverage by 21% in 2000 (Testa 2011), played an important role in the increase in Lithuanian WoS publications.

To accelerate WoS paper growth, in 2001, policymakers mandated WoS articles for senior researchers across all disciplines (except Lithuanian philology) in the Minimum Qualification Requirements, with full implementation by 2006. Additional outputs such as co-authored international papers and conference participation were also encouraged. Universities and research institutions had to adopt these requirements within months, though it was left to institutions to determine which outputs would be given priority, subject to the requirements of the law. One politician admitted that "even seeking internationalisation, demanding WoS papers from the humanities and social sciences was probably not a wise decision," but immediately raised a question: "How do we define 'international' for those disciplines?" In addition to WoS papers mandated in the Minimum Qualification Requirements, in the Habilitation Procedure of 2003, policymakers obliged candidates to have at least two WoS papers. This requirement was applied in all disciplines, including the social sciences and humanities. After prolonged and unfruitful discussions, Lithuanian scientific elites responded to the WoS paper requirement by bringing policymakers before the Constitutional Court (see subsection 2.5.3).

The quantitative research assessment rules changed at the same pace as the number of Lithuanian articles in WoS databases grew. As seen in Figure 4, in the decade 1996–2005, the latter number rose from 167 to 935; then, within three years (2006–2008), it soared to 2,003 papers. The first substantial increase occurred in 1998 when Thomson ISI moved online, the second in 2007 when the WoS greatly expanded and almost 30 Lithuanian journals became WoS-indexed (Dagienė and Sandström 2015).

Mass indexing of Lithuanian journals in WoS databases disappointed policymakers, who sought articles in international scientific outlets as opposed to internationally-recognised domestic ones. Indeed, the decline in the number of publications in foreign journals after 2006 (Figure 4) seems to indicate that the incentives created by policymakers were counterproductive. Several politicians mentioned that the WoS expansion came as a great surprise to them; they had absolutely no expectation that "such a prestigious database could index so many worthless journals from every nook and cranny." In 2008, the WoS expansion resulted in nearly half of the Lithuanian WoS papers being published in domestic journals.

In developing quantitative research assessment measures, Lithuanian policymakers relied heavily on journal publishers and databases, with unintended consequences. Higher education institutions launched new peer-reviewed journals and lobbied for their inclusion in the List of National Journals; databases sought their commercial interests by indexing Lithuanian journals.

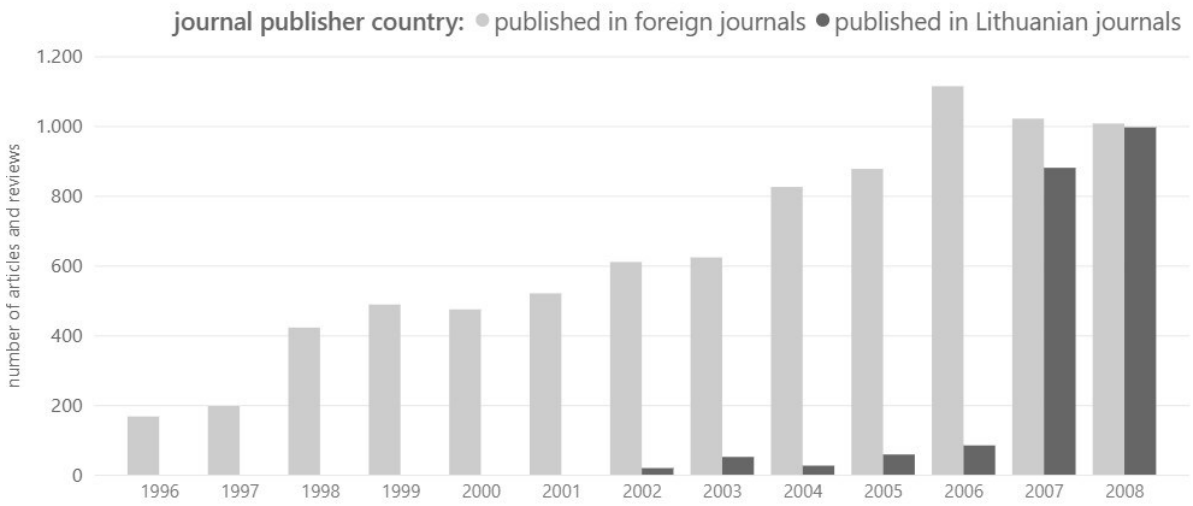

Figure 4. Number of Lithuanian articles and reviews in WoS databases (SCI, SSCI, AHCI) published by Lithuanian and foreign publishers.

With numerous Lithuanian journals becoming WoS-indexed, policymakers were forced to respond to irreversible changes, dropping the second list—the National List of Databases—and relying entirely on WoS indicators of "research quality." Meanwhile, more unintended consequences followed as Lithuanian academics, including scientific elites, mounted stiff resistance to the newly implemented policies.

2.5. Academic dynamics: Researchers challenging the quantitative measures

Policymakers reported consistent dialogue with academia, yet faced significant resistance to new evaluation measures, particularly from the social sciences and humanities (SSH), whose representatives employed lobbying, legal action, and other tactics to oppose the changes. This opposition stemmed from fundamental disagreements among disciplines: the academics and scientific elites from SSH disciplines blamed physicists and chemists for creating systemic inconsistencies exacerbated by unrealistically strict qualification requirements. The metrics-based assessment policies sparked heated debate within Lithuanian academia, with many questioning the validity of the evaluation tools used by policymakers to improve Lithuania's standing in the WoS.

2.5.1. Rising tensions among disciplines

One of the measures aimed at increasing the number of WoS outputs—Minimum Qualification Requirements—triggered a strong response from the SSH community. Despite intense discussion and publications in mass media in the years 1996–2000, compulsory requirements for WoS papers were introduced by law in 2001; in all disciplines, candidates seeking the highest academic positions were obliged to have at least one article in a WoS journal (out of 15 mandated peer-reviewed papers). According to interviewed researchers, at the time of the introduction of the requirements, only one of the almost twenty-five researchers in the humanities who already held the rank of Doctor Habilitatus met the new requirements. Lithuanian researchers publicly accused policymakers of incompetence (Subačius 2001;

Zavadskas 2001). Prominent Lithuanian philosopher and sociologist Zenonas Norkus (2001) even proposed a few Fuller-inspired suggestions for transforming the Lithuanian science system, expanding on controversies that arose a few years prior in domestic magazines for intellectuals in 1998–1999. SSH scholars sustained public pressure into the early 2000s, believing it could sway politicians.

The academics expressed great dissatisfaction because "physicists and chemists took the lead in transforming the Lithuanian science system" and "directly and quite mechanically laid down criteria of the natural sciences to evaluate outputs produced by scientists in humanities and social sciences." Such strict requirements ignited continuing debate over bibliometric measures. As the scientific elites from SSH concluded, their opposition efforts at that time did not yield tangible results, for which they blamed policymakers from the natural sciences. They wondered whether, "by mandating WoS papers, [those policymakers] expected humanities scholars to start writing in English and publishing in international peer-reviewed journals? Everyone agreed that this was wholly inappropriate."

Between 1996 and 2008, the most politically influential scientists were researchers holding degrees in physics or chemistry granted by the largest Lithuanian university. It is therefore perhaps unsurprising that some policymakers indicated that "the natural sciences never grumbled because they always produce work of a high standard." According to the academics in SSH, "they [natural sciences] have had ISI papers since the Soviet era, whereas we [social sciences and humanities] started from zero." Our interviews revealed that in the early 2000s, politicians genuinely believed it was enough for SSH researchers "to work harder to get articles published in ISI journals." Some policymakers passionately insisted that "we hoped to receive more profound strategy or expert advice from SSH representatives on [research assessment in their disciplines], but they didn't even understand what we wanted or sought." Others felt that "everyone in SSH lives in a bubble of their discipline," and in this situation, "those in the humanities, jostling for the front positions, were brighter than [those in the] social sciences," but "actually SSH [scholars] are eternally dissatisfied."

At the same time, interviewed civil servants and politicians with a natural sciences background admitted that they always had a strong opinion about how research should be assessed: "Sometimes, we felt perplexed, especially when [SSH scientific elites and academics] turned us away [from mandating WoS papers], but this was not always bad." Indeed, the SSH community eventually turned the tide by bringing the matter before the Constitutional Court (see subsection 2.5.3), though they also used a variety of other tactics to oppose quantitative research assessment.

2.5.2. Scientific elites as powerful forces in policymaking

Policymakers faced significant institutional resistance when implementing minimum qualification requirements and performance-based assessment for institutions. Research institutions employed various tactics, including establishing their own journals, sponsoring public opinion campaigns, and even leveraging personal connections with prominent politicians to undermine these reforms. As one politician noted, academics acting as representatives of intermediary organisations (the Research Council, the Conference of

University Rectors, the Academy of Sciences, etc.) sometimes enlisted the help of prime ministers or members of Parliament to intervene on their behalf.

Policymakers countered this lobbying with recommendations from foreign experts and commissioned studies, attributing resistance to both cultural factors and "pragmatic concerns over funding." These ongoing debates and political pressure ultimately led to some concessions, such as expanding eligible publication types for SSH research and amending minimum qualification requirements.

Despite these compromises, disagreements persisted. In the 2005 amendment to the minimum qualifications, the mandatory WoS publications for SSH researchers seeking professorship were removed, but WoS publications were still required in the Habilitation Procedure—a prerequisite for a professorship. This fuelled continued manoeuvring by the academics and scientific elites, leveraging their political connections to navigate the complex requirements.

The legislation and grey literature show the most influential intermediary organisations during the period 1996–2008. For example, according to the Law on Science and Studies (wording of 11 June 2002) the government shall establish the Habilitation Procedure considering the proposals of the Research Council, the Conference of Lithuanian University Rectors, the Conference of Directors of the State Scientific Institutes of Lithuania, and the Council of Higher Education. Other sources reporting debates on research assessment reveal more organisations involved: the Lithuanian Academy of Sciences, the Lithuanian Scientific Society, and the currently dissolved Conference of Chairmen of Councils of Higher Education Institutions of Lithuania. These powerful entities often stymied policymakers' attempts to reform the system, leading to a stalemate in some cases.

According to Želvys (2003), state authorities were "not strong enough" to overcome the academic community's resistance to reforms aimed at reducing its autonomy. One policymaker thought that the strongest resistance they faced was from "those who penetrated deep into the top level of academia obstructing progress"; a civil servant suggested that established professors and researchers who had published only in Russian resented the idea that their younger colleagues proficient in English would soon publish internationally, become professors, and take over leading roles in academia. Ultimately, the conflict culminated in a Constitutional Court case brought by the academics and scientific elites, seen by some as a desperate attempt to maintain the status quo.

2.5.3. Constitutional Court case and policy aftermath

In the early 2000s, Lithuanian citizens lacked the right to directly petition the Constitutional Court regarding alleged violations of their constitutional rights or freedoms. For this reason, the academics and scientific elites had to rely on high-ranking officials, such as the President of Lithuania or members of Parliament, to bring their concerns before the Court. They convinced the President that the requirements imposed by policymakers threatened their constitutional rights, and the President represented them in challenging the constitutionality of the government's mandates (Constitutional Court 2007). As seen from the Constitutional Court ruling, both the academics and scientific elites argued that the emphasis on international

publications, particularly in the ISI databases, discriminated against Lithuanian-language scholarship and prioritised formal metrics over substantive research quality.

The policymakers defended the government position, stating that the requirements remained in accordance with the law and aligned with international practices, and that they did not breach any constitutional rights. They also highlighted the requirements' intention of enhancing research standards and fostering international recognition of Lithuanian science.

The court ultimately determined that, while the overall structure of the requirements remained constitutional, the specific requirement of two ISI publications in the Habilitation Procedure was excessively restrictive and disproportionate for SSH researchers (Constitutional Court 2007, 2008). The 2007 ruling marked a significant victory for the SSH community, highlighting the power of legal challenges and the importance of considering disciplinary differences in research assessment. This legal challenge led to the removal of the requirement of WoS publications for SSH researchers for nearly a decade and the eventual elimination of both the Doctor Habilitatus degree and the Habilitation Procedure, a key point of contention.

This case also underscored the significant influence that scientific elites through their institutions and intermediary organisations (such as the Research Council) wielded over science policy decisions in Lithuania. In the end, the Court's ruling reaffirmed the universities' autonomy to establish their own requirements while acknowledging the importance of a balanced research evaluation approach that accounted for both national and international contexts. The Court's focus on the Lithuanian language in academic publications aimed to safeguard and advance national scientific discourse.

The interviewees reflected on the case as a learning experience about academic dynamics and policymaking. One politician reflected that "the assessment dilemma had two axes. On one axis were international and Lithuanian publications, and on another were quantitative and qualitative evaluations." A civil servant ironically likened the situation to past experiences with Russia, saying "we wanted the best, but it turned out as always" and adding that they were "beaten on all sides but learned very much" while underscoring the difficulties of navigating competing interests in science policy reform.

The Constitutional Court further highlighted the complex interplay between quantitative metrics and qualitative evaluations in research assessment, as well as the challenges of achieving consensus in research policy. Notably, even before the well-known San Francisco Declaration on Research Assessment (DORA 2012) and Leiden Manifesto (Hicks et al. 2015), the 2007 ruling concluded that requirements such as a minimum number of publications in internationally recognised journals can be important criteria in evaluating a scientist's qualifications, but do not always reflect the true value and significance of a scientist's work. According to the Court interpretation,

> *[S]uch requirements may not be made absolute, since the mere fact that scientific works are not published in publications that are reviewed in the international databases does not mean in itself that these scientific works are not important: the importance of scientific works should be assessed not only according to the fact that they are published in scientific publications that are reviewed in various*

> *international databases, but, first of all, according to their novelty, original ideas, fundamentality, impact upon formation of new spheres and/or subject areas of scientific research, etc., but not according to the said formal criterion only.*
>
> *(Constitutional Court, 2008)*

2.6. Discussion and conclusions

In this paper, we elucidated the intricate interplay of actors and factors that were important in the development of research assessment policy in Lithuania in the period 1996–2008. This encompassed multiple levels of governmental, institutional, and individual action; diverse stakeholders, from international experts and science policymakers to academic administrators and researchers; and multifaceted issues including publication outputs, journal quality, and quantitative indicators. More specifically, our empirical findings offer detailed insights into a range of policy dynamics through which the quantitative assessment of researchers and institutions developed over the course of a twelve-year period. First, we showed the expert dynamic at play at the beginning of quantitative assessment practices. Lithuanian science policymakers interacted with a range of foreign experts to develop a domestic policy aiming to turn a Soviet-oriented science system into a more internationally-oriented one. Second, we demonstrated how the newfound policy drive for internationalisation in the late 1990s became entangled with a database dynamic that partly undermined policymakers' efforts. Finally, we explored how researchers began to push back on quantitative assessment in an academic dynamic that did not leave science policies untouched.

Reflecting on the Lithuanian case, the tensions arising from adopting dominant international practices in a small, emergent higher education and research system are evident. In their desire to integrate research from this transitional country into the global scientific community, policymakers prioritised emulating seemingly successful models at the expense of local requirements and disciplinary differences. This resulted in the imposition of international publication metrics as the primary measure of academic success across all disciplines, favouring practices prevalent in the natural sciences. Furthermore, policymakers proved resistant to acknowledging the concerns raised by scholars in the humanities and social sciences regarding the inappropriateness of these metrics for their fields. This intransigence led to a Constitutional Court case, which highlighted the tension between the push for internationalisation and the need to recognise local scholarly practices and languages.

For countries in comparable situations, the Lithuanian experience emphasises the need for a nuanced approach—one that acknowledges the value of international collaboration and benchmarking but also prioritises domestic research needs and avoids a one-size-fits-all adoption of foreign models. This involves careful consideration of disciplinary differences, existing research capacity, and potential unintended consequences of incentivising specific metrics. The Lithuanian case underscores that successful integration into the global research landscape can be achieved while preserving national research identities and priorities, but it requires continuous dialogue, policy adjustments, and a critical evaluation of the impact of adopted practices on local research communities.

The three multi-actor policy dynamics that we studied—the expert dynamic, the database dynamic, and the academic dynamic—offer a perspective that goes beyond the perspectives traditionally taken in various subfields of research on research, in particular scientometrics, science policy literature, and sociology of science.

As mentioned in the introduction, the scientometrics literature is strong in methodological discussions of indicators but is relatively silent on their place in policymaking (van den Besselaar et al. 2012; Kehm and Teichler 2007; Robinson-Garcia and Ràfols 2020). Our policy dynamics perspective revealed, first, that research assessment experts were themselves a formative influence in the emergence of indicator-based assessment in the Lithuanian science system. The reports by international organisations that policymakers commissioned relied solely on Web of Science (WoS) data for benchmarking the overall performance of national science systems. The pressure to comply with international standards of excellence—and the desire for EU and OECD integration —led to a narrow focus on increasing WoS publications. Interestingly, these research assessment experts often come from the scientometric community broadly conceived. For scientometricians working on quantitative indicators of internationalisation, our study offers two important insights. First, given their role in international organisations that influence national policymaking, they should examine more critically their own contribution to narrow definitions of academic "excellence." Second—and a reminder not to over-rely on expert power—our research showed how subsequent changes in the quantitative assessment of academic performance are less a result of methodological debates in the scientometric community than an ad hoc response to dynamic changes in the behaviour of other actor groups. Our results could help scientometricians to make sense of the legitimate concerns of researchers about the narrowness of performance indicators and to include these concerns in more open and nuanced ways of assessing academic performance.

In science policy literature, there is an economics-infused tradition of understanding higher education in terms of "delegating" a certain task from one actor group (government as principal) to another (researcher as agent) (Borrás and Edquist 2013; Braun 2003; Potì and Reale 2007; Rip and Meulen 1996). Our research showed that, in relying heavily on providers of publication data, science policymakers faced unintended consequences for the quantified "task" they sought to delegate to the academic community. Our study of the database dynamic revealed two key issues. First, we noted excessive publication in institutional journals following the introduction of special journal lists. By linking research funding to scientific journal articles, policymakers inadvertently incentivised a rapid increase in publications. However, as these policymakers primarily hailed from the natural sciences—physics and chemistry—and published internationally themselves, they failed to anticipate the proliferation of domestic institutional journals and the subsequent challenge of ensuring quality and maintaining rigorous standards across growing numbers of journals. The introduction of the List of National Journals further fuelled institutions' determination to have their journals included, leading to intense lobbying efforts. Second, unforeseen challenges arose from the reliance on WoS as the sole arbiter of "top international" journals. The inclusion of domestic Lithuanian journals in WoS and other databases, driven by subscription revenue

motives, complicated matters for policymakers. Inadvertently, they thereby delegated the responsibility of selecting "top international" journals to these commercial entities and underestimated the possibility that these entities could also opt for less rigorous inclusion criteria. These findings demonstrate the substantial influence of academic institutions and data providers on (re)defining the task at hand. Instead of a relatively straightforward act of "delegation" by one actor group to another, policymakers were caught up in a dynamic with institutions and data providers in which what counts as the "task" was itself at stake.

Sociologists of science, finally, examine research systems as state- and employer-dominated with a focus on state agencies shaping policies, funding research, and driving university changes (Whitley and Gläser 2014; Whitley et al. 2010). This can give a unidirectional character to their approach—as in the influence of science governance arrangements on the production of knowledge—to the detriment of more dynamic multi-actor perspectives. The latter is exactly what our analysis sought to offer. Lithuanian policymakers first promoted the integration of researchers into the global science community by collaborating with foreign experts and incorporating their suggestions, thus validating the significance of international publication metrics. However, their overconfidence in these metrics led to conflicts, stemming from a limited understanding of disciplinary differences and the needs of the SSH community. Despite numerous publications and meetings detailing both sides' positions, no agreement was reached. Regardless of the ongoing debate, policymakers imposed stringent requirements while disregarding field-specific norms and values. This conflict culminated in a Constitutional Court case where the SSH community challenged the unrealistic publication requirements. Initially seen as more or less passive recipients of science policy, researchers steadily counteracted and significantly shaped quantitative research assessment policies. Through public criticism, lobbying, and even legal challenges, they showed their ability to influence policy outcomes. Notably, the Constitutional Court ruled in favour of SSH researchers, underscoring the importance of considering divergent scholarly practices and domestic values in research assessment. However, these actions and outcomes also led to a deep divide between SSH and natural-sciences researchers.

We hope that our Lithuanian case study offers valuable insights for ongoing debates on research assessment reforms, such as those happening in the context of reform movements like the Coalition for Advancing Research Assessment (CoARA). Our case study underscores the significance of considering diverse interests, power dynamics, national and international perspectives, and potential unintended consequences in policymaking. Dialogue and collaboration are crucial for responsible research assessment policies.