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Excellence seekers, pragmatists, or sceptics: Ways of applying performance-based research funding systems at new universities and university colleges in Sweden

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Abstract

The Swedish system of research funding has undergone major changes, while competitive funding schemes gradually have gained popularity, at the expense of institutional block grants. In recent years, there has been a strong drive to improve research performance in universities as a result of governmental desires, resulting in performance-based research funding systems (PRFS) being introduced to distribute block grants. The study on which this article reports sought to understand the development of increased government intent to steer resources for research, by investigating the behaviour of universities and university colleges in Sweden in terms of internal organisation and distribution of funding. The article investigates the structure of and motives for applying PRFS at seven new universities and university colleges through a document and interview study. We identified three categories of higher education institutions: the excellence seekers, the pragmatists and the sceptics. Universities rhetorically signal compliance with governmental propositions to distribute funding according to performance measures, but their actions are limited. Thus, national incentives, models and measures influence decisions at lower institutional levels in a rather modest way.

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1 | INTRODUCTION

Most Western countries have enacted widespread reforms in the governance and funding of universities. Many of them are influenced by new public management, representing a move away from traditional beliefs about university autonomy built upon institutional trust and linked to professional autonomy (Enders et al., 2013). In science policies, competition and output incentives are accentuated as a means of making universities efficient and productive (Auranen & Nieminen, 2010). In recent years, there has been a strong drive to improve universities' research performance due to governmental desires (Edgar & Geare, 2013). Consequently, performance-based research funding systems (PRFS) have been used even for distributing block grants (Bégin-Caouette et al., 2017; Hicks, 2012), explicitly linking government funding for universities to performance metrics, including research outputs (McCormack et al., 2014). Higher education institutions design performance systems to motivate researchers to optimise their individual performance to meet the expectations of governmental research funding systems (Jacobsen & Bøgh Andersen, 2014). This has been followed by increased efforts to measure research performance in the forms of audits, evaluations, and reporting systems for explicit measurement of individual and organisational output (Bazeley, 2010).

In Sweden, the government has followed this global trend, in that competitive funding schemes have gradually increased in number at the expense of institutional block grants (Swedish Government, 2008/09:50; Swedish Higher Education Authority, 2019). During the period 2005–2015, the competitive portion of research funding in Sweden increased from 53% to 56% (Gribbe, 2017). This increase was accentuated by the so-called autonomy reform of 2011, which granted universities the freedom to determine their internal organisation (Swedish Government, 2009/10:149), and the 2009 reform, which introduced a funding system partly based on performance (Swedish Government, 2008/09:50). The reform stated that, on top of existing funds, higher education institutions should be allocated new funds for research based on quality. Quality was to be measured based on each institution's ability to attract external funding and number of publications, combined with a citation analysis (Swedish Government, 2016a/17:50, p. 65).

However, the new funds only constituted a small proportion of the total funds distributed, and the reform was never fully carried out.¹ The actual redistribution was modest in the end (Görnerup, 2013). The university that lost the most funds lost 15,000,000 SEK (1,500,000 euros) during the period 2011–2014. The university assigned the most funds was allocated an additional 31,000,000 SEK (3,100,000 euros; Swedish Government Financial Bill, 2015/16:1 p. 133). The model can be viewed as an attempt to introduce performance-based funding, where the government signalled to higher education institutions that performance is important, but actual change was limited. This can be compared to other countries with strong incentives (for example, the United Kingdom, Finland and Denmark), where a substantial proportion of block grants is allocated based on performance (Swedish Research Council, 2013). In line with this, we seek to understand how universities and university colleges in Sweden have adopted governmental signals to steer research resources based on performance, in terms of internal research-allocation systems at the institutional, faculty, and departmental levels.

Earlier overviews of performance-based research funding systems (Görnerup, 2013; Hammarfelt et al., 2016) have targeted large full-scale universities with stable access to government funding and have focused on the models' performance aspects but not in relation to the overall research funding system—of which performance can be one part, alongside basic funding and profiling. In addition, previous studies have not addressed the models' motives. Our study addressed this gap by investigating newer universities and university colleges with smaller proportions of state research funding as well as less fixed organisations that help to shed light on organisational changes. The study contributes to an understanding of how national-level research funding influences the internal organisation of research funding in these universities as well as the translation to, and dynamics within, different levels of the university organisations.

Performance-based research funding systems (PRFS) can vary in their units of analysis, which can range from individual researchers to research groups, departments, faculties, or whole universities (Bazeley, 2010;

Hicks, 2012). The term *PRFS* is often used to refer to national systems, designed to compare whole institutions, however, similar systems are used frequently at lower levels (Bazeley, 2010; Gläser & Laudel, 2007; Hammarfelt et al, 2016; Woelert & McKenzie, 2018). This study therefore focuses on the internal performance-based systems constructed by universities. Performance-based systems are built upon an idea of rational behaviour and causality, whereby managerial procedures will create incentives that translate into producing intended outputs and performances (Kivistö & Kohtamäki, 2016). However, performance-based systems might have unintended impacts (Butler, 2010) and put academics under significant pressure to perform to meet the demands of the new research economy (Leathwood & Read, 2013). This calls for an investigation of how performance incentives are translated, how they “trickle down” in newer and smaller universities or university colleges, and how they are met by different strategic or adaptive responses in terms of, for example, resistance or acceptance (Leathwood & Read, 2013; Oliver, 1991).

The study on which this article reports contributes to knowledge on how national incentives to steer research resources based on performance have been translated into internal research allocation systems at higher education institutions at the institutional, faculty, and departmental levels. We ask the following questions:

- How have specific higher education institutions applied internal performance-based research allocation systems since the launch of the Swedish autonomy reform in 2011?
- How do university leaders motivate the application or nonapplication of internal performance-based research allocation systems?
- How are the performance-based systems applied at different institutional levels; that is, how do they trickle down to influence the allocation of research funding at the faculty and departmental levels?

2 | AN INSTITUTIONAL PERSPECTIVE ON RESEARCH FUNDING

Innovations in research funding systems can be understood as a translation process that depends on actors to transform ideas as they move from one organisation, actor, or level to another. Ideas often seem to be adopted in rather homogeneous ways, making organisations increasingly similar through constraining processes that force one unit to resemble others, which are often described as isomorphic processes (DiMaggio & Powell, 1983; Teelken, 2012). Coercive isomorphism occurs when powerful stakeholders such as governmental bodies pressure organisations to adopt a certain policy. Mimetic isomorphism happens when the situation is uncertain, and the organisation therefore models itself on other organisations in its field to obtain legitimacy. Normative isomorphism causes organisations to conform to the dominant behaviours within their professional communities through various kinds of social rewards and sanctions (DiMaggio & Powell, 1983).

DiMaggio and Powell (1983) argued that organisational change is less driven by a striving for efficiency than it is a result of processes that make organisations more similar. Thus, universities adopt performance measures because they feel insecure and imitate other institutions, because they like to *fit in*, in relation to the professional community, or because national models enforce these constraints. However, Oliver (1991) argued that the lower the degree of social legitimacy and economic gain perceived to be attainable from conformity to institutional pressures, and the lower the level of uncertainty in the institutional environment, the easier it is to resist these pressures. The choice to not follow organisational trends could give the impression that the organisation is outdated, inefficient, or illegitimate (Sahlin, 2010).

Thus, *ritual conformity* with institutional trends, rather than adopting them, is a way to provide the appearance of rationality and gain legitimacy through ceremonial actions (Meyer & Rowan, 1983; Scheid-Cook, 1990). The degree of change in the local context can vary according to the room for its interpretation within the organisation and how the idea is translated into the local context. Ritual conformity can be rather obvious at the highest levels of higher education institutions. Imitation can yield somewhat different results (Sahlin-Andersson & Sevón, 2003)

when national incentives, models, and measures translate into and influence decisions at lower levels. Thus, the somewhat heterogeneous nature of indicators and models in different higher education institutions may be explained by the translation and implementation of PRFS to the local setting.

3 | PREVIOUS RESEARCH ON RESEARCH FUNDING SYSTEMS AND PERFORMANCE MEASURES

Overall, nations distribute research funding in various ways. Some of the most common models are block funding (directly allocated to universities), strategic funding (allocated to stimulate a predefined area identified as a national priority), competitive funding (allocated through publicly funded research councils) and excellence funding (allocated to higher education institutions characterised by the exceptional quality of their research activities, long-term funding, and peer-reviewed applications (Bégin-Cauette et al., 2017). In recent years, block funding has included performance-based elements.

In a time focused on competition for resources, the question of what counts as performance is important. Quantity versus quality and input versus output have been major concerns in discussions on performance. According to Bazeley (2010), expediency—or what can be collected easily—has determined what to measure as performance. This has resulted in activities being reduced to a few quantifiable factors such as publications and citations (research output), which are the most common factors employed for assessing research performance, together with external grants (research input) (Hammarfelt et al., 2016). When quality is in focus and expert panels with peer reviewers are used to assess research or research groups, factors other than the number of publications are valued, such as creativity, originality, and innovation (Bazeley, 2010). Other factors include reviewing for research councils and serving as external examiners for doctoral theses (Hammarfelt et al., 2016).

Woelert and McKenzie (2018, p. 192) found evidence for broad coercive (research-intensive universities) and mimetic (teaching-intensive universities) isomorphism, in that Australian universities largely replicated the national performance-based research funding indicators internally in order to “follow the money”. Some variation is evident, not in the choice of indicators but in minor modifications to the performance indicators. Hammarfelt et al. (2016) found that a variety of indicators, models, and measures are built on performance indicators as norms, rather than on the specific needs of each higher education institutions. Old, large, diversified universities usually employ mixed systems, whereas smaller regional universities more often prefer models based on publication counts. The empirical evidence regarding which aspects are expected to result in excellent research is less clear. When comparing eight countries, Auranen and Nieminen (2010) found no straightforward connection between financial incentives and the efficiency of university systems.

In studies on the effects of financing based on performance, Leifner (2003) showed impacts on the level and types of activities in which academics were concentrated but did not find evidence for long-term success of universities. Mouritzen and Opstrup (2020) found positive effects on productivity and also that performance systems were more likely to work well the more closely tied to individual researchers they were. Enders et al. (2013) found that universities that must compete for resources are more productive, but context matters: organisational characteristics such as size, age, and organisational budget are also important. They concluded that there is no single model for high performance or for improving the performance of higher education institutions (Enders et al., 2013). Furthermore, Jacobsen and Bøgh Andersen (2014) argued that performance may decrease if extrinsic factors crowd out intrinsic motivation for research. Supportive systems increase research productivity, whereas systems that are perceived as controlling decrease research productivity. Budgeting systems applied only for legitimacy reasons risk being undermined by staff when put into practice. However, the pressure to conform is stronger if the government and social actors support the norms and rules for the distribution of funding and if the government strongly promotes norms for this resource allocation (Lepori et al., 2013).

Despite the increased use of performance measures, the rationale and motives for their implementation and application have been less investigated. Excellence, increased quality, and efficiency are frequently stated motives (Bégin-Caouette et al., 2017; Frølich, 2011; Hicks, 2012; Musselin, 2014). In addition, Hammarfelt et al. (2016) stressed the need for internal PRFS to build on criteria such as legitimacy, appropriateness, organisational and methodological stability, and transparency. They found that decisions to implement output-based allocation systems often lack motives and that the rationale (if it exists) refers back to the national system for resource allocation.

Macro-level (national) incentives and models tend to trickle down, influence decisions at lower levels, and confront individual researchers (Hammarfelt et al., 2016; Mouritzen & Opstrup, 2020; see also Gläser & Laudel, 2007) depending on how local higher education institutions allocate research funding internally (Hicks, 2012). The performance indicators measured in a PRFS can incentivise individual researchers to perform research in certain (if not always predicted or desirable) ways such as slicing publications, or use biased registration and self-reporting of research products (Hammarfelt et al., 2016; Jacobsen & Bøgh Andersen, 2014). An exaggerated focus on quantities and an orientation towards mainstream research risk to downplay other values such as equity, diversity, and democratisation (Hicks, 2012; Musselin, 2014) and to benefit the strongest research groups and paradigms and weaken the societal impacts (Auranen & Nieminen, 2010; Seeber, 2013).

On this background, our study contributes to higher education research and policies by addressing the application of internal PRFS at selected Swedish higher education institutions. We have examined the motives and rationales of higher education institution management for applying internal PRFS, and how these evaluation systems are translated to lower levels, from the highest levels of higher education institutions to faculty and departmental levels.

4 | METHOD, MATERIALS AND ANALYTICAL FRAMEWORK

The study was conducted in Sweden. In 2018, the Swedish university system consisted of 18 universities and 12 university colleges. Twelve of the universities predated higher education reforms in 1977 whereas six were so called *newer* universities founded after that date. The Swedish higher education system is unitary, meaning that all higher education institutions are subordinated the Higher Education Act and the same funding system, although the amounts of funding they receive differ. In Sweden, block grants for research are separate from those for education and other activities. The Swedish public system of research funding is a mix of institutional block grants and competitive funding schemes. The block grants constitute the basic funding to the universities.

Research in Sweden mainly takes place at higher education institutions. The share of funding directly allocated to the higher education institutions has decreased in recent years, and a larger share is allocated through the research councils. About 50% of the governmental funding of research is allocated to higher education institutions; 30% is allocated to the research councils, which distribute external funding based on competition; and the rest is allocated to other higher education authorities and defence research (Statistics Sweden, 2020).

Previous studies focusing on large, full-scale universities with stable access to government funding (e.g., Görnerup, 2013; Hammarfelt et al., 2016) need to be complemented with investigations into so called *newer* universities and university colleges that in Sweden have smaller proportions of state research funding and less stable organisations to manoeuvre. This has guided the selection of institutions to those of a smaller size and smaller amounts of permanent research resources. The new universities and university colleges are more oriented towards teaching than the older universities are, but they also engage in research and doctoral education and compete for research funding. Although their share of governmental funding for research is smaller, it is steadily growing (Swedish Higher Education Authority, 2019), which emphasises the need to organise their internal systems of resource allocation. Systems that are less hierarchical might result in greater opportunities and interests in steering limited research resources.

Seven so called new universities and university colleges were selected to reflect the Swedish landscape of new higher education institutions in terms of size and geography. These include two newer universities, Karlstad University (KU) and Linnaeus University (LU); two large university colleges, Mälardalen University (MDU) and Malmö University² (MU); and three smaller university colleges, Blekinge Technical Institute (BTI), University West (UW); and Dalarna University (DU). The study is based on documents and in-depth interviews with university and faculty leaders.

The documents reviewed included annual reports, budget documents, vision statements, and research strategies from the seven higher education institutions. In addition, semi-structured interviews were completed with 38 informants between 2013 and 2017. Seven were held with vice chancellors, representing the institutional level; thirteen were held with deans, representing the faculty level; and at the departmental level, three were held with heads of departments and five were held with research leaders. In addition, ten interviews were held with research coordinators at the faculty and institutional levels. All of the interviews addressed research funding systems and performance-based models to investigate the causes, motives, and reasons described by leaders at different levels of higher education institutions, in relation to the application of these systems. Interviews and documents were analysed using the analytical framework described below. Quotations from interviews and excerpts from documents are presented to contribute to the understanding of the results.

To reach a comprehensive understanding of internal PRFS, we have developed a framework (see Table 1) comprising five parts, which are based on previous research on the structure of research performance systems (Mouritzen & Opstrup, 2020; Whitley, 2007) and the motives for applying these systems (Bazeley, 2010; Bégin-Caouette et al., 2017; Hicks, 2012). The first part describes the system's structure to determine the strength of the performance-based features, specifically whether the funding is allocated based on performance and, if so, how much of the funding is based on performance (Whitley, 2007, p. 9). The second part concerns the model's content—that is, which aspects are included in measuring performance. Is it a strict bibliographic performance model based on publications and citations, or are other aspects of academic work such as doctoral education and societal outreach also valued (Bazeley, 2010)? What is included in the model signals what the university management considers to be important. The third part deals with the motives behind the funding systems. The expressed motives can include excellence, efficiency, transparency, stability, and equity (Bazeley, 2010; Bégin-Caouette et al., 2017). Are internal PRFS mainly argued for, on the basis of increased quality of research, research production, or excellence (Frølich, 2011; Hicks, 2012; Leathwood & Read, 2013)? What roles do criteria such as legitimacy, organisational stability, and transparency play? The fourth part is a standardisation of the

TABLE 1 Analytical framework

1. Strength	Is the model built on strong or weak performance based features? What is the share of performance-based funding versus block grants?
2. Content	What is the content of the model? E.g., publications, citations, external funding, but also other aspects like societal outreach, volume of undergraduate education, doctoral education etc.
3. Motives	What motives behind the model are given? E.g., excellence, efficiency, transparency, stability, equity?
4. Standardisation	Is it a unitary model where the criteria are used all over the organisation or are many different models in use at different levels?
5. Outcome	In what ways does the model have effect on the distribution of funding for faculties, departments or individual researchers?

Source: Authors.

system. Standardisation focuses on the extent to which a common system is used across the university (see Whitley, 2007). Do the criteria for how research funding is allocated at the university level also affect how funding is distributed at lower levels (Hammarfelt et al., 2016)? How far does the distribution model reach in its intentional form? The fifth part concerns the extent to which the performance-based model's outcomes affect the final distribution of funding (Seeber, 2013). A model that allocates a large proportion of funding based on performance at the university level can ultimately have limited effects on the overall activities if other models at the faculty or department level allocate funding in other ways.

5 | RESULTS

First, we will analyse the selected higher education institutions in relation to each research question and associated concepts in the analytical framework. We conclude this section with a summary of different categories of higher education institutions.

5.1 | Strengths and content of different kinds of internal performance-based funding systems

The first aspect, strength and content (Table 2) refers to the first research question about what kinds of internal PRFS higher education institutions have applied since the launch of a Swedish autonomy reform in 2011, and how strong they are. Three overall funding-distribution modes were found among the universities: (a) basic funding, in which a fixed grant is allocated to departments or faculties, often based on staff or infrastructure; (b) profiling, meaning that resources are concentrated within certain research areas; and (c) performance-based allocation, in which funding is distributed based on measures of output (and sometimes input) variables.

Resources for strategic profiles (profiling) and performance-based resource allocation are assumed to increase excellence in research. The main difference is whether resources are concentrated through strategic planning of resources or through a model consisting of a number of set indicators. Profiling refers to the concentration of resources based on the idea of strategic planning, which includes steering and concentrating resources to a few areas (Schmidtlein & Milton, 1990) in order to lead to more high-quality research. Profiling might not allocate funding to areas that perform the best but to areas that the university finds reasons to invest in and strengthen. This could be related to regional needs or to the institution's educational orientations.

Performance-based allocation, on the other hand, refers to a supposedly neutral system of merits using a set of indicators to decide how funding is allocated (Hicks, 2012). Once the model is set, the outcome cannot be altered and could, in this sense, be seen as a more transparent and unbiased system. On the other hand, it reduces the possibility for the university to strengthen areas of interest. In this way, profiling can be viewed as a more political way to concentrate resources, whereas a performance-based model is a more meritocratic way by which to allocate funding. Here, we use the term *performance-based system* to refer to a general system for the whole university while acknowledging that individual research profiles can also be based on performance.

Most universities use a mixed approach dominated by one of the three modes. Five of the seven investigated higher education institutions used performance-based systems at the university level for allocating funding to faculties or departments (MU, LU, BTI, MDU, and DU), while two did not (KU and UW). Of the seven higher education institutions, four allocated a larger proportion of funding to specified profiles (MU, KAU, UW, and MDU; Silander & Haake, 2017). Table 2 below summarises the various modes of funding distribution at the seven universities and the strengths and content of the systems' performance-based aspects.

TABLE 2 Strength and content of performance-based funding of research, in relation to basic funding and resources to research profiles

HEI	Basic funding	Profiling	Performance	Content
MU	20%	Strong (20%)	Strong (60%)	37.5% Activity in doctoral education 37.5% External funding 25% Bibliometric—Publications and citations
BTI	39% (+ 11% VC strategic funding)	None	Strong (50%)	55% External funding 22% Publications 5% Main applicant 18% Registered students
MDU	45% Based on staff	Strong (25%)	Strong (30%)	50% External funding 30% Publications 20% Doctoral degrees
LU	90% Based on previous year's budget	Limited (5%)	Limited (5%)	50% External funding 50% Publications
DU	94% (After 4,5% strategic funding for the VC and the library)	None	Limited (1,5%)	Publications only
UW	57% (+6% to doctoral education)	Strong (37%)	None	
KU	63% (+9% to teacher education, 10% VC strategic funding)	Strong (18%)	None	

Abbreviation: VC, vice-chancellor.

Source: The authors have constructed the table by compiling information from Blekings Technical and Institute (2015), Malmö University(2015), Mälardalen University (2014), Linnaeus University (2013), Dalarna University (2016), University West (2014) and Karlstad University(2013).

5.1.1 | Basic funding

Basic funding is based on various measures. This can refer to a historically established allocation that often is the same as previous years' budgets (Linnaeus University, 2016) or an allocation based on full-time equivalents for research staff (Blekinge Technical Institute, 2016). Allocations can be based on registered students and their performance (Mälardalen University, 2014), or just 20% of the block grant divided between all faculties (MU). At KU, basic funding is allocated based on infrastructure costs and the number of doctoral students (Karlstad University, 2016a). At UW, it is based on engagement in undergraduate and doctoral education (University West, 2014). The higher education institutions without performance-based models (KU and UW) or where the performance proportion was very small (DU) distributed research funding based on criteria such as infrastructure costs and number of students and staff (Dalarna University, 2011).

5.1.2 | Profiling

Two universities allocated resources to predefined research profiles instead of using a performance-based system. At UW, 37% of funding was allocated by profiles and at KU 18% were directed to profiles. A majority of the

universities allocate funding to profiles based on overall performance. Only MU focused on a performance-based allocation system. DU allocated 1.5% of funding based on performance. The majority of its funding (94%) was distributed between six research profiles based on qualitative measures. The *profiles* refer to broad multidisciplinary research programmes in areas coinciding with the strong areas of education and areas of doctoral education—not individual researcher profiles. BTI, which uses a performance-based overall model for the allocation of research funding, can be considered a previously profiled university with a narrow technical profile (Silander & Haake, 2017).

5.1.3 | Performance-based funding and content in the models

As shown in Table 2, three universities were identified as having *strong* performance-based systems, in that they allocated a significant proportion (30%–60%) of funding based on performance. However, in BTI's case, the model also includes *registered students*, a measure that most higher education institutions do not regard a performance factor but as a measure for allocating funding following established practices. LU and DU have systems that are *limited* in their use of performance-based measures where comparatively less weight is given to performance measures, and UW and KU do not use performance-based measures for allocating research funding.

The last column in Table 2 above shows the content of the performance-based models. The core parts of all performance-based models are external funding and publications. External funding was often given greater weight than publications (MU, BTI, and MDU). Only MU used citations in its model. Activity in doctoral education was included in the models at MU and MDU. These two universities allocate larger proportions based on performance, which includes a broad set of variables such as doctoral education and undergraduate education; meanwhile, LU, which allocates a smaller proportion based on performance, only includes external funding and bibliometric variables.

5.2 | Motives for applying internal performance-based research funding systems

The second research question targets the rhetoric from university leaders and strategy documents in relation to motives for applying or not applying internal PRFS. The construction of funding systems is the result of a process of negotiations between academic leaders and management. The processes can be more or less top-down and were motivated in various ways.

Talk of individual excellence was a motive for adopting a performance-based research funding system at LU. Here, the words *excellence* and *elite* were frequently used at the university level. The initiative to use a performance-based system at LU came from the vice chancellor:

Yes, it was I who took the initiative [...] and there was some fuss about it. [...] This is the track we follow, an elite venture—excellent research, excellence and strategic importance. [...] Every scientist should have performance in focus [...] every year, we reassess after scrutinising if the researcher is active or not, so it will put some pressure on the researchers, of course. (Interview, Vice Chancellor, LU, 2013)

A clear articulation of the perceived need to increase the share of external funding, as required by the performance-based model, was articulated in university documents:

The university has for several years focused on increasing external research funding and the number of scientific publications. A starting point for this effort is that the faculties should allocate

funding for research at the individual level based on assessment of the ability to contribute to successful research, with particular focus on publications and increased external funding. (Linnaeus University, 2016, p. 13)

At MU, the massive reform towards internal PRFS has been downplayed using softer rhetoric on strategic excellence, which instead seeks to shift the focus to the possibility of reaching the university's strategic targets. The vice chancellor expressed as the motive of the new system to "support the desirable strategic development of the university" (Malmö University, 2012, p. 1). Even though MU implemented a far-reaching performance-based funding model, statements from the vice chancellor or central management have scaled down the model's impact by emphasising that the allocation is only partly based on performance. However, when fully expanded, the performance proportion would be 80% (Interview, Vice Chancellor, MU, 2013).

BTI and MDU have a more modest version of reaching for excellence. BTI's model was primarily motivated by reasons of transparency in monitoring and controlling funding, explained by the university's harsh financial situation: "Clarity in the allocation of faculty funding will lead to clear-cut control and monitoring of the economic performance in research. The goal is that this will also increase the proportion of external funding" (Blekinge Technical & Institute, 2015, p. 49). Beside the monitoring role, this model will help to fulfil targets in the strategic plans: "The purpose of the new model was that it would give a clear direction towards the long-term objectives of the research and education strategy" (Blekinge Technical & Institute, 2015, p. 13). MDU presented performance-based systems as natural and self-evident, for the promotion of efficiency and joint efforts in research. University documents state that the model is aimed at "increased externally funded research, increased number of international publications and an increased volume of doctoral education" (Mälardalen University, 2014, p. 1) but the model should also allow space for joint efforts.

KU and DU articulated a more sceptical attitude to striving for excellence. DU stated in its 2011 research strategy, "The path chosen by the university in recent years is first to strengthen the research and its infrastructure on the basis of regional and non-competitive research resources in order to gradually be able to be a candidate for competitive research-based funding and strategic research funding" (Dalarna University, 2011, p. 4). The motive behind the modest share of performance-based allocation was the university management's (i.e., the vice chancellor's) disapproval of the governmental model. It is clear that DU applied a small performance proportion because that was expected, not because it was wanted.

We do not think this is a good governmental policy of redistribution, but we are depending on it. I think that we make a statement that we do as the government says, but without making a big deal of it. We are following the guidelines, but to do it to a greater extent would feel awkward. (Interview, Pro-Vice Chancellor, DU, 2013)

KU expressed a wish to hold back the pursuit of excellence and instead proclaimed the importance of equity and broad perspectives: "A university must have a range of education with reasonable width. Profiling must therefore not go too far" (Karlstad University, 2016b, p. 2). The university's strategic plan states that its aim is to strive for all teachers to conduct research and for all researchers to teach (Karlstad University, 2016b, p. 5). In documents from and interviews with representatives from UW, no motives were presented for its non-performance model (University West, 2014).

5.3 | Standardisation and outcomes for application at different institutional levels

For the third research question, we examined how performance-based systems were applied at different institutional levels. The aspects of standardisation and outcomes were used to analyse how the internal PRFS were translated and how they influence the allocation of research funding at the faculty and departmental levels.

5.3.1 | Standardisation

No university in our selection had a model in which the allocation of research funding was standardised throughout the whole higher education institution. All universities had models that allocate funding from the university level to the faculty or department level. Two universities also allocated to the level of the individual researchers. Four modes of distribution were identified: *performers*, *decreasing performers*, *increasing performers*, and *nonperformers*.

Two universities can be called performers (MU and LU) as performance-based resource allocation was strengthened by the fact that also the faculties used performance-based models. In the case of LU, the model at the faculty level was considerably stronger than the model used at the university level (Linnaeus University, 2017). At MU, it was clearly stated that the overall allocation system is set to distribute funding to the faculties, whereas further allocation is the responsibility of the faculty management and the university management provides no direction: "There is no requirement that the faculty will use the model in the further distribution, and thus no guarantee for groups or individuals" (Malmö University, 2012, p. 1). At MU, three out of five faculties used their own systems for further distribution of funding: one performance based, and two faculties used the university model (Interview, Research Coordinator, MU, 2017). At LU, the university management's intention was that the model should be used when the faculties distribute funding. A number of basic principles set by the university board were clarified in 2013 (Linnaeus University, 2013), emphasising an individual basis, external assessors, and external funding as requirements for research funding. However, the basic principles emphasising individual focus are followed and interpreted differently at the faculty level (Linnaeus University, 2015, 2017). Due to financial restrictions or moral considerations, the faculties make their own interpretations concerning, for example, the use of external assessors or external funding requirements to obtain further research funding (Interview, Research Coordinator, LU, 2015).

Two institutions were identified as decreasing performers (BTI and MDU). Here, performance was strong at the institutional level but decreased further down in the system, where the funding was not allocated based on performance. At BTI, funding was allocated to the departments, which are free to use the resources as they like (Interview, Dean, BTI, 2013). At MDU, the funding is allocated to the profiles, which are responsible for further allocation (Interview, Research Coordinator, MDU, 2013). The funding system is therefore not stable but decreases in power as the money for research trickles down the system.

One university (KU) was an increasing performer in that it replaced its overall performance-based system with a system of basic funding. However, the two faculty boards at KU used the previous institutional performance-based model for further allocations (Karlstad University, 2013; Interview, Research Coordinator, KU, 2017). Hence, even if the university management distributed research resources without performance measures, the faculties still embrace a model in which performance is of great importance.

Two universities were classified as nonperformers; performance-based models were not found at any level in their systems or were very limited. UW, which previously used a partly performance-based system, changed to a system in which funding is distributed to profiles and departments, which are unrestricted in their use of the funds. DU was also included in this group, as its performance proportion was limited. Here, funding not already allocated for doctoral education is broadly allocated based on applications from individuals, with the aim of spreading the resources (Dalarna University, 2015).

5.3.2 | Impact of internal performance-based research funding

In theory, the overall aim is presumed to be incentivising increased research output, external funding, doctoral students, or whatever is included in the model. A strong performance-based system in this vein is a system that has an impact and that contributes to a redistribution of resources (see Whitley, 2007). Only three of the universities have evaluated their internal PRFS (MU, BTI, and KU). Our analysis found three modes of how the internal

PRFS influence the lower levels of higher education institutions. These were characterised by resistance to PRFS, adjustment to PRFS, or absence of PRFS.

At two of the higher education institutions with performance-based models, the application was a top-down initiative that met strong resistance at the faculty level. At MU, where the model caused a sharp redistribution of research funding among the faculties, only one faculty member was in favour of the model.

They will say that this was the time when they began to demolish the [research field] at Malmö University, which was successful in the past. [...] While I also want to say that I am not opposed to make changes. [...] The thing is that historically, it was the [research field] faculty who brought a very large part of research funding, and this is now redistributed to other faculties (Interview, Dean 1, MU, 2013).

Other deans were similarly opposed to the idea of performance-based allocation, referring to the risk of fragmentation.

There is a risk with measuring performance—it leads to individualism and fragmentation. Money goes to postgraduate salaries, research time for professors and other things: seminars, meetings, et cetera. The more professors, the less money left for other things. I want to bring researchers [together] into constellations (Interview, Dean 2, MU, 2013).

At MU, the performance-based model of allocation has had great consequences for funding the faculties. A simulation of the model's effects estimated that one faculty went from 35% of the total share of research funding in 2012 to 19% in 2017; meanwhile, another faculty increased its share from 18% to 29% (Malmö University, 2015, p. 9).

The performance-based system at LU has not been evaluated, but resistance to the individually based system of allocation was found among LU's faculties. The deans expressed a reluctant attitude towards university directives; they were against the individual orientation of allocation. Instead, they preferred "funding directed towards profiles, not individuals [...] you must be part of an environment" (Interview, Dean 1, LU, 2013). One dean instead expressed a wish for a qualitative assessment, as "mechanical models can be manipulated" (Interview, Dean 2, LU, 2013). The two deans described the application of the individually oriented system as being preceded by a "discussion that simply could be described as the vice-chancellor thinking that there was a number of underperforming professors" (Interview, Dean 2, LU, 2013). Instead, they preferred allocation based on an overall assessment, as some scholars are good at finding external funding, while others are good at creating successful research conditions.

At MDU and BTI, the processes were instead characterised by adjustment. Internal PRFS at these institutions were less strict and included many variables, which has made them more flexible, resulting in only a minor redistribution of funding. Here, internal PRFS have faced less resistance at the faculty and departmental levels. Performance-based funding is seen as giving possibilities to "those who already publish; instead, this faculty wants to fund projects it believes have possibilities" (Interview, Head of department 3, DU, 2013). These institutions have signalled that external funding and publications are important without changing the existing structures much. At BTI, the evaluation of the performance-based model did not show any further changes in resource distribution.

An outcome that may be negative in the longer term is that the model risks increasing, rather than reducing, polarization between strong research areas and strong educational areas, which might cause the university to fail with the strategy to create complete environments (Blekinges Technical & Institute, 2015, p. 45)

This version of the model was therefore revised, and the factor of registered students was introduced into the model (Interview, Research Coordinator, BTI, 2017).

For the universities at which PRFS were absent (UW, KU, and DU), a performance-based model was either applied but later removed or established at a very low level. At UW, the performance-based model was supported by the Dean, who was strongly in favour of distributing funding based on performance: "The ambition is to follow the national model [...]. The incentive for the organisation should be to publish as much as you can" (Interview, Dean, UW, 2013). However, the vice-chancellor later removed this model.

At KU, a new model for research funding was implemented to support designated strategic environments and invest in high-performing individual researchers (Karlstad University, 2013). In this model, 15% was allocated based on performance indicators (external funding, publications, and community outreach). The performance aspect was set up to mimic the governmental allocation model and to stimulate increased external revenue and scientific production. The performance features (inclusion of conference papers, the unclear definition of community outreach, and flawed data) met heavy criticism. As a result, the model was revised, and the performance aspect was removed (Karlstad University, 2013). Despite this, the faculties still use performance models (Interview, Research Coordinator, KU, 2017). We grouped DU with institutions at which PRFS were absent, due to the low level of performance-based funding.

6 | SUMMARY

Table 3 summarises our analysis; three categories of higher education institutions are presented in relation to internal PRFS: the *excellence seekers*, the *pragmatists*, and the *sceptics*.

In the excellence-seekers category of higher education institutions (LU and MU), the internal PRFS varied in strength from very strong (MU) to comparatively more limited in strength (LU). Performance measures were at both institutions used at the university and faculty levels. Despite the limited strength of the internal PRFS at LU, the performance features dominated how actors at all levels perceived their systems. Both used standardised models that clearly make them performers, and they both struggled with resistance against the models at the faculty level. MU's model had high impact, although it was motivated in a softer way by focusing on the university's

TABLE 3 Summary of internal PRFS structures

	University	Strength	Motives	Standardisation	Outcome
The excellence seekers	Malmö University	Strong	Strategic excellence	Performers	Resistance to PRFS
	Linneaus University	Limited	Individual excellence and Elite	Performers	Resistance to PRFS
The pragmatists	Mälardalen University	Strong	Efficiency and Co-production	Decreased performers	Adjustment to PRFS
	Blekinge Technical Institute	Strong	Transparency	Decreased Performers	Adjustment to PRFS
The sceptics	Karlstad University	None	Equity and Width	Increased performer	Absence of PRFS
	Dalarna University	Limited	Disapproval	Nonperformers	Absence of PRFS s
	University West	None	None	Nonperformers	Absence of PRFS

Source: Authors.

strategic targets (strategic excellence). Meanwhile, LU's more limited model was surrounded by the clearest rhetoric of excellence based on individual performance.

The pragmatists (BTI and MDU) had strong internal PRFS, but the motives for applying the systems were efficiency, coproduction (MDU), or transparency (BTI) rather than excellence. Although these were launched as performance-based models, the performance aspects have been downplayed, as other aspects are included in the models (number of doctoral students, registered undergraduate students, etc.). The performance aspect was stronger at the institutional level but was adjusted and decreased at the lower organisational levels. In this approach, the internal PRFS do not cause any major redistribution patterns and are not resisted or removed.

Three higher education institutions were categorised as sceptics (KU, DU, and UW) due to limited or absent performance-based systems. The rationale (if given) was the disapproval of the national model (DU) or emphasising the need for a university to be more comprehensive than competitive (KU). Talk of excellence was absent. These universities had all removed earlier versions of internal PRFS, and two out of three (DU and UW) have systems in which neither faculties nor departments use performance-based measures. KU does not have an internal PRFS for the university, but faculties use prior performance-based systems to redistribute research funding.

Table 3 shows that the larger universities (including LU and MU, which received university status in 2018) are performers or increasing performers, as they have applied purer and more research-oriented performance-based systems, or because performance becomes important at the faculty level (KU). Hence, although KU removed the internal PRFS at the university level out of scepticism, it was implemented at the faculty level, resulting in a performance-based system. At the same time, the smaller and more specialised institutions were decreasing performers with mixed systems including more variables, which resulted in weaker impact (the pragmatists MDU and BTI), or nonperformers (the sceptics UW and DU).

7 | DISCUSSION AND CONCLUSIONS

Four out of the seven higher education institutions followed the national system of performance-based funding (five if DU, with a rather small amount of performance-based funding at 1.5%, is included), but compliance was most evident among the excellence seekers. However, fuzzy lines exist between the models for allocating research funds. This study shows that to understand how internal PRFS work at the university level, it is necessary to also account for basic funding and profiling. These three parts can reinforce or cushion each other and together determine how the actual performance features work in the internal systems of funding redistribution.

The institution level management of Swedish higher education seems to overcommit to governmental signals (or did so at first, at least on a rhetorical level). The national model of limited redistribution of research funding based on performance by no means requires universities to apply their own performance-based systems, nor were there any other national initiatives at this time (such as a national evaluation of the quality of research) that could explain why the universities applied performance-based systems that imitated the national model (Hammarfelt et al, 2016). The argument of institutional theory is that universities adopt performance measures either because they imitate other institutions, seek normative legitimacy, or because the national models for funding research form these constraints. As governmental pressure is low, the application of performance features in funding models in this case can be interpreted as normative isomorphism, or more specifically as *ritual conformity*, in which organisational change is less driven by actual striving for efficiency (DiMaggio & Powell, 1983; Meyer & Rowan, 1983).

However, two main conclusions can be drawn from the way the universities in this study dealt with performance-based systems for the internal distribution of research funding. (a) The translation process within each higher education institution shaped the PRFS to fit different purposes. (b) The internal PRFS were talked about rhetorically (in line with ritual conformity) but were used modestly. Thus, the impact of performance models on lower levels of universities was often low. This study shows that several of the higher education institutions modify and expand

the national model; specifically, for the allocation of research funding for specific needs, in a process of translation across different institutional levels. This result is not fully in line with Hammarfelt et al (2016) or Woelert and McKenzie (2018), who found that universities only make smaller adjustments to the national model.

In the observed group of higher education institutions (including newer universities and university colleges) internal PRFS seem to be implemented to give a sense of legitimacy and accountability without rocking the boat, but more to keep the course. This can be interpreted in line with Mourizen and Opstrup (2020), who argued that to make the models legitimate, efficiency is reduced. The term *performance* is often used rhetorically in that the actual redistribution of funding based on performance is limited or even non-existent. Thus, the overall purpose for most universities in this study did not seem to target excellence but signalled the importance of publishing and attracting external funding. Only one of the selected universities applied a model that made a great impact. The rest of the universities had limited models or models that included variables other than research performance to soften their impact. Sometimes, they had no performance-based models at all. Also, the fact that only a few internal PRFS have been evaluated might indicate that the universities are less interested in the actual redistribution of funding based on performance than in signalling conformity with governmental incentives and being an up-to-date higher education institution (Hammarfelt et al, 2016). For instance, using a broad model with a number of indicators—such as the number of doctoral students and registered undergraduate students, that outweigh classical performance output—makes it possible to ensure that the weighting does not disturb the existing system too much.

As expected, where strong internal PRFS have been implemented, there was resistance at the faculty and department levels. There was less resistance at higher education institutions where the systems were weaker and included more variables that are not output-based. However, what is said about PRFS at the management level is not always connected to how they work in practice. At LU, there was a strong rhetoric of excellence, but the performance-based model was rather limited. At MU, on the other hand, there seemed to be a clear strategy of not talking too loudly about excellence and softening the rhetoric while applying a sharp performance-based system that has had a great impact on the redistribution of research funds.

Our study had some limitations. Investigating the application of performance-based research funding systems in higher education institutions is to shoot at moving targets, as these systems are subject to constant changes. It is a weakness of the study that it was limited to a few new universities and university colleges, which limited the possibilities for comparing different types of higher education institutions. Future research should therefore include a larger and more comprehensive investigation of how different higher education institutions deal with performance-based systems on different levels. On the other hand, a strength of our study is that it supported an analysis of lower institutional levels of the university. This has made it possible to examine how PRFS in practice work at a limited number of institutions, at a certain point of time. This has allowed us to contribute to an understanding of how national incentives to steer research resources based on performance can be translated at higher education institutions into internal research allocation systems at the institutional, faculty, and departmental levels.

As no straightforward connections exist between PRFS incentives and their efficiency (Auranen, 2014; Auranen & Nieminen, 2010), overly strong PRFS, based on managerialism and extrinsic motivations, often clash with organisational cultures based on collegiality and intrinsic motivations (Edgar & Geare, 2013; Jacobsen & Bøgh Andersen, 2014), which might result in unintended effects (Butler, 2010) and the adjustment or removal of strong internal PRFS. The idea of performance is underpinned by an assumption of rationality and a belief that steering funding to those who perform the best will automatically produce more and better research. In line with previous research (Auranen, 2014; Butler, 2010), this study has contributed by problematising this automatic process and instead pointing out how different levels of higher education institutions and a number of people are involved when internal PRFS are applied. These findings and the analysis presented are relevant for informing higher education policymakers.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to restrictions, e.g., their containing information that could compromise the privacy of research participants.

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ENDNOTES

¹ During the period 2010–2013, research funds were redistributed in accordance with performance indicators; 10% of new funds were allocated according to performance. In 2014, this share increased to 20% (Swedish Government Financial Bill, 2013). An effect was that a large proportion of the new funds were allocated to older universities. After this received critique, no funds were allocated for 2015. For 2016, the model was relaxed and combined with a minimum allocation for each university (Swedish Government Financial Bill, 2015, p. 57; Swedish Government Financial Bill, 2016b, pp. 56–57). For 2017, no allocation based on performance took place (Swedish Government Financial Bill, 2016b).

² Malmö University College received university status on 1 January 2018.

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