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Institutional impact of performance-based funding in Finnish higher education: Changes and effects on institutional behaviour

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Abstract

Performance-based funding (PBF) is widely adopted across European countries and has also been implemented in the Finnish higher education sector, with the first elements of performance measurement introduced in the 1990s. Similar to other Nordic countries, Finland faces challenges related to the financial, political, social, and sustainability aspects of its welfare model, which have triggered government-led reforms and initiatives within the scope of New Public Management (NPM), significantly impacting the higher education sector. In the heavily publicly financed higher education system characterised by ambitious objectives, funding remains a central challenge. Delivering more with less resources is increasingly important, particularly considering national ambitions and demographic trends. Although Finnish higher education institutions hold significant autonomy in international comparison, their heavy reliance on public funding directly impacts their actual autonomy. Furthermore, the funding models for higher education institutions has become an instrument of public authority steering. Investigating the effects of funding models is particularly interesting in the Finnish context, which has one of the most performance-oriented systems globally with a strong emphasis on outputs. Unlike many European universities, a fixed budget is not allocated to Finnish universities. Instead, they obtain public funding based on competition and the relatively unique approach within the Finnish context contributes to an interesting research environment. While the popularity and attention directed towards PBF in Europe is high and an extensive body of literature exists on various topics related to it, there is limited research on its impact on institutional performance and behaviour. Hence, this article aims to explore the diverse effects of the funding models, as identified in prior research, on institutions and their behaviour. According to the reviewed literature, PBF significantly impacts institutional behaviour in various areas, such as research and publication patterns. The funding schemes and indicators clearly communicate expectations to the higher education sector through direct financial incentives and as a result, institutions adjust their behaviour to maximise funding opportunities. A recent OECD evaluation questioned whether Finland truly needs to focus so heavily on outputs in its funding model. This aligns with the findings and challenges discussed in this article.

***Keywords**:* performance-based funding, performance measurement, Finnish higher education, Funding—State higher education, New Public Management, Principal-agent theory.

Introduction: Towards performance-based funding in the Finnish higher education context

In several European countries higher education systems often rely to a high extent upon public revenues. This is also the case for the Nordic region, and particularly for Finland, which is the country most dependent on governmental funding out of all OECD countries regarding covering the expenditures of higher education institutions (OECD, 2022b). The higher education system in Finland traditionally follows the Nordic welfare state model, in which higher education is perceived a public good (Ylijoki, 2014). During the construction of the welfare state from the 1960s to 1980s, there was an expansion of government spending on higher education, which simultaneously also led to increased control and regulation. This was connected to the governmental desire to use universities as tools and vehicles for the "democratisation of society, and to demands for internal democracy by expanding influence to students and other groups within the universities" (Holmén, 2022, p. 148). The wave of various reforms is described to have been particularly strong in the Nordic region, for instance in Finland and Sweden, achieving high levels of equality within the educational systems, also within the higher education sector (Piketty 2014, as cited in Holmén, 2022).

In the following period after the 1980s, a wave of reforms followed that were promoted by international organisations, such as the OECD (Gruening, 2001), stating that performance targets should be used to govern public organisations instead of governing through regulation (Gruening 2001, as cited in Holmén 2022). A change was initiated, from governance characterised by democracy in universities towards corporate governance (van Berckel Smit, 2023). As a result of the weakened economic situation and recessions, universities became under more pressure than before to simultaneously deliver more, while using less resources and economical assets. New Public Management (NPM) and its ideals have guided the transformation of the performance measurement and management in the higher education sector, as part of the scope of the general reform of state administration (Kivistö et al., 2019). Governments introduced policies based on NPM within higher education since the 1980s, with the aim of reducing costs and maximising results related to education, research, and service (van Berckel Smit, 2023). Furthermore, as all countries in the Nordic region, Finland have to deal with the financial, political, social and sustainability of the Nordic welfare model, triggering government-led reform initiatives within the scope of NPM, particularly in the higher education sector (Kivistö et al., 2019).

Radnor and Barnes (2007, p. 393) define *performance measurement* as “quantifying, either quantitively or qualitatively, the input, output or level of activity of an event or process”. This is directly related to *performance management*, which in turn is defined as an “action, based on performance measures and reporting, which results in improvements in behaviour, motivation and processes and promotes innovation” and these definitions also reflect practices in Finland. In a global comparison Finland has among the most performance-oriented systems regarding financing higher education (Pekkola et al., 2022), exceptionally focused on results, with 76% of the state funding for universities and 95% of the funding for universities of applied sciences being based on quantifiable results (Hautamäki, 2023). As Performance measurement (PM) was introduced in Finland, like in many institutions across the Western nations (Parker, 2012) a new funding scheme was put in place to guarantee that universities’ PM contained quality. The development towards this model began in the early 1990s, when the funding scheme of universities was changed with the introduction of the first performance-based elements in the system (Kettunen, 2016; Himanen & Puuska, 2022; Pölönen et al., 2021).

However, surprisingly little knowledge exists on the impacts of PBF on institutions’ behaviour and performance, despite PBF’s popularity and the extensive attention it has received, widely used in higher education systems around Europe (Kivistö & Kohtamäki, 2016). Furthermore, although an extensive body of literature exists on PBF and various topics related to it, empirical research on the actual impacts of performance-based funding and performance-based management on higher education institutions is described as almost non-existent in Europe and the higher education sector (Kivistö & Kohtamäki, 2016; Kivistö et al., 2017), underlining the relevance of the topic.

Dividing the burden of costs from the state to students, by an introduction of or increase of tuition fees is a phenomenon that has occurred in many countries worldwide. However, this is not the case in Finland, where also tertiary education has remained free of charge[1] and hence, the Finnish context results in an interesting environment to focus on the performance-based funding scheme, that has been adopted in universities as of 2013 (Kettunen, 2016). As the Ministry of Education and Culture (MEC) in Finland initiated a process to review and reform the funding model for the following funding period (2025-2028), a debate on many levels has taken place in the Finnish higher education sector. Therefore, the aim is also to shed light on opinions and views on the funding models and their indicators, from the perspective of university professors. As the new funding scheme is about to be implemented with no major changes in sight, it is of high importance to discuss the impact and implications of the current funding scheme on higher education institutions, as performance measurement continues to strongly characterise the Finnish funding model.

The article is focused on understanding the impact of PBF on higher education institutions and their behaviour in Finland. It aims to explore how funding models and performance measurement, based on prior research, affect institutions in various ways. After the introduction and discussion on the development towards performance-based funding in Finland, the second section addresses a key challenge in Finland's higher education sector: financing the heavily publicly funded system with its ambitious objectives. The following section describes the dual HE system and the financial dependence on the Parliament and Ministry of Education and Culture, after which the impact of PBF on institutions and their behaviour is discussed, both generally and with a focus on research, publishing patterns and briefly touching upon teaching and admission procedures. Next, PBF and institutional behaviour is discussed through the lens of the principal-agency theory, with examples from the Finnish context. Finally, the proposed funding scheme from 2025 onwards is briefly discussed, followed by a discussion and conclusion.

[1] After a trial period the introduction of tuition-fees also became a reality in Finland in 2017 for students from outside of the European Union (EU) or the European Economic Area (EEA), who are studying in degree programmes taught in languages other than Finnish and Swedish. However, no tuition fees are charged to students studying toward degrees in Finnish or Swedish, regardless of their nationalities (Finnish Immigration Service, 2016).

Funding: A key challenge in the publicly financed higher education system characterised by ambitious objectives

Before delving into the topic of performance-based funding in more depth, it is essential to shed light on certain aspects of the Finnish context regarding funding from the broader perspective. One of the ambitious goals for the higher education sector is to ensure that 50% of the population holds a higher education degree by 2030. To reach the objective, the nation must increase its university-level graduates with 9% over a decade. Although in an international context the target is not perceived as overly ambitious, this is a significant increase considering that between 2008 and 2018 the number of tertiary graduates in Finland increased in total by three percent (Myklebust, 2020; Nielsen et al., 2023). In addition, the population in Finland is ageing, and current trends also predict a decline for the incoming years (OECD, 2022b). Moreover, the working aged citizens are forecasted to decline, which in turn anticipates slowing the rate of growth of the nation's economy (HYPO 2020, as cited in OECD, 2022b) and the objective of expanding the total number of university students is in tension with the financial assets (Isopahkala-Bouret, 2019). Additionally, the demographical trends and objectives also have consequences for the HE sector as the institutions are highly dependent on governmental funding (OECD, 2022b; Nielsen et al., 2023), increasing the financial pressure of the sector significantly.

Since the financial crisis in 2008 "funding for Finland's overwhelmingly publicly financed system of higher education has fallen in real terms, in total and per student" (OECD, 2023, p. 4). Data reveals that spending per full-time-equivalent student in Finland has declined from 19 129 euros in 2012 to 16 502 euros in 2019 (OECD, 2022a, p. 252). Furthermore, OECD (2023) highlights that based on the international comparison of data, from 2012 to 2019, presented in the OECD report *Education at a Glance 2022* the spending per full-time student declined nearly 14% in Finland (adjusted for inflation). This contrasts with an average increase of 13% in real terms across OECD nations (OECD, 2023). Simultaneously, the expectations on the higher education sector to provide expertise, skills, and innovative ideas to support the knowledge-intense economy have continued increasing (OECD, 2023).

To conclude, financing of higher education remains as a central challenge in the Finnish context in the light of the ambitious national objectives. It is uncertain whether the additional costs caused by the described ambitions can be adequately covered by increases in government core funding, especially in a system already heavily dependent on public funding (Nielsen et al., 2023). The ambitious objectives within the sector coupled with financial realities, create pressure for well-functioning funding models for higher education institutions. Additionally, responsible utilisation of taxpayer's resources becomes crucial in demanding times.

The Finnish higher education system and its financial dependence on the Parliament and Ministry of Education and Culture

Finland is one of the so-called "centralised" nations, where national legislation regulates education. Finnish universities are assigned with three tasks: education, research and engagement with industry and society—also known as "third mission"— added in 2007 (Kallio et al., 2017) to enhance universities' societal value. As a result, universities are obliged by law to interact with the surrounding society (Kallio et al., 2017). Higher education in Finland consists of a dual system including universities and universities of applied sciences (UAS). A total of 22 universities of applied sciences and 13 universities operates under the Ministry of Education and Culture (MEC). In addition, two universities of applied sciences operate under the Ministry of the Interior and one university functions under the defense administration (MEC, n.d.).

As a result of the Universities Act of 2010, universities are *independent legal entities*, whereas universities of applied sciences operate as *limited public companies.* The first are academically oriented, emphasising scientific research and education which is based on it, whereas the latter focus on offering pragmatic education, responding to the needs of working life and contributing to regional development. Applied research is the main emphasis of research, innovation, and development of the universities of applied sciences (MEC, n.d.). Universities in Finland are publicly funded, driven by a public mission. Through performance-based funding and performance contracts, the Ministry holds a crucial role at the system-level in terms of coordinating and executing national policies related to higher education. Furthermore, the Ministry interacts and engages actively with higher education institutions and has used a performance-based funding model since 1995 (Kohtamäki, 2014). Given that it is unusual in Europe for universities to receive no fixed budget and for all public funding to be allocated based on competition (Seuri & Vartiainen, 2018), the Finnish context unique.

The Ministry is the primary financier of the higher education institutions, in addition to monitoring and steering their operations. Negotiations are held between the Ministry and each institution in the beginning of every contractual term lasting four years, covering shared goals and common objectives for the HE system, specific measures for each institution, including profile, purpose, strengths and core areas as well as new emerging fields, degree goals and objectives. Moreover, the budget which is allocated based on the listed aspects is also addressed (MEC, n.d.). As part of the annual budget formulation, the Parliament determines the core funding for both types of higher education institutions, which is distributed to the institutions by the Ministry. This is performed in accordance with the funding models for universities and universities of applied sciences (see Figure 1 and 2). Besides the state funding, institutions also receive external funding from sources such as the European Union, the Academy of Finland, Business Finland or foundations and companies (MEC, n.d.). However, as noted by Pekkola et al. (2022), the proportion of external funding has consistently been just 20% of total expenditures over the previous decade.

Figure 1: Universities of Applied sciences core funding model (2021-2024). Reprinted with permission from the Ministry of Education and Culture, Finland (n.d.).

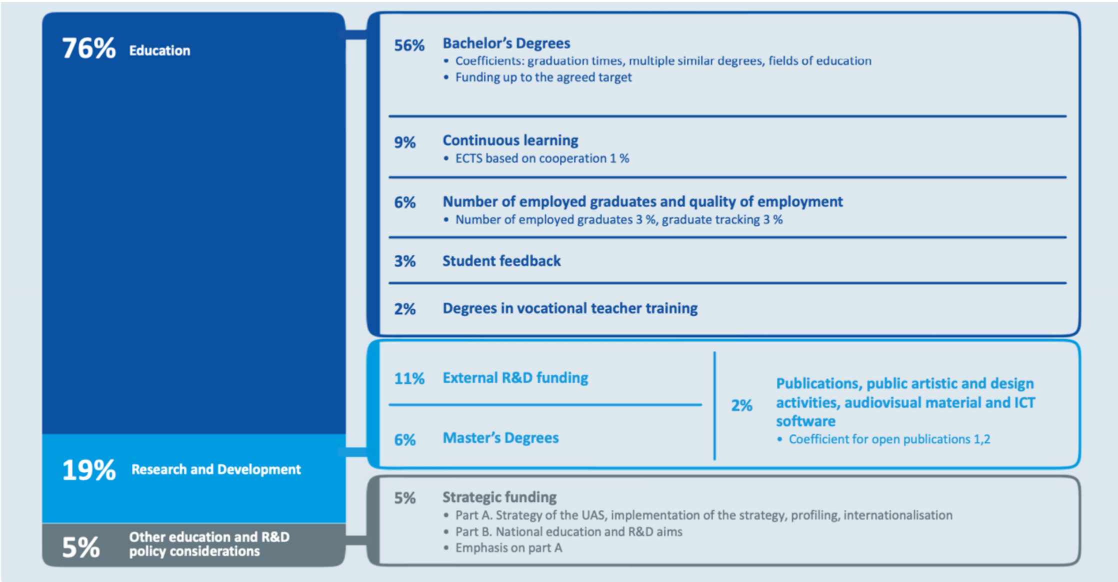
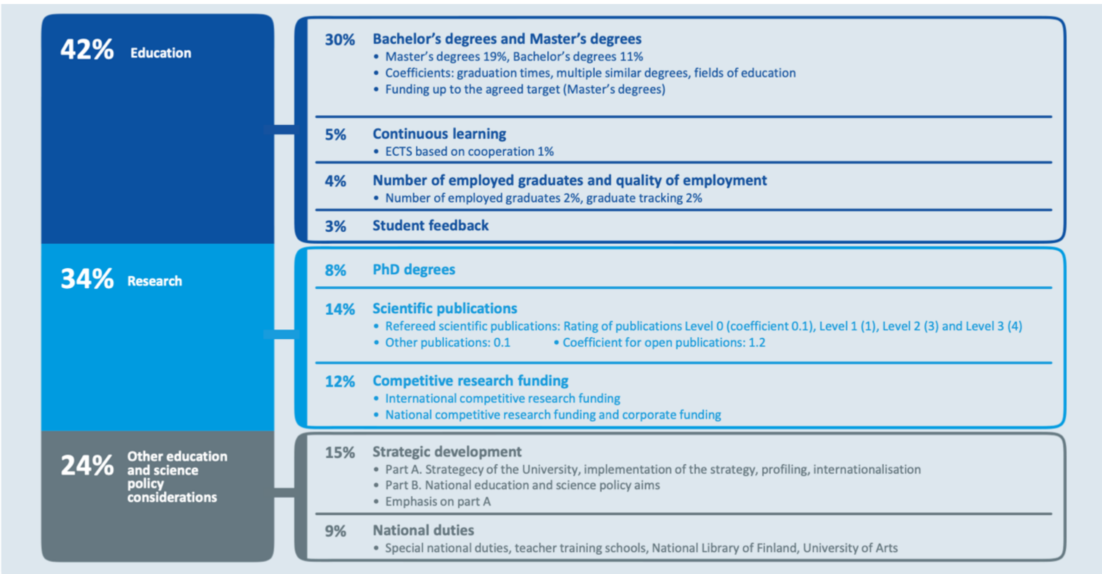


Figure 2: Universities core funding model (2021-2024). Reprinted with permission from the Ministry of Education and Culture, Finland (n.d.).



The operating environment for universities in Finland has transformed fundamentally over the past few decades (Seuri & Vartiainen, 2018). It was not until the reform of the Universities Act implemented in 2010 which resulted in major changes for the entire HE system, as the funding mechanisms were replaced and the importance of output measures increased significantly (Kettunen, 2016). The monitored indicators communicate clear expectations to the higher education sector, encompassing degrees, study achievements, scientific publications, societal impact as well as internationalisation. The listed expectations are reinforced by direct financial incentives (Seuri & Vartiainen, 2018), found in the funding schemes.

Furthermore, in an international comparison the Finnish institutions enjoy significant autonomy, with funding exceptionally strongly tied to output indicators. The reform was rooted in the vision of autonomous universities being able to respond to societal changes in a more flexible way, as well as to the notion that their behaviours can best be encouraged towards the desired direction by placing the institutions in a transparent competition, as concluded by Seuri and Vartiainen (2018). Furthermore, in addition to the Act’s objectives to increase universities’ ability of reacting to changes in the operational environment, other aims included diversifying their sources for financing and strengthening the prerequisites in terms of competing for international research funding and collaboration with foreign higher education institutions and research. Moreover, the objectives included encouraging universities to distribute resources for strategic priority areas as well as for top-level research and improving the effectiveness and quality of teaching and research in the universities and finally, to strengthen the role of universities in the innovation system (MEC, 2016).

Simultaneously, the funding model for higher education institutions has become an instrument of public authority steering (Seuri & Vartiainen, 2018) and as stated by Himanen and Puuska (2022, p. 238) “the legislation made universities more accountable in relation to governmental goals as the Ministry of Education and Culture (2016) ensures by means of steering that university activities conform to the higher education policy aims”. In addition, although according to MEC (n.d.) “the purpose of the financing models is to improve the quality, impact and productivity of the higher education institutions”, Kallio et al. (2017) concludes in their study that the quality indicators in use are in fact quantitative.

When it comes to the allocation of the basic funding by the Ministry, it is strongly based on research and teaching performance among universities, whereas the allocation of funding among universities of applied sciences is based on education, research, and development performance (Hautamäki, 2023). In addition, part of the funding is allocated based on the institutions' strategies that are formulated in collaboration between each institution and the Ministry. Moreover, specific national duties and tasks institutions have are also considered in the government funding. It is emphasised that the Ministry's funding model is not meant to be used at a lower macro level for allocating funds internally (MEC, n.d.; MEC, 2015). Instead, these should be allocated in accordance with the institution's own plans and objectives. However, universities have been forced to maximise their performance and incorporate the national funding model into their internal funding allocation models because of the performance monitoring and in particular, performance-based allocation of research funds (Seuri & Vartiainen, 2018).

As concluded by Nenonen (2020), a shift towards PBF in many OECD countries has led to strengthening the governmental impact and influence on higher education institutions. Moreover, the financial dependency on the Government and Ministry has a direct impact on the actual autonomy of the higher education sector (Nielsen et al., 2023; Holmén, 2022), and although Finnish HEIs hold significant formal autonomy regarding internal decision-making, the priorities and decisions made at a higher level have a strong influence on the institutional behaviour and it has been confirmed that the Ministry's steering has a strong influence (OECD, 2022b).

To conclude, funding can be described as "more than merely a mechanism to allocate financial resources to universities" (Jongbloed, 2010, p. 10), funding being part of a set of tools and governance instruments, enforcing common objectives for higher education. Furthermore, it is an attempt for maximising desired outputs by using incentives for specific behaviours (Jongbloed, 2010), which also appears to be the case in the Finnish context, where institutions that are formally highly autonomous still are under influence and control.

The influence of performance-based funding on institutions

The role of the funding models in changes and challenges faced by higher education institutions at the institutional level

This section delves into the effects of the funding model from a broader perspective, commencing with a brief description on challenges, emphasising the impact the funding model had on the institutions. Additionally, the aim is to highlight the perspectives and opinions expressed by university professors in Finland. These perspectives are drawn from Hautamäki's article (2023), published in *Acatiimi* (a trade union magazine for members of the Finnish Union of University Professors, the Finnish Union of University Researchers and Teachers, FUURT, and the Union for University Teachers and Researchers in Finland, YLL).

Although the objective of the funding model was to encourage institutions towards specialisation and profiling, it has instead led to homogenisation as well as encouraging competition rather than collaboration among the different higher education institutions (Nielsen et al., 2023; Himanen & Puuska, 2022; Seuri & Vartiainen, 2018; Hautamäki 2023). This is a result of funding being distributed according to success determined by specific indicators and the increasing use of results as the basis for funding allocation (Himanen & Puuska, 2022).

Another central issue is that the result-focused model maintains the status quo as it looks backwards on outputs and results. Institutions on the other hand perceive the backward-looking nature of funding as a disincentive for investing in new activities that would bring results and pay off over a longer period, as well as increasing risks that are associated with the transformation and change (Hautamäki, 2023; Nielsen et al., 2023).

Professor Mika Lähteenmäki from the University of Jyväskylä commented that it is worth reflecting on what should be measured, stating that "in some fields, the job market sucks in the students after three years, and their masters' theses are never finished. If our goal is to produce experts our society needs, we have done a tremendous job. If we are supposed to produce degrees, we have utterly failed. These are big, principled issues – what are we expected to produce?" (Hautamäki, 2023, n.p.). It is furthermore emphasised that more predictable funding would allow for permanent jobs within academia as well as for development and new approaches, which currently is not possible due to the funding model. In addition, another challenge resulting of the PBF is highlighted by professor Hannu Vartiainen from the University of Helsinki. Although it was intended that the model would facilitate the division labor and various specialisations among the higher education institutions, it is not possible due to the zero-sum-game, "some fields are more profitable for everyone than others. That is why everyone has to try to get into the more profitable fields" (Hautamäki, 2023, n.p.).

According to the Ministry the funding model is only intended for the allocation of funds for higher education institutions, however, in practice it has "trickled its way down to faculties, departments, and research and teaching work" (Hautamäki, 2023, n.p.). According to Jussi Kivistö, professor of Higher Education Management at Tampere University, an investigation conducted in collaboration with colleagues on universities' internal funding models revealed that the Ministry's model is widely utilised within the institutions (Hautamäki, 2023). Similarly, other researchers emphasises that evidence on how the same incentives related to funding of the PBF model by the Ministry are used at the intra-institutional level (Mathies et al., 2019). According to Professor Kivistö, the Ministry's national funding model being used internally within institutions is hardly surprising, stating that the Ministry is shirking its responsibility by claiming that the model is not meant for the internal allocation of funds. For example, the work of those conducting and publishing research will most certainly be affected if institutions receive income by publishing in a certain manner. Moreover, Kivistö questions, "what kind of actor would build their incentives differently from how the money is distributed outside?" (Hautamäki, 2023, n.p.).

Impact on research activities in universities as a result of performance measurement

The funding model of the Ministry also includes elements of research assessment as performance indicators (Himanen & Puuska, 2022). As discussed, it is not advised for universities to follow the Ministry's funding model for distributing funds internally, however, performance monitoring and performance-based funding of financing research has led to institutions optimising their performance as well as using the Ministry's funding model internally (Seuri & Vartiainen, 2018). In 2015, the evaluative features of publications gained more prominence when a *National Publication Forum classification* was incorporated, adopted from the Norwegian Publication indicator (Himanen & Puuska, 2022), in Finnish "*Julkaisufoorumi*" also known by the "JUFO" acronym (Pölönen et al., 2021).

The classification model is used to rate the major domestic and foreign publication channels of all disciplines in four different categories as an indicator of quality, prestige, and impact. The main purpose is to provide a measure of quality for the Ministry's performance-based funding system for research, in terms of publishing performance (Pölönen et al., 2021). The categories of JUFO include the basic level (1), the leading level (2) and the highest level (3), and 0 is used for the publication channels not meeting the criteria set for the first level category. Prior to the inclusion of JUFO in the funding model, universities were able to increase their funding by the act of increasing the total number of scientific publications. After the introduction of JUFO into the funding scheme it is described that "the higher JUFO level the publication is, the higher the rewards" (Himanen & Puuska, 2022, p. 239; Pölönen et al., 2021). Moreover, as concluded by Mathies et al. (2019, p. 24) "the role of publications in Finland's PBF model has grown increasingly complex as the weights given to publications types increased over time" and rewarding publications that appear in the most influential academic outlets became the focus.

It is furthermore explained that although level 1 publications in JUFO result in less income based on the funding model, publishing books or articles on the first level is both more certain and faster and due to this "they have a more certain return on investment (of time and effort)" (Himanen & Puuska, 2022, p. 239). A related reflection by Mathies et al. (2019) is that academics simultaneously consider submitting contributions for journals on level 0 not being worth the academic or financial reward, therefore opting to a larger extent than before to submit contributions for journals of level 1. As noted by Mathies, Kivistö and Birnbaum (2019, p. 31) a problematic feature is identified regarding JUFO, as "publications count the same regardless of discipline, though there is variation among disciplines in their starting point in the percentage of journal articles or books being international (English language). However, these publications carry more JUFO points, and as such, some disciplines have advantage in this scheme and perform at high levels from the outset". Similarly, various scientific fields having differing publishing practices, also results in making some fields appearing as less efficient compared to others based on the model, with technology and medicine appearing as more productive than humanities (Seuri & Vartiainen, 2018; Hautamäki, 2023).

In a study examining how the implementation of JUFO into the funding model affected academics publication patters based on data of publications between 2012 and 2016, Mathies, Kivistö and Birnbaum (2020) discovered a trend towards increased publications in international and English-language outlets as well as a notable increase in peer-reviewed journals and a substantial decline in book publications over the 5-year period. Other findings in the self-evaluation report of JUFO indicate that although publishing in English language increased over the period between 2011-2017, publishing in the national languages was stable in JUFO levels 1-3 with a decline only occurring at the level 0 of the JUFO classification (Pölönen et al., 2021). Additionally, the self-evaluation report indicates that, instead of declining, book publications have shifted to higher JUFO levels (Pölönen et al., 2021, as cited in Himanen & Puuska, 2022).

Himanen and Puuska (2022) refer to a survey conducted in 2015 by Wahlfors and Pölönen (2018), which targeted leaders in Finnish universities to understand how the Publication Forum classification is used at the institutional level. Based on the responses, the model typically is used for developing and monitoring publishing activities Additionally, it serves as a criterion for internal financial allocation to department or faculty level and for evaluating the performance of individuals researchers. Related to this "it is noteworthy that the Publication Forum classification was never meant to be used as a tool for evaluating smaller units, individual publications or individual researchers. It was originally developed for the evaluation of a large number of publications produced by universities" (Pölönen et al. 2021, as cited in Himanen and Puuska, 2022, p. 240). However, it is not surprising according to Himanen and Puuska (2022), that institutions are tempted to use the classification system in their internal funding allocation processes, given that a relatively high percentage of the core funding is based on this system.

Mathies et al. (2019, p. 33) concluded that the changing scientific publication patterns of academics in Finland seem to support the underlying logic characterised by performance-based funding. On the other hand, also suggesting that the researchers apply a similar rational logic in the process of determining which outlets to target for their publication work, "in other words, Finnish academics now give time and energy to identifying an optimal balance between academic rigour and prestige (e.g. JUFO level), the incentive structures, and the time required to produce scholarship". To conclude, based on previous research it seems that universities and professors certainly are affected and changed their behaviour in a variety of ways as a result of the performance-based funding scheme, as well as by the introduction of JUFO. However, it should also be stressed that it is difficult and complex to isolate specific factors behind the change of publication patterns (Mathies et al., 2019).

Effects on teaching and admission procedures in higher education institutions as a consequence of the funding model

The *Evaluation of the governance and funding practices used by the Ministry of Education and Culture for steering in Finnish Higher Education Institutions* was published in June 2023 (Nielsen et al.). Conducted by Technopolis Group and 4Front, and launched by MEC, the evaluation explored various topics, including the impact of the funding model on the institutional behaviour. However, according to Professor Kivistö, the review overlooked fundamental issues. A key question to consider would be whether operational efficiency and productivity have improved, without risking quality. Kivistö further stated, "if the number of degrees increases, does it happen because of the funding model's incentives? Has the university taken internal measures for this to happen, or has the number been increased by lowering the bar?" (Hautamäki, 2023, n.p.). Kivistö explains that it is possible to expedite studies through real means, mentioning effective study guidance and sensible course scheduling as examples. However, the pursuit of meeting quantitative targets may lead to strategies that compromise performance requirements (Hautamäki, 2023).

With the highest percentage of state funding for universities being allocated based on the number of graduates, this can lead to risks regarding the aspect of lowering requirements, affecting the quality of teaching as well as student admission. Research has confirmed that "universities' internal PM practices have resulted in the quantification of quality and probably, also, to sub-optimizing and free-riding. Moreover, and perhaps even more alarming than the fact that the indicators of quality are being one-sidedly quantified, is that the easiest way of meeting targets is by lowering quality — for instance by letting students pass exams more easily and granting degrees with looser criteria." (Kallio et al., 2017, p. 299).

Another aspect which the funding model seems to affect is the competitive student selection procedure. The higher education sector, student admission practices and policies have been able to resist major marketisation involving the implementation of student fees. However, an observation by Isopahkala-Bouret (2019) is that a mechanism through which universities can optimise their chances of public funding is the student selection. Finland has an unusually low rate of acceptance of prospective students (OECD, 2020 as cited in OECD 2022b) and is therefore one of the most selective and competitive systems within the OECD countries, with a significant number of applicants not gaining admission (OECD, 2019). Moreover, according to the OECD comparison in 2016, Finland had the highest applicant rejection rate, with 67% of candidates not gaining admission to higher education (OECD, 2019).

Furthermore, it is explained that "universities are paid according to the agreed target number of graduates; therefore, it is not beneficial for them to recruit more students than the number for which the institution is rewarded for by the state" (Isopahkala-Bouret, p. 3). If an institution cannot achieve the set target, the full potential percentage of funding is not received. On the other hand, if the output is more than the set target, additional funding is not provided (de Boer et al., 2015) and hence, institutions are highly selective, as student performance and graduation rates directly impact their funding. In addition, as acknowledged by the OECD (2023, p. 37) "the highly selective nature of the current admissions system means that student advising and supports may be less developed than in systems with more open admission systems", furthermore posing the question whether there is a possibility for peer learning, where Finland could benefit from learning on practices in higher education systems with more open admission, such as those in less selective parts of North America, Austria and Dutch-speaking Europe (OECD, 2023).

Another consequence of the competitive admission system, driven by PBF and impacting both students and the education sector, is the emergence of private enterprises in Finland that offer courses, tutoring, and training to prepare students for entrance examinations to the public universities. However, this is not aligned with the traditional values that strive to provide equal educational opportunities for everyone, as personal economic investment is required for participation in such training and courses (Isopahkala-Bouret, 2019).

Performance-based funding, institutional behaviour and the principal-agency theory

This section is focused on a brief description of the principal-agency theory, followed by examples from the Finnish context related to PBF in light of the theory. The theory is an analytical representation of a contractual relationship involving at least two parties. One of these is called the *principal*, engaging the other party called the *agent* to carry out certain services on the principal's behalf (Jensen & Meckling 1976; Ross 1973, as cited in Kivistö, 2005) and the agent typically receives for instance a payment in exchange and return for the invested efforts (Kivistö, 2005). The theory can serve as a framework for drawing conclusions between PBF and its impact on institutional behaviour, with the government acting as the principal and universities as the agents within the Finnish context. Despite the theory's origin in economical sciences, it has been proven to be suitable also within other disciplines (Shapiro, 2005).

Urbanek (2020, p. 130) states that the "contract in which one party, the principal, engages the other party, the agent, to provide services on the principal's behalf. If the preferences of the contracting parties are contradictory, and in addition, there is an asymmetry of information, this may lead to uncertainty about the implementation of the contract". Furthermore, as concluded by Boston (2016) two concepts arise from information asymmetries being adverse selection and moral hazard. The first occurs in a pre-contract situation where the agent can hold information not disclosed to or possible to observe by the principal, which in turn may lead the principal towards making an adverse selection. Moral hazard, on the other hand, arises after the contract is established, stemming from the principal's inability to observe all the agent's behaviour. This can lead to the agent performing well in tasks that are easily monitored, while neglecting those that are difficult to oversee (Boston, 2016).

The consequences of the moral hazard are also discussed by researchers in the Finnish context regarding institutional behaviour and the funding model. Highlighting the risk of focusing less on the elements not measured in the funding model, it is explained that it is particularly important being conscious of incentive mechanisms based on indicators in the university environment, where relevant indicators may be challenging to measure. Furthermore, this is explained to be the reason for why systems strongly reliant on indicator-based steering are rare in the global context (Seuri & Vartiainen, 2018).

PBF has been concluded to erode agents' motivation. The assumption of the theory is that agents are not committed to the principals' objectives and furthermore often shirk duties, and this leads to a situation characterised by the carrot and stick, possibly damaging the organisational commitment and morale of employees, described as driven by intrinsic motives (Andersen & Pallesen 2008 and Dougherty et al., 2016, as cited in Dougherty and Natow, 2020). Although the reviewed literature does not reveal aspects specifically related to the damage of organisational commitment in the Finnish context, Hautamäki's article (2023, n.p.) highlights related aspects pointed out by professor Lähteenmäki, "instead of steering towards results, trust in the universities would be well-placed. They are the ones able to determine what is sensible use of resources right here, right now". Furthermore, Lähteenmäki states that in terms of considering what aspects are facilitating the scientific advancements and how the resources should be allocated, the question is whether the professional researchers in universities would be better equipped to respond such question, rather than officials at the Ministry (Hautamäki, 2023).

The competitive student admissions to higher education, highlighted by Isopahkala-Bouret (2019) is another example that can be discussed in light of the theory. As institutions are paid according to the target number of graduates which has been agreed together with the Ministry, it is not beneficial for the institution to recruit a higher number of students. It was highlighted that if an institution on the other hand, does not achieve a set target, the full potential percentage of funding is also not received. Similarly, if the output is higher than the objective, it does not lead to additional funding (de Boer et al., 2015). Moreover, Mathies et al. (2020, p. 35) exemplify institutional behaviour in terms of work division, "given how quickly publications became the basis for a significant portion of the national funding model, we imagine institutions with few highly productive scholars are quickly attempting to identify ways to increase scholarly productivity". The possible behaviour and strategy of the institutions highlights how PBF, and the principal-agency theory are aligned in this context, in which HEIs are making self-serving decisions and strategical choices to increase the funding, for example by the act of being highly selective in their student admission processes.

To sum up, as funding is allocated based on the number of students who complete their studies and graduate, the ideal candidates for admission, from the perspective of securing public funding within the heavily output-focused funding schemes, are highly capable and motivated students, especially those who can progress through the system quickly.

Proposal on the national funding models for 2025-2028

To date, three funding models have been implemented. The first model was in use between the years 2010-2012, followed by a second model for 2013-2017, and a third model for 2017-2020. Currently, the fourth funding model is in use (2021-2024) (Himanen & Puuska, 2022). For each four year-long term, the funding model has been updated with changes to the proportions of various indicators, for instance with completed degrees receiving a stronger emphasis lately (Hautamäki, 2023). Although the article's focus lies on understanding the impact of the PBF and funding model on the institutions and their behaviour, the new proposal of the funding model for the following period 2025-2028 (see Annex 1, in Finnish) published on 15 December 2023, is also relevant in the context and hence, briefly touched upon.

The outcomes and changes for the funding of the following period is the result of the efforts of a working group appointed by the Ministry of Education and Culture. It has been proposed that the revised models for allocating funding should also in the future be based on result-based components, with indicators related to education and research as well as strategy-based funding, creating future capabilities (Finnish government, 2023).

According to the proposal, higher education institutions should also in the future decide on the internal allocation of the received funding independently. Some of the changes proposed for the next funding schemes are related to the objective of enhancing the educational levels and skills, this is intended to be facilitated by a new indicator based on the number of new first-time applicants of students and more weighting is also aimed at the completion of doctoral degrees. In the aim of striving towards efficiency, it is proposed that the weighting decreases for those students who already have several degrees of the same level, compared to the current weighting system. It is also explained that the weighting must increase for the degrees that are completed on time. In addition, the importance of research, development and innovation activities in terms of allocating funding to the universities is described as necessary to strengthen in the new funding model. Furthermore, the acquisition of external funding in addition to public funding is planned to be achieved by strengthening the significance of internationally competitive R&D and business funding.

According to the working group's proposal, the financing models will come into force on 1 January 2025 and will be used for the first time when funding is allocated for 2025 (Finnish government, 2023). As highlighted by Hautamäki (2023, n.p.) the transition period may be challenging, stressing that “funding models being updated frequently is a good thing. However, these updates come with their own challenges. The result that determines funding is still being worked on. If major changes are planned for the next term, the universities have no time to react”. Although the funding schemes are transparent and institutions certainly are aware of the indicators measuring their performance, it is challenging if the adjustments to the funding schemes are not published, when the current actions of an institution will determine the funding to be received.

Because of this challenge, academic worker unions have emphasised the need for and importance of long-term planning of the changes. Hannele Louhelainen, Special Advisor at OAJ (Opetusalan Ammattijärjestö OAJ; Trade Union of Education in Finland) comments the topic in Hautamäki’s (2023) article, stating that all larger changes could be postponed to the term starting in 2029, motivating it by explaining how changes in percentages to the funding model have different effects on the different institutions, stressing that even a small change can in fact be significant to a specific university or field of education. It remains to be seen how the proposed changes to the funding models will affect the institutions and their behaviour in the future.

Discussion

As concluded, surprisingly little knowledge exists on the impact of the PBF model on higher education institutions and their behaviour (Kivistö & Kohtamäki, 2016). Hence, the aim of this article was to shed light on the topic, stressing the importance for further research and evaluation on the effects of PBF on institutions and their behaviour. It is important to take action and, if necessary, adjust the direction in which funding models, indicators, and performance measurements steer institutions. Moreover, PBF was implemented in Finland with the aim of influencing specific outcomes in the field of higher education that are deemed important (Mathies et al., 2019) and it is essential to understand how performance-based funding schemes may trickle down also to the organisational level and to understand the impact and effects of various indicators. Furthermore, a clear understanding of the intended aims as well as what can be achieved with the help of specific indicators is important (Himanen & Puuska, 2022). Hence, understanding the effects of performance-based funding on higher education institutions and their behaviour is of high relevance.

It was anticipated that as a result of the University Act of 2010, Finnish universities would have the opportunity to "act with sufficient independence and with adequate mastery over their own destiny" (Aarrevaara et al., 2009, p. 92-93). Furthermore, it was expected that the reforms would have resulted in increased autonomy for the universities, being granted legal status leading to significantly increased financial freedom (Aarrevaara et al., 2009). As concluded by Kallio et al. (2017) this did not happen in practice, according to whom the most evident reason is that Finnish universities continuously are highly dependent on public funding, as demonstrated in the earlier sections. Furthermore, for institutions to carry out their operations the funding is necessary and hence, the structured PM concepts of the MEC inevitably also steer universities decisions and work (Kallio et al., 2017).

As concluded, the financing system in Finland —despite the official rhetoric focused on quality— encourages measurement which is focused on quantitative variables (Kallio et al., 2017) and "when it comes to science and higher education, no country operates in a vacuum, and the MEC in Finland is thus itself subject to international trends. However, the Finnish situation is particularly alarming because the system, which was originally designed to direct resources from the MEC to individual universities, has now become an integral part of individual universities' and faculties' internal performance management" (Kallio et al., 2017, p. 299). This has also been identified by several researchers as discussed in previous sections, accompanied by statements on how it is not surprising, considering that the indicators of the national funding scheme are directly reflected on the received amount of public funding for the institutions. As previously described, professor Kivistö questioned "what kind of actor would build their incentives differently from how the money is distributed outside?" (Hautamäki, 2023, n.p.).

In addition, "while teaching and basic research are almost completely dependent on public funding, the global economic recession has not only cut public resources but also the availability of private funding" (Kallio et al., 2017, p. 298), implying that the only option available in the Finnish context for institutions is to steer their activities and operate in accordance with the funding scheme set by MEC (Kallio et al., 2017), this supports the findings of the reviewed literature, with several examples demonstrating how the institutions, or researchers, act in accordance with the funding schemes and indicators. It has also been concluded that the funding models treat the various disciplines rather differently. Disciplines with high publication intensity benefit from the JUFO related performance indicator, while fields characterised by high completion rates and fast graduation benefits from the indicators related to education. This is a problem, as the differences between disciplines at universities most likely are larger compared to the differences within disciplines at universities, which leads to the model encouraging towards taking similar choices in all higher education institutions (Seuri & Vartiainen, 2018).

The research conducted by Mathies et al. (2019) suggested that Finnish PBF incentives probably have an impact on academics' publication patterns, related to which the authors conclude that gaining knowledge about how PBF encourages certain behaviours provides those concerned with the impact with the necessary information to alleviate the potential harm created. Moreover, stating that "this creates opportunities, at best, to correct the unintended consequences, and at worst, to mitigate the damages created" (Mathies et al., 2019, p. 35). Although the authors discuss this in the light of publication patterns, it also implies to the overall effects of PBF, and hence, the importance of further research on performance measurement, indicators, and funding models regarding institutions and their behaviour is of high relevance, especially in a nation like Finland, with an exceptionally strong focus on outputs and performance measurement.

Conclusion

Despite limited research on the impact of performance-based funding on the institutional behaviour (Kivistö & Kohtamäki, 2016) several researchers have observed its effects across various areas in the higher education sector in the Finnish context, as discussed in the previous sections. In a recent publication by the OECD (2023, p. 37) it is concluded that it would be appropriate to reflect on the ongoing relevance of the output-based funding model in Finland, instead of inputs, used in other funding systems. Given that performance agreements and educational offerings already are used as important tools for steering by public authorities, a thought-provoking question is raised: “does the country really need to focus to such as large extent on outputs in its funding model?” (OECD, 2023, p. 37).

Finally, as the *Proposal for reforming national funding models for universities of applied sciences and universities from 2025 onwards* was published, and as the next funding period for higher education approaches, it will be interesting to observe how future funding models and indicators influence institutional behaviours compared to the effects identified from the funding schemes used so far. Additionally, it remains to be seen if future changes to funding models will undergo significant changes, potentially shifting Finland’s direction in line with the question posed by the OECD.

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Annex

Figure 3 below presents the proposal on new funding models published on 15 December 2023 in Finnish, for universities of applied sciences and universities in Finland from 2025 onwards, compared with the funding models of 2021-2024.

Figure 3: Proposal on new funding models for universities and universities of applied sciences as of 2025. Reprinted with permission from the Ministry of Education and Culture, Finland.

Ehdotuksen mukaiset ammattikorkeakoulujen ja yliopistojen rahoitusmallit vuodesta 2025 alkaen[1]

	YO Kausi 2021-2024	YO Kausi 2025-2028	AMK Kausi 2021-2024	AMK Kausi 2025-2028
Koulutus	**42 %**	**44 %**	**76 %**	**75 %[2]**
Uudet ensikertalaiset opiskelijat	-	3 %	-	3 %
Suoritetut alemmat korkeakoulu-tutkinnot (YO) tai AMK tutkinnot (AMK)	11 %	11 %	56 %	56 %
Ylemmät korkeakoulututkinnot (YO)	19 %	19 %	-	-
Ammatillisessa opettajankoulutuk-sessa suoritetut opinnot (AMK)	-	-	2 %	2 %
Jatkuva oppiminen	4 %	3 %	8 %	5 %
Yhteistyöopinnot	1 %	1 %	1 %	1 %
Työllistyminen (työlliset 1 v valmistumisen jälkeen)	2 %	2 %	3 %	2 %
Työllistymisen laatu (uraseuranta)	2 %	2 %	3 %	3 %
Opiskelijapalaute	3 %	3 %	3 %	3 %
Tutkimus (YO) / TKI-toiminta (AMK)	**34 %**	**37 %**	**19 %**	**20 %**
Suoritetut tohtorin tutkinnot (YO)	8 %	9 %		
Julkaisut (AMK ml. taiteellinen toi-minta, AV –aineistot, TVT –ohjel-mat)	14 %	14 %	2 %	2 %
Kilpailtu kv. tutkimusrahoitus, pl. yritysrahoitus (YO)	6 %	7 %	-	-
Kotimaisilta ja ulkimaisilta yrityk-siltä saatu tutkimusrahoitus ja muu kotimainen tutkimusrahoitus (SA, BF) (YO)	6 %	7 %	-	-
Ulkopuolinen T&K -toiminnan rahoitus (AMK)	-	-	11 %	12 %
Suoritetut ylemmät AMK -tutkinnot (AMK)	-	-	6 %	6 %
Koulutus- ja tiedepolitiikan tavoitteet (YO)/ koulutus- ja tut-kimus- ja kehittämispolitiikan tavoitteet (AMK)	**24 %**	**19 %**	**5 %**	**5 %**
Strategiaperusteinen rahoitus	15 %	10 %	5 %	5 %
Valtakunnalliset tehtävät (YO)	9 %	9 %		
YHTEENSÄ	**100 %**	**100 %**	**100 %**	**100 %**

[1] Korkeakoulujen vuoden 2023 valtionrahoituksessa laskennallisessa mallissa 1 % -yksikkö on merkinnyt yliopistoilla noin 18,8 milj. euroa ja ammattikorkeakouluilla noin 8,8 milj. euroa.

[2] AMK -sektorilla koulutuksen ja tutkimuksen välillä tehtävä muutos vastaa ammattikorkeakoulujen TKI –toiminnan vahvistamisen määrärahansiirtoa (10 M€) ammattikorkeakoulujen perusrahoitukseen. Aiemmin määräraha on ollut osana ammattikorkeakoulujen harkinnanvaraista rahoitusta. Näin tutkimusosuuden kasvattaminen ei vähennä koulutusosion kautta kohdennettavaa määrärahaa, vaikka rahoitustekijän osuus pienenee.