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Autonomy, efficiency and effectiveness - opportunities for higher education: a pilot study

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Abstract

Autonomy and efficiency are among the key topics that dominate the current higher education agenda and will shape the future of the European higher education landscape in the next decade. The capacity of higher education institutions and systems at large to respond to the rapidly changing needs of the society and economy will largely depend on what they can deliver and how autonomous, effective and efficient they are.

The paper presents an analytical framework that connects the concepts of institutional autonomy, efficiency and effectiveness and explores the links between efficiency in university management, autonomy and accountability. It builds on (i) EUA's work on institutional autonomy and the University Autonomy Scorecard, assessing the main components of institutional autonomy, and (ii) the higher education efficiency framework developed by EUA in the framework of the USTREAM project.

This paper explores the following questions: (i) What mechanisms connect regulatory frameworks to efficiency in university management? (ii) How can autonomy be converted into efficiency and effectiveness at universities? (iii) How can efficiency support accountability? Methodologically, this paper will follow the four-pillar structure of the Autonomy Scorecard (organisational, financial, staffing and academic autonomy) and support its argumentation with several case studies.

1. Introduction

Autonomy and accountability are among the key topics that have been shaping the European higher education landscape over the past years. Recently, these issues have acquired renewed importance for both higher education practitioners and academia in the context of the intensifying public discourse on efficiency and effectiveness and the related targets that funders and policy makers set for universities across Europe in view of declining public funds and other external pressures (e.g. Estermann and Nokkala 2009; Salerno 2003).

Autonomy has been discussed in several theoretical and practice-oriented studies as a pre-condition for the capacity of higher education institutions to be efficient and effective (e.g. Levacic 2002; Estermann and Kupriyanova 2019). While these studies generally acknowledge a link between autonomy and efficiency of universities, there has been little research so far on the internal mechanisms of such a relationship, particularly, considered through the prism of institutional autonomy in various fields, such as organisation, staff, finances and academic matters.

This paper aims to close this gap with a pilot study aimed at testing - with a small group of European higher education professionals - a new methodological approach to assess the impact of autonomy on both effectiveness and efficiency of higher education institutions based on the four autonomy dimensions and the related indicators included in the University Autonomy Scorecard[1].

The goal of this research direction, which is certainly not limited to this paper, is to offer a more nuanced understanding of how national regulatory frameworks affect the capacity of institutions to deliver on their missions in an efficient and effective way. Such new knowledge can be useful to inform discussions between public authorities and the university sector and to support leaders and managers of higher education institutions in the development of institutional efficiency strategies.

In this paper, we aim to launch the debate on several major questions, which will require further investigation: What mechanisms connect regulatory frameworks to efficient and effective university management? Which elements (i.e. dimensions and indicators) of autonomy have the greatest impact on efficiency and effectiveness of universities? How can (greater) autonomy be converted into efficiency and effectiveness in the higher education context? And, finally, what is the role of accountability in this constellation of autonomy, efficiency and effectiveness?

[1] University Autonomy Scorecard. www.university-autonomy.eu, accessed December 5, 2019.

2. Methodology and scope

2.1. Research framework

The concept of *autonomy* in this study is based on a multidimensional approach developed by the European University Association (EUA) for its University Autonomy Scorecard. This approach distinguishes between four dimensions of autonomy: organisational, financial, staffing and academic. Each autonomy dimension is associated with a set of indicators (Table 1). For example, organisational autonomy refers to the procedures and criteria for the selection and dismissal of the executive head, the composition of governing bodies and the capacity to design academic structures. Financial autonomy involves flexibility of higher education institutions in managing public funds and estates and defining other financial processes applied for tuition fees (Bennetot Pruvot and Estermann 2017). For the purpose of the present analysis, the Autonomy Scorecard indicators for financial autonomy includes in addition the capacity for universities to engage in joint procurement, given the strategic nature of this field in relation to institutional efficiency (Estermann and Kupriyanova 2019).

One should note that the current University Autonomy Scorecard does not include any indicators connected to research autonomy. When the original methodology was developed in 2009, the ability to decide on the areas, scope, aims, and methods of research was considered as a significant part of academic autonomy but also an area essentially underpinned by academic freedom and, therefore, enforced throughout all European countries as one of the key pillars and fundamental values in academia (Estermann and Nokkala 2009). This remains one of the methodological limitations for this study, particularly for the analysis of the impact of autonomy on the effectiveness of higher education institutions.

Table 1. ***Autonomy indicators included in the analysis***

Organisational autonomy	**Financial autonomy**	**Staffing autonomy**	**Academic autonomy**
Ability to decide on selection procedure for the executive head	Ability to decide on internal allocation of public funding	Ability to decide on recruitment procedures (senior academic staff)	Capacity to decide on overall student numbers
Ability to decide on selection criteria for the executive head	Capacity to keep financial surplus	Ability to decide on recruitment procedures (senior administrative staff)	Ability to select students
Ability to decide on dismissal procedure of the executive head	Capacity to borrow money	Ability to decide on promotions (senior academic staff)	Ability to introduce programmes
Ability to set term of office of the executive head	Ability to own real estate	Ability to decide on promotions (senior administrative staff)	Ability to terminate programmes
Ability to include external members in governing bodies	Ability to sell real estate	Ability to decide on salaries (senior academic staff)	Ability to choose the language of instruction

Organisational autonomy	Financial autonomy	Staffing autonomy	Academic autonomy
Ability to select external members in governing bodies	Ability to engage in joint procurement	Ability to decide on salaries (senior administrative staff)	Capacity to select QA mechanisms and providers
Capacity to decide on academic structures	Ability to set the level of tuition fees for national/EU students	Ability to decide on dismissals (senior academic staff)	Capacity to select QA mechanisms and providers
Capacity to create legal entities	Ability to set the level of tuition fees for non-EU students	Ability to decide on dismissals (senior administrative staff)	Ability to design content of degree programmes

The concepts of efficiency and effectiveness are analysed within a theoretical framework designed as part of the USTREAM project[2]. This multidimensional approach considers efficiency, effectiveness and value for money tightly linked and equally important in the higher education context and refers to the convergence of activities and processes at various levels (system, sector and institutional) and in different areas (strategic governance, operational management and academic matters) (Estermann and Kupriyanova 2019).

These methodological approaches facilitate an analysis of the impact that autonomy frameworks can have on efficiency at various levels of higher education. For instance, financial and academic autonomy provisions such as the capacity to decide on student numbers or set tuition fees define the overall competition and collaboration modalities at the *system* level, whereas more specific provisions such as the ability to engage in joint procurement underpin *sector*-level opportunities for economies of scale. In this study, we focus primarily on the impact of various autonomy provisions on the efficiency and effectiveness of *individual* institutions.

For the purpose of this study, the USTREAM-based multidimensional efficiency framework has been completed with principles and practices of Lean and Six Sigma, which have been successfully applied to the higher education context in previous studies (e.g. Antony 2017, Balzer 2010; Doman 2011).

In this context, *efficiency* of higher education institutions is understood as the capacity to achieve financial and other gains through optimised institutional use of *resources* and management *processes* (i.e. waste elimination and cycle time reduction in LEAN terms). *Effectiveness* is viewed as the capacity to achieve the *outcomes* expected from the institutional vision, mission and the corresponding strategies and action plans (i.e. focus on what is critical to the actor according to the Six Sigma approach).

Accountability is another concept discussed in this paper in light of the key findings on the impact of autonomy on efficiency and effectiveness. It is understood as "a relationship between an actor and a forum, in which the actor has an obligation to explain and to justify his or her conduct, the forum can pose questions and pass judgement, and the actor may face consequences" (Bovens 2006, p. 9).

[2] "Universities for Strategic, Efficient and Autonomous Management" (2016-2019), project supported by the European Commission under the Erasmus+ Programme. www.eua.eu/101-projects/607-ustream.html, accessed December 5, 2019.

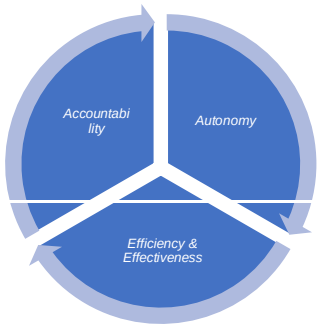
This concept is included in our analysis for two reasons:

a) as a mechanism to ensure checks and balances vis-à-vis institutional autonomy and

b) as an enabler of efficiency and effectiveness of higher education institutions, "forcing them to examine their own operations critically, and by subjecting them to critical review from outside" (Trow 1996, p. 3).

In this paper, we explore the links to both *formal* and *voluntary* accountability (i.e. "trust-based" accountability (Trow 1996) along the lines of "corporate social responsibility" (Jongbloed *et al.* 2008)) towards both external and internal stakeholders.

In our theoretical model, autonomy coupled with accountability serves as an enabler for efficiency and effectiveness, which in turn provide a way to implement accountability (Figure 1).



2.2. Research method

Our study relies on the conceptual frameworks developed by EUA as part of its work on governance, funding and efficiency, the knowledge acquired in previous focus groups[3] and the expert assessment of the impact of various autonomy dimensions and factors on efficiency and effectiveness. In total, 12 experts from 12 countries in Europe (Austria, Belgium, Finland, Iceland, Italy, Latvia, Lithuania, Netherlands, Poland, Portugal, Romania, Sweden and Switzerland) provided their analytical input to our pilot study in autumn 2019. The experts were selected based on their professional experience in top university management (vice-rector and head of administration level). Consideration was also given to geographic and institutional diversity of the sample.

The experts were invited to assign a score between 1 (lowest impact) and 5 (highest impact) to each autonomy indicator (31 in total), to assess their respective impact on efficiency, from the perspective of *resources* and *processes*. The estimates assigned by the experts to resources and processes were added up to achieve one combined score for efficiency. The experts were also requested to rate the impact of these indicators on effectiveness, from the viewpoint of the expected outcomes, by using the same scale.

Concretely, they had to assess how the ability for the institution to do A, B or C has:

(i) (1-5) degree of impact on efficiency from the perspective of costs;

(ii) (1-5) degree of impact on efficiency from the perspective of processes; and

(iii) (1-5) degree of impact on effectiveness (the ability of the institution to achieve its core missions and goals).

This assessment was based on their institutional management experience or their "ideal" expectation of such impact (in case there is no significant institutional autonomy in a related field in their system). The experts could provide any qualitative feedback to explain their choices or to share relevant background information.

[3] Peer learning and national policy activities organised under the EU-funded USTREAM project. www.eua.eu/101-projects/607-ustream.html, accessed December 5, 2019.

The average score was calculated for each autonomy indicator by using the arithmetic mean. Standard deviation values were calculated for each case to show the differentiation of experts' views on the topic.

The fact that experts could have different interpretations of the nature of the autonomy indicators included in the study provides another limitation to the applied methodology. Although the descriptions of the autonomy indicators were adapted (simplified) for the purpose of this study, their original purpose was to serve the University Autonomy Scorecard (and thus assess the capacity for institutions to decide on a given set of items). Partly due to this fact, experts found it difficult at times to identify the link between the capacity to decide on a specific item and the impact that *having* such capacity can have on efficiency and effectiveness, and therefore reported that it had proven difficult to attribute a score to some indicators. The related "n/a" responses were excluded from the analysis.

We also acknowledge some difficulties that experts could have in differentiating between the *real* impact of autonomy on efficiency and effectiveness based on the situation in their countries and the *ideal* impact that greater autonomy could have in principle on the topics of study. This aspect shall be clarified specifically with some of the experts.

Furthermore, the applied methodology allowed us to capture the experts' views on some *positive* influence of autonomy on efficiency and effectiveness. We consider any potential negative effects were marginal and therefore excluded them from the scope of this paper. At this stage, we have not differentiated between short-, medium- or long-term impact that autonomy can have on efficiency or effectiveness, which may be a topic for future studies.

Finally, due to the pilot nature of our study we could only harvest limited qualitative data from the experts' comments to the questionnaire. While the obtained expert data has proven to be sufficient for testing our methodological approach, presenting some preliminary observations on the topic and opening up new questions for future research, any further investigation will require involving a larger and more diverse sample of respondents to both the questionnaire and a series of expert interviews and focus groups.

3. Results

In this section, we present our key findings from three different perspectives. First, we look at the list of the most impactful indicators for each of the four autonomy dimensions in order to identify the most important autonomy drivers in various fields. Second, we analyse the top ten autonomy indicators in terms of their impact on efficiency and effectiveness, respectively, regardless of their specific dimension. Finally, we present the results of the aggregate analysis at the level of the autonomy dimensions, with a special focus on those dimensions that have similar impact on both efficiency and effectiveness.

3.1. Most impactful indicators per autonomy dimension

Tables 2 and 3 present most important autonomy indicators for efficiency and effectiveness for each of the four autonomy dimensions ranked on the basis of their mean values. The highest-ranking indicator is indicated for each autonomy dimension. Those indicators that rank highest with respect to both efficiency and effectiveness appear in italics.

Table 2. ***Autonomy indicators with highest impact on efficiency per each autonomy dimension***

Autonomy dimension	Top ranked autonomy indicators for efficiency	Mean	Sdv
Organisational autonomy	Capacity to decide on academic structures	3.50	0.87
Academic autonomy	*Ability to design content of degree programmes*	*3.83*	*0.80*
Financial autonomy	*Ability to decide on internal allocation of public funding*	*4.04*	*0.84*
Staffing autonomy	Ability to decide on recruitment procedures (senior administrative staff)	4.00	0.76

Table 3. ***Autonomy indicators with highest impact on effectiveness per each autonomy dimension***

Autonomy dimension	Top ranked autonomy indicators for effectiveness	Mean	Sdv
Organisational autonomy	Ability to decide on selection procedure for the executive head	3.91	0.83
Organisational autonomy	Ability to decide on selection criteria for the executive head	3.91	0.92
Academic autonomy	*Ability to design content of degree programmes*	*4.17*	*0.69*
Financial autonomy	*Ability to decide on internal allocation of public funding*	*4.08*	*0.76*
Staffing autonomy	Ability to decide on recruitment procedures (senior academic staff)	4.08	0.76

The ability to decide on internal allocation of public funding and the ability to design the content of degree programmes emerge from our analysis as the most important indicators for both efficiency and effectiveness within financial and academic autonomy, respectively.

For staffing autonomy, the ability to decide on recruitment of senior administrative staff is more important for efficiency, while the ability to decide on recruitment of senior academic staff is more important for effectiveness.

The ability to decide on the procedure and criteria for the selection of the executive head play a greater role for effectiveness, whereas the capacity to decide on academic structures is more crucial for efficiency, when it comes to various aspects of organisational autonomy.

3.2. Top 10 most impactful indicators for efficiency and effectiveness across all autonomy dimensions

Figures 2 and 3 introduce the top ten indicators across all autonomy dimensions ranked on the basis of their mean values. Seven indicators out of the two top ten lists are common for both efficiency and effectiveness (featured in light grey in the graphs). Four out of these seven indicators are related to staffing autonomy and reflect the importance of recruitment and

promotion procedures adopted for senior academic and administrative staff. Two financial autonomy indicators with a high impact on both efficiency and effectiveness concern the ability to decide on internal allocation of public funding, which is most crucial for efficiency, and to keep financial surplus (i.e., generate financial capacity for strategic priorities). One last common indicator in the field of academic autonomy is associated with the ability to design content of academic programmes (i.e. actively shape the academic offer of the institution). This indicator has the highest importance for effectiveness among all analysed indicators.

Figure 2. ***Top 10 autonomy indicators with highest impact on efficiency***

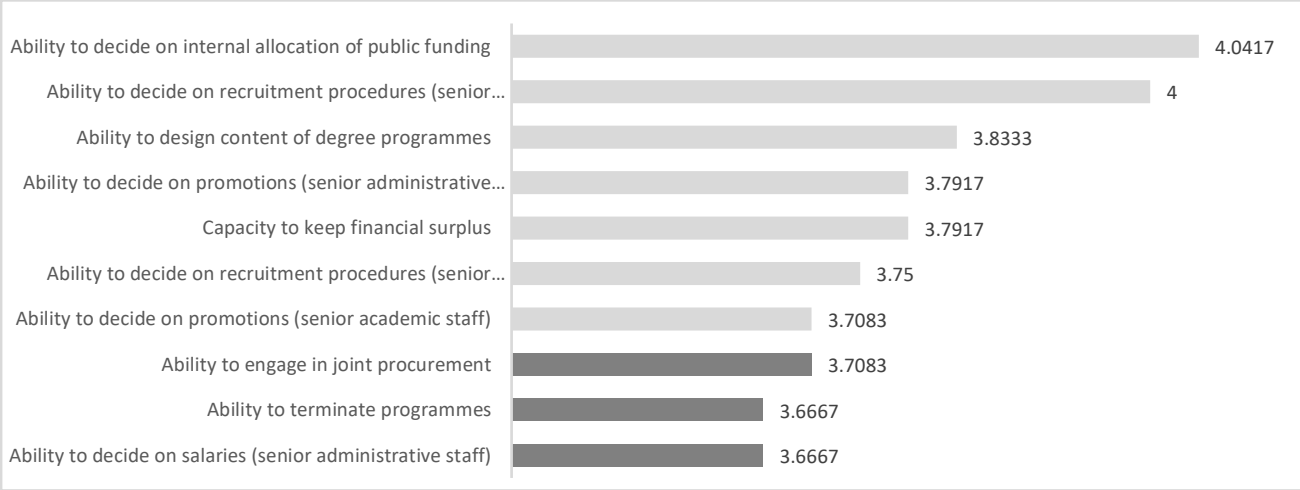
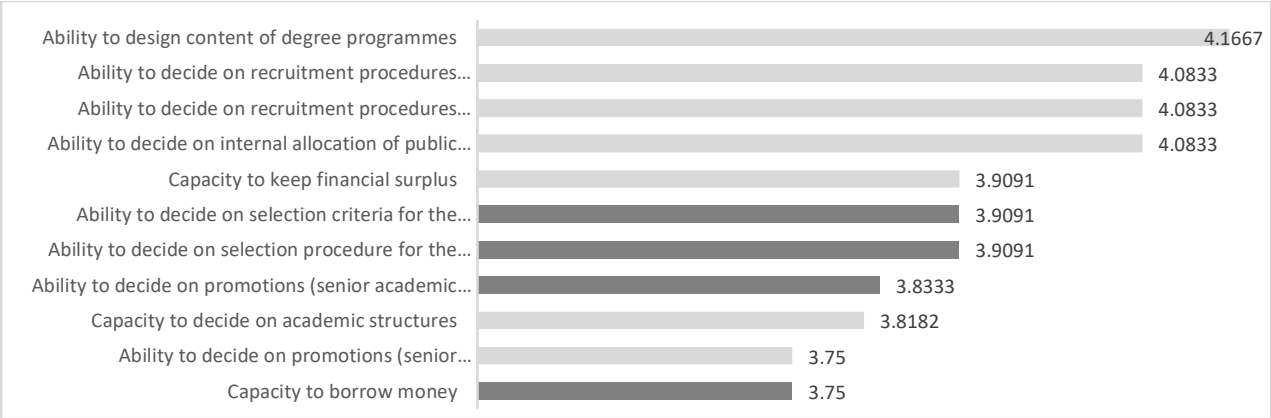


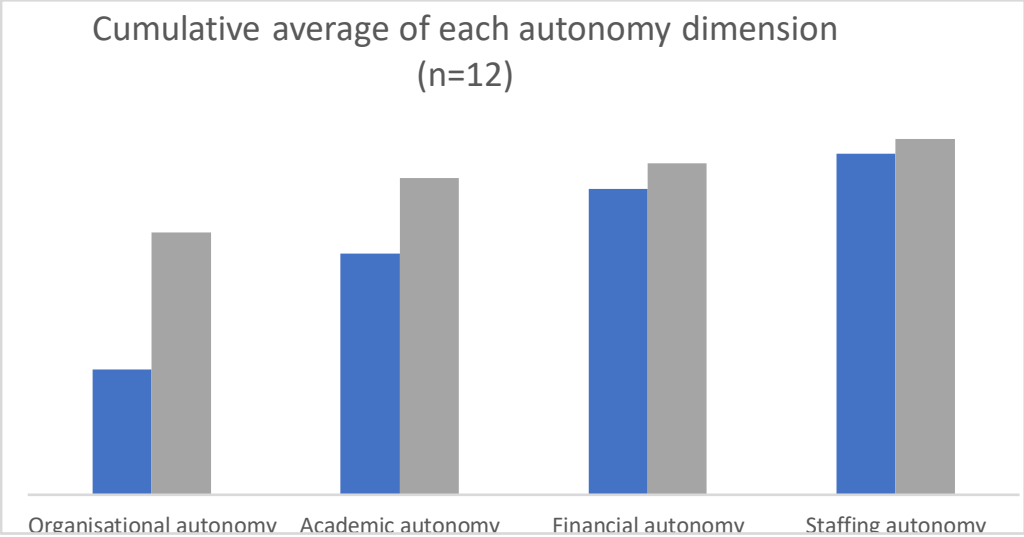
Figure 3. ***Top 10 autonomy indicators with highest impact on effectiveness***



3.3. Autonomy dimensions with the highest and lowest impact on efficiency and effectiveness

The ranking of various autonomy dimensions in terms of their impact on efficiency and effectiveness is found to be similar for the two concepts under study. Specifically, staffing autonomy is found to have the highest impact on both efficiency (M = 3.56, SD = 0.76) and effectiveness (M = 3.59, SD = 0.98) of the four autonomy dimensions under study. Financial autonomy comes as second most important dimension for both efficiency (M = 3.49, SD = 0.92) and effectiveness (M = 3.54, SD = 0.84), followed by academic autonomy, which impact is assessed as slightly more important for effectiveness (M = 3.51, SD = 0.76) compared to efficiency (M = 3.35, SD = 0.64). Organisational autonomy is established to have the lowest impact on effectiveness (M = 3.40, SD = 0.82) and, particularly, efficiency (M = 3.11, SD = 0.70) (Figure 4).

Figure 4. ***Cumulative average of each autonomy dimension (n=12)***



3.4. Efficiency analysis: resources vs. processes

A separate analysis has been run to test whether there are any significant differences in the experts' assessments of impact on the two elements of efficiency (resources and processes). The highest differences (> 0.3 point) were identified for five financial autonomy indicators. In particular, the capacity to keep financial surplus, the ability to own and sell real estate and the ability to set the level of tuition fees for both EU and non-EU students have greater impact on resources (by generating/making available additional income) than on processes. Furthermore, in terms of academic autonomy, the ability to select student is considered to have greater impact on resources compared to processes.

Conversely, the ability to decide on the selection criteria for the executive head and set her/his term of office as part of organisational autonomy is established to be more important for processes than for resources. Similar differences are found in staffing autonomy: the ability to decide on recruitment procedures of senior academic and administrative staff is considered to have greater impact on processes than on resources.

Elsewhere, the lack of significant discrepancy in the expert responses between resources and processes and the qualitative feedback received suggest that there is either difficulty or limited relevance in seeking to identify the differentiated impact of the autonomy indicators on these two elements of efficiency. This might however be due to the experts' understanding of the differences between resources and processes and requires further attention and clarification in the follow-up study.

4. Discussion

The obtained results show, most importantly, that efficiency and effectiveness of higher education institutions are framed by the same autonomy dimensions, with staffing and financial autonomy having the highest importance for both topics and all four dimensions have comparable impacts on both efficiency and effectiveness. This finding suggests that efficiency and effectiveness go hand in hand and can be affected by the same national regulatory provisions.

In this section, we discuss our findings in light of specific contexts and concrete examples of efficiency and effectiveness gains in order to provide illustration for new opportunities that may arise for higher education institutions from greater autonomy.

Opportunity no 1: staffing autonomy for greater efficiency and effectiveness

Our findings have put staffing autonomy to the forefront in terms of its impact on both efficiency and effectiveness. This finding is not surprising, as the achievement of institutional goals – *i.e.* effectiveness – largely depends on the competence and motivation of people engaged in the university's core missions and supporting tasks (e.g. Scott 2016). While the ability of universities to recruit senior academic staff and senior administrative staff appears to be most important for effectiveness and efficiency, respectively, the ability to decide on dismissals has much lower importance. This finding refutes one of the widespread assumptions among policy makers that institutional efficiency amounts to cost-cutting and may be achieved through staff layoffs, considering that salaries often make up the greatest share of the institutions' cost structure. On the contrary, the example of Irish universities shows that staff layoffs may only generate gains in the short term, at the expense of long-term sustainability, strongly affecting the capacity of institutions to deliver on their core mission goals (Estermann *et al.* 2018). This finding also shows the decision to put a cap on the recruitment of new university staff in several countries such as Denmark, Finland, Ireland and Italy could undermine both efficiency and effectiveness of higher education institutions in these countries (for more details, see EUA Public Funding Observatory reports for 2017 and 2018).

High staffing autonomy can be an important driver for efficiency and effectiveness on two conditions. First, there is sufficient and sustainable public funding of universities in a system, which is crucial to attract and nurture talent. Second, there are proper internal accountability mechanisms that are put by universities in place as part of their "voluntary obligation" to ensure equity, fairness and transparency of all staff related procedures in order to "create and sustain the element of trust" (Trow 1996). Such mechanisms may involve Human Resources (HR) setting out general principles for HR services, recruitment, career paths, leadership and development, recognition and reward as well as positive working environment; thoroughly documented institutional policies (e.g. role profiles, progression processes guidance) and other approaches based on sector best practice and collegiality.

Opportunity no 2: financial autonomy for greater effectiveness

Our findings point to the strategic importance of financial autonomy which has high impact not only on efficiency, but also on effectiveness. Financial autonomy, particularly the ability to decide on internal allocation of public funding and the capacity to keep surplus, underpins possibilities for institutions to re-invest the efficiency gains from better processes into the core academic tasks.

Other related factors such as flexibility in real estate management and procurement create opportunities to generate efficiencies, for example, by fostering space optimisation initiatives and by establishing purchasing consortia. Although the capacity to act autonomously on these issues seem to have less relevance for effectiveness, it supports the ability of universities to redesign their campuses to better serve the evolving needs of learners and other societal actors to accommodate student-centred learning, foster co-creation processes, underpin sustainability and create bridges to local economy.

It is interesting to note that *the capacity to sell real estate* is considered by the experts as significantly less relevant (for both efficiency and effectiveness) than the *capacity to own real estate*. A possible interpretation of these findings is that there is no appetite for large-scale, radical operations whereby universities would seek to do away with historical buildings but rather a wish to be able to invest, upgrade and optimise existing assets. However, this argument still needs to be validated on a larger sample, considering a rather high differentiation of expert opinions on the impact of these two indicators, and cross-checked against specific country contexts.

While more flexibility in *setting tuition fee levels* is clearly linked to system-level political choices, it contributes to universities' efforts to diversify their income structure and limit dependency towards public funding. In the systems where universities have margin for manoeuvre to set the level of fees for national (e.g. England[4]) or international students, *value for money* is an important concept viewed as the achievement of economy, efficiency and effectiveness in how the university acquires and uses its resources in order to meet its objectives, particularly in satisfying the needs of students as fee-paying customers (Universities UK 2015).

The EUA Autonomy Scorecard 2017 features only a few higher education systems in Europe that score high in terms of financial autonomy[5]. This is particularly due to the fact that public authorities regulate tuition fees in many systems in Europe and steer the system through an increased use of funding instruments, which are part of the current financial accountability procedures. In systems with a high degree of financial autonomy, such as England, universities are subject to high accountability requirements. Typically, universities are financially accountable to various funders and taxpayers through multiple financial reporting and auditing requirements at national and European level (in case of EU-funded projects). In most cases, such mechanisms provide sufficient guarantees to the stakeholders and speak in favour of greater flexibility for university financial management. It is however important to stress that greater financial autonomy should not serve to compensate for public funding cuts to "equip universities to seek funding elsewhere" (Bennetot Pruvot and Estermann 2017). This approach significantly undermines the financial sustainability of universities in the long run and poses new risks, such as university's defaults on debt. In other words, the university's capacity to interact with the market should not be compromised by the lack of public support for its key goals and operations.

Opportunity no. 3: academic autonomy for greater efficiency

Another important finding is that academic autonomy affects not only the effectiveness of institutions, but also their efficiency. In particular, the *ability to design the content of degree programmes* is considered the most important indicator for effectiveness across all autonomy dimensions and, at the same time, it is ranked among the top 3 for efficiency. Flexibility in introducing content based on the principles of student-centred and research-based learning largely supports the effectiveness of learning and teaching and, more generally, of higher education institutions (EFFECT 2019). Furthermore, the ownership of curriculum design can foster efficiency by using new modes of learning and teaching enabled by technology, helping institutions serve broader and, potentially, larger groups of learners with diverse needs. The appropriate investment in technology, student support and scaffolding, as well as teacher training remain however critical to the effective and efficient use of technology in curriculum

[4] The UK higher education system consists of four sub-systems (England, Northern Ireland, Scotland and Wales).
[5] Luxembourg, Latvia and the United Kingdom (England) are part of the high cluster scoring between 81% and 100%.

design. Other modes of delivery and learning experience such as group work, mobilities or work placements can further enhance both efficiency and effectiveness of study programmes. Finally, the ability to design content of degree programmes is an ultimate pre-condition for developing shared study courses and engaging in institutional collaboration in teaching and learning.

Furthermore, the *capacity to introduce and terminate programmes* has proven to be particularly important for efficiency. This finding has to be seen in view of the need for adapting the academic offer to the evolving needs of learners and employers, reducing course duplication and optimising the programme portfolio at institutional or faculty level. Any increase in autonomy in this respect requires that proper internal quality culture and accountability mechanisms are put in place. The gradual shift towards institutional accreditation – rather than programme-based accreditation – is in this respect a positive step forward both for academic autonomy and institutional efficiency.

Opportunity no 4: organisational autonomy for greater efficiency and effectiveness

Organisational autonomy is found to be more important for effectiveness than for efficiency. While none of the organisational autonomy indicators appear in the top 10 for efficiency, the ability to decide on the selection criteria and procedures for the executive head and the capacity for universities to decide on their internal academic structures are ranked high for effectiveness. Expert opinions particularly differ on the level of impact of some organisational autonomy indicators on efficiency and effectiveness, particularly the ability to decide on the dismissal procedure of the executive head and to set the term of office for the executive head.

The above findings acknowledge the expected importance of framework leadership provisions for effectiveness and show that it can be harder to connect the high-level organisational architecture (e.g. the ability to set the term of office for the executive head) to efficiency.

Yet it has been previously shown that the institutional efficiency agenda largely depends on university leaders' ability to approach these topics strategically and operationally, to secure internal support and to mobilise resources to invest in modern capabilities and skilled staff in order to reap the benefits of efficient and effective university management (Estermann and Kupriyanova 2019). In this context, we interpret the above finding as a need to provide illustration on how various organisational and governance provisions, especially, institutional leadership arrangements can impact efficiency in concrete terms.

Thus, flexibility in defining the *selection criteria for the executive head* allows universities to decide on the appropriate profile and the key competences, which might include among others the experience in change management, efficiency and effectiveness.

Furthermore, studying university merger management processes, which involve the conceptual work defining the organisation of the university activities in the field of learning, teaching and research (underpinned by the *capacity to decide on internal academic structures*) shows that universities often choose to revisit their academic structures not only with the intention to facilitate desirable developments such as interdisciplinarity, greater interaction with external stakeholders, stronger alignment with strategic priorities of the institution and more visible connection to the eco-system, but also take it as a chance to review the existing structures and processes from the perspective of their efficiency (Bennetot Pruvot *et al.* 2015).

Collaborating with external members of governing bodies is a proven way for universities to make efficiency part of their accountability mechanisms given that the *ability to include and*

select external members in governing bodies can help universities critically review and report on their activities. It could also bring some additional expertise in efficiency and effectiveness from the outside. and secure support of governing bodies for institutional efficiency strategies and operational plans. The relatively low impact of this indicator on efficiency might be due to the fact that while it has become frequent for universities throughout Europe to include external members in their governing bodies, their capacity to select such members still remains limited, with public authorities often having a decisive role in the matter or making up for a significant part of the external members themselves (Bennetot Pruvot and Estermann 2018).

Surprisingly, the capacity to create legal entities was found to have one of the lowest impacts on both efficiency and effectiveness, with a rather high differentiation of expert views. Yet it is one of the key factors for universities to engage in shared services, outsourcing or similar partnership arrangements. The experience of UK universities shows that creating university subsidiaries that manage specialised services for one or several institutions has a potential to foster quality and economic efficiencies in various fields such as facility management, ICT, HR, finance and student services as well as to provide an additional source of income for higher education institutions (e.g. Universities UK 2015). This is another area of organisational autonomy which deserves further attention and investigation in the follow-up study, taking into consideration the diverse capacity of universities to engage in such types of activities in different countries.

These opportunities provide an illustration of the impact of autonomy on efficiency and effectiveness which needs to be further explored. It is also important to stress that any regulatory reform aimed at enhancing university autonomy has to be driven by a broader set of considerations and objectives in a wider national context and go beyond the discussed needs in efficiency and effectiveness. They should also be accompanied by the appropriate formal and voluntary accountability mechanisms based on the principles of equity, fairness, and transparency.

5. Conclusions

The findings support some of our original hypotheses about the importance of autonomy for efficiency and effectiveness while casting new light on certain elements that have received little consideration so far. Views drawn from university leadership and top management show an acute awareness of the complex relationship between autonomy, efficiency and effectiveness in higher education. They confirm earlier observations derived from the USTREAM project that efficiency is by no means a matter of cutting costs in a rigid structure, but rather a question of exploiting opportunities to improve processes and deliver better teaching and research outcomes. Thus, what universities see as essential for efficiency and effectiveness is the capacity to manage funds internally, select and advance their staff in an adequate way, and design their academic offer to match the analysed needs. In a nutshell, these are the conditions necessary for an institution to develop a strategic profile and position itself vis-à-vis partners, competitors, funders and students in an increasingly fast-changing complex environment.

Our pilot results confirm the relevance of a bigger analysis involving a larger and more diverse sample representing different types of higher education institutions from a broader set of countries in Europe to validate the established patterns. Combined with the country specific information from the University Autonomy Scorecard, it could offer new meaningful insights into the national regulatory reforms from the perspectives of efficiency and effectiveness.

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