Higher Education

Resourcing Higher Education

CHALLENGES, CHOICES AND CONSEQUENCES

OECD

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BETTER POLICIES FOR BETTER LIVES

Please cite this publication as:
OECD (2020), *Resourcing Higher Education: Challenges, Choices and Consequences*, Higher Education, OECD Publishing, Paris, *https://doi.org/10.1787/735e1f44-en*.

ISBN 978-92-64-50522-3 (print)
ISBN 978-92-64-16336-2 (pdf)

Higher Education
ISSN 2616-9169 (print)
ISSN 2616-9177 (online)

Revised version, July 2020
Details of revisions available at: https://www.oecd.org/about/publishing/Corrigendum_Resourcing-Higher-Education.pdf

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Corrigenda to publications may be found on line at: *www.oecd.org/about/publishing/corrigenda.htm*.

Foreword

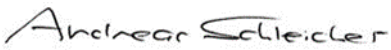
Higher education plays a more prominent role in OECD member and partner countries today than it did a half-century ago. It educates many more learners and it is increasingly expected to make key contributions to economic innovation, public health and social well-being. Higher education is also much more costly than it once was, due both to these expanded responsibilities and chronic difficulty in identifying ways to boost the productivity with which it carries out its missions. Burgeoning responsibilities and costs have brought heightened scrutiny on the part of governments and households, who expect higher education systems and institutions to demonstrate that they are making sound use of the resources with which they have been entrusted.

Although public and private investment in higher education has risen and expectations of performance have grown, those who are responsible for mobilising, allocating and using resources in higher education systems continue to find that reliable evidence to assess policy options, guide their decisions and account for their choices – especially evidence based in international experience – is absent or insufficient. Large exogenous shocks to economies and public budgets – such as the coronavirus (COVID-19) pandemic – make these needs even more pressing.

The OECD Higher Education Resources Project was initiated to support member countries in narrowing this gap between decision-making and evidence. It aims to do this by identifying and sharing promising policies that can guide the allocation and use of financial and human resources in higher education.

The project begins with this report, *Resourcing Higher Education*, which examines key challenges relating to resourcing higher education that policy makers in OECD higher education systems face. The report identifies what research evidence can tell us about these challenges and presents the challenges, questions and evidence in a way that will help structure and guide the data collection and policy analysis carried out in system-specific projects undertaken within the Higher Education Resources Project.

The second phase of the project implements analyses of higher education resourcing in a cohort of OECD member countries, the results of which will presented in a series of country reviews and thematic policy briefs. In a third phase, the knowledge gained in these projects will be shared through peer-learning events and thematic publications on resourcing topics of wide interest to member countries.



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Colombia was not an OECD Member at the time of preparation of this publication. Accordingly, Colombia does not appear in the list of OECD Members and is not included in the zone aggregates.

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Acknowledgements

Resourcing Higher Education was collaboratively written by Margarita Kalamova, Simon Roy, Cláudia Sarrico, and Thomas Weko of the OECD Directorate for Education and Skills, Higher Education Policy Team. Members of the OECD's Informal Working Group of Higher Education, now the Group of National Experts on Higher Education, provided helpful comments on draft versions of the report. Patricia Akamp, Michele Cimino and Javier San Millán Tejedor provided research assistance to the project. Cassandra Morley provided editorial guidance throughout the preparation of the report. The final analysis draws upon work performed by the OECD Benchmarking Higher Education System Performance Project and the assistance of Gabriele Marconi, and benefitted from the review of external higher education expert, Roger Smyth.

This report was carried out under the direction of Thomas Weko (Higher Education Policy Team Leader), and benefitted from the guidance of Paulo Santiago (Head of Division, Policy Advice and Implementation) and the review of Andreas Schleicher (Director, Directorate for Education and Skills). The report was made possible by the financial support of the European Commission's Directorate-General for Education and Culture.

Executive summary

Investment in higher education in OECD countries has increased substantially over the last 20 years, largely because of higher enrolment, increasing costs, government priorities related to skills, and research and innovation. Public authorities in OECD member and partner countries regularly need to make and justify decisions about how to mobilise, allocate and manage financial and human resources in higher education. This can be challenging, as not only are the effects of individual policy choices difficult to predict and prove, but the core objectives of higher education – notably the quality of student learning – are hard to measure. Despite these limitations, knowledge of international trends, alternative policy approaches, and evidence from research, evaluation and the practical experience of peers in other countries can be invaluable for those making crucial policy decisions in higher education.

The OECD Higher Education Resources Project aims to identify and share promising policies that public authorities can deploy to guide the allocation and use of financial and human resources in higher education. It will do this in the coming years by analysing existing resourcing policies through country reviews and system-specific thematic policy briefs. This report helps guide and structure the work in the project by identifying the main contemporary challenges relating to resourcing higher education and identifying what research-based evidence can tell us about these challenges.

Key messages from this report for the policy makers and the wider OECD Higher Education Resources Project include:

- Government policy functions alongside the actions of non-governmental actors and market forces in influencing the behaviours of higher education institutions, students and staff, and thus the results achieved by higher education systems. Policy makers must recognise these complex contextual interactions – and the limits on government capacity to effect change – in the design and implementation of resourcing policies.
- Irrespective of the specific contexts and policy environments in place, the cost of providing higher education has increased considerably in OECD countries and productivity gains have proved hard to achieve. After accounting for rising student numbers and inflation, average real expenditures per student by higher education institutions in 13 selected OECD countries roughly doubled between 1995 and 2015. As in other industries dependent on expensive human capital, such as medicine and law, higher education has found it difficult to produce its outputs (learning, research and engagement) more efficiently than in past.
- Policy choices are only one factor affecting how much countries spend on higher education and where funds are raised. Wealthy countries with comparatively young populations spend the most on higher education, while a range of historical and cultural factors influence the sources from which this spending is drawn. Although many governments establish ambitious higher education strategies, it is rare for these to be closely tied to financial resources and examples of significant policy-led shifts in the level or sources of higher education funding are rare in the OECD.
- The fiscal impact of the COVID-19 crisis will be significant, meaning many policy makers will increasingly need to find ways of supporting higher education objectives with fewer resources.

Maintaining the scale and quality of provision at a lower cost is unlikely to be achieved through increasing student-to-staff ratios, relying more on temporary staff or reducing spending on support services – all of which negatively affect study outcomes. Widening the scope of digitalisation in teaching and learning is a possible way to maintain access and quality at a lower cost of instruction and raise efficiency.

- Higher education study is costly for learners due to tuition fees and non-study costs, such as housing. Costs borne by learners vary widely among OECD countries, as does the level and means of repayable (loan) and non-repayable (grant) support provided to meet these costs. Properly designed, both loans and grants can successfully address the liquidity constraint faced by learners: costs are faced upfront, but benefits occur after the completion of studies. Widely identified as an efficient and effective policy instrument, income-contingent lending has proven more difficult to adopt and more costly to implement than anticipated. Means-tested grant assistance can be highly effective in promoting access and study completion, though less so in shaping study and career choices.
- Most higher education institutions earn revenue from a variety of sources, although reliance on public funds – and thus the likely influence of public funding levers – varies considerably between OECD countries. Although funding allocation based on historical patterns and negotiation remains prevalent, many higher education systems have adopted formula-based allocation models to distribute operating funds to institutions. Most formula use input measures, such as student numbers, although the use of output criteria, such as graduation or progression rates, is increasing. Assessing the cost of educational provision in different fields of study and the selection of the most appropriate criteria and weights in the design of formula remain key challenges for policy makers across OECD countries.
- Research evidence suggests output or performance-linked funding can have positive effects on the behaviour of higher education institutions. Adequate differentiation between institutional missions and goals is required for effective performance-linked funding, while institutional responses appear to be improved if performance indicators are stable and if the funding consequences of performance-linked funding are clearly and transparently specified in advance.
- Expenditure on human resources in higher education accounts for about two-thirds of current expenditure by higher education institutions in OECD countries. The extent to which governments regulate the conditions under which academic and non-academic staff are recruited, employed and rewarded for their work varies considerably between countries. Key trends in most higher education systems have been an increase in non-permanent employment of academic staff – with potentially negative implications for the student experience – and the expansion of non-academic professional roles related to the management of higher education institutions. Progression opportunities in many higher education systems are limited, and robust systems of staff appraisal and rewards are often lacking.
- Governments have often sought to reshape higher education systems through promoting expansion and diversification of higher education provision or the concentration of higher education activities – or some types of higher education activity – in a smaller number of institutions to build critical mass, promote excellence or achieve efficiency savings. The development of new institutional and programme types, as well as the expansion of private sector provision and online learning have facilitated large-scale widening of access to higher education in many systems. In contrast, concentration policies, including complementary specialisation, institutional collaboration, alliances and mergers, have often been pursued with the aim of increasing quality and lowering costs. The success of these policies is challenging to measure.

1 Introduction

This chapter provides a rationale for analysing financial and human resources in higher education, and an overview of the analytical framework proposed for conceptualising these issues in the OECD Higher Education Resources Project. Investment in higher education in OECD countries has increased substantially over the last 20 years, largely as a result of higher enrolment, increasing costs, government priorities related to skills, and research and innovation. Public authorities across the OECD regularly need to make decisions about how to mobilise, allocate and monitor the use of resources in higher education. In this context, knowledge of international trends, alternative policy approaches, and evidence from research, evaluations and the practical experience of peers in other countries can be invaluable for domestic policy making. Such information is currently dispersed and often difficult to access. The OECD Higher Education Resources Project – informed and guided by the analysis in this report – aims to respond to this situation by providing an accessible international evidence base for policy makers and targeted system-specific analyses.

1.1. The purpose of this report

Higher education plays a more prominent role in the public life of countries than it once did; it serves more learners than in the past, and governments increasingly emphasise its wide-ranging contributions to economic innovation and social well-being. Along with these expanded responsibilities, higher education consumes a larger share of national income, and is subject to greater scrutiny by governments and the public, who expect higher education systems to demonstrate value for money and quality of performance.

Although investment in higher education has increased and expectations of performance have grown, policy makers, faced with decisions about how best to mobilise, allocate and monitor the use of resources for higher education systems, often find that reliable evidence about the design and effectiveness of policies (especially, evidence that is grounded in international experience) is not readily available. They face challenges in assessing policy options and justifying policy choices.

The Higher Education Resources Project aims to identify and share promising policies that public authorities can deploy to guide the mobilisation, allocation and use of resources in higher education. It will do this by analysing higher education resourcing policies in place in OECD member and partner countries and by seeking evidence on their effects, where possible, through system-specific projects and case studies. These system-specific projects – in the form of country reviews or thematic policy briefs – will be informed and structured by the analysis presented in this document.

In its discussion of resourcing higher education, this report distinguishes between three phases of resourcing policy and resource management. Resource mobilisation refers to the process of raising the funds needed to finance higher education activities. In broad terms, governments can mobilise resources for higher education by drawing on general tax revenues from public budgets; by permitting or encouraging higher education institutions to raise funds from private sources, including households; or by encouraging or requiring private entities to contribute funds to higher education institutions. Resource allocation refers to the processes through which the funds mobilised are then assigned by governments and higher education institution management to finance types of activity or beneficiary. Governments generally allocate public resources between higher education institutions and between instruction and research, for example. Higher education institutions, depending on their level of financial autonomy, may allocate revenue from all sources internally between departments and activities. Resource use refers to the final deployment of the allocated funds by the final beneficiaries - to pay for staff, buildings, goods and services – the different rules, accounting practices and reporting requirements that are associated with this deployment.

Following this introductory chapter, the subsequent chapters of this document:

- review the main questions and challenges relating to the different aspects of resourcing higher education that policy makers in OECD higher education systems face;
- identify the main policy choices that have been made in OECD member and partner countries to address these questions and challenges, along with any research-based evidence about the effects of these policy choices;
- present these challenges, policy choices and evidence in a way that will help structure and guide the data collection and policy analysis carried out in system-specific projects undertaken within the Higher Education Resources Project.

1.2. The scope of the Higher Education Resources Project

The Higher Education Resources Project will examine how public and private resources are mobilised, allocated and used in higher education systems. This encompasses public and private resources for the

operation of higher education institutions and public financial aid to students. For the purposes of the project, higher education institutions are defined as institutions that provide study programmes at the International Standard Classification of Education (ISCED) (2011) levels 5 to 8, i.e. short-cycle programmes, bachelor's, master's, and doctoral or equivalent degrees. In examining the resourcing of higher education institutions, the project will focus primarily on public and government-dependent private institutions, in view of the reduced role of government policy in influencing the resourcing of independent non-profit and for-profit private institutions in most higher education systems. Attention will be paid to public funding of non-profit and for-profit institutions in systems where such funding exists.

Given the high share of their revenue that higher education institutions typically spend on staff costs (salaries, social contributions, pensions, etc.), and the existence of specific regulatory frameworks applying to higher education staff in some OECD member and partner countries, the Higher Education Resources Project will devote special attention to human resources in higher education. For these reasons, the issue of human resources in higher education is the subject of a specific chapter in this document.

In view of the greater familiarity of the term "higher education", or its equivalent in other languages, in most OECD member and partner countries, this term will be used in preference to "tertiary education" throughout the Higher Education Resources Project.

The analytical framework in this report encompasses all three of the key phases of resourcing higher education highlighted above. It thus covers the mobilisation of financial resources, including frameworks governing private revenues in higher education institutions; the allocation of public funding for students and their families; the allocation of funds for operating and capital expenditure and between teaching, research and engagement activities in higher education institutions; and frameworks for the use of resources in higher education, in particular, the rules governing human resources. The framework also considers policies for the management and responsiveness of higher education systems as a whole.

In establishing its scope, the analytical framework in this report and the Higher Education Resources Project more generally will be guided by the following points:

- The project will cover all missions of higher education institutions, but maintain a primary focus on learning and teaching. Across the member countries of the OECD, higher education institutions seek to accomplish three principal missions: i) learning and teaching; ii) research; and iii) engagement (sometimes referred to as "service" in North America). Public budgets typically provide direct support for higher education institutions through two principal funding streams – allocating funding to support teaching and, often through separate public bodies and processes, funding to support higher education research centres or research projects. Funding for engagement activities may also be provided through dedicated funding mechanisms, although these are comparatively uncommon and typically small-scale where they do exist. The project will describe trends in research funding, and the bodies and procedures used to award funding. It will note the impact and costs of research funding on human resources and instruction. However, the project will not analyse the procedures used to evaluate research projects or centres, or provide detailed recommendations to governments for the (re)design of research funding methodologies. Where relevant, the project will also cover funding beyond teaching and research, for engagement or service activities.
- The project will pay attention to the distinction between operating and capital budgets, where necessary. Some higher education systems have dedicated capital budgeting processes and funding sources distinct from operating budgets, while in other higher education systems, there is no such dedicated fund; rather, institutions are responsible for prioritising and funding capital expenditures from a single stream of revenues provided by public authorities or obtained from private sources. The project will cover, where relevant, governments' procedures to evaluate, prioritise and fund public capital spending.

- The project will examine the role of private revenues for institutions. Given the importance in some higher education systems of private funding sources (especially from household contributions), the project will examine the full range of private revenues in higher education, including revenues derived from student fees, contracts and the operation of auxiliary enterprises, endowments and donations, and the interaction of these revenues with public funding sources.
- The project will take account of the role of public funding for students and their families, including the relationship between student financial support and institutional revenue in systems where student fees exist. The project will consider government expenditures on higher education that are transferred to households through educational loans and grants, as these play a key role in making it possible for households to meet the private contributions expected of them; and for some governments, they have come to comprise an important share of public spending on higher education. The project will also examine other instruments of financial support, such as tax benefits, where these exist.
- As noted, the project will pay special attention to human resources. Human resources are not only the biggest cost item for higher education institutions, but also the essential core of the knowledge-intensive enterprise that is higher education. The project will examine the scale and profile of the entire higher education workforce (academic and non-academic staff), and its implications for cost and performance. However, it will focus in detail – and carry out policy analysis – on academic staff (those engaged in teaching, research and engagement).
- The project will also look at the broader role of governments in the management and responsiveness of higher education systems as a whole. The project will look at the methods used to enhance the responsiveness and flexibility of higher education systems to the changing needs of learners, the economy and society. Issues under analysis will include the scale of the system, its diversity, its co-ordination, and student trajectories and destinations.

1.3. Structuring the analysis of resourcing policies in higher education

The Higher Education Resources Project will draw on a wide range of quantitative and qualitative information and evidence to identify and analyse the relationships between the context in which higher education systems operate, policies relating to resources in higher education, and the observable outputs and outcomes achieved by higher education systems. This section explains how this relationship between resourcing policies and system outputs and outcomes is conceptualised.

The outputs and outcomes of higher education

Higher education authorities, finance ministries, quality assurance bodies, students and families commonly desire and expect higher education systems to undertake their learning and teaching, research and engagement missions efficiently, at suitable levels of quality and relevance, and in a manner that is socially equitable. In this context:

- *Efficiency* describes the output achieved by higher education systems – in education, research and engagement – for a given level of financial and human inputs. As higher education institutions are complex organisations producing multiple outputs, measuring efficiency in higher education is challenging. Differences between higher education systems internationally further complicate cross-country comparison. However, monetary measures, such as cost per qualification awarded or cost per peer-reviewed publication, as well as non-monetary measures, such as completion rates, can be used to compare across countries. Furthermore, it is possible to trace shifts in efficiency over time.

- *Quality* describes the value of the outputs achieved, assessed against indicators or procedures that are widely agreed. Examples of quality indicators might include: for teaching, learning gains measured using recognised methods of learning assessment; for research, citations or impact factors; and, for engagement, observable effects of collaboration between higher education institutions and external partners. Such indicators are, at best, only proxy measures for the quality of higher education, but they are necessary to allow decision makers to gain a picture of the performance of higher education systems. Judgments about quality encompass the relevance of outputs achieved. High-quality instructional programmes, for example, produce graduates whose skills are highly advanced, and also relevant to the society and economy in which their skills will be put to use.
- *Equity* describes the distribution of higher education opportunities and benefits among populations of learners (by gender, socio-economic grouping, migration status, age or location, for example). Key aspects of equity include access to study opportunities, the distribution of resources during study and the outcomes graduates achieve after graduation (in terms of earnings or access to postgraduate study, for example).

In committing resources to higher education and in seeking efficiency, quality (including relevance) and equity, governments typically aim to increase the overall level of skills available to the labour market and, in so doing, generate greater prosperity and social inclusion within the societies they govern. Individuals may enrol in higher education for different reasons, but a key objective is nearly always to enhance their career (and, often, earnings) prospects. In systems where students (or their families) contribute to the cost of their education through fees, this investment is typically expected to generate a reasonable rate of return, in terms of enhanced career and earnings prospects, even if earnings are not the primary motivating factor for all students (Hilmer and Hilmer, 2012[1]). At the same time, governments invest in research to generate ideas and innovations that contribute to countries' science base and create economic value, while also increasing the innovative capacity of the workforce.

Governments observe and understand the outcomes of higher education institutions and systems imperfectly. This is because of poor or missing measurement (e.g. learning outcomes or community engagement) or uncertainty about causal relationships between resource allocation choices/policies and outcomes. For example, governments or accreditation organisations rely heavily upon proxies of the outcomes they seek; notably for instructional quality, where the qualifications of instructional staff, student-teacher ratios, hours of instructional contact, or self-reported student engagement and satisfaction substitute for well-identified causal relationships between instructional inputs, practices and learning. Nonetheless, governments must take responsibility and make decisions on the basis of the best information available. The purpose of policy research and analysis – and the OECD Higher Education Resources Project – is to help policy makers identify what is the best available evidence upon which they can base their choices.

These outputs and outcomes result directly from the actions and behaviours of institutions, staff and students

Those in charge of running higher education institutions, individual staff members working in these institutions, and the students they teach can be viewed as the principal actors involved in generating the outputs and outcomes detailed above. The activities and behaviours of these three groups – which affect the outputs achieved – are in turn influenced by a set of broader governing and steering forces. These include:

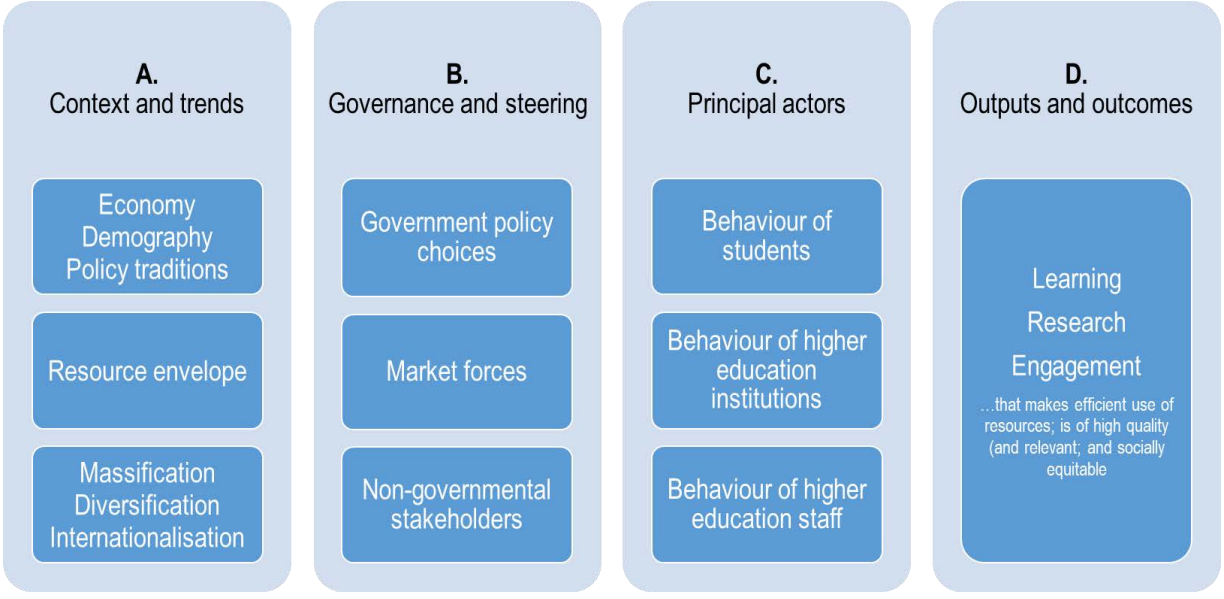
- *public policies* governing the organisation and operation of higher education systems, including policies explicitly related to resourcing, such as those setting the level, allocation and use of public funding; rules governing private funding; and policies that influence staffing;

- *actions of non-governmental stakeholder organisations* that have an influence on the operation of higher education, including employers and industry associations that may influence the design of educational programmes (notably in regulated professions) and higher education research; trade unions representing academic staff, associations of higher education employers, higher education associations and sectoral bodies (such as rectors' conferences), philanthropic foundations and student organisations;
- *market forces* affecting higher education, including the degree of competition between higher education institutions and among current and aspiring academic staff. The extent to which market-like competition between higher education institutions plays a role in higher education systems is often conditioned by public policy, but some market forces – such as the attractiveness of academic jobs relative to jobs outside of the higher education system – are at play in all systems.

In addition to these immediate governing and steering forces, broader contextual factors shape government policy, influence the actions of non-governmental bodies and affect the markets in higher education. Among the most important of these factors are the nature of the domestic economy, demographic factors and prevailing doctrines of public-sector management; existing levels and patterns of higher education resourcing and current resource availability (the "resource envelope"); and broader trends in society and the global economy. These trends include changing demand for higher education, which has driven the "massification" and diversification of systems, and the internationalisation of higher education as part of a broader process of globalisation. These contextual factors and trends also shape the actions and behaviours of higher education institutions, academic staff and students.

These elements and the potential relationships between them can be summarised in a logic model for the operation of higher education, incorporating policy related to resourcing, as represented in Figure 1.1.

Figure 1.1. A logic model for resourcing policies in higher education



Different policies affect the mobilisation, allocation and use of financial and human resources in higher education to different extents

The logic model above seeks to acknowledge that the actions and behaviours of higher education institutions, students and staff are influenced by a wide range of factors, of which policies enacted by public

authorities are only one. Nevertheless, public policy does have a profound impact on the way higher education systems operate, in particular the policies that affect the allocation and deployment of financial and human resources.

Policies affecting the allocation and deployment of financial resources in higher education (see also Section 1.5) include:

- Policies governing *who may provide higher education and where* (the network and form of institutions), including regulations establishing different types of public higher education providers and the structure of higher education-based research, or governing the operation of private higher education providers. These policies have an effect on the number of providers in the system and the level of competition between them, so not only influence the behaviour of institutions, but shape the market within which they operate.
- Policies governing *how financial resources are obtained* to fund the activities of different types of higher education providers (in particular, the role of public funding streams, funding from households and other types of private revenue) and for students (notably the role of publicly supported grants, loans, tax incentives and subsidised benefits). Although decisions about the mobilisation of financial resources form a core part of resourcing policy, as illustrated in the logic model, they are heavily conditioned by the basic availability of resources (such as tax revenue) and historical patterns of funding. Incremental changes in resource mobilisation are common, and large changes rare. See Chapter 2 for a fuller discussion of this.
- The mechanisms used to *regulate the allocation and use* of public and private revenues for the different activities and missions of higher education providers. This includes those used to allocate public funding for staff and equipment for day-to-day teaching, research and engagement activities (operating budgets) and capital investment, as well as rules governing the use of private revenue streams by higher education providers.
- The mechanisms used to allocate *financial support or benefits to students* and their families.

In the area of human resources, which absorb a large proportion of financial resources in higher education, a different balance of forces shapes the recruitment, terms of employment, compensation, evaluation and advancement of staff within higher education institutions. The scope of government policy in this area varies widely between jurisdictions, and there are important influences from stakeholder bodies (such as trade unions and professional associations) and market forces. Important steering forces include:

- *Public policies* that may govern how academic staff can be recruited, evaluated and compensated, and how they advance through the career structure, including policies implemented through employment law, and accreditation and quality assurance requirements. These public policies vary across OECD member countries, and, within national higher education systems, between different types of institution.
- *Collective agreements or conventions* within the higher education system, including wage agreements and work standards resulting from bargaining between higher education staff organisations and institutions as employers.
- *Market conditions* in the higher education sector, which affect demand for higher education staff and shape the behaviour of higher education institutions and existing and aspiring academics.

The contextual factors and mix of policies, action by non-governmental bodies, and markets that influence behaviour in higher education systems – and thus the outputs and outcomes achieved – are discussed in more detail in the next sections.

1.4. Contextual factors and trends influencing resources in higher education

The logic model discussed above maps the theoretical relationship between resourcing policies and the outputs and outcomes of higher education systems. Both policy making and the operation of the higher education system are influenced by: i) economic and demographic factors, ii) the broad resource envelope available for higher education in a given jurisdiction and iii) a set of dynamics internal to higher education, but influenced by broader societal trends, including large increases in student numbers ("massification"), diversification of institutions and programmes and internationalisation.

The economic and demographic context

Both economic and demographic trends affect demand for higher education and the need for resources in higher education systems. The ongoing digital transformation of economies and societies in OECD countries is changing the quantity and quality of jobs, the nature of work and the skills needed to succeed in the labour market (OECD, 2019[2]). New jobs are being created as others are disappearing. Four out of ten jobs created between 2006 and 2016 were in digital-intensive sectors (OECD, 2019[3]), while, in parallel, the growth of non-standard forms of employment has accelerated. One-third of the OECD labour force is in temporary, part-time and/or self-employment, with a greater proportion of people experiencing unemployment or irregular earning patterns, and many becoming self-employed or entrepreneurs, rather than working for a single employer (OECD, 2019[3]).

Under these conditions, higher education institutions find themselves challenged to develop more flexible provision; to enhance their capacity to support the re-skilling and up-skilling of adults; and to cultivate a wider repertoire of skills, including social, emotional and other non-cognitive skills that employers report to be important.

OECD populations are ageing, and this trend will continue (OECD, 2019[4]). The old-age dependency ratio will double in the next 45 years. This increase will contribute to further pressures on public budgets to fund spending in health, long-term care and pensions. Conversely, the share of young people in the total population is declining in most countries, and the youth-dependency ratio has declined, meaning lower public spending on education and child-related benefits. However, the strong decline in the youth dependency ratio of past decades has come to an end, as birth rates have stabilised, while any falls in the overall volume of education spending cannot compensate for necessary increases in spending on older people.

However, as the economy increasingly demands more qualified workers and has less need for manual labour, the physical robustness of individuals is less important than their mental abilities. In this context, experience associated with age is increasingly valuable (Coughlin, 2017[5]). Many individuals over 65 remain in good health and actively productive, especially among the most qualified sections of the population. As the qualification level of the population increases, those over 65 become more likely to continue working, increasing overall productivity, but also demand for lifelong learning.

Demographic changes affect the size and composition of the student body, but also the age structure of staff (OECD, 2008[6]). When countries have reached high levels of participation in higher education alongside a decrease in the size of the youth population (e.g. Korea and Japan), they may experience a contraction of their higher education system. Higher education systems in most countries, however, will likely continue to expand, attracting a higher share of the traditional age cohort by widening access to under-represented groups and catering to lifelong learners and international students.

Resourcing traditions and the resource envelope

The mix of public and private resources invested in higher education – for example, whether or not public institutions charge tuition fees – and the overall level of public spending on higher education in a given jurisdiction generally reflect historical patterns in OECD countries. Although radical policy changes, such as the introduction of tuition fees (as in England or Australia) or their abolition (as in Germany) do occur, these remain the exception, with countries more generally adapting policy only gradually over time. The longstanding commitment to public higher education without fees for domestic students in Nordic countries, or the tradition of relatively high and variable fees in public universities across the United States are examples of resourcing traditions that have a profound impact on contemporary resource policies.

Equally, while step changes in the level of public resources available for higher education are possible, major spending increases usually require politically sensitive tax rises, increases in government borrowing or diversion of funds from other areas of public spending. As such, such increases are rare and the overall "resource envelope" with which higher education policy makers and higher education institutions must work typically changes only marginally from one year to the next in times of stable economic development. An exception to this pattern of stability occurs when there are major (usually international) economic shocks, and governments are forced to cut public spending radically, including on higher education. This occurred in a number of OECD member countries, including Portugal, Greece and Ireland, in the wake of the 2008 financial crisis, for example.

The changing landscape of higher education

Massification

The phenomenon of higher education expansion can be traced back to the end of the Second World War and accelerated after 1960, with the development of welfare states, rising aspirations from a much higher completion rate of secondary education among the population, and the development of post-war economies and the consequent demand for higher education graduates (Scott, 1995[7]). Additionally, in some countries, governments increased research investment in universities to encourage technological development (Atkinson and Blanpied, 2007[8]).

The transition from an elite to a mass system of higher education first occurred in the US system, which was approaching the boundary between mass and universal stages in the 1970s, while others were still transitioning from elite to mass systems (Trow, 1970[9]; 1974[10]). Now, "high-participation systems" have become the norm in OECD countries (Marginson, 2016[11]). In some countries in East Asia, they may have reached saturation levels.

The World Higher Education Database lists over 19 000 higher education institutions that offer at least a bachelor's degree or equivalent professional diploma, a figure that has increased constantly since the listing was first published in 1959 (IAU, 1959[12]). The proportion of young people (25-34 years old) with a higher education qualification in OECD and G20 countries is expected to continue to grow from around 14% in 2005 to more than 45% by 2030. However, most of the growth will occur in non-OECD G20 countries, as they catch up with their OECD peers in terms of higher education attainment (OECD, 2015[13]).

Diversification

Diversification of the student population served by higher education systems has resulted from the expansion of higher education over the later decades of the twentieth century, as well as concerted efforts by governments to widen participation among under-represented groups. The target populations for widening access vary between jurisdictions, but usually include individuals from low-income backgrounds,

minority or under-represented ethnic groups and indigenous populations, older learners, migrants and those from remote or rural regions (Burke, 2012[14]).

Most governments have also aimed to diversify the institutional landscape of higher education, creating or providing funding to different types of higher education institutions (see Chapter 6). From a policy perspective, institutional diversity is often seen as beneficial. In the United States, for example, community colleges have increased access, opportunity and diversified pathways for those seeking post-secondary education. The increasing diversity of higher education institutions beyond elite institutions is visible across the OECD, where often there is a formal binary distinction between traditional research universities and institutions more focused on the practical orientation of learning, applied research, knowledge transfer and regional orientation: e.g. polytechnics in Portugal, *Fachhochschulen* in Germany, *Instituts Universitaires de Technologie* in France. (Huisman, Meek and Wood, 2007[15])

In many OECD countries, the emergence and expansion of the private higher education sector allowed many countries to absorb rising student numbers, and in some, private institutions absorbed the majority of enrolment growth (e.g. Korea). It was also expected in some systems that the private sector would induce more competition, bring in students from a wider range of backgrounds and further diversify the system. However, the evidence has been mixed regarding the extent to which private higher education has been successful in promoting diversification (Teixeira et al., 2012[16]).

Digitalisation is changing the modes of delivery of higher education, contributing to further diversity of learners, providers and educational credentials. Digital learning is becoming part of campus-based degree programmes, and is increasingly available through online degree and non-degree programmes, including those offered by global learning platforms such as Coursera, edX, Udacity, and FutureLearn. There is evidence to suggest that digital learning is improving and that digital tools are increasingly being used in regular teaching processes (Gaebel et al., 2018[17]). Meeting the needs of more diverse learners has become an important focus of governments and education providers, and has helped emphasise the importance of teaching and learning in higher education (Gaebel et al., 2018[17]).

Internationalisation

In recent decades, higher education has become increasingly globalised, and both drives and is driven by globalisation (OECD, 2009[18]). There has been an increase in cross-border education, which includes not only international student mobility, but also the provision of educational programmes and the establishment of branch campuses across international borders. Cross-border higher education has developed differently in different regions of the world, having historically been mostly policy-driven in Europe, and demand-driven in the Asia-Pacific region. North America has traditionally been able to attract foreign students without significant intervention from policy makers (OECD, 2004[19]). It remains to be seen what impact the most recent international crisis linked to the SARS-CoV-2 virus and COVID-19 disease will have on these international flows.

Where policy makers have promoted internationalisation, they have historically done so for different reasons, although there is an increasing convergence in motivations. In Europe, the creation of the European Higher Education Area and European Union funding of student and staff mobility and joint study programmes was originally driven primarily by political and cultural factors. Today, however, many European countries promote internationalisation as a means to raise revenue and attract international talent (see, for example, the Dutch higher education sector's internationalisation agenda (VSNU, 2018[20])). In countries such as Canada, the focus has been on a skilled migration approach and attracting talented international students who will be granted the right to work as graduates in the host country. In English-speaking countries such as Australia and New Zealand, higher education is an important export industry, with internationalisation strategies closely linked with revenue-generation aims.

These approaches to cross-border higher education are not mutually exclusive. Both co-operation and competition between jurisdictions and higher education institutions exist, in an increasingly globalised market for students and staff. Mobility of staff, mostly from south to north and from east to west, is also driven by the search for better opportunities and infrastructure.

Academic research is also becoming increasingly international. Between 2005 and 2015, international collaboration on scientific research intensified considerably. Currently, around 30% of domestically authored publications in OECD countries that are indexed in the Scopus database incorporate authors with institutional affiliations in other countries or economies. The mobility of researchers may also contribute to increasing the quality of research. Higher-performing researchers have more opportunities to work in other countries' research systems; if they then return to their home country, this can provide a boost to their home country's research system (OECD, 2017[21]). International funding for university research is also growing. European Commission funds are especially important for higher education in Europe (OECD, 2017[21]).

In addition to flows of students and researchers across borders, internationalisation is an increasing element of the higher education curriculum. Higher education institutions are increasingly fostering activities that develop international understanding and skills to operate in a globalised world, to the benefit of all students, not just the mobile minority. Although a majority of institutions in Europe have reported an increase in educational provision in a foreign language (mostly English), and in the recruitment of international students (Sursock, 2015, p. 61[22]), some European countries restrict or plan to restrict the use of non-national languages in teaching.

1.5. The role of policy, non-governmental actors and markets

Within contexts influenced by the factors discussed above, government policy (including resourcing policies), the actions of non-governmental bodies and market forces all act to steer the day-to-day operation of higher education systems in OECD jurisdictions.

Government policy and resourcing higher education

Irrespective of existing policy traditions and constitutional arrangements, governments in OECD countries play a crucial role in governing and steering higher education systems. Governments design, implement and evaluate specific policies and programmes, with various degrees of negotiation and collaboration with higher education stakeholders, and using a range of policy levers. These policy levers are frequently categorised into four types: regulation, funding, information and organisation (Hood and Margetts, 2007[23]; Howlett, 2011[24]; van Vught and de Boer, 2015[25]).

Regulation through legal acts, such as higher education acts, budget acts, employment law, equal opportunities legislation and career statutes, has an impact on the mobilisation, allocation and use of resources in higher education institutions. Legislation and regulation typically set operating frameworks for higher education institutions, establishing basic rules and the rights and responsibilities of higher education providers. Budget legislation (such as annual budget acts) provides the legal basis for the allocation of public funds to higher education. Governments can also steer the system through "indirect" government regulation, where responsibility for decision-making is fully or partially delegated to non-governmental actors. An example of this would be government regulations governing collective bargaining processes led by social partners.

Although based in legislation or regulation, the *allocation of public funding* is a distinct and crucial means for government to influence the operation and development of higher education systems. Governments provide funds directly to higher education institutions or to students and households to help cover tuition

fees or living costs. Governments may allocate funds to institutions for different purposes, including core operating budgets, targeted funding for specific objectives or competitive funding for research. The level of funds awarded may be determined taking into account historical patterns of funding, current activities or performance measured through output or outcome indicators (see Chapter 4). Funding to students usually takes the form of grants or loans – or a combination of the two (see Chapter 3).

A third type of policy lever relies on the *provision of information*. Governments frequently support the collection, analysis and publication of information about higher education institutions, students and graduates. Such information may be collected, analysed and published by statistical agencies or other bodies, often making use of surveys of institutions, students and graduates. The information produced may be used for specific information campaigns designed to steer the behaviour of students and institutions. This information can also be used to shape the design, implementation and evaluation of other policies for higher education.

Finally, governments can use *procedural or organisational tools* to steer higher education systems. One aspect of this is the creation of agencies, such as funding councils, research councils, quality assurance agencies, staff development agencies, agencies promoting student mobility and umbrella co-ordinating bodies, such as national (higher) education councils. Governments also use government reviews, *ad hoc* task forces, commissions and public inquiries to convene stakeholders, identify policy solutions and develop support for specific changes.

The approaches public authorities take to policy making – and the policy levers they choose – are influenced by different political and institutional traditions in OECD member countries. In German-speaking Europe, for example, the Humboldtian tradition of academic self-government emphasises the freedom of academics from external interference, even though higher education institutions have traditionally been subject to strict administrative rules. In France and elsewhere, the Napoleonic state-steering tradition has led to a more proactive role of the state in organising and developing higher education provision. In Anglophone countries, higher education institutions have typically been strongly independent, with a mix of public and private provision and – increasingly – a competitive, market-like setting (Clark, 1983[26]; Austin and Jones, 2015[27]). In East Asia and Singapore, a distinct Confucian model of higher education has developed (Marginson, 2010[28]). Today, most systems are hybrids of those archetypes and there has been some convergence in policy approaches.

There has been a trend in many OECD countries where the state has played a strong role in higher education to reduce the scope of direct government control, with an increased institutional autonomy and a focus on steering at a distance. This shift has given institutions greater freedom to make their own decisions, including in areas of resource mobilisation, internal allocation and use, within the limits of government policies for higher education (Neave, 2012[29]). Across OECD countries, increasing public investment in higher education and greater institutional autonomy have driven efforts by governments to ensure higher education institutions account for their activities and performance. Institutions are called on to demonstrate that they perform well, deliver high-quality education and research, and contribute to good outcomes for society.

Governments have introduced a range of accountability mechanisms for institutions, including external quality assurance systems, performance metrics and reporting. Some argue that governments are seeking to shape higher education systems more actively, albeit through “steering at a distance” (Ferlie, Musselin and Andresani, 2008[30]).

Non-governmental actors

The way higher education systems operate is also shaped by non-governmental bodies and associations, including the representative associations of academics and students, social partners (such as trade unions representing staff), representative associations of higher education institutions, employers and

professional associations, education foundations, research centres and think tanks, supranational organisations, and international alliances of institutions. These stakeholder organisations are involved in agenda-setting and policy formation, and operate as communities that are conducive to policy learning that can facilitate policy implementation (Vukasovic, 2018[31]).

In some cases, international bodies play an important role in influencing the development of higher education. European integration and the Bologna process have led European systems towards the creation of a European Higher Education Area and shared standards and guidelines for quality assurance, for example (ESG, 2015[32]). Non-European regions are also introducing international modes of governance inspired by the Bologna process, such as inter-governmental arrangements in study structures, mobility and quality assurance (Chou et al., 2017[33]; Jongbloed, Enders and Salerno, 2008[34]).

Federal states also present complex environments for higher education governance due to the sharing of sovereignty between central government and the constituent political units, such as states and provinces (Marginson and Carnoy, 2018[35]). Often they set up dedicated bodies to support co-ordination across different jurisdictions, such as the Council of Ministers of Education, Canada (CMEC) or the *Kultusministerkonferenz* (KMK) in Germany (Jungblut and Rexe, 2017[36]).

Market forces

In recent decades, many of the reforms of higher education, as in other public services, have introduced market-based or market-like policy instruments into the sector. They have done this by modifying institutional funding, student support and the allocation of research funding; and by introducing greater market competition in academic labour markets. The most frequent rationale advanced by proponents of these reforms has been a need to increase the economic efficiency of higher education systems by promoting institutional adaptation and innovation (Dill, 1997[37]). However, market mechanisms are also seen as a means of increasing equity by fostering higher participation, as in the reforms in the United Kingdom that removed caps on student numbers and introduced income-contingent loans.

Market forces play a role in steering higher education systems, where there is freedom for providers, in terms of market entry; price-setting and resources use; and freedom for consumers to choose provider and product based on free access to relevant information. Nonetheless, as noted, governments retain a key role, even in the most marketised systems, to set the framework conditions within which higher education institutions operate (Jongbloed, 2003[38]).

1.6. The structure of the following chapters

The remaining chapters of this analytical framework are structured as follows:

- Chapter 2 discusses different approaches to mobilising financial resources for higher education – how different higher education systems bring money into the system.
- Chapter 3 discusses how governments approach the question of student fees, and the different approaches they take to providing public financial support for students.
- Chapter 4 discusses how governments allocate available public funds to higher education institutions – either through direct transfers or voucher-like systems.
- Chapter 5 examines public policies governing human resources in higher education.
- Chapter 6 discusses policy approaches that governments use to shape and steer higher education systems as a whole – and thus the pattern of resources in the system – notably though promoting diversification and concentration.

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2 Mobilising financial resources for higher education

This chapter examines the way financial resources are mobilised for higher education systems, focusing on two basic questions all systems must answer: what level of financial resources should be raised for higher education and where will these resources come from? This chapter notes the increasing costs of higher education that necessitate rising levels of resource mobilisation, outlines constraints that shape resource mobilisation, and offers examples of the different choices governments have taken about "what level of resources to mobilise, and where from." In higher education systems where household resources are mobilised, decisions must be taken about who will pay, how much they should pay and how households should be assisted in meeting study costs. The question of financial aid to students is taken up in Chapter 3, while the processes by which public revenues are allocated to higher education institutions are taken up in Chapter 4.

2.1. Mobilising resources for higher education: How much and from where?

Policy makers across the OECD must address, on a recurring basis, two basic questions of resource mobilisation: what level of financial resources can be allocated to higher education, and where will these resources come from?

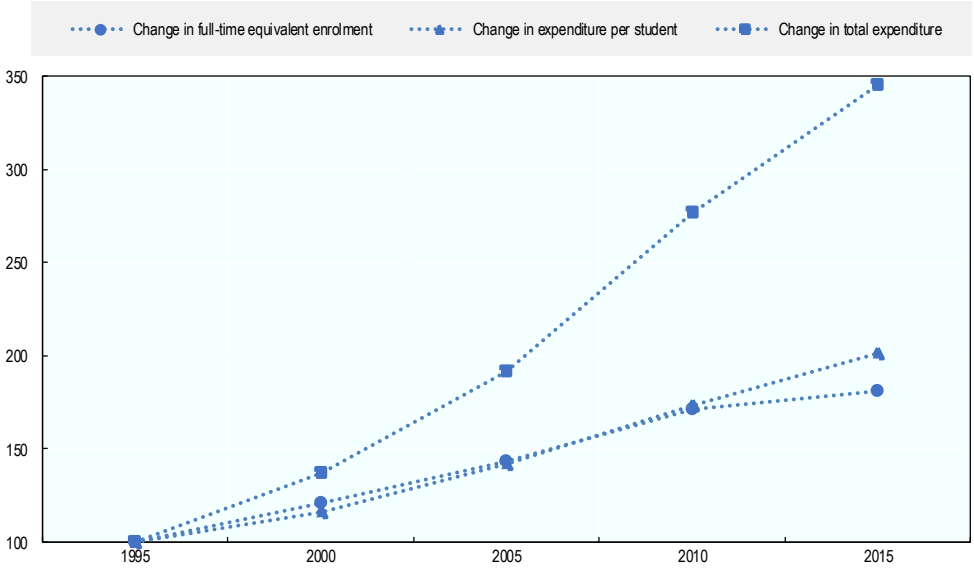
As they address these questions, they face two opposing dynamics. First, over the long run, the cost of higher education systems has risen significantly, challenging policy makers to mobilise ever-greater levels of resources. Second, the work of resource mobilisation – carried out through planning and budgeting – takes place within a context that usually constrains sharply the resource options available to decision makers.

2.2. Rising costs, their drivers and implications for resource mobilisation

Between 1995 and 2015, higher education became significantly more expensive on a per-student basis, after taking into account price inflation. Based on an analysis of cost trends in 13 OECD countries, Figure 2.1 shows that the total expenditures of higher education institutions (money spent on staff, operating costs, capital investment, etc.) more than tripled in the two decades up to 2015, accounting for inflation. These rising expenditures were due, in part, to expanding student numbers, which rose by 81% across these two decades. However, after accounting for rising student numbers and inflation, real expenditures *per student* by higher education institutions doubled between 1995 and 2015 in these countries.

Figure 2.1. Changes in enrolment and expenditure in higher education, 1995-2015

Increase in full-time equivalents and real expenditure in public and private institutions, 1995=100



Notes: Average value across 13 OECD countries with available data for all years (Chile, the Czech Republic, Finland, Israel, Italy, Mexico, the Netherlands, Norway, Portugal, the Slovak Republic, Spain, Sweden and the United States). The value for 2005 for Norway has been interpolated as the average between 2000 and 2010.
Source: Adapted from OECD (2020), OECD Education Statistics (database), https://doi.org/10.1787/edu-data-en (accessed on 04 May 2020).

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This rising real cost of the outputs that higher education institutions produce – education, research and engagement – is not a recent trend in some OECD higher education systems. In the United States, for example, times series data for 1948-2013 reveal that the real cost of producing higher education rose substantially across much of this period, increasing 1.6 times per full-time student between 1970 and 2013 (Archibald and Feldman, 2018[1]).

After taking rising student numbers into account, the real cost of producing higher education outputs – on a per-student basis – has grown for three principal reasons.

First, contemporary higher education institutions have been asked to produce a different mix of outputs than those in decades past: to take wider responsibility for nurturing innovation in firms, and to develop deeper engagement with the communities they serve. Moreover, they have been expected to produce more and (arguably) better research outputs than in the past.

Second, higher education institutions work with more costly inputs than before, including new types of learners who expect or require supports and services not previously on offer; an ageing and more costly higher education workforce; and increased numbers of executives and professional managers, who are needed to carry out the wider scope of responsibilities now borne by institutions. In higher education systems where student fees play a larger role than in the past, higher education institutions have also been spurred to make improvements to physical infrastructure and amenities, as these aspects of higher education increasingly influence the choices of fee-paying learners.

Finally, like other service industries, such as medicine and law, higher education institutions have found it difficult to produce learning, research and engagement outputs more efficiently than in past; they suffer from what has been termed as the "Baumol cost disease" (Baumol and Bowen, 1966[2]). As Archibald and Feldman observe:

> *Productivity in higher education has grown very slowly relative to the average rate of productivity growth for the economy as a whole. The number of students a professor teaches per class hasn't changed much over time… [A] 15-student research seminar isn't the same if taught to 40 students, and a 35-person lecture isn't the same if taught to 120. Measured productivity can always be increased by stuffing more students into a class, but the experience changes. As a result, true quality-constant productivity growth is difficult to achieve in education. By contrast, technological developments have allowed steel output or tons of wheat produced per labor hour to grow substantially, without harming the quality of the product. This causes what is called "cost disease." Cost disease affects all personal service industries, not just higher education (Archibald and Feldman, 2018, p. 5[1]).*

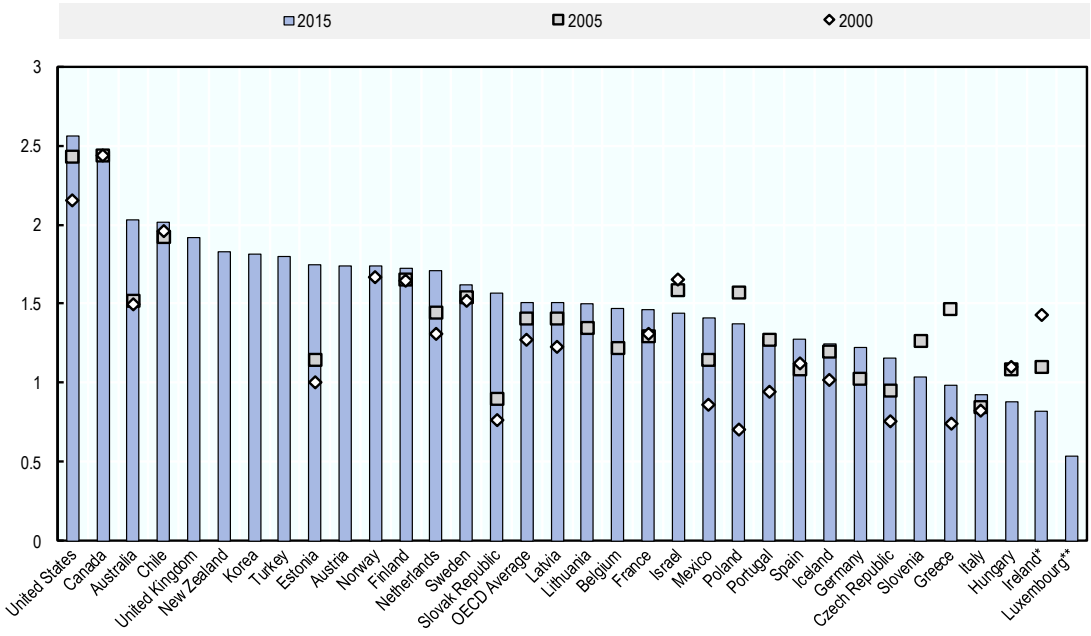
These rising cost pressures – variable across OECD higher education systems – have created for policy makers a challenge of mobilising ever higher levels of resources. The scale of this challenge is further influenced by the context and constraints within which policy makers work.

2.3. Constraints facing higher education policy makers

Aggregate wealth and demography strongly shape spending levels

How much countries raise and spend on higher education is, in important respects, a function of the productive capacity of their economy, as measured by their Gross Domestic Product (GDP). On average, OECD member countries spend 1.5% of their GDP on higher education, taking into account spending by government, households and other actors. As Figure 2.2 shows, there is modest variation between countries in spending as a share of GDP, with most countries spending in the range of 1-2% of GDP on higher education. This contrasts with total spending on health in OECD member countries, which, in 2018, averaged at 8.8% of GDP, and ranged from 4.2% to 17% of GDP (OECD, 2019, p. 153[3]).

Figure 2.2. Total expenditure on higher education as a percentage of GDP, 2000-15



Notes: *Data from 2000 for Estonia refer only to public expenditure. **The value for Ireland should be treated with caution, due to anomalies in report GDP values for 2015. ***The value for Luxembourg should be interpreted in the context of the country's very high GDP per capita and the small size of the higher education system.
Source: OECD (2020[4]), *OECD Education Statistics* (database), http://dx.doi.org/10.1787/edu-data-en (accessed on 1 April 2020).

StatLink https://doi.org/10.1787/888934124546

Table 2.1. Correlation between selected measures of higher education expenditure and economic and demographic variables, 2012-15

	GDP per capita, PPP USD	Share of the population aged 18-24	Government expenditure on social protection for aged as a percentage of public expenditure
Total public expenditure on higher education as a percentage of public expenditure	-0.03	**0.65***	**-0.48***
Expenditure on higher education institutions as a percentage of GDP	-0.14	**0.43***	-0.31
Annual expenditure per student by higher education institutions	**0.85***	-0.11	0.05

Notes: The correlation coefficients are calculated based on a sample of 33 to 35 OECD countries (96 to 106 observations). The exceptions are the three correlation coefficients related to expenditure on old age social protection, which are based on a sample of 27-36 OECD countries (100-144 observations). The asterisk indicates results are significant at the 5% confidence level. PPP = purchasing power parity.
Sources: OECD (2020[4]), *OECD Education Statistics* (database), http://dx.doi.org/10.1787/edu-data-en; OECD (2018[5]), *OECD National Accounts Statistics* (database), http://stats.oecd.org/ (accessed on 1 April 2020).

StatLink https://doi.org/10.1787/888934124679

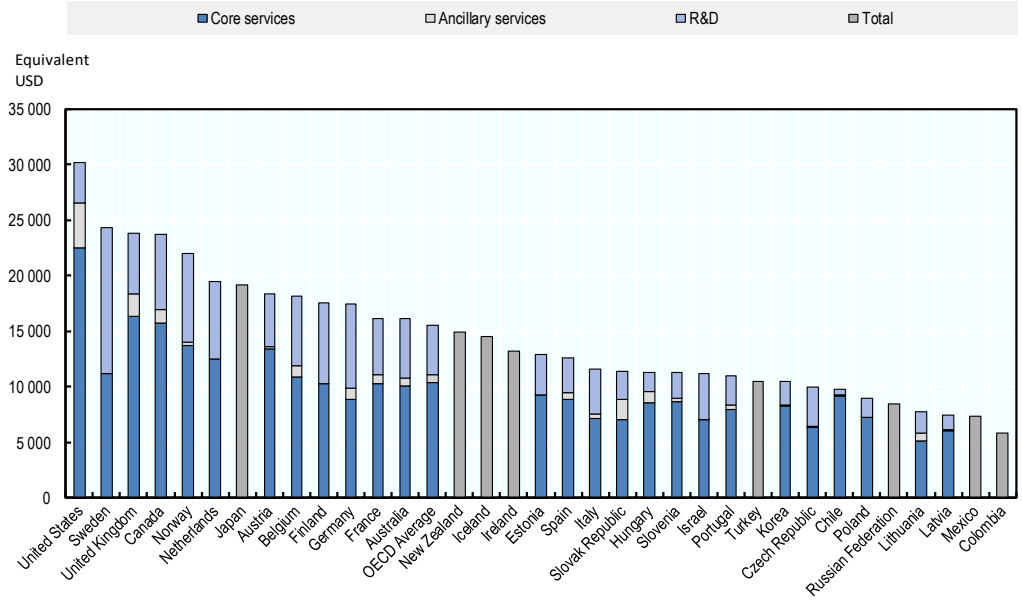
National income, as measured by GDP, is not the only driver of spending. Countries tend to allocate a larger share of GDP according to the demand for provision from its population, as measured by the size of

the young adult age cohort. As Table 2.1 shows, variation in the share of GDP committed to higher education is positively associated with the size of the 18-24 year old age cohort (r. 0.43). The same result is found for the share of public expenditure in higher education as a proportion of total public expenditure (r. 0.65).

Looking at annual expenditure per student and GDP per capita (Table 2.1), it emerges that 85% of the variation in annual per-student expenditure is associated with the national GDP per capita. Because OECD member countries make a broadly similar commitment of national income to higher education, while GDP per capita varies widely among member countries, the level of spending per student that countries mobilise for higher education depends heavily upon their total wealth, and also ranges widely. As Figure 2.3 shows, total expenditure per student in 2016 ranged from about USD 30 000 (PPP) in the United States, to less than half this amount in Spain (USD 12 600) and Italy (USD 11 600), to about USD 7 300 in Mexico.

Figure 2.3. Higher education annual expenditure per student, by type of services, 2016

In equivalent USD converted using PPPs for GDP, by level of education, based on full-time equivalent



Note: Total expenditure is displayed for countries without disaggregated data and it is equal to the sum of core services, ancillary services and research and development (R&D) expenditure. Data refer to 2017 for Chile and Colombia. Luxembourg, with a total expenditure of USD 48 407, is not shown in the chart.
Source: OECD (2019[6]), *Education at a Glance 2019: OECD Indicators*, Figure C3.1B, https://doi.org/10.1787/888933978816.

StatLink https://doi.org/10.1787/888934124565

Higher education expenditure is also constrained by other government spending priorities

All countries face claims on public spending that compete with, and may outweigh, higher education spending. These include servicing public sector debt; meeting health and pension costs; and increasing spending on infrastructure and social inclusion (Delaney and Doyle, 2013[7]). As Table 2.1 indicates, the estimated correlation between public spending on tertiary education and government spending on social protection for the elderly is, on average, significantly negative (-0.48) across OECD countries. In US states,

which bear responsibility for both the support of public higher education institutions and health care for low-income households through the Medicaid programme, rising health care costs have been shown to "crowd out" increases in state spending for higher education (Kane, Orszag and Gunter, 2003[8]).

Within public education budgets, higher education must compete for resources with school education, early childhood education and workforce training. These two latter sectors have strong claims to make on public resources. Economic analysis shows that early childhood education and care generate a larger ratio of social-to-private returns, thus meriting investment priority (Burgess, 2016[9]; Luis et al., 2017[10]); while workforce training is prioritised by policy makers as the key means by which to adapt to technological change.

Wide variation in source of revenues for higher education

While the level of resources countries aim to raise for higher education may be substantially shaped by economic and demographic factors, there is wider variation – and, sometimes, disagreement – with regard to *where these resources should come from*; whether from general government revenues, from households and other private sources, or both (Box 2.1).

Box 2.1. Funding sources in higher education

Government (public) expenditure on higher education refers to spending by public authorities at all levels of government, and includes direct public expenditure on higher education institutions and transfers of funds to private, non-educational entities supporting the work of higher education institutions.

Private expenditure by households refers to expenditure on higher education by students and their families. It includes payments to higher education institutions for tuition fees and other fees for educational and ancillary services provided by the institutions; costs for the purchase of goods and services outside of higher education institutions, such as books and other supplies, and private tutoring; other expenditure outside of education institutions (e.g. living costs) if financed with transfers from the government (i.e. public grants, loans and scholarships).

Private expenditure by other (non-household) private entities refers to expenditure by private businesses and non-profit organisations, including religious organisations, charitable organisations, and business and labour associations. This includes payments to higher education institutions; expenditure by private employers on the training of apprentices and other participants in dual programmes, as well as public subsidies to other private entities for the provision of work-based learning; subsidies to students or households (e.g. privately funded grants and scholarships). When reporting expenditure on education institutions, subsidies to students or households are excluded.

International sources of funding include public multilateral organisations for development aid to higher education such as the World Bank, United Nations, and non-governmental organisations. In Europe, a large share of international funding comes from European Union initiatives.

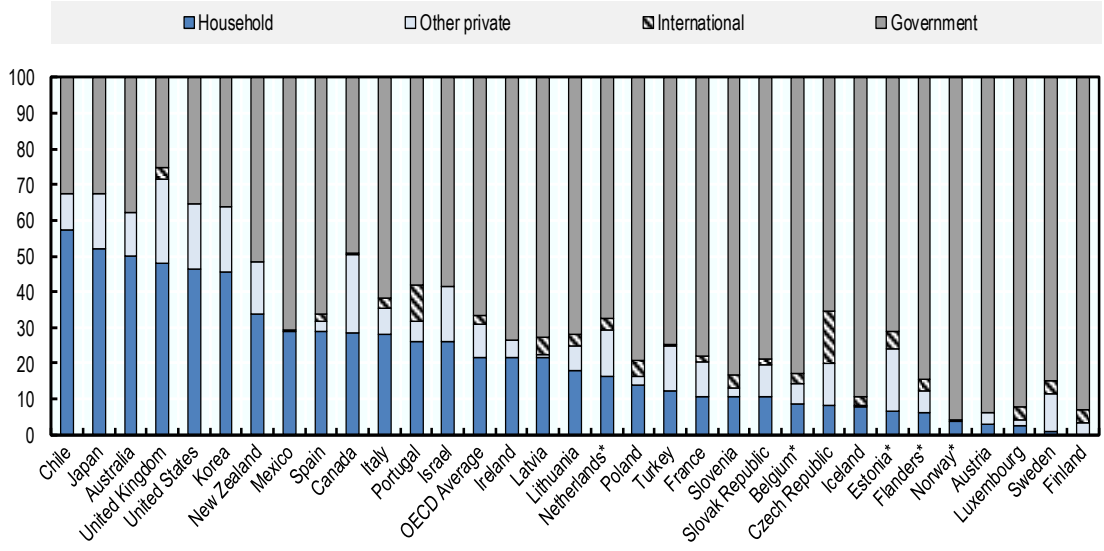
Source: OECD (2019[11]), *Benchmarking Higher Education System Performance*, https://doi.org/10.1787/be5514d7-en, Box 3.5 (p. 128).

As Figure 2.4 shows, on average, higher education institutions in OECD countries obtained about two-thirds of their revenues from government in 2015. However, there is wide variation in dependence upon public and private revenues. The proportion of household expenditure ranged from almost zero in Norway, Austria, Sweden and Finland to around 50% in Chile, Japan, Australia and England. The share of

government expenditure ranges from less than 30% in United Kingdom to more than 90% in Norway, Finland and Austria.

Figure 2.4. Sources of expenditure on higher education institutions, 2015

Shares of expenditure on higher education institutions, by source including all institutions



Note: The share of international sources for the Belgium and the Flemish Community exclude independent private institutions. *Participating in the Benchmarking Higher Education System Performance exercise 2017/18.
Source: OECD (2019[11]), *Benchmarking Higher Education System Performance*, Figure 3.5A, https://doi.org/10.1787/888933940550.

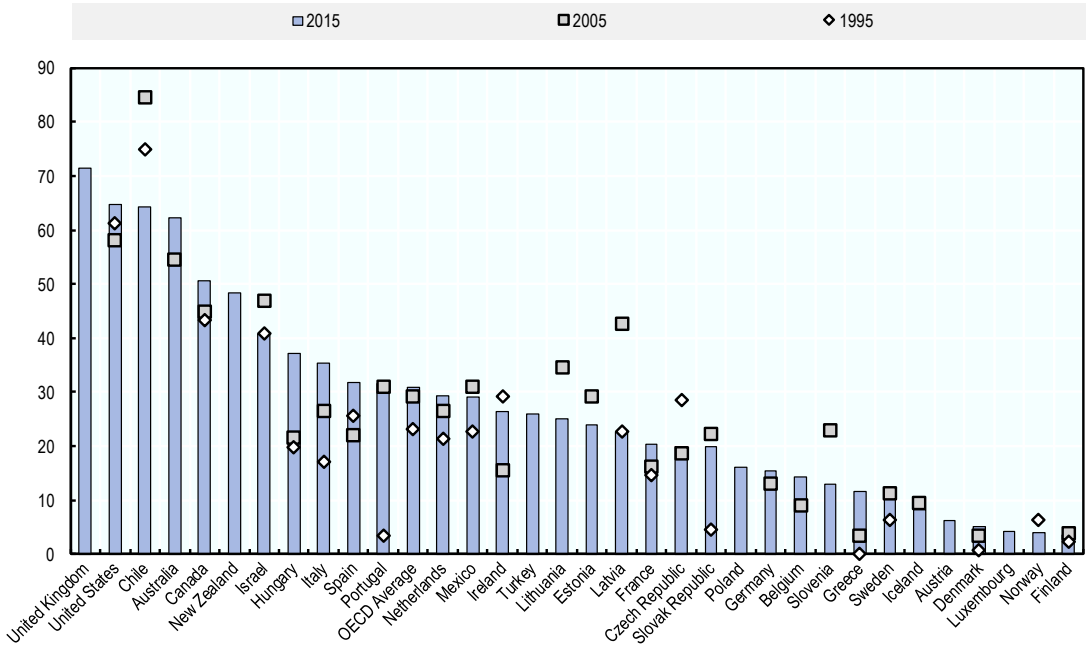
As shown in Figure 2.5, the balance of public and private resources mobilised by most OECD member countries has been stable over time, with relatively few countries showing a significant change in the mix of public and private resources in the two decades between 1995 and 2015. On average, OECD countries increased the share of private expenditure on higher education from 23% in 1995 to 30% in 2005, but in the following decade, the share remained stable across the OECD, slightly decreasing to 29%.

While in some higher education systems, such as Chile, these shifts resulted from policy choices, in many OECD higher education systems, a declining share of private resources appears to be demographically induced, rather than policy-driven. For example, as higher education age cohorts in Eastern Europe and Baltic countries have diminished in size, the enrolment share in private institutions has diminished, leading to a shifting balance of spending.

Expenditure data for the United Kingdom, based upon the previous (ISCED 1997) classification of education levels, show that a sequence of policy choices sharply altered the share of higher education private expenditure in recent decades. The share of private expenditure on higher education in the United Kingdom remained broadly stable between 2000 and 2007, in the range between 38% and 42%, but, in the following decade, rose sharply, to 70% in 2010 and the years that followed (adapted from OECD (2020[4])).

Figure 2.5. Trends in the relative share of private expenditure on higher education, 1995-2015

As a share of total expenditure on higher education



Note: Data from Denmark refer to 2014.
Source: OECD (2020[4]), *OECD Education Statistics* (database), http://dx.doi.org/10.1787/edu-data-en (accessed on 1 April 2020).

StatLink https://doi.org/10.1787/888934124584

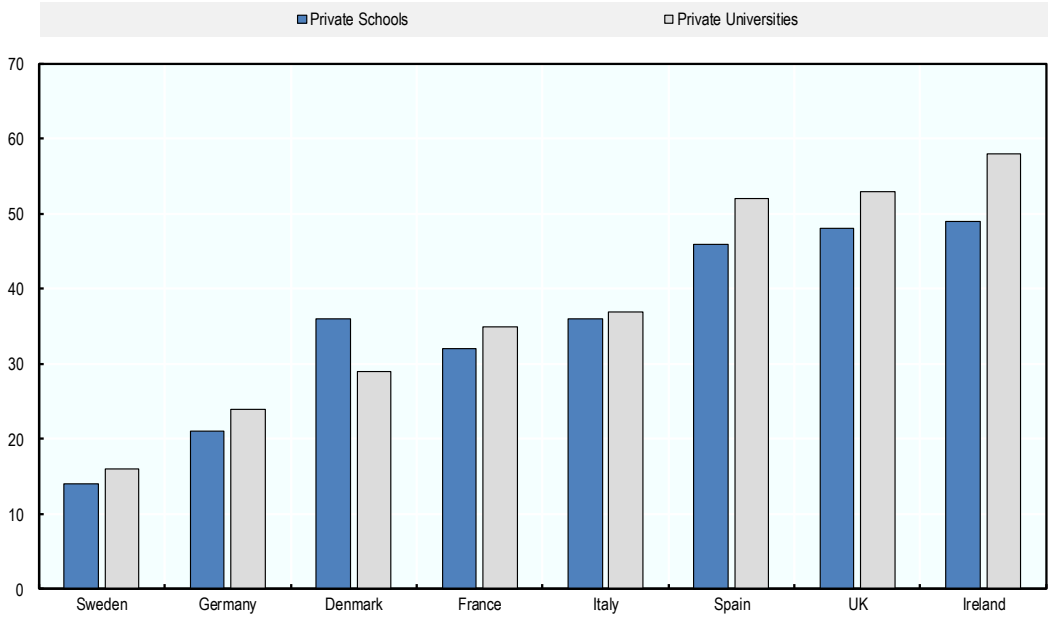
Cultural and political beliefs shape resource mobilisation

One reason for stability in the balance of public and private funding observed within most higher education systems is that the choices about the source of funding are constrained by stable cultural and political traditions (Johnstone and Marcucci, 2010[12]). For example, in Nordic states, which have had a strong social and political tradition of solidarity, there is a widely shared view that higher education is a public good, which fosters inclusiveness and equality in society. Most citizens believe that the cost of providing higher education should be borne by society through general revenues, rather than the fees paid by learners.

As illustrated in Figure 2.6, public support for private higher education is comparatively low in Nordic and other northern European states. In a recent survey on education spending, respondents showed low levels of support for privately provided higher education in Sweden (16% in favour), Germany (24%) and Denmark (29%). Opinion polling shows that the proportion of Germans who are strongly opposed to tuition fees in German higher education (at 19.2%) is approximately twice the proportion that strongly supports fees (10%) (Busemeyer, Lergetporer and Woessmann, 2018[13]).

Figure 2.6. Support for private higher education

Percentage of respondents who agree or strongly agree with the statement: "private schools/private universities should play an important role in the education system of [country]."



Source: Adapted from Busemeyer, Lergetporer and Woessmann (2018[13]), "Public opinion and the political economy of educational reforms: A survey", http://dx.doi.org/ 10.1016/j.ejpoleco.2017.08.002.

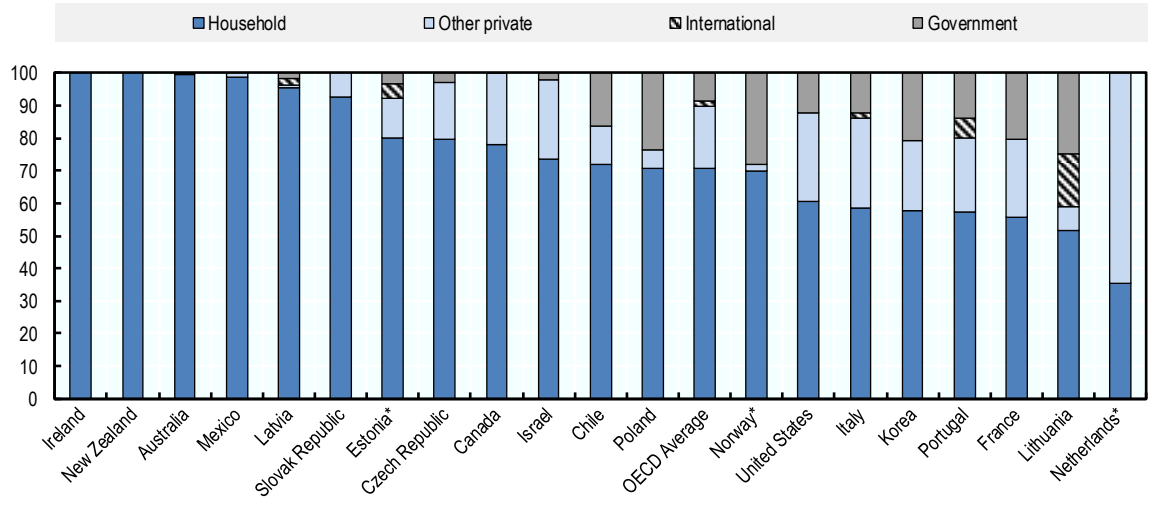
StatLink https://doi.org/10.1787/888934124603

Belief systems and political traditions are complex, and this complexity is reflected in how higher education institutions are funded. In comparatively large and diverse countries, one may find commitment to both public and private financing of higher education. In Mexico, for example, public higher education institutions are tuition-free, and efforts to introduce tuition fees to public universities have been met with vehement opposition. At the same time, independent private institutions are fee-based, and students are not eligible to obtain grant assistance in meeting tuition fees (OECD, 2019[14]). In the United States, the level and source of funding for higher education varies widely among the fifty states, with public higher education institutions comprising a smaller share of enrolments, and public institutions more reliant upon tuition fees in north-eastern states than elsewhere in the country (Urban Institute, 2020[15]).

The scale of private independent institutions shapes the balance of public and private spending

The distribution of expenditure by source in a given country is rooted, in important part, in its mix of public and private higher education institutions. While governments substantially fund government-dependent private institutions, households accounted for over 70% of the expenditure on independent private institutions in OECD countries, with other private sources contributing a further 20% of spending on these institutions. (Figure 2.7).

Figure 2.7. Shares of expenditure on higher education institutions, by source – Independent private institutions



Notes: * Participating in the Benchmarking Higher Education System Performance exercise 2017/2018 (OECD, 2019[11]). Australia: expenditure from international sources is included in other (non-household) private expenditure. Belgium and Flanders: The share of international sources exclude independent private institutions.
Source: OECD (2019[11]), *Benchmarking Higher Education System Performance*, Figure 3.5B, https://doi.org/10.1787/888933940550.

2.4. Policy making and resource mobilisation

Policy planning and resource mobilisation

While decisions about mobilising resources for higher education are subject to cultural and constraints, governments nonetheless set resourcing goals and make choices through strategic planning and budgeting processes. These goals and choices have implications for the resourcing of their higher education systems.

Strategic policy planning sets the framework for resource mobilisation

Education ministries and public advisory bodies throughout OECD jurisdictions often set multi-year strategies or goals with respect to their higher education systems. If effective, setting a strategic plan for higher education can help build consensus among stakeholders and across the government about resource levels, priorities and sources; and create a framework within which resource allocation decisions are made through budgeting processes.

Strategic planning for higher education takes many forms. The development of strategic plans is sometimes done through a sustained and open process of public and sectoral consultation, as in Finland (OKM, 2019[16]), or largely within the central government, as in Mexico. Strategic plans vary widely in scope and duration. Many planning exercises set a strategic horizon of a decade, while others are oriented by government calendars, such as the length of a presidential term or a parliamentary session. Strategic planning varies widely in breadth, ranging from one domain of a higher education system (e.g. internationalisation in education and research) to strategic plans linking higher education, research and innovation, or linking higher education to a national vision for skills or human capital.

In effect, the lowest common denominator among higher education strategic plans is a focus on outputs within the purview of higher education institutions, especially the scale of provision, whether measured as

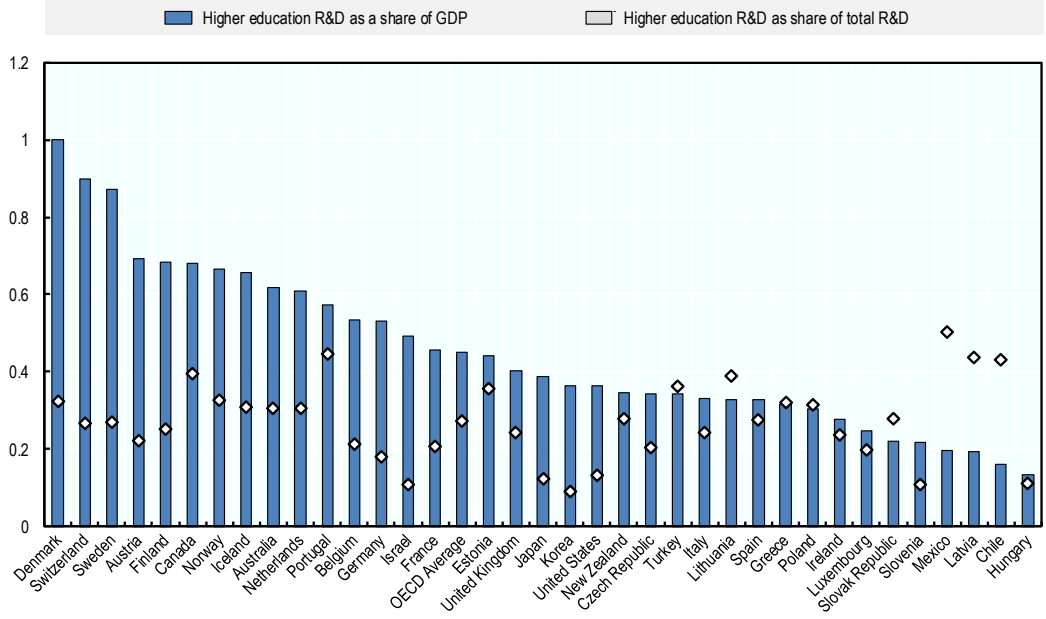
a gross enrolment rate or a tertiary attainment rate among young adults. Beyond this, strategic plans frequently set goals concerning student outcomes (such as time to degree, or employment), institutional quality (as measured by the global ranking of national higher education institutions, for example), or research spending and performance.

Attainment aspirations expressed in strategic plans have substantially converged among OECD jurisdictions, shaped by international benchmarking, competition for high-skilled employment, and shared international policy targets, such as the European Union's Europe 2020 Strategy tertiary education target (European Commission, 2020[17]). Nearly all US states have also established post-secondary attainment goals (ECS, 2017[18]). Even newer OECD member countries, with historically low rates of tertiary attainment, such as Mexico, have ambitious goals for attainment, aiming in their 2013-18 sectoral plan to raise gross enrolment rates from 32.1% (in 2012) to 40% (in 2018).

The R&D aspirations and profiles of higher education systems vary more widely than do education attainment targets, notwithstanding international benchmarking and policy targets. R&D expenditures, which comprise about 30% of higher education expenditure on average across OECD countries, vary widely. As Figure 2.8 shows, higher education R&D expenditures as a percentage of GDP show a ratio of 9:1 from highest to lowest expenditure, about three times the level of variation in total higher education spending as a percentage of GDP. The link between policy planning for the research and development mission of higher education systems and their educational mission is also highly variable. There is often modest co-ordination in setting policy plans for these missions, owing to distribution of research, innovation and education portfolios among different levels of government (in federal systems), in different Ministries, or – even if located within the same Ministry – guided by different advisory councils (OECD, 2019[19]).

Figure 2.8. Higher education expenditure on R&D, 2016

Gross domestic expenditure as a percentage of GDP, and share of total country R&D expenditure



Note: Data for Switzerland, New Zealand and Australia (higher education R&D as share of total R&D) refer to 2015.
Source: OECD (2019[20]), *Main Science and Technology Indicators, Volume 2018, Issue 2*, https://dx.doi.org/10.1787/g2g9fae2-en.

StatLink https://doi.org/10.1787/888934124622

Strategic policy planning often has a limited impact on resource mobilisation in practice

Strategic planning often appears to have a modest impact on the level of resources actually raised for higher education systems, and the source of these resources. This limited impact results from a variety of reasons:

- Governments often promulgate a multitude of strategic plans with little or no connection among them, the effect of which is to undermine the capacity of any plan to build consensus about resourcing levels and sources, and to strongly influence resourcing priorities (OECD, 2019[19]).
- Strategic plans often contain policy aspirations or targets, especially with respect to the scale of provision, with no reference to the level of resources needed to achieve them, or how resources will be raised. This is especially the case when strategic plans are devised solely by ministries of education (or higher education), and without the full engagement of those who are authorised to make resource commitments: finance ministries or cabinets (OECD, 2002[21]), (OECD, 2019[14]); (OECD, 2019[19]).
- Private, independent higher education institutions operate largely outside the public resource envelope, and beyond the scope of public steering. In higher education systems where private independent institutions play a prominent role, setting plans for attainment targets and research outputs may have little bearing on resource mobilisation or priorities.

There is some scope for strategy to influence resource mobilisation

While policy planning does not regularly drive changes in resource mobilisation, there are occasional policy-led changes in resource allocation, often driven by political movements or changes in the party control of government, that yield changes in the level of higher education funding or, more often, the source of funding. Recent examples of important policy-led changes in the source of funding have occurred in Germany, Chile, and England. In Germany, tuition fees were abolished by 2014, putting an end to a decade-long adoption of tuition fees by many federal states (Thomsen and von Haaren-Giebel, 2016[22]). In Chile student protests and public pressure on government led to an increase in public spending and a free university policy, although this initially applied only to public institutions (Delisle and Bernasconi, 2018[23]). As a consequence of funding reforms in 1998, 2006 and 2012, undergraduate university education in English public universities moved from being free to students and state-funded to charging substantial tuition fees to all students, albeit supported by income-contingent loans and, initially, means-tested grants (Azmat and Simion, 2017[24]).

Government budgeting and resource mobilisation

Although higher education policy makers may aspire to policy-led resource mobilisation, the level of resources they are effectively able to mobilise depend upon decisions taken at the centre of government by parliaments, cabinets and finance ministries. These decisions set the resource envelope within which public higher education systems function. Insofar as private institutions depend upon public finance for student support or their research and innovation activities, their resourcing is also shaped by these choices.

Decisions taken at the centre of government about the resource envelope for higher education are principally the result of: (a) past spending commitments, embedded in the scope and mix of higher education provision on offer; (b) current spending opportunities, resulting from the business cycle and alternative spending claims; and lastly, on the margin, (c) policy commitments made to (and by) the higher education sector.

The cost base for higher education reflects established provision

As discussed, the level of resources that countries mobilise for higher education depends, in important part, on the scale of higher education provision that exists, and the mix of institutions and programmes in which this provision is offered. The portfolios of programmes and research profiles of established higher education institutions tend to evolve slowly, leading to a relatively stable cost base. Governments may seek to alter the configuration of the network of higher education institutions through encouraging collaboration, alliances or mergers among higher education institutions, although such initiatives are complex and infrequently adopted (see Chapter 6). As a result, the overall resource envelope tends to be closely linked to the current configuration of provision.

Macroeconomic conditions influence budget decisions

On balance, opportunities for change in the higher education resource envelope are closely linked to wider macroeconomic conditions; the global recession of 2008-2009 provided vivid evidence of this. Public higher education spending fell in the years following the crisis in a majority of European university systems (EUA, 2011[25]). State public higher education appropriations fell in all but 5 of 50 US states between 2008 and 2017, declining from USD 91 to USD 83 billion, when adjusted for inflation, with appropriations per full-time equivalent student dropping from USD 9 083 to USD 7 636 (Mitchell, Leachman and Masterson, 2017[26]). The COVID-19 pandemic and its global macroeconomic and fiscal repercussions are expected to exercise equal or greater pressure on the resource envelope available for higher education.

Systematic statistical analysis offers general confirmation of the link between the macro economy and higher education spending. A series of studies on higher education spending by US states (Delaney and Doyle, 2011[27]; Kane, Orszag and Gunter, 2003[8]) confirm a strong link between higher education appropriations in the US states and the business cycle. The size of the statistical effect they observe, however, is likely amplified by a prohibition on deficit spending In all US states but one, and by the capacity of states to shift from public to household funding. Other studies suggest that while US states tend to cut higher education funding during periods of poor economic performance, they fail to fully replace their investment in universities once the downturn is over (Clelan and Kofoed, 2016[28]). The long-term cumulative effect of these incremental decisions has been to reshape the financing profile of the nation's public universities, making them institutions substantially dependent upon private, rather than public, financing.

Examples of policy-led changes to the research envelope do exist

While historic patterns of spending and the macroeconomic context are the key factors influencing the size and composition of the resource envelope, there have been examples in OECD countries of significant changes to the level and patterns of higher education funding that have been driven by policy.

Large policy-led changes in England, as noted earlier, shifted the balance of higher education funding away from general public revenues to household contributions through increased student fees. An impact of this policy change was to boost the level of funding available to English higher education institutions. General government revenues delivered through the Higher Education Funding Council for England (HEFCE) fell in nominal terms from GBP 6.71 billion in 2011-12 to GBP 3.55 billion in 2017-18. However, income from regulated fees (paid by domestic and EU students) rose from GBP 2.6 to GBP 9.0 billion, increasing total funding available to higher education institutions from GBP 9.3 to GBP 12.5 billion GBP (Bolton, 2017[29]).

Germany, too, made changes to its total level of higher education resource mobilisation that were large and counter-cyclical, starting in with its 2007 *Hochschulpakt 2020* (Higher Education Pact 2020). The pact between federal and state authorities was an agreement to raise and additional EUR 38.5 billion of public

resources for higher education (shared at 52/48 percent between the federal and state governments) through its *Programm zur Aufnahme zusätzlicher Studienanfänge* (Programme for admission of additional students) (BMBF, 2020[30]).

Like all major initiatives, both have been subject to rigorous criticisms. The English reform, which sought to shift a large proportion of the burden of financing higher education to students and graduates may not generate the cost savings to government initially expected, owing to the design of the large and costly government-backed student loan programme (Crawford, Crawford and Jin, 2014[31]). The German programme has been criticised for its inability to maintain real per-student spending rises, and to ensure spending by federal states is consistent with the Higher Education Pact's stated goals (Bundesrechnungshof, 2019[32]). Both, however, show that major shifts in resourcing levels, if infrequent, are possible.

What are the potential benefits of mobilising both private and public resources in support of higher education?

Policy debates on the balance of public and private resources in support of higher education turn on three principal arguments.

- First, private resources may be additional or complementary to public spending. If so, higher education systems that mobilise both public and private resources will be able to achieve higher levels of spending than those that rely only upon public resources, leading to improvements in equity (as more study places are made available), and quality (as improved human and physical resources are provided to learners) (Carpentier, 2012[33]).
- Second, private spending – in the form of tuition fees autonomously set by higher education institutions – can potentially lead to more efficient outcomes than systems funded by public authorities without fees, since price signals can improve both the efficiency with which institutions allocate resources, and the efficiency of household investments in education (Barr, 2009[34]; Andrews and Stange, 2016[35]).
- Third, education economists argue that private contributions through student fees are – if properly designed – a more equitable means of funding higher education than funding through general government revenues. Higher education often carries a substantial private return on investment for its graduates, and graduates more often are from households with moderate or high incomes. As a result, fully subsidised higher education may inadvertently function as a regressive form of public investment, in which costs are borne by all (through taxation), and benefits are concentrated among socially advantaged families (Johnstone, 2004[36]; Barr, 2009[34]).

Each of these arguments requires careful and extended examination. A brief examination of the first follows here. The remaining two questions are examined in Chapter 3, which looks closely at student fees and support.

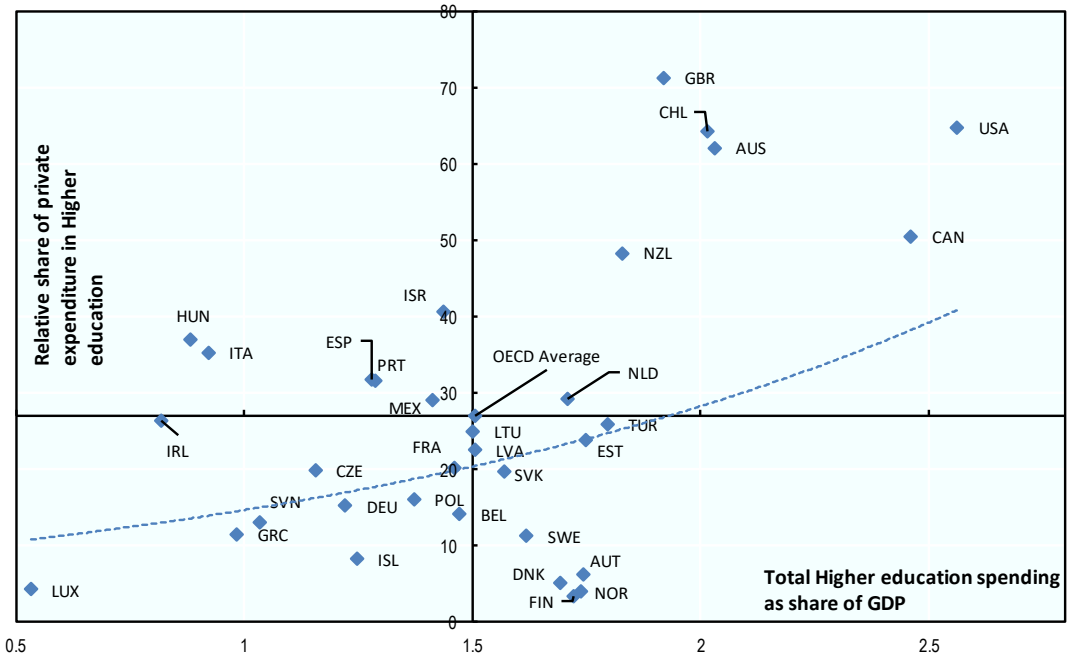
Are private and public higher education spending complementary or substitutes?

In higher education systems that increasingly rely on cost-sharing practices, the relationship between public and private sources of revenue leads to a persistent policy debate: are private expenditures largely complementary to public spending in support of public higher education institutions, or do they principally substitute for public spending? Is it possible to achieve higher total levels of spending by augmenting public spending with private spending? Are higher education systems with mixed public and private revenues able to generate additional enrolment capacity, thereby expanding the scope of access?

A cursory examination of the relationship between private and public spending in higher education at the country level, viewed on a cross-sectional basis, shows that the relative share of private expenditure is

correlated with total higher education spending as a percentage of GDP (r = 0.541*). Figure 2.9 shows that among OECD members, only countries with a high level of private spending are able to boost the higher education expenditure beyond 2% of GDP (in Canada, Australia, the United States and Chile). Conversely, among countries that rely on private funding for more than 50% of expenditure, only Japan has a share of GDP spent on higher education that is below the OECD average.

Figure 2.9. Relative share of private expenditure in higher education and total higher education expenditure as share of GDP, 2015



Note: Data from Denmark refer to 2014.
Source: OECD (2020[4]), *OECD Education Statistics* (database), http://dx.doi.org/10.1787/edu-data-en (accessed on 1 April 2020).

StatLink https://doi.org/10.1787/888934124641

Viewed within countries and over time, one sees a different relationship between public and private spending. Examining data on public and private expenditure over the period from 1921-2009 in the United States and the United Kingdom, Carpentier shows that, from the 1970s to the 1990s, much private income substituted for reductions in public funding, rather than representing additional income, but with some reversal of this pattern in the years following. Similar substitution effects, although on a much lower scale, could also be found in France (Carpentier, 2012[33]).

In the United States, the average public university has seen its per-student state and local funding drop by more than 30% over the past 30 years. Appropriations to higher education have declined during economic downturns, but are not replaced during upturns in the business cycle (Clelan and Kofoed, 2016[28]; Webber, 2017[37]). Estimates of funding in the 50 state higher education systems of the United States show that that a USD 1000 per-student decrease in funding leads to the typical student paying USD 257 more each year in costs. There are higher rates of "pass-through" for research universities as compared to non-research higher education institutions, as they have greater pricing power than less selective institutions. Both the pass-through rate and the proportion of tuition increases explained by state divestment have increased over time. The pass-through rate increased from 10.3% prior to the year 2000 to 31.8% post-2000 (rising

from USD 103 per student for each USD 1 000 decline in public funding per student prior to 2000, to USD 318 since 2000) – and rising to 41.2% after the global recession of 2008 (Webber, 2017[37]).

Depending upon the design of student support systems and alternative sources of revenue available to higher education institutions, reductions in public support that do not result in offsetting efficiency gains may have adverse effects on educational attainment by reducing enrolment and completion. Increases in tuition fees may reduce attainment by deterring students from enrolling or continuing their studies, an issue taken up in Chapter 3. Where higher education institutions lack autonomous price-setting authority (e.g. in Hungary, Italy or Portugal) (Pruvot and Estermann, 2017[38]; European Commission/EACEA/Eurydice, 2018[39]), they may respond to declines in public spending by increasing enrolments among students whose fees are not capped, by seeking additional non-tuition sources of private revenue, and by reducing per-student spending through increased class sizes or reductions in full-time staff. The last of these responses – reduction in per-student spending – might be detrimental to quality, as it has been shown to result in sharp reductions in student support spending (tutoring, advising and mentoring), and reduced rates of persistence and degree completion (Deming and Walters, 2017[40]).

Private non-tuition revenues

Higher education institutions can attract financial revenue from sources other than the government in a variety of ways, including revenues from private donations, the commercialisation of knowledge and research outputs stemming from service contracts, licensing rights, lease or rental of property, or customised training. Success in securing private non-tuition resources may help institutions augment per-student instructional expenditures and boost research output (Hottenrott and Thorwarth, 2011[41]).

Governments in many countries have sought to enhance the capacity of higher education institutions to mobilise their own resources, putting them on a legal basis that permits them to behave entrepreneurially in raising and managing private resources. In conjunction with this, they have adopted policies to incentivise higher education funding from private sources, including providing matching funds and tax incentives to stimulate philanthropic and charitable giving to institutions.

Notwithstanding these measures, financial revenue from private sources other than households has traditionally represented a small share of institutional budgets across OECD countries. As Figure 2.4 indicates, on average less than 10% of institutional revenues are obtained from other private sources; though there is significant variation across the OECD, with the United Kingdom reporting a share of “other private resources” five to ten times that of other European nations, such as Portugal or Spain. Moreover, within higher education systems where private donations comprise a significant source of non-tuition private revenue, donations may be highly concentrated, as in the United States (Rosinger, Taylor and Slaughter, 2016[42]) and the United Kingdom (Sutton Trust, 2014[43]).

Expectations that non-tuition private revenues might compensate for fiscal constraints experienced by institutions and to significantly contribute to their financial stability have not been met. Non-tuition revenues have proven to be pro-cyclical, rather than counter-cyclical (Carpentier, 2012[33]).

Private charitable donations and business funding of higher education institutions provide an opportunity for higher education institutions to mobilise resources for research and teaching that might otherwise be unavailable. However, these income sources can (in some cases) raise serious challenges to the integrity of higher education institutions. Firm-based funding of university research, in particular, has sometimes posed serious risks to the conduct of fully independent and impartial research, and jeopardised academic freedom (Hugentobler, Müller and Morrissey, 2017[44]). Policy frameworks for higher education systems (such as higher education acts) and quality assurance systems frequently do not appear to address this risk (ESG, 2015[45]).

2.5. What future for resource mobilisation?

The attention of governments across the OECD in decades past has focused on the mobilisation of additional resources to meet rising student numbers and rising costs per student. However, with demographic pressures abating in most countries, and very large fiscal pressures ahead resulting from the macroeconomic and fiscal impact of COVID-19, it is likely that many policy makers will increasingly be confronted with the question of "how can we do the same with fewer resources?", rather than "how can we do more with additional resources?".

If governments want their system to do the same for less – maintain the scale and quality of provision at a lower cost – reducing staff costs through "crowding" (sharply increasing student-to-staff ratios), shifting to cheaper staff inputs (part-time and temporary staff), or reducing spending on support services are unlikely to be successful strategies. Research evidence in the chapters that follow points, on balance, to the adverse effects of these choices on student completion and learning.

Widening the scope of digitalisation in teaching and learning will likely occupy a much more prominent place as a policy priority, not only for reasons of public health, but because of a widely shared view that digitalisation can maintain access and quality at a lower cost of instruction, thus raising efficiency.

However, systematic evidence on the cost effects of digitalising course development, delivery, assessment and credentialing is limited – and, for many, disappointing. Contrary to expectations, many digitised courses have had comparable costs to in-person instruction, or still higher costs. In the United States, for example, cost information from a sample of 92 courses (46 on-campus and 46 distance courses) from 15 University of North Carolina campuses showed the average cost for developing a distance course (USD 5 387) is 6% *higher* than the average cost for developing an on-campus course (USD 5 103). Cost reductions were not achieved because digitised courses did not reach sufficient scale to reduce unit costs compared to face-to-face instruction. The average class size for distance education was smaller than for on-campus courses, and instructors teaching in distance courses reported that smaller class sizes were needed to ensure the engagement of students learning at a distance (Xu and Xu, 2019[46]).

Within existing higher education institutions, the likeliest opportunities to reach provision at scale – without impairing quality – appear to be in those parts of the curriculum that are comparatively basic, or relatively algorithmic, such as introductory language and mathematics instruction, or large lecture courses at the outset of university studies. As these courses are already delivered at relatively low cost, efficiency gains may be modest (Hoxby, 2014[47]).

While digital courses developed and hosted by a single higher education institution may not achieve a scale sufficient to deliver cost savings, other models of digital provision, such as national open universities, Massive Open Online Courses (MOOCs), and global learning platforms (such as FutureLearn, EDx and Coursera), do reach learners at a far greater scale. In 2019, MOOCs were reported to have reached a global market of more than 100 million learners registered in 11 000 courses, and the largest of the digital platforms, Coursera, reports serving 30 million learners (Kato, Galán-Muros and Weko, 2020[48]).

However, these new providers have been largely complementary to existing higher education institutions and the study programmes they have offered, rather than substituting for them. They have principally served non-traditional adult learners, offering smaller segments of instruction (courses) or micro-credentials, rather than full degree programmes. While the number of full degree programmes offered by MOOCs increased from 15 in 2017 to 50 in 2019, this comprises a very small fraction of study programmes leading to recognised degrees across the OECD (Kato, Galán-Muros and Weko, 2020[48]).

Whether wide adoption of the large-scale, distance education provision takes place – and whether its adoption is able to generate efficiency gains in higher education – will depend, in part, on advances in technology, but equally on decisions made by public officials about the funding of learners and higher

education institutions, and the willingness and capacity of the higher education workforce to make productive use of technology.

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3 Student fees and student financial support

This chapter examines undergraduate student fees and financial support, commencing with who sets tuition fees, who pays fees, and the impact of tuition fees on enrolment. It subsequently focuses on how students are assisted in meeting study costs, both through non-repayable support (grants and tuition waivers) and student loans, examining their design, costs, management and their effect on enrolment and student outcomes.

3.1. Fees and student financial support – Trends and patterns

Tuition fees are the principal means by which higher education institutions and governments raise household contributions to higher education. In higher education systems where tuition fees exist, these fees, along with additional charges levied by higher education institutions, such as laboratory fees, required books and supplies, are often the main out-of-pocket cost experienced by students. Fees paid by students may help governments offset the costs of subsidising higher education, enabling them to expand the system or reduce public expenditure on the sector. Some governments also consider that institutions that receive a high proportion of their revenue from students will become more student-centred and more responsive to student needs, potentially improving learning.

In addition to meeting the cost of fees, students or their families also bear their living or maintenance costs of during study – these may be high for students who live away from their family home while in study, as is customary in some higher education systems.

Viewed from an economic perspective, learners may also experience another cost: income foregone during studies resulting from reduced (or, no) work and earnings. While this opportunity cost is an important component of the full cost of a person's study, earnings foregone is not typically a focus of government policy or student support systems. Therefore, it is outside the scope of this analysis.

Prospective students may face significant hurdles to participate in higher education due to price effects – when the current cost is high in relation to the estimated future returns from additional education – and liquidity constraints – when students do not have enough liquidity to meet the current cost of higher education. The higher the price, the fewer individuals may access higher education.

For this reason, most OECD countries have put in place systems of financial student support, tailored to solve liquidity constraints and mitigate price effects. Student support schemes constitute a key element in assuring equitable opportunities for students in higher education systems, broadening access and supporting completion (Dynarski, 2003[1]).

Countries vary significantly in the share of private contributions for higher education and the design of student financial support – with many countries offering students a package of grants or subsidised loans (or both). (Figure 3.1).

In some countries, higher education is funded in important part by household contributions, and governments have employed comprehensive public lending schemes to address liquidity constraints (e.g. the United Kingdom and Australia). Student support in those countries typically covers a large part, if not the total amount, of the required household expenditure in tuition fees, as well as providing a contribution towards living expenses. Other systems in which household expenditures on higher education are comparatively high – such as the United States, Japan, Korea and Chile – provide grant and loan-based support, though at average levels substantially lower than average household expenditure on higher education institutions (i.e. tuition fees and other charges).

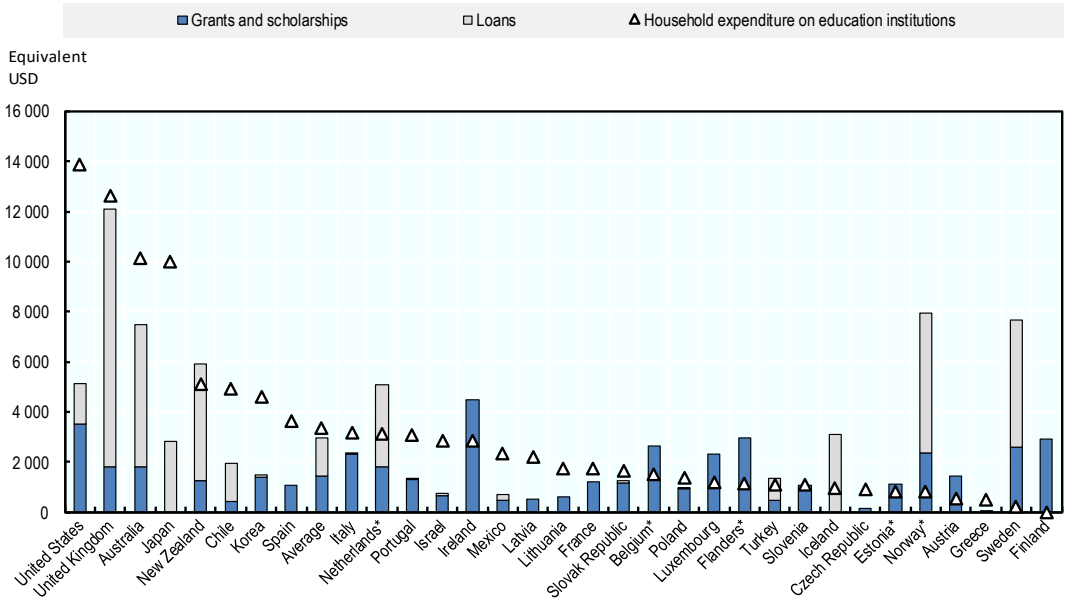
The coverage of public student support systems varies widely. The proportion of students who received public grant or loan support ranged from 70-100% in most Nordic and Anglophone systems, to fewer than 30% in Austria, Switzerland and Portugal (Figure 3.2).

The challenge for all countries is to use fees to ensure that institutions have sufficient revenues to provide wide access to study, at good levels of quality, while mitigating the risks to access that fees can pose.

In this chapter, we look first at how countries develop and manage their arrangements for fees and how they approach financial support for students; and we explore the strengths, weaknesses and risks of these arrangements.

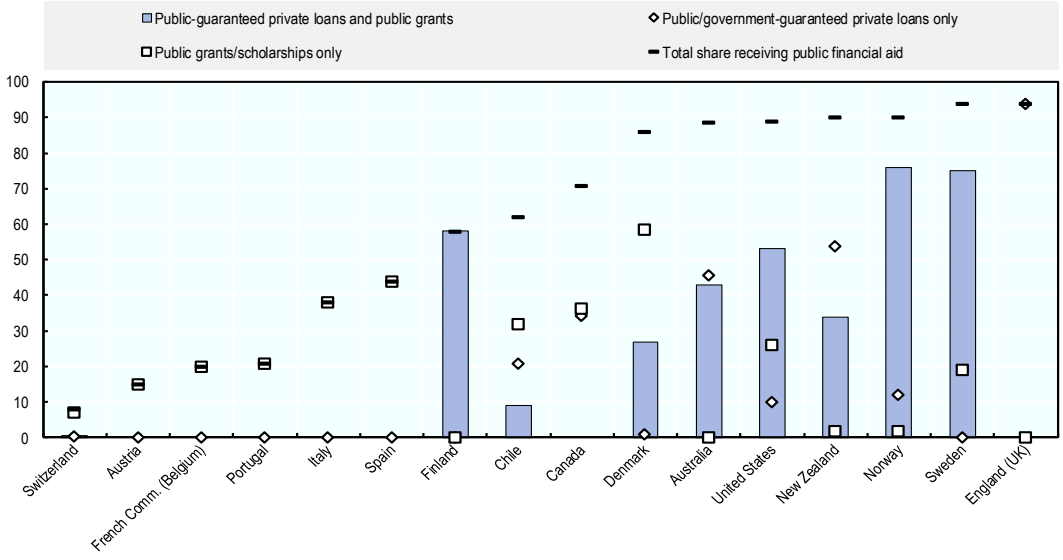
Figure 3.1. The role of grants and loans in public expenditure, 2015

Average per-student public expenditure on loans, scholarships and other grants, compared to the average level of per-student household expenditure in higher education institutions



Notes: Equivalent USD converted using PPP for GDP. Data for Chile refer to 2016. *Countries that participated in OECD Benchmarking Higher Education System Performance exercise 2017/18.
Source: OECD (2019[2]), *Benchmarking Higher Education System Performance*, Figure 3.6, https://doi.org/10.1787/888933940569.

Figure 3.2. Percentage of bachelor's and master's long first degree or equivalent students receiving financial support, 2017/18



Source: OECD (2019[3]), *Education at a Glance 2019: OECD Indicators*, Table C5.2, https://doi.org/10.1787/888933979234.

StatLink https://doi.org/10.1787/888934124660

3.2. Tuition fees

Who sets tuition fees?

Tuition fees, if autonomously set by higher education institutions, have, in principle, the capacity to bring significant efficiency improvement to higher education systems, by introducing price signals and incentivising efficient behaviour (Andrews and Stange, 2016[4]). Differentiated tuition fees can help students and institutions make choices that are more efficient and incentivise the system to be more responsive to student and employer preferences.

Higher education institutions enjoy varying degrees of autonomy in setting tuition fees

Private independent institutions typically set their own prices, the levels of which are shaped by market forces rather than public authorities. Countries vary widely in their approaches to fee setting for public institutions – including giving institutions the right to set fees, negotiated pricing (with government), autonomous pricing within caps, and no tuition setting authority.

In Switzerland, tuition fees are subject to negotiation, while in other European higher education systems, governments set a ceiling under which universities may raise fees (Italy, the United Kingdom, Portugal, and Romania). In some systems, like in Lithuania, Latvia and Hungary, for instance, governments allocate a number of state-funded study places, while the institutions may take in additional students and set fees for them within a given framework. By contrast, France, Spain, Ireland and the Netherlands determine tuition fees centrally, and no (undergraduate) tuition pricing discretion is permitted to institutions (European Commission/EACEA/Eurydice, 2018[5]; Pruvot and Estermann, 2017[6]). Elsewhere, as in New Zealand, governments may choose to regulate the maximum level of fee increase, rather than the fee itself (Smart, 2009[7]; Tertiary Education Commission, 2020[8]).

Tuitions fees are rarely differentiated by field of study at the undergraduate level

Universities have a long history of fee differentiation by field of study at the postgraduate level, but its extension to the undergraduate level is relatively recent and not widespread (Stange, 2013[9]). In 2013-14, 10 OECD member counties reported that higher education institutions charge differential tuition by study field, including Australia, New Zealand and Canada (OECD, 2015[10]).

There are varying reasons for the differentials in fees by field of study. These are mainly based on the heterogeneity of study fields in terms of expected returns on the labour market, costs of delivery and market mechanisms (Stange, 2013[9]). For instance, medicine, law, engineering and some business disciplines are characterised by greater employability and earning prospects than most other fields. Fee differentiation can then appear as a tool to better align the price of education with its associated returns.

Different academic programmes have significantly different costs (Hemelt et al., 2018[11]). In the absence of differentiated tuition fees acting as a price signal, students might be not make careful choices between programmes and may select inefficiently (Stange, 2013[9]). Flat tuition fees may discourage institutions from offering more costly programmes and could erode incentives to improve quality and efficiency.

Australia, for instance, uses various rationales while determining the level of tuition fees by field of study. Students are charged the lowest level of fees in fields that have a low delivery cost such as humanities or salary (education). Conversely, they are charged the highest level of fees for studying in areas that have a high instruction cost (medicine) or high expected returns (law) (Hillman, 2018[12])

Price differentiation by study field may also result from a government's strategic choice to attract students in study fields seen as particularly valuable in a society or needed in the labour market, for instance, through grants or subsidised places. For example, the SMART (Science, Mathematics and Research for

Transformation) programme implemented in the United States from 2006 to 2011 consisted of grants complementing Pell need-based grants, which were awarded to students in designated science, technology, engineering and mathematics (STEM) fields (among others). (Evans, 2017[13]). In Norway, part of the student loan can be converted into a grant for students studying to become teachers (OECD, 2018[14]).

If differentiated tuition fees are to be effective in promoting efficiency and equity, three conditions need to be satisfied. First, students and their families need access to reliable information on study programmes, quality, tuition fees and future income prospects to identify their best investment options. Second, financial support systems need to solve liquidity problems for students, permitting them to act based upon their assessment and their preferences. Third, higher education institutions need to be able to reallocate resources and respond to demand variations. (OECD, 2008[15]).

Information issues: In practice, however, most students have limited and unreliable information about price, quality and future income prospects; and even if comprehensive, reliable information on quality and returns does exist (as in England), many people do not access that information (NAO, 2017[16]). Moreover, judgments about the investment value of education are not simple and stable. Learners have the option, but no obligation, to enter higher education; they make decisions as they discover more about their aptitude and taste for study. This suggests that their decisions may change in the light of new information, particularly in the case of students with moderate abilities. Evidence shows that if students are able to make decisions about their enrolment in stages in response to information that they acquire as they go along, this increases the value of the studies to the student (Stange, 2012[17]).

Liquidity issues: Properly designed income-contingent lending systems can address liquidity problems completely. For example, in Australia and the United Kingdom the loan entitlement covers the entire tuition fee. However, when the cost of fees is fully met by the student support system, part of the rationale for differentiated fees – the signaling of efficient choices to students – is lost. When tuition fees in England moved from GBP 3 500 to GBP 9 000 in 2012/13, enrolments by full-time and young students did not fall (although enrolments by part-time, older students fell significantly) (Geven, 2015[18]). This fee change was accompanied by removal of enrolment caps and by wide eligibility for subsidised loans that covered the fees completely. Liquidity problems were avoided, and participation, completion and labour market outcomes for low-income students were not adversely affected (Murphy, Scott-Clayton and Wyness, 2017[19]; Azmat and Simion, 2017[20]).

At the same time, lending schemes that eliminate all upfront costs may have the effect of diminishing the signalling effect of price differentiation among study programmes. To the extent that borrowers are myopic and base study choices upon present costs (set to zero), they may be insensitive to differentiation in pricing among study programmes.

Many countries in which there is a wide scope of lending do not fully eliminate liquidity constraints. For example, in the United States and Japan, tuition fees (and other study costs) may exceed borrowing limits in public lending programmes. In those systems, some students will face a liquidity constraint, and this may undermine the participation of specific groups to study fields or institutions in which they were already under-represented.

Reallocation of resources in responsive to demand shifts: Higher education institutions have a limited capacity to reallocate resources efficiently in response to demand changes. In some higher education systems, prospective students and their families often see tuition prices as a proxy for quality, leading to fee-rising competition among autonomous higher education institutions that causes prices to exceed the quality they signal (Wolinsky, 1983[21]). The use of tuition fees as a quality proxy appears also to retard efficiency-enhancing competition to reduce fees (NAO, 2017[16]).

Who pays fees, and how much?

A principal economic argument in support of cost-sharing in funding higher education systems is that while higher education generates important social benefits, graduates also experience, on average, substantial private returns. Thus, graduates should contribute, in part, to the costs of higher education provision (Barr, 2004[22]).

Where all citizens pay (through taxation) and only few complete higher education, publicly funded higher education represents regressive public expenditure. Where participation in higher education is wide, higher education wage premia are comparatively modest, and tax systems are progressive, the regressivity of public expenditure for higher education is likely to be substantially – if not completely – mitigated (OECD, 2018[23]; Aziz et al., 2012[24])).

International students often pay fees, and are a major source of revenue in some systems

In about half of OECD countries, public education institutions charge different tuition fees for national and foreign students enrolled in the same programmes, with foreign students paying more (Marconi and Sanchez-Serra, 2018[25]). Non-national students pay twice (or more) the tuition fees paid by national students in Australia, Austria, Canada, New Zealand and the United States (Marconi and Sanchez-Serra, 2018[25]). In European higher education systems, international students from EU countries are subject to the same fee policies as domestic students. Universities have much greater autonomy is setting fees for non-EU international students, and with increasing numbers of systems either permitting or requiring universities to charge study fees to non-EU students (Pruvot and Estermann, 2017[6]).

For some higher education systems, revenues generated through international student fees can represent a large share of the total resources. In 2015, US universities were estimated to have obtained about 28% of annual revenues (USD 9 billion) from foreign students (Loudenback, 2016[26]), while foreign students in Australia and New Zealand provided more than 25% of total expenditure on public and private institutions at the bachelor's, masters and doctoral (or equivalent) levels (Marconi and Sanchez-Serra, 2018[25]).

International students can provide economic, fiscal and financial benefits to their host countries. Their main economic impact is that they spend money on tuition fees, living expenses and expenditures by friends and family who visit them. Evidence from the United Kingdom, for instance, shows that the total benefit of an international undergraduate (GBP 147 000) to the UK economy is almost double that of an EU-domiciled student (GBP 87 000), and those benefits are widely spread across the country (Migration Advisory Committee, 2018[27]). Furthermore, they contribute tax revenue primarily through the money spent in the local economy; and as they are generally young with few or no dependents, they typically make few demands on public services such as health.

Seen from the vantage point of public higher education institutions, international students can provide a means by which to offset the loss of public operating subsidies, thus subsidising the education of domestic students, and research. For example, among public research universities in the United States, a 10% reduction in state appropriations (during 1996-2012) was associated with a 12% increase in international undergraduate enrolment at these institutions, and a 17% increase among the most research-intensive public universities (Bound et al., 2016[28]).

However, there are constraints on the reliance upon international students as a source of revenue; in particular, there are concerns about the impact on domestic students, and about the capacity of the receiving country to integrate international graduates into the society. For instance, universities in the Netherlands will have a legal duty of care for their international students' Dutch language proficiency under proposed new legislation designed to address the rapid growth in foreign admissions and English-only courses in the country. In addition, tougher criteria for justifying teaching a course in a language other than Dutch will likely lead to an increase in administrative burden (Matthews, 2019[29]).

What is the impact of tuition fees on enrolment in higher education?

Research evidence shows that students are responsive to net price variation. The empirical literature indicates a negative relationship between net price and enrolment (OECD, 2008[15]), albeit one that varies according to student and institutional characteristics. For example, a study using US data shows that a USD 100 increase in tuition fees led to a decline in enrolment of a little more than 0.25%, with a larger effect in research universities. These effects are most pronounced among students from families of low socioeconomic status and low-performing students, and most limited in selective public research universities (Farhan, 2014[30]). Likewise, analysis of data from public universities in the province of Ontario shows that during the period 2007-2014, a 1% increase in tuition was associated with a 1.38% decline in enrolment, on average across all public institutions. The price elasticity of demand was significantly lower for research-intensive universities (a .55% decline) and much higher for teaching-intensive universities (a 1.55% decline).

Evidence from European higher education systems suggests that responsiveness to tuition fee changes has been low in the Netherlands, especially among the more affluent students (Canton and Vossensteyn, 2001[31]). In Germany, the introduction of tuition fees (in 7 out of 16 German federal states) did not reduce enrolment rates but did shift where students enrolled. Enrolments among first-year male students were shifted from institutions in fee-charging states to those institutions in nearby non-charging neighbouring states (Alecke, Burgard and Mitze, 2013[32]).

This suggests that the careful design and implementation of student financial support schemes is crucial to equitable access, particularly in systems that rely on private contributions to higher education.

3.3. Non-repayable types of student financing

Who administers public grant assistance?

Responsibility for the administration of grants varies considerably across countries: some give responsibility to government authorities (e.g. Australia and the Netherlands), some to an intermediate agency (e.g. the Flemish Community of Belgium), and others to higher education institutions (e.g. Portugal) or to institutions and government authorities jointly (e.g. Mexico (OECD, 2008[15])).

Decisions on the role of higher education institutions in delivering grant assistance depend on assessments of institutions' incentives and capabilities, as well as concerns about horizontal equity – i.e. about whether families whose circumstances are similar would receive similar levels of benefit. Grant schemes might be better tailored to student needs at the higher education institution level, as the institution might have more flexibility in designing financial support adapted to the circumstances of its students, whereas central government might be less well informed of the needs and therefore inefficient in providing tailored student support.

However, the management of grant schemes and tuition waivers might be administratively taxing for institutions. In addition, efficient tuition waivers and grants tailored to family income depend upon timely, reliable and precise income data from the tax agency.

If institutions have discretion to manage grants and tuition waivers, horizontal inequities – whereby students from similar backgrounds are treated differently – may result, and institutions may exercise discretion in support of institutional criteria that are not aligned to government priorities (OECD, 2019[33]).

Which institutions, study programmes and qualifications are eligible for student financial support?

Concerns about meeting upskilling and re-skilling needs of individuals has led some countries to explore new kinds of study programmes and credentials adapted to non-traditional learners. These new learning opportunities may include short-cycle degrees and micro-credentials; modular courses; academic and industrial certificates, sometimes offered by new kinds of education and training providers (e.g. coding academies); or new collaborations between HEIs and non-traditional providers.

In many higher education systems, policy makers have been willing to authorise the establishment of new private institutions to create additional enrolment capacity that public higher education institutions could not offer at various levels of higher education. Nonetheless, public authorities are sometimes reluctant to authorise the extension of student grant and loan benefits to these institutions. This reluctance may arise where the quality of provision in private institutions is not comprehensively and rigorously assured (OECD, 2019[33]), or be based upon efficiency concerns that private institutions, particularly those operating on a for-profit basis, may respond to grant assistance by raising tuition fees and capturing student support (Cellini and Goldin, 2014[34]).

Governments in nearly all OECD member countries are not yet willing to allow higher education loan and grant programmes to support the new types of educational credentials obtained from non-degree study programmes, such as micro-credentials, badges, and certificates. Though these offerings may be targeted to the reskilling our upskilling needs of adult learners, these new offerings are provided outside of degree qualification frameworks and quality assurance systems, and governments are concerned that public investment might be put at risk in unproven education and training offerings. However, in some countries – such as New Zealand – student support is available to people studying quality-assured micro-credential programmes (Kato, Galán-Muros and Weko, 2020[35]).

Small-scale efforts are underway in some countries to assess the feasibility of expansion to new providers or learning options. In the United States, for example, a small-scale pilot project was launched by the US Department of Education in 2016 (McKenzie, 2018[36]), through which students enrolled in MOOCs (Massive, Open, Online Courses), industry-designed courses, and coding academies, (some of which are offered by non-traditional education and training organisations), are able to participate in federal student aid programmes.

If policy makers do not extend grant or student loan participation to private institutions, they may create inequities among students, especially where selective public institutions are either free or subsidised, and students are ineligible to obtain grant assistance for fees charged by private higher education institutions. In Mexico, for example, study places in autonomous federal and state universities are limited, highly sought after and effectively tuition-free to a student population drawn substantially from middle-income households. Many lower-income students who are unable to gain entry to these institutions study instead at private higher education institutions that are ineligible to participate in the nation's student grant programme, *Programa Nacional de Becas para la Educación Superior* (OECD, 2019[33]).

Which students receive grant aid?

In most OECD countries, grants or tuition waivers are part of the student financial support system. Publicly funded grants exist in all European higher education systems apart from Iceland and the United Kingdom – England, where there are only student loans – i.e. repayable types of student support. (European Commission/EACEA/Eurydice, 2018[5]).

Many countries that provide both publicly funded grants and publicly subsidised or state-guaranteed loans do so as a package that combines both (e.g. Germany, Luxembourg, Norway and Switzerland). For example, in Germany, half of the general public student support is awarded as a grant, and the other half

as an interest-free loan. Elsewhere, there may be conversion of one form of assistance to another. In Norway student support is initially given as a loan, but up to 40% may be converted to a public grant for students who live away from their parents and pass all exams on time (European Commission/EACEA/Eurydice, 2018[5]).

Grant schemes are mostly means-tested grants, although some countries offer a universal, non-needs-based grant. Merit-based grants are common in some countries too, particularly in Eastern European and South-East European countries.

Basic universal grants

Universal grant schemes in which the allocation is not based on either financial need or academic merit exist in Korea (for students attending technical colleges only), the Netherlands (the amount made available during the studies becomes a grant only upon graduation), and the Nordic countries – Denmark, Finland, Norway and Sweden (European Commission/EACEA/Eurydice, 2018[5]). While the grants in Denmark, Finland, and Sweden are open to all students, they can be reduced or eliminated if the student has another source of personal income above a specified amount. In the United Kingdom – Wales, all first- and short-cycle full-time students can benefit from a universal grant for living costs of GBP 1000 per year (higher amounts of grants are possible, but are means-tested) (European Commission/EACEA/Eurydice, 2018[5]).

Basic universal grants are often provided to support student choice and matching to available opportunities, as well as to promote geographic mobility. Additionally, they may promote access to education for socioeconomically disadvantaged groups who may underestimate the net benefits of higher education.

If tuition fees are zero and maintenance grants – to cover living costs – are universal, price and liquidity constraints play little part in higher education participation. While this combination of financial aid may incentivise high participation in higher education and low dropout rates, it may also discourage timely completion of studies, as evidence from Nordic countries shows (Arendt, 2012[37]); (Nielsen, Sørensen and Taber, 2010[38]) (Häkkinen and Uusitalo, 2003[39]). Moreover, universal grants might be argued to be inefficient and regressive as they allocate funding irrespective of student means, and they represent dead weight spending (i.e. they fund students who would enrol and complete irrespective of the support).

Means-tested grants are the most common type of student financial support

Means-tested grants are targeted to students based on financial need. The most frequent criterion for eligibility and total amount of the grant is family (parental) income, but there is significant variation in the in how means are assessed, and in level and purpose of grant support. Some countries award means-tested grants to meet both tuition and living costs, while others use them only to cover one or the other. Students who qualify for the grant either receive a flat-rate contribution or the amount of grant is differentiated according to student needs.

In designing student support systems many countries link need to other eligibility criteria, including citizenship/residency; age; living with parents or independently; being financially dependent or independent from parents; marital status; having children; field of study, level of study, academic merit and/or academic performance; special educational needs or orphan status. (European Commission/EACEA/Eurydice, 2018[5]).

To retain a means-tested grant, students are often obligated to achieve a minimum academic performance, to make satisfactory academic progress, or to complete their studies within a limited time.

Means-tested grants can remove liquidity constraints for disadvantaged students and minorities, improving higher education access and outcomes. Research in the United States has shown that a rise in publicly funded grants increased educational attainment and the probability of attending college (Dynarski, 2003[1]).

Grants have been also found efficient for minorities, as some groups are debt averse and reluctant to take up repayable student support – i.e. they have higher levels of uncertainty about the financial returns to their studies and their ability to repay loans (Linsenmeier, Rosen and Rouse, 2006[40]). In the United Kingdom and France, maintenance means-tested grants are effective in increasing enrolment for low-income students (Dearden, Fitzsimons and Wyness, 2014[41]) (Fack and Grenet, 2015[42]).

Targeted grants are also used in an attempt to influence study choices, or mitigate disadvantages, but effects are difficult to demonstrate

While universal or means-tested grant programmes comprise the bulk of public spending on non-repayable assistance, in some higher education systems, grants have been adopted with the aim of encouraging students to enter certain study fields, or to mitigate social disadvantages. While the costs of these targeted initiatives is typically modest given the comparatively small size of eligible populations, their effectiveness has sometimes been difficult to establish.

For example, to encourage enrolment in STEM fields, a federal student aid programme in the United States, the SMART grant, provided supplementary grant assistance to about 65 000 low- and moderate-income third- and fourth-year students who majored in STEM fields during the 2007-2011 academic years (out of a national population of 21 million undergraduate students). (Denning and Turley, 2017[43])found that income-eligible students in Texas were approximately 3 percentage points more likely to major in STEM fields in their junior or senior year, while (Evans, 2017[13]) found no evidence of SMART grant impacts on whether students in Ohio persisted in STEM majors or earned STEM degrees. Targeted programmes may generate significant information and application burdens on learners, limiting take-up. Behavioural effects may also be limited as learners are constrained in responding to these offers by preferences and ability.

Grants specifically targeting economically disadvantaged student populations appear to be more effective in achieving their intended outcomes than those aiming to influence study choices. In one randomised trial implemented in the (US) Wisconsin public higher education system, low-income students received a USD 3 500 annual grant (supplemental to other student supports), renewable for up to five years, and with recipients demonstrating a 21% increase in graduation rates, and a 29% increase in on-time completion (Goldrick-Rab et al., 2016[44]). Australia, Canada, and other OECD jurisdictions award targeted financial support for indigenous student populations, often as part of a wider set of equity measures or “enabling programmes” (Pitman et al., 2017[45]). Norms governing research concerning indigenous populations have channelled studies towards non-experimental methodologies (Social Sciences and Humanities Research Council, 2019[46]), and evidence of grant aid impacts in improving outcomes for these students remain limited.

Grants awarded on the basis of academic merit raise concerns about equity and efficiency

Many OECD jurisdictions provide publicly funded grants that reward past academic success, typically awarded based upon based on secondary school results and/or performance in higher education admission tests.

Although merit-based grants may incentivise students to perform better in secondary school or higher education, reducing study times, and increasing study completion among its recipients (Scott-Clayton and Zafar, 2016[47]). However, allocating grants solely based on academic merit may also widen inequities among students (Dynarski, 2004[48]), and lead to inefficient expenditure, since merit-based grant schemes represent an income transfer to students many of whom would have attended higher education in the absence of the grant. In addition, the academic performance requirement for the grant may motivate students to avoid tougher courses to maintain a higher grade or motivate high school teachers and college professors to inflate students’ grades to increase student access to college.

Grant-like benefits – tuition waivers

Some OECD countries may authorise higher education institutions to waive tuition fees, providing a grant-like benefit to learners. In Japan, the budget for tuition waivers for students increased from JPY 20 billion in 2006 to JPY 43.4 billion in 2017 (MEXT, 2017[49]), and each university has discretionary power to decide how to allocate tuition waivers. Although the California Community College System introduced tuition fees in 1984, it put a fee waiver policy into place at the same time. Between the years 1984 and 2015, fees were waived for a total of 5.1 million students, and during the 2012-13 academic year were provided to 45% of the system's students (Fisher, 2016[50]).

Setting grant levels and duration

In principle, the level of non-repayable grants should be decided on the basis of student response to higher education costs. The most efficient amount is the one that offsets the costs of higher education for the marginal student – leading to their enrolment. On the other hand, if the grant is targeting students who face significant costs, the amount of the grant should be high enough to incentivise the student to enrol (and complete) higher education studies. In practice, grant levels appear to vary according to social or political demands and fiscal constraints, and are not informed by estimates of behavioural responses.

Duration of grants

Inefficiencies in non-repayable support schemes might arise if the duration of non-repayable support is not limited. Students might be incentivised to prolong their studies, taking longer time-to-graduate through slow progression, low credit take-up or switching programmes.

When student financial support is linked with strict merit requirements, incentives to complete are strong. Well-designed financial incentives within student support schemes have been proven by several policy evaluations in different OECD countries to improve completion and time-to-graduate. Incentives work when additional tuition fees are charged to those who fail to meet the merit requirement (as in Italy (Garibaldi et al., 2012[51])). This is more efficient than marginal fee reductions for taking up additional credits (as in the United States (Hemelt and Stange, 2016[52])) or more generous grant availability (as in Finland (Hämäläinen, Koerselman and Uusitalo, 2017[53])).

Designing grant schemes and tuition waivers in order to incentivise students toward on-time completion might reduce costs for institutions and government and allow a more efficient allocation of financial support to students.

Student financial aid for living/maintenance costs

If student support covers only tuition fees and not maintenance (living) costs, it may be difficult to ensure an optimal matching of students and location of study. Access will be inequitable, as students from households with low incomes may be constrained to study locally. Likewise, cost factors such as housing prices play a significant role for students choosing to study abroad, as policy evaluations of the Erasmus+ programme in EU countries have reported (Beine, Noël and Ragot, 2014[54]). Where public authorities seek to promote domestic or international mobility, maintenance costs will be an important component of the design of student assistance.

Conversely, the expansion of online education may reduce or eliminate maintenance subsidies for those in fully distance-delivered programmes, lowering public expenditure. Whether and how student support systems have adapted to accommodate distance education requires closer examination.

Student support through tax benefits

Other forms of non-repayable student financial support delivered through the income tax system, as tax credits, have been implemented in a few countries and comprise a small share of student support, compared to grant and loan schemes. Tax credits have been targeted directly to students as well as to families, depending on the programme and country involved. (Bulman and Hoxby, 2015[55]) evaluated the effect of a 2009 change in the US federal tax credit, finding a high level of take-up of the tax credit, but that the credit had no effect on student enrolment.

Issues that could arise in delivering benefits through the tax system include inefficient targeting, since the instrument cannot reach the lowest income households if they have no tax liabilities and the benefit is not refundable, and timing, since support availability comes after tuition fees have been paid (GAO, 2006[56]).

Assisted saving for educational outlays

A number of jurisdictions in fee-paying higher education systems have put in place policies to assist households in saving to meet educational expenditures. The United States has “pre-college savings plans”, a tax-preferred saving vehicle typically offered by states, which permit households to build savings for future education expenses. Participation in these plans limited to about 3% of households (GAO, 2012[57]), and about half of participants (in 2010) had household incomes above USD 150 000 per year (Reeves and Joo, 2017[58]). Canadian households are encouraged to save through the Canada Education Savings Grant, an incentive programme that provides families with matching contributions to a Registered Education Savings Plan for dependents aged 17 or younger (Government of Canada, 2019[59]). Owing to the strong incentive feature of the programme, in 2018, 52.7% of eligible children (0 to 17 years old) in Canada received education savings incentives. The behavioural impact of these programmes on savings, enrolment, and study success is not, however, well established.

3.4. Repayable types of student financing

As part of their student support systems, many countries have chosen to adopt publicly supported student lending mechanisms, either in isolation or in combination with grant assistance, to help students pay for fees or living costs or both. The economic rationale for this policy is well established. Students are typically credit-constrained; they do not have access to private, risk-based lending needed to meet the costs of education, risking large-scale underinvestment in education. Publicly supported loan-based financing helps achieve an efficient level of investment in human capital. Student loans, in effect, transfer future earnings of students to pay current expenses for education, solving student liquidity constraints. Private banking institutions supported by government, or the government itself, lend money during the period of study. Repayment begins (typically) after graduation (plus a potential grace period), when the graduate has started earning.

Loans have grown in importance in student support systems

Budgetary pressures, reinforced by the global financial crisis that commenced in 2008, have led to changes in the financing of higher education in many OECD countries. Tuition fees have been increased in several countries. In response, grants often expanded, but have typically not kept up with rising costs, and the use of loans has been on the rise (European Commission/EACEA/Eurydice, 2018[5]).

Lending programmes may also be designed to influence study or career choices over a life course

Policy makers may design student loans programmes for targeted populations or for policy aims other than simply solving the liquidity problem facing students. Lending programmes may be designed with the aim of influencing study or career choices. This may be done by providing special interest rate subsidies for borrowers, or loan forgiveness for graduates who enter targeted occupations, such as teaching or nursing.

Norway, for instance, encourages students to enter fields in demand by converting a higher share of their loan into a grant for successful completion. Another important feature of the State Educational Loan Fund (*Lånekassen*) is the duration of student financial support, which can be as long as eight years spread over a life course – enabling individuals to attend classes (not necessarily leading to a degree) at any age.

How to capitalise loans: the role of banks and government

Student loan systems that rely on private lending – loans obtained from banks on the basis of creditworthiness – exist, but are not an efficient and equitable solution for students. The fundamental reasons why conventional risk-based lending, or mortgage-type loans, work well for homeownership but not for investment in skills and education are:

- lack of collateral, since, in contrast with home loans, there is nothing for a bank to sell if a student defaults on their loan, and if students emigrate, leaving no forwarding address, the lender is unable to enforce repayment;
- asymmetric information, since students are better informed than lenders about their ability and whether they aspire to careers in highly rewarding sectors.

As a result, with conventional mortgage-type loans, investment in human capital would be too low. That deterrent applies to all students, but particularly to those from poorer backgrounds who tend to be less informed and less able to absorb financial risk (Barr et al., 2018[60]).

To achieve an efficient level of investment in human capital, a loan system needs two elements:

- consumption smoothing: the loan needs to be large enough to allow individuals to transfer some of their income they will earn over the course of their careers to their low-income study period – i.e. allowing a measure of consumption smoothing over the course of the loan;
- insurance: if consumption smoothing is to be effective (i.e. if people borrow enough to finance an efficient amount of investment in human capital), the loan needs to provide an element of insurance against the risk of earning a low income (Barr et al., 2018[60]).

Operationally, student lending schemes require a risk-sharing arrangement in which the government guarantees against loan default, which is covered by general taxes; or a risk-pooling arrangement in which borrowers pay together for the loan default, for example, by increasing the interest rate with a risk premium. Government guarantees are often supplemented through other subsidies to borrowers, such as interest rate subsidies, to encourage lender participation.

A number of countries provide loans with a public subsidy of interest rates and/or a public guarantee against loan default

Publicly subsidised or state-guaranteed student loans exist in many OECD countries, but these loans are a less common type of public support than grants. In much of Europe – for instance, the French Community of Belgium, France, Italy, Slovakia and Switzerland – few, if any, students receive loans. Wide use of student lending is often associated with countries in which there are universal or high tuition fees (notably in the United States, some other English-speaking countries and Asian countries). Additionally, some

tuition-free systems, such as the Nordic European countries, also have a high proportion of loan recipients, since Nordic families expect their children to be independent and bear the costs of living (European Commission/EACEA/Eurydice, 2018[5]).

These loans vary significantly in scale and scope across OECD countries. They can be provided to students through a public loan fund (e.g. Australia, Iceland, the Netherlands, New Zealand, Norway, Sweden, the United Kingdom and others), or through commercial banks (e.g. Estonia, Finland, Poland and Portugal) or both systems (e.g. Chile and Korea).

Countries exhibit a wide range of policies concerning interest subsidies, eligibility criteria, the maximum amount a student can borrow, the maximum duration a student can borrow, whether a grace period following completion of studies exists, and the conditions under which loans are forgiven.

Almost without exception, public loans are forgiven due to death and permanent disability. There are a diverse range of additional circumstances under which loan forgiveness is provided: if repayment has not been completed within a given number of years after study completion (30 in the United Kingdom) or until a given age (68 in Sweden), if the graduate is employed in specific geographic areas, specific industries, giving birth or having financial difficulties (e.g. Norway), if the borrower becomes bankrupt (e.g. New Zealand), achieves excellent academic performance (e.g. Japan), or is continuing to higher studies after completion of specific areas of study (e.g. Sweden) (OECD, 2008[15]). In some countries (e.g. Norway, some Canadian provinces), if the student completed studies within a pre-determined period, part of the loan is converted into a grant.

Structuring the repayment of loans: mortgage-style and income-contingent loans

A key feature of loan systems is the structure of repayment, which can range from mortgage-style to being completely dependent on income.

Mortgage-style loans can cause financial hardship and repayment burden

While many loan schemes provided through public loan funds have repayment criteria dependent on income, loans provided through commercial banks are exclusively mortgage-style, involving a nominal repayment of a certain amount of money per month, for a certain number of years. With these loan schemes:

- an increase in the interest rates raises monthly nominal repayments;
- the duration of the loan is fixed and the only variable component is the fraction of a person's income absorbed by repayments (referred to as the repayment burden);
- because repayments stay the same (in the absence of interest rate changes), the repayment burden increases if income falls (Barr et al., 2018[60]).

As a result of these features, mortgage-style loans may lead to financial hardship and default, when borrowers experience unemployment, low earnings or illness.

Prominent examples of mortgage-style student loans include the US Federal Family Education Loan programme (which operated between 1965 and 2010), and the Japan Student Services Organization (JASSO) interest-free (type 1) and low-interest (type 2) student loan programmes.

Fixed repayment loans have created financial hardship for many loan recipients and their families. Countries have responded by introducing more flexible repayment schedules and arrangements to reduce or suspend payments where disability, unemployment or underemployment make it difficult for borrowers to repay loans (e.g. Norway). Both the Japanese and United States federal student lending systems – which were formerly mortgage-style – have transitioned part of the student loan portfolio to "income-driven

repayment" (United States) or (partial) "income-contingent repayment" (Japan, for Category 1 JASSO loans).

Loan systems with income-contingent repayments can ease repayment burden for graduates…

Income-contingent loans (ICL) differ substantially from mortgage-style loans:

- Monthly repayments change according to the borrower's income level, meaning that the fraction of a person's income absorbed by loan repayments is fixed, and the repayment burden cannot exceed the defined rate, which could reach zero for low-income levels.
- Variations in the interest rate have no effect on monthly repayment amounts; what changes is the duration of the repayment period.

Such schemes are used in Australia, Hungary, the Netherlands, New Zealand and the United Kingdom, with repayments being organised in different ways (Barr et al., 2018[60]):

- based on current income, as in Australia, New Zealand and England – since repayments adjust automatically to current earnings, this is the best method so long as a country has the institutional capacity to implement it effectively;
- based on past income, as in Hungary;
- through a hybrid arrangement – e.g. the Netherlands has a traditional mortgage-like system, but if a person's earnings are low, they can contact the student loans administration and request a lower repayment rate.

ICL repayments in England, New Zealand and Australia accurately reflect a borrower's current capacity to repay. Since the incomes of young people are less stable and depend significantly on the state of the labour market when they graduate, repayments based on past income could not be sufficiently flexible to avoid repayment burden.

…but certain conditions are necessary for their successful implementation…

While this lending scheme seems optimal, there are a number of difficulties associated with its implementation that limit its adoption. Successful adoption requires, among other conditions:

- a large budget investment from the government to capitalise loans while supporting the entire system, until the first repayments are collected; ICL systems usually entail a substantial initial investment – only recovered once students start their repayments – not easily supported by the public budget (OECD, 2008[15]);
- reliable, timely and complete earnings information – as under-reporting of income could be a substantial problem for loan recovery – this requires the loan administrator to have timely access to a borrower's tax records;
- automatic adjustment of repayments, linked with income tax and social security, to keep the marginal cost of collection low. These transactional efficiencies are viable as long as the ICL scheme can rely on a tax system with a high degree of compliance. If loans are to be collected outside of the tax system, capable and efficient actors who can service loans in repayment are required – whether government entities or contractors retained by government. In some lending systems, such as in the United States, designing contracts to get proper performance from loan servicers has proven to be difficult;
- the ability to recover loans from graduates working beyond national borders, preferably through tax reciprocity.

…and depending upon design, income-contingent lending programmes may carry a very high public subsidy cost, leading to debates about sustainability

Once implemented, the decisions to be taken about when repayment begins (at what income threshold) and ends (repayment period), and whether there should be a real rate of interest on loans or surcharges for high-earning graduates have large implications for government costs, and might result in loans carrying a large subsidy value.

An ICL system that is cost neutral would need to include a combination of smaller loans, real interest rates above the government cost of borrowing, loan surcharges, lower repayment thresholds, higher repayment rates, longer loan terms and a healthy labour market with good earnings growth (Chapman and Ryan, 2005[61]).

Few ICL schemes meet all of those conditions. For instance, Australia and the United Kingdom have high repayment thresholds. Australia charges interest only at the rate of inflation, and New Zealand charges no interest at all as long as the borrower is resident in New Zealand. The United Kingdom writes off loans unpaid after 30 years, and New Zealand writes off the loans of bankrupts and if the borrower dies with the loan not paid off. As a result, most ICL schemes are not cost neutral – even if they are cash neutral (i.e. even if the repayments equal or exceed the lending in a given year). In New Zealand, the government expenses around 41 cents for each dollar it lends (New Zealand Ministry of Education, 2019[62]).

If repayment thresholds and repayment rates are designed so that graduates with high earnings repay the full (present) value of the loan (or more, in the case of surcharges), loan defaults can be covered, at least partially, within the same cohort of graduates (Barr et al., 2018[60]). Lessons from the United Kingdom and New Zealand suggest that the combination of interest rate and cohort risk premium should be above the government's cost of borrowing, and below unsecured individual loan interest rates, in order to avoid low repayment rates and adverse selection.

Impact of student lending on enrolment

Evidence from across the world suggests that well-designed student lending systems have increased higher education enrolment. While we lack experimental evidence about the impact of loan programmes, studies using regression discontinuity designs – comparing like populations immediately above and below programme eligibility thresholds – show strong positive effects on enrolment. Students situated just above and below eligibility thresholds based on credit scores (in South Africa) and test scores (in Chile) show the estimated impact of loan availability on enrolment to be 20% in both systems (Dynarski, 2015[63]).

The enrolment impact of loan programmes appears to be sensitive to programme design. Mortgage-style student loan repayment appears to be especially less effective in encouraging enrolment among low-income students, most especially when loan repayment commences during studies or operates on a mortgage-style basis with few adaptations to earnings variability among graduates.

In Japan, for example, prospective students from low-income households are reported to be forgoing a university education to avoid student loan debt. The Japanese government has introduced some measures, including grants and a partial ICL scheme, to help alleviate these problems, but access remains a problem for those from disadvantaged backgrounds (Armstrong et al., 2019[49]).

Carefully designed student support schemes can permit tuition fees to be introduced or raised without adverse effects on students

Rigorous research indicates that students from disadvantaged backgrounds tend to strongly overestimate current costs and underestimate the benefits of higher education (e.g. future labour market benefits (Cohodes and Goodman, 2014[64])). Carefully designed income-contingent loan schemes can allow tuition

fees to be introduced or raised without adverse effects on access, persistence and completion. As evidence from Australia and the United Kingdom shows, the joint introduction of ICLs with higher tuition fees has not decreased the participation rates of students from low-income families (Murphy, Scott-Clayton and Wyness, 2017[19]; Azmat and Simion, 2017[20]). In fact, the gap in participation rates between the rich and the poor has even slightly narrowed since the reforms (Chowdry et al., 2012[65]).

3.5. Impact of student indebtedness

Evidence about the adverse effects of student debt is shaped by the experiences of a few high-tuition countries

The rising tuition fees of higher education institutions, as well as a general increase in the demand for higher education, have increased the number of individuals borrowing to pay for college and rising loan balances. Recent examples of this phenomenon can be found in Chile, Canada, the United Kingdom and the United States.

Indebtedness affects career choices and, to some extent, postgraduate studies

Rising levels of student indebtedness in a few higher education systems, most especially in the United States, have generated concerns about the potential effects of student indebtedness on career choice, postgraduate studies, family formation, home ownership and personal well-being. There have been claims that indebtedness affects career choices and, to some extent, postgraduate studies.

Indebted students appear to value job security and earnings over job satisfaction. Compared to graduates without debt they less often change jobs or remain unemployed (Chapman, 2015[66]), they are less involved in entrepreneurship (Ambrose, Cordell and Ma, 2014[67]) and they opt for high-earning sectors over public-sector jobs (Ambrose, Cordell and Ma, 2014[67]; Rothstein and Rouse, 2007[68]).Evidence on the link between student indebtedness and plans for graduate study is mixed; with effects seem to depend significantly on the type of graduate degree (Perna, 2004[69]), the undergraduate institution attended (Zhang, 2013[70]), the amount of debt already accumulated (Malcom and Dowd, 2012[71]), socio-economic background (Eyermann and Dongbin, 2006[72]) and ethnicity (Malcom and Dowd, 2012[71]).

Indebtedness can delay wealth accumulation and family formation

There is evidence that student loan debt is negatively correlated with financial wealth throughout an individual's lifetime. Significant effects have been found in the United States on outcomes such as net worth, financial distress and retirement savings. Individuals with outstanding student debt have consistently lower levels of net wealth and are more exposed to financial loss (Elliott and Nam, 2013[73]). Indebted graduates suffer higher levels of financial distress, both in terms of credit access and loan repayments (Bricker and Thompson, 2016[74]). These negative side effects are consistently larger for individuals who do not complete their higher education studies. Finally, several studies have documented the negative effect on retirement preparedness, both in terms of savings and retirement age (Egoian, 2013[75]; Hiltonsmith, 2013[76]; Rutledge, Sanzenbacher and Vitagliano, 2018[77]).

In the United States, as well as in the United Kingdom, individuals with outstanding student debt significantly delay home ownership (Cooper and Wang, 2014[78]; Mezza et al., 2017[79]; Bleemer et al., 2014[80]). Mortgage availability is linked with income requirements in United Kingdom (Andrew, 2010[81]) and with debt-to-income ratio in the United States (Mishory and O'sullivan, 2012[82]), causing a substantial restriction to additional credit for indebted graduates.

Negative side effects, although not consistently confirmed (Ziebarth and Gervais, 2017[83]), can be found also in marriage and family formation choices, particularly for women (Gicheva, 2016[84]; Sieg and Wang, 2018[85]).

By contrast, evidence from Australia and New Zealand – two countries providing income-contingent loans – shows that student indebtedness has little impact on:

- graduates' consumer behaviour and home ownership (Hall and Scobie, 2005[86]; Scobie, Gibson and Le, 2005[87]);
- career decision making, mental health and mobility (Kemp, Horwood and Fergusson, 2006[88]);
- the likelihood of having children (Yu, Kippen and Chapman, 2007[89]; Scobie, Gibson and Le, 2005[87]).

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4 The allocation of public funding to higher education institutions

This chapter examines the allocation of public funding to higher education institutions, with a particular focus on funds provided for core operating expenses. In many jurisdictions, public core funding is provided to institutions primarily, or exclusively, to cover the costs of educational activities, while research and engagement activities are supported through separate, targeted, funding streams. Separate public funding arrangements frequently also exist to fund capital investment. The chapter examines who is responsible for the allocation of operating funding to higher education institutions, how funding levels are set, and how funds are allocated to institutions. The discussion pays special attention to the design and use of allocation formula and performance-based funding arrangements, in light of their prominence as a funding innovation.

4.1. Resourcing higher education institutions

Higher education institutions (HEIs) are complex, sophisticated organisations. Most earn revenue from a variety of sources, including, in a majority of OECD jurisdictions:

- direct government funding;
- fees paid by domestic students (OECD, 2019, p. 327[1]);
- international student fees;
- research grants and contracts;
- bequests and other forms of philanthropic giving;
- knowledge transfer (such as consultancy services) and intellectual property revenue (such as licensing and patents);
- trading (such as revenue from investments, charges from providing accommodation to students, sales of services and leasing facilities for conferences).

For the majority of public higher education institutions in most OECD countries, direct government funding is the largest single source of revenue, with governments subsidising higher education because of the social and economic benefits higher education brings to society.

Governments can design approaches to the allocation of funds – alongside their regulatory powers, the student financial support regime and quality assurance – as a means of encouraging higher education institutions to operate in ways that advance national priorities for higher education and national goals for social and economic development.

Even in countries where funding represents less than half of institutions' revenue, the design of the funding system has a powerful influence on institutional behaviour.

This chapter examines policy challenges and choices faced by governments in designing funding systems and discusses the funding policy approaches that have been adopted by government in practice. Where possible, the chapter also comments on the strengths and weaknesses of those approaches, drawing on research and policy evaluations.

In looking at the design of a funding system, the chapter will consider:

- the options governments face in deciding agency arrangements for allocating funding to higher education institutions;
- how governments decide on the level of funding they provide for higher education institutions;
- the range of mechanisms that governments can use to decide how to split the funding available between institutions – for instance, whether to use performance agreements with institutions or allocate funding via a formula, and if so, what metrics to use in the formula;
- core operating funding, research funding and funding for capital projects;
- mechanisms for accountability for funding.

4.2. The elements of a funding design

Because funding is a powerful motivator of institutional performance, the model used to fund higher education institutions is an important way of ensuring that the higher education system can deliver outcomes sought by society. As such, the design of a funding model needs to start with an analysis of how funding can contribute to the country's expectations of the system and of higher education institutions. It needs to be shaped by an assessment of the human capital and research priorities for the society and economy.

Across OECD jurisdictions, there is a broad consensus that higher education funding systems should build on a set of principles that ensure that institutions are focused on:

- **delivering high-quality education and training that meets the needs of learners, employers and communities** – how can the funding system encourage the level of enrolment needed by the society and in the programmes that will deliver good outcomes both for the individuals and for the society?;
- **supporting equitable access to learning** – how can the funding system encourage participation by groups who might benefit from higher education, but are currently under-represented in the system?;
- **delivering strategically important programmes that meet national and regional needs** – the funding system needs to incentivise the network of higher education institutions to produce graduates with nationally important skills;
- in the case of research-focused institutions, **producing research of high quality, including research that is socially or economically valuable –** funding needs to encourage institutions to develop a research portfolio that: includes investigator-led enquiry, as well as socially and economically valuable research; provides the basis for collaboration with industry and other external partners on innovation; while also ensuring that students in research-based programmes develop the skills of enquiry and critical thinking that can help them become innovative members of the labour force.

Ideally, funding design should also promote efficiency and cost-effectiveness, and should promote and reward high performance. It should seek to encourage dynamism in the system.

To minimise transaction costs, funding should be delivered in ways that support the autonomy of institution and that allow leaders to manage efficiently (OECD, 2008[2]; OECD, 2018[3]). This autonomy needs to be balanced by an accountability regime that both ensures probity and demonstrates how well funding has contributed to the institution's performance goals and the goals that the government sets for its funding system.

Articulating the principles that underpin the funding design, and applying them in a transparent way, can build the trust and confidence of institutions, stakeholders, employers and the public in the funding system. Transparency also means that institutions will be given clear signals as to how they should prioritise their work in order to increase their funding.

The funding design needs to take account of the country's current educational and institutional culture and its strengths and weaknesses. It needs to complement the other revenue streams accessible to institutions – such as tuition fees and research revenue.

The elements of the funding design need to address such questions as:

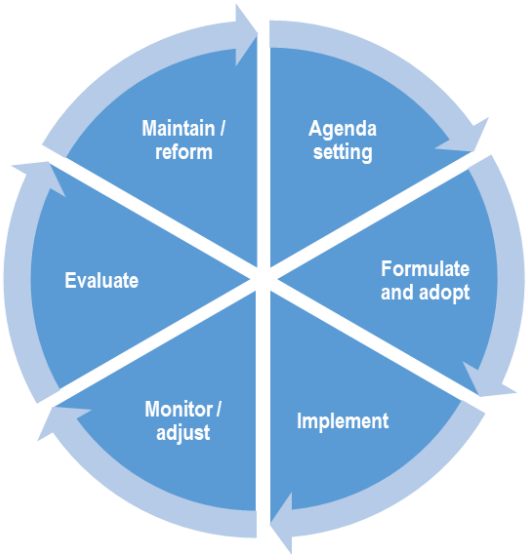
- What sort of government agency should be responsible for allocating funding and, if funding is to be allocated by a quasi-autonomous government agency, how should that agency interact with the government policy system (see Section 4.3)?
- How should government set the total amount of funding it allocates to higher education institutions (see Section 4.4 and also Chapter 2)?
- What are the mechanisms for allocating funding to institutions – for instance, institutional performance agreements or formulae for allocating funding – and what are the components of the mechanism (see Section 4.5)?
- Should direct institutional operating subsidies be combined with – or replaced by – voucher or voucher-like systems where public funds are directed to students (see Section 4.6)?

- What is the interaction between core operating funding and dedicated streams of funding for research and capital investment (see Sections 4.7 and 4.8)?
- What are the mechanisms for accounting for funding; how can government gain the confidence that institutions have applied funding to the purpose for which it was allocated and how well are institutions performing as a consequence of receiving that funding (see Section 4.9)?

4.3. Responsibility for allocating public funding to institutions

All jurisdictions have differences in the way they develop and implement policies, including funding policy. Typically, the policy cycle starts from a set of strategic intentions (agenda-setting), moves to a set of high-level goals that shape the strategic policy and that also set the focus for monitoring the effectiveness of the policy (policy formulation). The policy is implemented according to a set of operational rules – the operational policy. It is then monitored and adjusted if necessary. After a period, it may be subject to evaluation, leading to further reform (Figure 4.1).

Figure 4.1. A theoretical policy cycle



Source: Adapted from Anderson, J. (1975[4]), Public Policy-Making, Praeger, New York, http://dx.doi.org/10.2307/975069.

Responsibility for the high-level funding design and strategic policy usually rests with a minister, who assumes accountability for the system through the political process. The minister is supported in that function by expert advisers who likely work for the ministry responsible for higher education. Governments may set up intermediary bodies, sometimes called “buffer” bodies, that are responsible for managing the relationship between the government and the higher education institutions, including setting funding operational policy and implementing the funding system. Examples of intermediary bodies include: agencies under the responsibility of a ministry, funding councils or university systems boards.

Vesting responsibility for budget planning and allocation in quasi-autonomous public bodies reflects a concern to ensure that higher education funding is allocated with political neutrality, continuity and expertise. Providing a buffer between the political environment and allocation of funding is intended to ensure that funding can be focused on the enduring goals of higher education, without undue influence of shorter-term priorities.

These intermediary bodies are common in Anglophone higher education systems, including in England (United Kingdom), New Zealand, Ireland and many American states. In New Zealand, for example, the government sets the total amount of funding available for higher education and defines the broad funding policies, with advice provided by the Ministry of Education. The Tertiary Education Commission, an intermediate agency, sets the operational rules for funding, allocates funding to institutions through a set of investment guidance statements, and monitors the educational and financial performance of institutions (Government of New Zealand, 1989[5]).

If the government's relationship with institutions – and funding in particular – is managed by a quasi-autonomous agency, it is important to spell out the limits of the powers of the agency as well as the mechanisms for interactions between the intermediary agency and the ministry that advises on broader policy. The presence of two agencies with separate responsibilities, but overlapping roles, creates the need to formalise the relationship between the two (Government of New Zealand, 1989[5]).

In many federal systems, the constitution and law typically establish higher education as primarily a responsibility of state governments. This is the case in the United States, Canada, Germany, Switzerland and Belgium, for example.

While state governments may be responsible for the establishment of higher education institutions in federal systems and for setting their operating funding, federal authorities are often responsible for student support and research funding, owing, in part, to the mobility of students across sub-national jurisdictions, and due to spill-overs or externalities arising from research activity that might lead sub-national governments to under-invest in research funding.

Federal systems vary widely in their level of fiscal and governmental decentralisation, and in the role of federal authorities vis-à-vis higher education institutions. In Mexico, for example, states receive over 90% of their revenue from federal sources, and only 10% from local taxation and other revenue sources. Although constitutionally established as a federal government, Mexico "remains a centralised country" in which "federal powers are extensive and sometimes overlap with the responsibilities of states and municipalities", including in higher education policy (OECD, 2019[6]).

Research in higher education institutions is often funded by a ministry of science and technology or a quasi-autonomous body, such as a science council or research funding agency. Research funding agencies may exist within an education ministry (e.g. the Academy of Finland), or be an entirely separate body (e.g. the National Science Foundation in the United States). Funding for higher education innovation activities, such as collaboration with start-up businesses, may come from yet another public body, such as a national innovation agency.

4.4. Setting the level of public funding for higher education institutions

The public funding system for higher education institutions exists alongside other institutional revenue sources. It is important that the revenue per student received by institutions is sufficient to avoid them having to make detrimental changes or programming cuts in order to stay within budget and thus risk an erosion of quality. Adequate funding levels are also important to ensure that an institution can accumulate a sufficient surplus to provide a buffer against financial shocks and to create reserves that can be used by the institution to invest in quality improvement. At the same time, revenue needs to be sufficiently constrained in order to create incentives to manage institutions efficiently and to take a strategic view towards future investments.

As part of their budgetary planning, ministers seek an allocation through the government's budget process for funding for the network of higher education institutions. They do this taking account of factors such as:

- the part played by the public funding system for higher education institutions in the whole resourcing envelope for higher education institutions – in particular, how the funding system works with institutions' expected fee revenue;
- trends in the historic funding allocation for institutions;
- information on the costs of higher education and on inflationary pressures – to make sure that institutions are not forced to compromise on quality;
- data on the viability and sustainability of institutions and on their strategic priorities;
- demographic and labour market forecasts – from which a forecast of the likely demand for higher education within the funding period can be inferred.

The use, in particular, of historical funding allocation and cost models for the distribution of funding to individual higher education institutions is discussed in Section 4.5. However, while complex mechanisms can be used in the allocation of public funds to institutions, the total envelope of resources available to allocate is the result of a complex political process involving the factors mentioned above.

4.5. Allocation of public funds for the operation of higher education institutions

Countries can adopt many approaches for allocating available public funds to higher education institutions to support their day-to-day operations. As noted, public funding for core operating expenses is usually complemented by other targeted public funding streams, such as those for research, which are discussed later in this chapter. This section discusses six aspects relevant for the design of core funding mechanisms:

- the scope of funding – which institutions should receive funding;
- the duration of funding allocations – annual vs. multi-annual allocations;
- delivery mechanisms – how funding is delivered to institutions: line-item, block grant, targeted, competitive funding; or performance contracts;
- the main approaches to determining the level of subsidy received by individual institutions;
- the specific parameters that are used in formula funding;
- specific evidence of the effects of different forms of performance-related funding mechanisms.

Which institutions receive funding

A key aspect of the design of higher education funding systems is *which* institutions in a given jurisdiction should receive public funds to support day-to-day operations. Although private institutions in many systems compete for government funds for research projects alongside public institutions, they are less often eligible for funding to meet recurring operating costs.

In some systems with substantial private provision of higher education, such as most states in the United States, direct public operating subsidies are provided by government only to public higher education institutions, while private institutions are mainly reliant on tuition fees to cover educational expenditure. In the United States example, students at accredited private institutions *are* eligible to receive federal student aid – and, in some states, state student aid – which students use to pay fees and effectively constitutes an indirect public subsidy. This basic pattern is common in a majority of OECD countries where private institutions co-exist with public institutions, even though the private sectors in some countries – such as those in northern and western Europe – are very small.

In some other systems with a substantial number of private higher education institutions, such as New Zealand, private institutions are eligible for public funding for enrolments in quality-assured programmes, subject to their meeting performance standards similar to those used for public institutions. The United

Kingdom is a particular case, as what are generally referred to as "public" universities are, in reality, private entities. Historically, these institutions received a majority of their income for educational activities from direct government operating subsidies, although this has changed with the introduction of tuition fees, which, most notably in England, has shifted the burden of funding to students (who receive public loans to help them cover costs).

In some higher education systems, including Australia, Croatia and Estonia, targeted public subsidies are provided to private institutions for offering programmes in certain fields of study identified as "national priorities", or where private institutions have specific educational capacity in specialised fields – such as veterinary medicine, for example – that public institutions lack. In these cases, public authorities typically find it more efficient to outsource provision rather than to establish new public institutions.

More recently, some higher education systems have explored the possibility of opening funding up to institutions other than recognised higher education institutions, or to learning opportunities other than traditional academic degree programmes, permitting them to benefit from public subsidy. In New Zealand, for example, the Tertiary Education Commission has issued a call for proposals to deliver "micro-credential programmes", as distinct from full degree programmes (Tertiary Education Commission, 2019[7]).

The duration of funding

Most governments provide operating funding to eligible higher education institutions on an annual basis, while some operate multi-year funding regimes. Annual funding means that funding can be adjusted more frequently in response to changes in demand for higher education. Multi-year funding allows institutions to plan with greater certainty and gives them a degree of stability that can enhance their strategic behaviour. However, in a multi-year funding system, institutions may have less opportunity to expand their enrolments in response to unpredicted increases in demand. Conversely, if demand falls sharply, they may find that adjusting to the resulting reduction in funding at the end of the funding period is more severe.

A multi-year funding period has been established in a small number of jurisdictions, including Austria, Luxembourg and Brandenburg (Germany), often with the aim of giving institutions greater financial stability as a basis for longer-term planning. In these jurisdictions, public higher education budgets are established, respectively, for three, two and four years (Pruvot and Estermann, 2017[8]). In New Zealand, the government deals with the tension between annual and multi-year funding by allocating funding on an annual basis, but making indicative allocations for the following two years, based on forecasts of demand, that can be modified if demand changes.

In OECD countries implementing multi-year funding, funds are typically provided to higher education institutions through a contract signed by the ministry responsible for higher education and by public higher education institutions, and which is approved by the Ministry of Finance and the legislature. The contracts contain funding commitments from government and the reciprocal public obligations of higher education institutions, and are accepted as a framework for yearly budgets (OECD, 2019[9]).

Mechanisms for delivering funding to higher education institutions

Operating subsidies are delivered to eligible higher education institutions using different allocation mechanisms, including line-item budgeting, block grants, project-specific funding, and funds linked to institutional performance contracts.

Line-item budgets remain in use in few OECD countries

Line-item budgets are used comparatively rarely in OECD countries today – although remain in Greece, Korea and some sectors of Mexican public higher education (Esterman, Nokkala and Steinel, 2011[10]; OECD, 2019[6]; OECD, 2018[3]). Line-item budgets allocate funding to finance items and/or activities within

eligible higher education institutions, and characteristically impose strict limits (or prohibitions) on the reallocation of funds across budget lines. This results in a high level of financial control and transparency for central budgetary authorities, while sharply limiting the capacity of educational institutions to take responsibility for the management of resources and to make strategic decisions on the prioritisation of resources.

Block grants are the principal means by which recurring funding is delivered

In most systems, higher education institutions receive basic recurrent funding to cover several categories of expenditure such as teaching, ongoing operational costs and, in some cases, core research activities, through a block grant, which institutions themselves are mainly responsible for dividing and distributing internally, according to their needs and their strategic priorities, across their various units and activities (Pruvot and Estermann, 2017[8]).

Some systems divide the block grant into broad categories such as teaching and research, for instance, or earmark a share of the grant for specific tasks, such as widening access for disadvantaged socio-economic groups. Institutions can generally move funds within broad categories, such as teaching and research (as in Iceland or Sweden); teaching, research and infrastructure (Latvia or Lithuania); salaries and operational costs (Portugal); or investment and operational costs (France); but not between the categories (Pruvot and Estermann, 2017[8]). Block grants, properly designed, can enable long-term institutional planning, and provide higher education institutions with sufficient flexibility to implement structural change and adapt to changing socio-economic conditions. (Frølich, Schmidt and Rosa, 2010[11]).

Other systems – Australia and New Zealand are examples – allow institutions to spend their block grant funding as they see fit, so that funds that are provided as subsidies for tuition may be used for research or engagement costs, as the institution's leadership sees fit. In these systems, the monitoring and quality assurance systems then assess the performance of each institution in research, teaching and other activities, to ensure that the institution is meeting the terms of the funding agreement.

In some cases, the basic operating grant remains heavily regulated and subdivided in such a way that the margin for strategic financial management is minimal and the funding system ultimately resembles line-item budgeting. In Hungary, for instance, higher education institutions may not shift resources across funding items, and any decision with financial implications must receive the approval of the University Chancellor – a central figure created in universities in 2014 and appointed directly by the Prime Minister – thus limiting the capacity of an institution to decide on internal funding allocations (Pruvot and Estermann, 2017[8]).

Project-based funds awarded through competition have grown in importance

Public funding is also increasingly tied to projects through targeted funds that are in addition to block grants and are awarded based on competitions. This is notably the case in research (see Section 4.7), but also in other areas of expenditure such as specialised equipment, innovation and knowledge transfer activities, or the development of work-based learning. In many cases, this is money for projects or other specific activities that are not funded through the core institutional subsidy. Examples are competitive grants awarded by research funding agencies or European Framework programmes. These funds are often awarded for restricted periods of time and may be awarded directly to an institution's sub-units such as departments or laboratories (Jongbloed and Vossensteyn, 2016[12]).

While the funds are short-term, they can help support the development of an institution's research capability (by giving researchers the opportunity to engage with challenging questions), personnel capacity (allowing for the appointment of post-doctoral fellows or other researchers) and infrastructure (especially if the project involves the purchase of research equipment or data).

Competitive, project-based funding demands a high degree of competency and integrity from awarding bodies. Where research funding bodies are equipped with legal independence and robust norms of peer review, and if they apply widely agreed criteria of merit, competitive project-based funding can serve as an effective instrument through which university research priorities or investments in equipment or specific activities can be aligned to government priorities. However, where the awarding body's administrative capacity is weak, or if there is the possibility of favouritism or improper advantage in the evaluation procedures, there is a risk to the integrity and effectiveness of the use of public funds.

Seen from the vantage point of higher education institutions, there are significant risks and challenges to project-based funding:

- Evidence shows that an increased proportion of competition-based grants can limit the institutions' ability for long-term planning, forcing them to focus on areas where funding is available rather than on areas where the institutions possess expertise (Frølich, Schmidt and Rosa, 2010[11]).
- For the same reason, focusing most or all research funding on projects may limit the capacity of institutions to develop the research capability of their staff, whereas allocating some research funding as a block grant allows institutions to reserve part of the funding for that purpose.
- Short-term project funding creates financial management risks for higher education institutions and may provide incentives for them to shift uncertainty to their academic workforce, and to rely more heavily upon non-standard forms of employment, such as temporary contracts.
- Project-based funding carries higher transaction costs for higher education institutions compared to recurring funding delivered in block by formula, and absorbs un-costed resources, principally staff time (Advisory Committee, 2019[13]).
- In extreme cases, competitive funding may lead to the strategic management of institutions being transferred from university leaders to funding agencies (Frølich, Schmidt and Rosa, 2010[11]).

Performance contracts as funding instruments

Another method of steering institutional behaviour is to establish performance contracts, which set targets for institutions to achieve and can bind a share of the block funding allocation to reaching those targets. These contracts can have various purposes including: i) revising or clarifying the profiles of higher education institutions; ii) creating a structured and recurring dialogue between government and universities; iii) increasing transparency; and iv) setting detailed performance targets (Bennetot Pruvot, Claeys-Kulik and Estermann, 2015[14]).

Many OECD countries have established performance contracts between national ministries or agencies and higher education institutions, with many of these linked to funding. Such contracts are in place in 13 OECD member countries, and in a number of sub-national jurisdictions including Scotland; states including Louisiana and Tennessee in the United States; and Baden Wurttemberg, Brandenburg and North-Rhine Westphalia, among other federal states, in Germany. The shares of block funding subject to performance contracts vary from 1% in Denmark, 4% in France, and 7% in Latvia and the Netherlands, to 94-96% in Austria and 100% in Finland (OECD, 2019[15]).

In some systems, the targets set in the performance contracts are specific to the university and aligned with its strategy; while in others, they are derived from the more general higher education and research policy goals of the government. Targets are often described as results to be achieved, leaving it up to the university to decide how or which concrete actions are to be undertaken within a given timeframe to meet targets. They might be described as qualitative measures (e.g. improve equal access of men and women to senior academic positions) or be linked to quantitative indicators (e.g. increase the number of female professors).

Depending on the nature of the targets, the procedures for assessing their achievement also vary and are more or less complex. In some cases, the evaluation takes place in the form of discussions between the ministry and the university; for others, specific data analysis or collection is necessary.

These contracts usually include procedures for reporting and accountability, and they specify the measures to be taken in the event that the targets cannot be met (such as an obligation for the university to build up reserves, as in the case of Austria). These provisions emphasise the need for dialogue between the ministry and the university so that action can be taken in time to prevent possible underachievement of the target (Bennetot Pruvot, Claeys-Kulik and Estermann, 2015[14]).

Determining the level of subsidy for individual institutions

The overall amount of the block grant for each institution is generally determined – within the constraints of the overall budget envelope (see Section 4.4) – through one or more of three key methods (OECD, 2019[16]):

- Historical trends: The amount allocated is based on the amount of funding that has been provided in previous years, which may vary annually according to certain parameters.
- Negotiations between government and higher education institutions: The amount allocated is an agreed sum negotiated between government and higher education institutions. The negotiations may be set out in performance agreements or funding agreements.
- Formula funding: The amount allocated is calculated through one or more formulae based on a set of predefined parameters and indicators.

Although formula-based block grants are the most common method of funding allocation, negotiated block grant and historical allocation remain important mechanisms in some jurisdictions. Some funding systems combine these elements. In Mexico and Portugal, for instance, historical budget allocations provide a base that is subsequently subject to negotiations, while in Estonia historical budget allocations are combined with formula-based funding and a performance contract.

Providing funding to higher education institutions according to historical trends ensures a degree of financial stability for institutions over time. However, using historical trends to drive the allocation risks reducing the dynamism of the system because it favours existing institutions and makes it difficult for newer institutions to grow. Furthermore, using historical trends does not provide incentives for performance improvement. Formula funding, on the other hand, rewards past performance and can motivate improvement.

Negotiated funding has high transaction costs, but offers the chance for the funding agency to reward improved performance and to spell out the directions it wants the institution to focus on. An example is New Zealand, where the Tertiary Education Commission publishes its areas of focus (such as for participation and achievement of under-served groups) and the institution prepares an “investment plan” that includes information on institutional strategy and performance, a forecast of enrolments, and information on institutional actions to address the Commission’s focus areas (Tertiary Education Commission, 2019[17]). The plan negotiation works alongside a funding formula.

However, the use of multiple funding mechanisms can reduce transparency and risks increasing the transaction costs in the system. Another crucial aspect to consider is unintended consequences that financial incentives could have on institutions’ behaviour.

The parameters and indicators used in funding formulae

There is great diversity in the design of funding formulae across countries, in particular in terms of:

- The types of indicator used: Formulae can be calculated based on input indicators (e.g. number of students enrolled in bachelor's programmes, staff numbers, space); activity (e.g. credits earned); output (e.g. completion rates, publications per academic staff); and/or outcome indicators of performance (e.g. graduate labour market outcomes). Table 4.1 presents a list of selected indicators.
- The institutional missions funded: Formula funding can apply to both the teaching and research missions of higher education, and to the third mission of higher education, which involves societal engagement and social service.
- The proportion of funds linked to different indicators: Formulae may include one or two indicators, or a large number of distinct parameters, with different proportions of overall funding linked to each. In some systems, most funding is tied to input indicators, while in others 100% of funds are linked to outputs.

Table 4.1. Selected indicators

	Input	Activity	Output	Outcome
Teaching	Number of B.A./M.A. students enrolled; student/staff ratio	Students who took exams; credits earned; exams passed; years completed	B.A./M.A. degrees obtained; degree completion in standard time of study	Graduate employment rate; skills; added value of diploma; international students
Research	Doctoral students/candidates	Patent applications	Doctoral degrees awarded; successful patent applications; external research funding obtained; publications/citations; income from science and technology transfers; publishing; researchers	
Engagement and social service	Staff numbers and contact hours in support of service activities		External funding obtained; EU/international funding obtained; ranking of outcomes	International staff; diversity-related indicators; community outreach; review of strategic plans of universities; staff structure/quality

Source: Adapted from Pruvot, E., A. Claeys-Kulik and T. Estermann (2015[18]), "Define thematic report: Performance-based funding of universities in Europe", https://www.voced.edu.au/content/ngv:70169.

Most formulae include input indicators

In many systems with formula funding, input indicators such as enrolment numbers play an important role in determining the amount of funding an institution receives via a block grant. This method gives transparency to institutional allocations and it gears the level of funding toward the costs faced by institutions. However, input-based allocation mechanisms may encourage institutions to favour the quantity of enrolments over the quality of courses. The incentives to maximise student enrolment could lead institutions to shift the offer of courses with high student demand or which are cheap to deliver, while neglecting costly or innovative programmes and courses better aligned with their profile and labour market demand (OECD, 2008[2]). Activity-based indicators, such as credits attained, can produce a similar effect.

Output indicators are used in formulae for awarding all or a proportion of institutional operating grants in some systems. The Danish taximeter system for teaching funding, for instance, is exclusively output-oriented, largely based on the number of degrees awarded. A majority of states in the United States have

introduced output indicators into their formulae for awarding institutional operating funding (Li, 2018[19]). States such as Ohio now distribute 100% of state subsidies for instruction based on output indicators for both two-year colleges and four-year universities (ODHE, 2020[20]).

There are few examples of funding formula for education that include outcome indicators, such as graduate labour market success. However, there is growing interest in this issue, particularly in the United States, where at least 7 of the 50 states use some form of labour market outcome metric in their funding formulae for public institutions (TICAS, 2018[21]).

Where formulae for teaching funds and research funds can be distinguished, those for teaching funds are more typically input-oriented, while those for research funds are most often output-oriented. For systems that have one formula (including indicators for both teaching and research), the majority are primarily input-oriented.

Through the selection and weighting of indicators, governments can set policy priorities

Specific policy goals (such as internationalisation and student and staff mobility) can also be mirrored in formula funding. For instance, Denmark uses indicators such as the number of international students and, to a lesser extent, the number of international staff members. Finland takes into account competitive international research funding and other internationalisation-related criteria (Pruvot, Claeys-Kulik and Estermann, 2015[18]).

Some jurisdictions, such as New Zealand, the Flemish Community of Belgium and a number of US states, reflect equity objectives in their funding formulae, typically through the use of a weight in the formula for each student of a given under-represented group. Greater weighting in funding formulae for enrolments and completions for under-represented groups – whether low-income, minority, or older students – can provide a counterweight to the temptation for institutions to reduce or restrict their intake of such students (Dougherty et al., 2016[22]).

Weights can also be assigned to reflect the varying costs of provision by field of study, level of study and type of institution

Most countries try to reflect notional or expected costs in their instructional funding rates, providing different levels of subsidy for each student enrolled in, or each graduate from, different fields of study, for example. High-cost subjects – such as medicine, engineering, certain natural sciences or the arts – receive higher levels of funding than lower-cost fields such as the humanities and social sciences. Box 4.1 provides some specific examples of cost-related weighting in institutional funding formulae in OECD countries.

Box 4.1. Allocating funding based upon notional costs

Some states in the **United States** allocate public funding to higher education institutions based upon estimated or notional costs of provision, in which instructional funds allocated to the institution are calculated based upon the field of study, level of study, and other characteristics. (Hoagland et al., 2019[23]). In Texas, for example, public university study places in arts and humanities were weighted 1.0 per full-time equivalent student in undergraduate level education, 4.01 at the master's level, and 10.9 at the doctorate level. The weights assigned to business programmes were, respectively, 1.16, 1.83, and 24.7; and 2.46, 28.55 and 32.17 in pharmacy, according to cost estimations from the Texas Higher Education Coordinating Board (Texas Legislative Budget Board, 2018[24]).

In the **Netherlands**, the formula-based part of public funding for teaching differentiates three levels of funding per student enrolled (low, medium and high) depending on the differences in instructional cost. These differences are based on the discipline (for example, pharmacy is high, journalism is medium and teacher training is low) and the type of institution. (De Boer et al., 2015[25])

Another example comes from **England (United Kingdom)**, where formula funding takes account of the number of students enrolled and the estimated cost of providing instruction in each discipline, net of the private revenue generated by fees. In 2015, for example, institutions are funded GBP 10 000 per student enrolled in medicine, dentistry and veterinary sciences; GBP 1 500 for natural sciences, some care programmes and programmes with laboratory use; GBP 50 for archaeology and design; and GBP 0 for humanities and social sciences (De Boer et al., 2015[25]).

In part, the aim of cost models such as these is to avoid the inefficiency that results from under- or over-provision of a field when funding rates are out of line with costs. However, most institutions end up responding to these differentials in subsidy levels by field by adjusting their internal budget allocations to reflect the revenue generated. For instance, if computing is under-funded in comparison to current costs, the institutional unit that teaches computing will face a reduced budget and hence, reduces its costs. Conversely, if computing gets a higher rate of funding, the department gets more funding, so it spends more, driving up the cost of teaching computing. In that sense, differences in funding rates tend to drive differences in costs as well as reflect real differences in the cost of providing different types of programme.

If funding differentials are grossly out of keeping with the actual costs of provision and where the funding rate means that the field is simply uneconomic to deliver within budget, the institution has two options – it can close the field of study or it can cross-subsidise the fields (i.e. reassigning money from other subject areas). For instance, if agriculture is seriously under-funded relative to its costs, the institution can either discontinue agriculture or it can reallocate resources internally, reducing allocations for other fields (such as humanities or business) in order to cover the shortfall in agriculture. A public institution with a focus on delivery of agricultural education is most likely to do the latter – cross-subsidise. But in doing so, the institution may be posing a risk to quality of delivery in the fields that are providing the cross subsidy.

As such, the aim of the funding authority should be to establish funding rates that are broadly in line with costs. This is a difficult task; in particular, it is difficult to get data at the level necessary to decide when the disparity between cost and funding rate is gross enough to warrant a change in funding rate (Connew, Dickson and Smart, 2015[26]).

Evidence on the advantages and limits of performance-related formula funding

Performance-based funding can improve aspects of institutional performance

The inclusion of performance-related indicators in funding formulae has the potential to motivate institutions to improve efficiency, providing financial incentives for improvement in outputs such as academic research productivity, completion rates and other measures of teaching efficiency. As discussed above, in many countries, governments have sought to improve their higher education systems by including performance elements in the funding system.

There are some OECD countries (for instance, the United Kingdom) whose research funding is now largely or wholly performance-based. In Denmark, the education funding system is wholly performance-based (through the taximeter system). In Australia and at least two Canadian provinces, governments are currently looking at how they might incorporate more performance elements into their funding systems. In New Zealand, there was a performance element in the education funding system between 2011 and 2018, but this was recently discontinued, with the government having noted that that the issue of low completion rates (which was one of the factors that led to its introduction) was no longer a problem.

There are risks and trade-offs in performance-linked and performance-based funding systems, meaning that the design and implementation of such systems requires care.

Studies of performance funding show effects on institutional behaviour and certain types of output

Several studies of performance funding in Europe find evidence that performance funding has led to higher rates of faculty research productivity. This is the case in Denmark, the Netherlands, Norway, Switzerland, the United Kingdom and Hong Kong (Dougherty et al., 2016[22]). These studies typically find an association between the advent of performance-based funding and improved research productivity, although, given the absence of counterfactuals, cannot prove direct causality (Dougherty and Natow, 2019[27]). However, even if it is difficult to find a control that enables an evaluator to prove causality, there are cases where benchmarks and other information suggest that the association between the introduction of the performance element and the performance improvement is significant and more than coincidental (Smart, 2013[28]).

Studies both in the United States and in Denmark find evidence of improved instructional effort in response to performance funding; institutions tend to increase their spending on instruction and make improvements in their programmes and services. The most common changes are reshaping developmental education; improving course articulation and transfer; and revamping advising and counselling services (Dougherty et al., 2016[22]; Jongbloed and Vossensteyn, 2016[12]), as well as data analytics and academic advising services, in an effort to improve student success.

While the instructional efforts of higher education institutions may respond to performance funding, performance funding appears to have little measurable effect on measures such as graduation rates (Dougherty and Natow, 2019[27]). Empirical evidence from Europe and the United States also suggests that performance funding has limited effects on student completion (Bell, Fryar and Hillman, 2018[29]; Jongbloed and Vossensteyn, 2016[12]).

Certain conditions need to be in place if performance funding is to succeed

Evidence points to two main conditions that need to be in place for the successful implementation of performance-based funding, including:

- **Adequate differentiation between institutional missions and goals:** Performance indicators should be adapted to the missions of different types of institutions. If performance-based funding accounts for a large share of funding, and if the goals and indicators are applied to all institutions independently of their profile and specificities, then performance-linked funding may have adverse results (for instance, discouraging the enrolment of disadvantaged students) (Frølich, 2010[30]; Dougherty and Natow, 2019[27]; Guthrie and Neumann, 2007[31]).
- **Stability in funding and the selection of indicators**: Institutional responses to performance funding are best if performance indicators are stable and if the funding consequences of performance-linked funding are clearly and transparently specified in advance (Dougherty et al., 2016[22]). The level of performance-linked funding should be such that core funding needs to account for much of the cost of delivery.

Risks of performance-related funding

A potential effect of performance funding is to induce risk-avoiding behaviour in institutions, leading to an emphasis on outputs that are easily attainable and measurable. This could happen both in teaching, (with effort shifted away activities with less tangible outputs such as encouraging creativity and problem-solving skills), as well as in research. There is also evidence that performance-based funding is associated with faculty trying to improve their publication statistics by pursuing less difficult research questions (De Boer et al., 2015[25]).

The emphasis on goals (e.g. academic research productivity) may have adverse consequences on other important objectives of higher education institutions, causing goal displacement, distortion in institutional missions, and a reduction in diversity. This has been identified as a problem in studies of performance funding in the United States (Dougherty et al., 2016[22]) and in England (United Kingdom), where performance funding for research has led institutions to put less emphasis on teaching (McNay, 1999[32]; Sharp, 2004[33]). Institutional performance *agreements*, in contrast to formula funding using performance *indicators*, are potentially a more flexible tool for handling situations where institutions have multiple objectives.

There is concern that extensive use of performance-related funding can shift institutions away from equity objectives. Several studies of performance funding find that, in the United States, institutions reduce their intake of less advantaged students in order to improve their performance (Dougherty et al., 2016[22]; Jones, 2017[34]). Output-based funding might also increase inequality of performance by penalising poorly performing institutions, leaving them without the resources they need for improvement (Claeys-Kulik and Estermann, 2015[35]), and increasing stratification between institutions (De Boer et al., 2015[25]; McNay, 1999[32]).

Challenges may also arise if funding is linked to an assessment of labour market needs. In principle, allocating public spending by labour market measures helps to ensure that resources are directed towards economically productive fields. However, the use of funding linked to graduate labour outcomes is complex. For instance, it is difficult to optimise educational supply from institutions, which typically requires several years with the volatile and hard-to-predict labour market demand. Supply-driven arrangements are also likely to have a distorting effect on student choice, potentially lowering student satisfaction and systems' efficiency in allocating student talent (OECD, 2008[2]).

Lessons for designing performance-linked funding mechanisms

The discussion above suggests that, if it is to be successful, a performance-linked funding system must be carefully designed – especially if it is to avoid the risks of goal displacement, such as:

- **in research**: avoiding important, valuable, applied research topics, in favour of research that may take less time and attract more citations;
- **in education**: discouraging institutions from enrolling students from disadvantaged backgrounds who are more difficult to teach and less likely to succeed, thus reducing diversity of access.

The design questions that need to be addressed by countries seeking to develop a performance element in their education funding model include:

- Should funding be performance-*linked* (where only part of the funding depends on performance) or performance-*based* (where all or most of the funding is generated by performance)?
- If it is to be performance-linked, what percentage of funding should be attributable to performance? Some countries (for instance, New Zealand) have implemented models where 5% (or similar) is performance-linked.
- Should performance funding *reward good performance* (so-called "carrot" funding) or *penalise poor performance* ("stick" funding)?
- What measures should be targeted? Are the measures aligned with system goals? Are the measures aligned with identified problems of performance (for instance, equity of access or completion rates)?
- How many measures should there be? (If there are too many measures, they send confusing signals to institutions. If there are too few, that will raise the stakes for institutions.)
- How can the problem of "double jeopardy" be avoided if indicators are highly correlated and the problem of confused signalling be avoided if they are negatively correlated? If there are multiple measures, the designer needs to be sure that they are independent.

A similar set of questions should underpin the design of research-related performance-linked funding.

Even a well-designed performance-linked funding model needs to be carefully monitored to ensure that adverse outcomes are identified.

4.6. Voucher and voucher-like mechanisms for funding higher education

Some OECD jurisdictions have experimented with voucher or voucher-like institutional funding mechanisms, where public money is directed to the student, rather than the institution as in the examples discussed above. In voucher-based funding, funds are assigned to students – the clients of higher education institutions – who use the vouchers to "purchase" educational services. Students are granted vouchers by a public authority and trade these for educational services at the higher education institution of their choice. For the institution, the vouchers represent a certain value and can be cashed at the responsible government department. Each person is given a limited number of vouchers, effectively as a birth right, representing a value which can be used in a flexible way (during a certain period of time and for programmes supplied by a given number of accredited education providers). (Jongbloed, 2004[36]).

Alternatively, governments may create a quasi-voucher funding system, in which students are not provided a coupon to redeem to meet study costs, but are offered a demand-driven lending scheme that effectively permits tuition-free study with all recognised providers. This is the sort of model implemented in the English higher education system in 2012.

Proponents of demand-led systems suggest that they can lead to increased institutional responsiveness to consumer needs; incentivise efficient educational delivery; and encourage diversity and flexibility in provision (Bekhradnia and Massy, 2009[37]). Critics, in turn, argue that vouchers may hamper public steering of institutions (i.e. away from national priorities); result in fluctuations in enrolment and funding that lead to under-utilisation of capital; and force programmes with high cultural value, but small enrolments, to close. Similarly, a lack of student interest in certain science and technology fields, for

instance, can lead to cut-backs, loss of staff, reduced quality, and consequently, less student demand, despite labour market demand (Jongbloed and Koelman, 2000[38]).

The difficulty of satisfying conditions necessary for the effective functioning of voucher or voucher-like funding systems is illustrated by recent experience in Engand. Public authorities in England lifted enrolment caps and moved away from directly funding institutions toward tuition fees coupled with an income-contingent, government-subsidised student loan system. Together, these permitted a transition to a fee-based and choice-led system of higher education – effectively, a demand-driven, quasi-voucher system that was strongly responsive to student demand. Studies with quasi-experimental designs have shown that participation, completion and labour market outcomes for low-income students were not adversely affected by the system's transition to tuition fee-based institution funding led by student demand (although enrolments by older and part-time students fell) (Murphy, Scott-Clayton and Wyness, 2017[39]; Azmat and Simion, 2017[40]).

However, as the United Kingdom National Audit Office noted in its 2017 assessment of higher education market conditions, the system was unable to achieve all the conditions needed for a fully functioning and effective market (NAO, 2017[41]). Consider, for example, the question of price competition:

> *There is no meaningful price competition in the sector to drive down prices for the benefit of the student and taxpayer. …. In 2016, 87 of the top 90 English universities charged the maximum permissible fee of £9,000 a year for all courses. Evidence shows that students use price as a proxy measure for quality, and … providers … were concerned that lowering prices may signal poor quality. Providers also choose the purchaser in higher education, which differs from … traditional markets where the buyer chooses the product or provider.*

Effectively communicating quality and earnings information to students appears to be a general difficulty facing higher education systems across the OECD (Hofer, forthcoming[42]). Public authorities in England provide students with comparative data on providers and courses, including satisfaction scores and costs, as well as graduate employment and earnings outcomes. However, "only 20% of prospective students have used the data, dropping to 2% of prospective part-time students" (NAO, 2017[41]). As a result, the study decisions students made did not steer resource allocation towards the most productive human capital investments.

Student mobility may do little to improve the matching of students to programmes, or to drive improvements in institutional performance. This may be the consequence of very low switching rates, as in England (NAO, 2017[41]). In other demand-driven systems of higher education that rely upon market-like arrangements for resource co-ordination, there are much higher rates of switching; but poorly guided student mobility among programmes and institutions leads to long study times and lost credits, rather than efficiencies (GAO, 2017[43]).

4.7. Allocating research funding to higher education institutions

While the principal focus of this chapter is the allocation of funding in support of instruction, we note that research funding plays a critical role in higher education policy across the OECD, and forms a key funding stream for many higher education institutions. Moreover, in many OECD higher education systems, there are concerns about research being funded at less than its full cost, leading to extensive cross-subsidies from other revenue streams, including tuition fees and public teaching subsidies (Box 4.2).

Box 4.2. Teaching and research cross-subsidies

The UK's Higher Education Policy Institute calculates a "research deficit" of almost GBP 3.3 billion across the higher education sector in the UK, amounting to 37% of research income. This has traditionally been filled from non-publicly funded teaching surpluses (mostly from fees charged to international students) and other income, including activities such as consultancy and technology transfer. On average, over the duration of their degree, each non-EU student contributes over GBP 8 000 to UK research (Olive, 2017[44]).

Another example comes from Australia, where one research centre notes: "More than AUD 2 billion in surpluses from teaching are being used to fund research in Australian universities. On a conservative estimate, one dollar in five spent on research comes from surpluses on teaching. International students, who usually generate more revenue per student than domestic students, contribute a substantial proportion of this surplus." (Norton, 2015[45]).

These concerns are shared, as well, in the United States: "The underlying problem is that higher education has decided to price funded research at less than its actual cost. This research under-pricing arguably leads to a great deal of the upward push on tuition that has occurred over the past decades. Since reputations of universities are linked directly to their research expertise and external research funding – not their education – there is a continuing pressure to do ever-more funded research. As colleges and universities seek to move up the reputational ladder, they increase emphasis on funded research, which leads to a need for more internal research spending, which in turn increases the pressure to increase tuition." (Changing Higher Education, 2016[46]).

Public funding for research in higher education institutions awarded by national authorities was, historically, substantially based on formula-based block grant funding in much of the OECD. In many countries, research funding formulae take account of the number of researchers, the scale of doctoral training, or other indicators of activity. In other countries (the UK and New Zealand are examples), the research block grant funding is awarded on the basis of the institution's research track record, using a mix of peer assessment and research performance indicators.

While formula-based block grant funding persists, an increasing share of research funding is awarded on a competitive basis, giving rise to a dual mode funding model, in which the core funding of academic research (the institutional or direct funds that are part of the lump sum), is joined by a second, competitive funding stream originating from a research council or intermediary organisation (Jongbloed, 2010[47]).

While competitive research funding allocation decisions are based upon assessments of the volume and quality of scientific research output, how this output is assessed varies, with some funding bodies basing funding allocations principally upon bibliometric indicators, and others relying substantially upon peer review. There is debate, as well, over whether assessment processes should take note of other criteria such as impact (Zacharewicz et al., 2019[48]).

The proportion of funds distributed through competitive grant schemes is increasing relative to the funding allocated to formulae and other direct (core) funding schemes. There is also a trend of attaching new, additional research funds to specific priorities selected by the funding authorities. While competitive funds still may fund original, curiosity-driven projects, many governments are tying specific conditions and goals to new competitive funds. An example of the latter is the emergence of new initiatives and research programmes for carrying out strategic research, such as the creation of centres of excellence.

Governments are also increasingly funding research through contracts signed between funding authorities and individual institutions, in which part of the institutional budget is tied to a performance agreement. This

approach to funding may be seen as a way of government purchasing a particular performance or level of output from the university (Jongbloed, 2008[49]).

The distinctive role of applied science universities, polytechnics, and other professionally oriented higher education institutions in creating and disseminating knowledge has also recently been a focus of institutional funding policy. In higher education systems such as Switzerland's, in which its National Science Foundation funds research carried out in universities of applied science, separate competitive grants are awarded for applied research using criteria that focus on the "broader impact" of the proposed research and with the involvement of experts from relevant fields of practice in the peer-review process (Swiss National Science Foundation, n.d.[50]).

4.8. Allocating capital funding to higher education institutions

Capital expenditure in the higher education sector includes, or is substantially applied in, the construction of new teaching, research and student services buildings; refurbishment projects; infrastructure development and property acquisition. Countries can provide budget for capital expenditure in the regular block grant, discussed above, or through separate funds that are independent of teaching and research funding allocations.

In the US state higher education systems, for instance, there are often separate capital budgets with distinct procedures for the allocation of capital funding to public higher education institutions. By contrast, some other OECD countries (e.g. Australia, the Netherlands, New Zealand and Sweden) integrate capital expenditure in the regular block grant, which gives strategic flexibility to institutions, but may also lead to underfunding of capital projects (OECD, 2008[2]). Some of these countries periodically provide institutions with extra instruments for funding capital expenditure, such as additional funding available for specific projects in Australia. While there has been some opportunity for case-by-case negotiation with government for significant capital injections in New Zealand, institutions in that country usually raise funds for capital in the commercial loan market and service those loans through their operating revenue. In Sweden, loans are available from the State. Competitive capital funding schemes, and those requiring sharing of equipment among institutions, are also common and justified mainly by the need to maintain research competitiveness.

Along with the departments responsible for the allocation of the regular block grant, funding for capital projects can come from Research Councils. Research Councils usually provide project-based funding for research infrastructure or funding for Centres of Excellence (including facilities). Capital projects may also be funded by governmental departments in charge of regional and local development, innovation and entrepreneurship, and defence, among others; higher education agencies; and various levels of government.

In comparison to basic recurrent funding, funding processes for capital projects vary more widely, are less likely to be formula-driven and/or guided by master plans, and may be contingent on different levels of and agencies within government, which can make them more susceptible to political influence.

The majority of systems make it possible for universities to own and control their campuses and capital facilities, allowing them to determine their institutional strategy and academic profile (Pruvot and Estermann, 2017[8]). Some German states, Hungary and Sweden are notable exceptions to this pattern. In some cases, high maintenance costs or restrictions associated with historical buildings may deter universities in some systems from owning their facilities. In France, for example, only a few universities have become owners of their own buildings following a pilot launched in 2011-12. Some systems allow universities to sell real estate freely (e.g. Austria, Denmark and Estonia), while restrictions, usually in the form of an external approval, or a notification to an external authority (Ireland, New Zealand and Portugal), apply in other cases. Intermediary models, where a (semi-) public agency owns university buildings (e.g. Austria and Finland) also exist. In Sweden, universities may not own buildings – 60% of the space used

by universities in the country is managed by a state-owned company (the other 40% are owned by other real estate companies on the open market) (Pruvot and Estermann, 2017[8]).

The Netherlands exemplifies a system in which institutions benefit from great autonomy in the management of their infrastructure (OECD, 2008[2]). Public institutions have been given both ownership and control of their own campuses and capital facilities. Capital expenditures and revenues are part of the lump sum budget, meaning that efficiencies and revenues in this category can be directed towards the operational needs of the institutions. This approach also encourages, at least theoretically, co-operative planning among institutions when constructing new facilities. Dutch institutions can use debt financing without restrictions to pay for the facilities – in contrast to institutions in many other European countries, which are often constrained by a pre-determined maximum percentage of borrowing, or by the need to secure the approval of an external authority (Pruvot and Estermann, 2017[8]).

4.9. Accountability for funding

The complement of public funding for higher education institutions is public accountability for that funding. Accountability for funding needs to operate at two levels:

- assurance that the money has been appropriately spent on the purposes for which it was allocated – in other words, a **prudential assessment** of the spending;
- **strategic accountability** – assurance that the funded institutions were contributing to the outputs and outcomes that the government was "purchasing" in allocating funding.

The first level – prudential assurance or compliance – relies on an audit of the accounts in accordance with international accounting standards (conducted by a registered auditor) coupled with an assessment (presumably by the funding agency). This funding agency assessment would include measuring if, or how well, the institution has met its educational and research performance commitments and whether it has met benchmarks for prudent financial management (Tertiary Education Commission, 2016[51]). Ideally, these assessments should be *ex post,* meaning that the review occurs at the end of the year, following the expenditure and hence doesn't interfere with operational efficiency.

That funding agency review is more complex in countries (such as Korea and Greece) with line-item funding systems, (that is, where funding is disaggregated and set amounts are earmarked for particular items or activities). In those cases, limits apply to the reallocation of funds across budget lines. This results in a high level of financial control and much more complex audits. In the case of Greece, most approvals are granted *ex ante*, meaning that authorisation is required from finance officials in order to commit funding. This sort of funding and the resulting audit complexity serves no valuable purpose, but makes it difficult for institutions to operate efficiently or strategically (OECD, 2018[3]; OECD, 2019[9]).

These problems are less likely to arise in systems where funding is delivered in block grants, where accountability operates *ex post* and where performance frameworks are focused on performance commitments and a strategic assessment of financial performance.

Strategic accountability is focused on the higher-level system outcomes and should be focused on performance measures relating to government's goals for the system – including, where possible, measures of system outcomes.

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5 Human resources in higher education

This chapter presents an analysis of the policy issues related to human resources in higher education. Expenditure on human resources in higher education accounts for about two-thirds of current expenditure by higher education institutions across OECD countries. The quality of institutions' teaching and learning, research, and engagement with the wider world depends importantly on the skill and ability of the higher education workforce, and the conditions in which they work. The chapter describes the key dimensions for analysis of human resources in higher education. It examines i) policy issues relating to attracting, recruiting and selecting the higher education workforce; ii) the way the work and careers of the higher education workforce is structured; and iii) policies to encourage good performance from the higher education workforce. The discussion focuses on how government policies in these domains aim to steer the practices of higher education institutions and staff; and examines what is known about the impact of these policies on the performance of higher education institutions.

5.1. Analysing human resources in higher education

The analysis in this chapter examines the governance and management of human resources in higher education. The term "human resources" in higher education refers to all those employed in higher education institutions. It includes academic staff (those whose primary role is teaching or research or supporting teaching or research), those providing professional support for students (academic, health and social support), those involved in the management and administration of institutions, and personnel who support the maintenance and operations of institutions (security, ancillary services) (UOE, 2018[1]).

The principal focus of the chapter is academic staff and the policies that affect them. This reflects the central role of academic staff in determining the quality of teaching, research and engagement. Other staff – especially professional staff in specialist positions or managerial roles who are highly qualified and well paid – are of increasing importance in higher education. They play critical roles in supporting well-performing institutions. While the numbers in clerical roles in higher education institutions are declining, those in professional, managerial and technical roles are increasing. These staff account for an increasing share of total human resources expenditure, and in some systems professional support and management staff already outnumber academic staff (Bossu and Brown, 2018[2]). The binary division between academic and professional staff ("faculty" and "staff" in North American terms) is being blurred by an emerging partnership in many domains, such as student services, research management, widening participation, educational development, and learning technologies.

The chapter begins by describing some of the key patterns in human resources in higher education, how these have evolved and the changes currently faced. It then reviews three broad aspects of human resource management in higher education systems: attracting and retaining a skilled workforce; structuring the workforce; and encouraging high performance from this workforce. The analysis acknowledges that the extent to which public policy directly influences human resources management in higher education institutions varies considerably between OECD member countries. In some cases, higher education institutions function much like private businesses in terms of human resources, while in other cases recruitment, terms and conditions and rewards for staff are heavily regulated by government. Throughout the chapter, special attention is paid to human resource policy challenges facing many higher education systems, including the use of less costly labour inputs in many systems, as institutions strive for efficiency and flexibility, and the use of new digital technologies to reduce costs while preserving or enhancing quality.

5.2. Key trends in higher education human resources

The work that academics perform is being transformed by trends in, and beyond, higher education systems – reshaped by changes in teaching technologies, in the financing of higher education, and in the legal and contractual bases of employment.

Digitalisation may begin to change the economics of higher education and the organisation of academic work

The digitalisation of learning and teaching is not simply a change in the mode of educational delivery from face-to-face to online learning and blended learning. In some higher education systems, digitalisation has the potential to transform the economics of higher education, how academic work is organised, and how learners and teachers relate to one another and to their institutions. Where instruction is delivered at very large scale, through global learning platforms such as EdX and Coursera, unit costs can be sharply lower than face-to-face instruction. Digitalisation can also change academic work, transforming the tasks of course development, delivery and assessment, which may be outsourced, or a shared responsibility with new types of professionals who are specialised in course design or assessment. This changes the terms and conditions of academic work, as well as the expectations placed on academics. Digitalisation may also

facilitate the move from academic-centred teaching towards student-centred learning. In doing so, however, it simultaneously creates new opportunities and places new demands on learners and on teachers.

Higher education funding is also reshaping academic work and careers

As discussed in Chapter 2, expenditure on higher education across the OECD during the last decade has continued to rise (OECD, 2019[3]). The sources of funding have also been changing in many countries, with reduced emphasis on government funding, and greater reliance on fees and third-party funding. As highlighted in Chapter 4, methods of funding have changed as well, with governments relying increasingly upon performance-linked funding and competitive funding instruments. These changes result in less certainty of funding levels, leading to pressures for flexibility in staffing. In addition, this funding shift promotes increased entrepreneurial behaviour in higher education, with institutions seeking to develop opportunities to earn income.

This funding shift can reshape academic priorities and values, creating, in particular, a greater need to be responsive to student and stakeholder needs. An increased reliance on earned income often means more variability in revenue levels between institutions and, thus, different resourcing capacity between institutions. It also changes the market for academic staff, with an increase in value for "academic entrepreneurs" and academic staff who can improve performance on market-based indicators (for instance, publications in highly-cited journals, patents, competitive research grants, etc.).

Specialisation of roles is growing in higher education

Changes in technology and funding in higher education have also led to greater differentiation of the academic career structures, tasks and working conditions (Frølich et al., 2018[4]). They have led institutions to place a growing number of academic staff in specialised roles with responsibility solely for teaching, research or engagement. This trend represents a shift from a tradition in which an individual was responsible for all stages of academic activity – course design and development, teaching, assessment, research and knowledge transfer (Coates and Goedegebuure, 2012[5]),

Specialisation is often accompanied by a stratification of roles; researchers – especially those with the ability to generate revenue from research contracts, patents or other innovation activities – are particularly valuable to their institutions, so that research-intensive positions may offer better conditions than teaching-oriented ones.

In many higher education systems, academics play a reduced role in institutional governance, while professional staff play a wider role. Professional staff take on the responsibility of meeting new challenges in institutional management, such as facilitating the responsiveness of institutions to student and external stakeholder needs, marketing, raising income and responding to accountability demands.

This specialisation represents an important change in academic culture, academic careers, and the governance and management of higher education institutions.

Non-standard employment is also growing

Institutions are under pressure to use their teaching workforce in more flexible ways, so as to respond to demand shifts and manage costs. The need to maintain high-quality research and to manage the uncertainties of revenue mean that universities are confronted with tight cost pressures. This has led institutions in some countries to increase the share of staff who work in higher education with non-standard forms of employment (ILO, 2019[6]).

While there is no official definition of "non-standard employment", the term typically encompasses work that falls outside the "standard employment relationship" – full-time, continuing employment, in which the employee is accountable to an employer and/or manager (ILO, 2016[7]). The move to non-standard contracts is in line with global trends for casual work in the wider labour market (ILO, 2016[7]). This trend has raised questions about how institutions can ensure that their teaching quality remains of high quality.

5.3. Attracting, recruiting and selecting the higher education workforce

The first core task of institutions in terms of human resource management is to mobilise human resources, i.e. attract, recruit and select staff. Institutions need to take decisions regarding the hiring process (how will they hire?), the profile of those they hire (who will they hire?) and their number (how many will they hire?).

These tasks may be carried out by higher education institutions in the same way as by a private firm, subject only to the requirements of labour law. In many higher education systems, these decisions are structured by collective bargaining agreements and norms set by associations, (such as associations of higher education institutions or rectors' conferences), or – in some cases - by higher education legislation that stipulates required qualifications, recruitment methods or criteria for selection. In many systems, high levels of public authority continue to be involved in recruitment and selection of staff in higher education, either because:

- higher education institutions are state agencies (rather than separately established public bodies), meaning that they need to comply with public sector employment law; or
- there are legal provisions relating to employment in all public higher education institutions.

External quality assurance systems may structure decisions as well, as institutions seeking accreditation may have to comply with particular human resources management standards, for instance.

The following sections give some examples of how governments intervene to shape institutional practices to address performance problems that may emerge.

Recruitment process

Academic recruitment affects the performance of higher education and its financial sustainability. Some employment contracts offer lifelong employment, meaning the consequences of a poor recruitment selection are likely to be costly. The development of disciplines; expansion and contraction of units; and the evolution of student numbers may vary in unpredictable ways and may be outside the control of higher education institutions. Academic recruitment is a means by which institutions can effect change in order to improve their quality and efficiency. However, lifetime employment contracts may limit the scope for change and flexibility.

Discrimination (e.g. on the basis of gender or ethnicity), favouritism, or political considerations may override considerations of merit, leading to inefficient use of human resources and low-quality teaching and research. Thus, recruitment processes should be designed to be fair, transparent and consistently applied to increase the probability that the best candidates are recruited. High levels of academic inbreeding and gender imbalance in many systems indicate that this may not be the case, and that recruitment methods often fail to ensure equal opportunities and deal with the negative effects of conflict of interest (van den Brink, Benschop and Jansen, 2010[8]). Academic inbreeding, the practice of an institution hiring its own graduates to the professoriate, risks overlooking stronger candidates from outside the institution and creating an institutional culture that is unreceptive to change (Altbach, Yudkevich and Rumbley, 2015[9]). It also leads to diminished research productivity (Horta, Veloso and Grediaga, 2010[10]).

Many governments have policies that aim to ensure that academic positions are widely publicised, open to all qualified candidates, and prioritise academic diversity and objective dimensions of candidate quality (European Commission/EACEA/Eurydice, 2017[11]). Governments also rely on general equal opportunities legislation and quality assurance mechanisms. 23 jurisdictions in the European Higher Education Area (EHEA) have standards on recruitment procedures as part of external quality assurance reviews (European Commission/EACEA/Eurydice, 2017[11]). The Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) state that institutions "should apply fair and transparent processes for recruitment" (ENQA, 2015[12]). Governments can also promote the collection, analysis and publication of data on the profile of staff, which can put pressure on institutions with higher incidence of academic inbreeding or with gender and ethnic imbalance in their staff. Box 5.1 presents some examples of policies to address academic inbreeding.

Box 5.1. Examples of policies to address academic inbreeding

Open and competitive selection by an independent agency

In **Spain**, the *Ramón y Cajal* programme was launched by the government in 2001 as a tool to reduce inbreeding and attract talented staff through the development of a new hiring mechanism in public universities (Sanz-Menéndez et al., 2002[13]). This initiative establishes five-year contracts assigned through an open and competitive selection by an independent state agency. Successful candidates are granted the opportunity to work in research centres and higher education institutions under a tenure-track model, and enjoy similar wage conditions as the professionals hired through standard processes. Expenses are mostly covered by the central government. Data show that this policy has increased the number of foreigners and international researchers, and has attracted employees with no prior links to the institution (de la Figuera, 2005[14]; Ministerio de Ciencia e Innovación, 2011[15]). It has also improved research activity (as measured by publication rates), publication in high-impact journals and citations (Torres-Salinas and Jiménez-Contreras, 2015[16]).

Academic job vacancies information network

Japan is addressing high rates of academic inbreeding through measures to make hiring processes more open and transparent. In 2001, the Japanese Science and Technology Agency created the Japan Research Career Information Network (JREC-IN), which provides information about academic job vacancies. In addition, registered users receive notifications of employment openings. The number of accesses to this database doubled between 2002 and 2012. It has brought a wider range of candidates, making it more difficult to choose a specific candidate from the same university when there are others with better academic profiles (Horta, Sato and Yonezawa, 2010[17]).

Combination of professional stability and anti-inbreeding practices

The century-long **German** regulation of hiring and promotion in higher education, known as the *Hausberufungsverbot*, restricted preferential treatment and appointment of individuals who are already working or undergoing doctoral training within an institution (Kreckel, 2017[18]). The lack of upward career opportunities resulting from this regulation led to an amendment of the Higher Education Framework Act in 2002. The reform now allows institutions to offer tenure-track posts to their doctorate recipients provided they pass a competitive selection process and prove outstanding skills (Kehm, 2006[19]).

Staff profile

The workforce in higher education institutions is changing. And the academic profession that makes up a key part of this workforce is changing as well. There are now more professional staff in many systems, and in some, academic staff are now in the minority (Bossu and Brown, 2018[2]). Entrants to the academic career are often older, because of cumulative periods as doctoral and post-doctoral researchers and teaching assistants before a career position becomes available. In many systems, academics are retiring later, reflecting the ageing of the population, the abolition of compulsory retirement in some countries, and the attractiveness of academic work for those in the top tiers of the career structure. More academic staff are entering the profession with previous professional experience outside of academia. In many systems, women's representation has improved, but gaps at the top levels of the career hierarchy remain in many OECD countries.

In some higher education systems, public institutions have much autonomy to take staffing decisions. In other systems, however, governments set policies on the profile of staff by regulating the composition of the workforce of institutions and by collecting, analysing and publishing information on trends in institutional staff profiles.

Depending on the governance arrangements, the staff profile in higher education institutions may be:

- regulated *ex ante* by governments;
- influenced by the availability of targeted funding for staff posts;
- the focus of data collection, analysis and publication to inform and steer the behaviour of the system (e.g. the US National Study of Postsecondary Faculty (NCES, 2019[20]));
- the subject of *ex post* external quality review, as in Australia (TEQSA, 2017[21]).

Staff mix – academic, professional and managerial staff

The profile of the higher education workforce – academic, professional and managerial staff – is also changing in response to the diversification of the student intake, digitalisation, internationalisation and the complexity of institutional management. Higher education professionals sit in a continuum of roles ranging from academic positions to professional/administrative roles not primarily focused on teaching or research but managing services to support teaching, research or engagement (Gordon and Whitchurch, 2007[22]; Schneijderberg and Merkator, 2012[23]).

As the student body has become more diverse, institutions may respond by recruiting professional support staff to:

- provide a wider range of services and support for students;
- develop student-centred approaches to learning and new forms of digital or digitally-supported delivery;
- give effect to internationalisation efforts;
- support the transition of graduates to the labour market.

Box 5.2 presents some examples of policies that have resulted in institutions recruiting additional professional support staff.

Box 5.2. Policies resulting in an increase of professional support staff in higher education

Support for equality

The **United Kingdom** has adopted a set of regulations that require universities to support equality. The Race Relations Act of 2000, the Disability Act of 2005 and the Equality Act of 2006, aggregated into the Equality Act of 2010, require higher education institutions to ensure equal opportunities in regard to ethnicity, disability and gender. Universities have responded to this framework by hiring professional staff, such as learning support counsellors or student advisers, focused on meeting the demands of students potentially subjected to discrimination and disadvantage (Baltaru, 2019[24]).

Support for employability

Since 2008, **France** has required universities to create units that provide guidance to students on labour market opportunities (Kavka, 2017[25]). These units, known as *Bureaux d'aide à l'insertion professionnelle dans les universités* (BAIP), are staffed mainly by professionals who are responsible for advising students and promoting work and internship offers (Chaudron and Uhaldeborde, 2008[26]).

Support for disability

In **Brazil**, Decree 5626/2005 requires universities to guarantee students with hearing impairment access to interpreters of Brazilian Sign Language (Bruno, 2011[27]). Qualitative evidence suggests that having professional staff focused on the needs of individuals with hearing disabilities benefits the educational performance of those students (Martins, 2006[28]; Rossetto, 2009[29]).

Professional support staff may help all groups of students and thus, increase the efficiency of higher education (i.e. increase persistence, improve progression and completion rates, and decrease time to completion). They may also improve the quality of the student experience, skill outcomes and labour market outcomes, thus also improving equity. Evidence of the impact of professional support staff on student outcomes is limited. However, a UK study used longitudinal organisational data from 100 British universities in order to assess whether the increase in professional support staff in the early 2000s had an impact on university performance. Findings indicated that an increased ratio of non-academic staff to students was related to higher degree completion rates (Baltaru, 2019[30]).

In addition, with the massification of higher education, institutions are creating more dedicated managerial positions to support academic work and to direct the work of increasingly complex institutions and their diverse employees. This management workforce:

- supports quality assurance internally as well as the demands of external reviews;
- staffs the marketing function, in environments where institutions compete for students;
- manages the challenge of internationalisation initiatives;
- supports integration of education, research and innovation, helping institutions to contribute further to their communities.

Box 5.3 presents some examples of the need for higher education to be endowed with an expanded cadre of managerial staff to deal with issues such as knowledge transfer, real estate management and entrepreneurial activities.

Box 5.3. Policies resulting in an increase of managerial staff in higher education

Offices for technology transfer

In the **United States**, the 1980 Patent and Trademark Law Amendments Act (known as the Bayh-Dole Act) allowed universities to register property rights on inventions and products produced by their researchers using federal funding. This regulatory framework led many higher education institutions to establish offices for technology transfer to manage the commercialisation of research. These offices employ staff in marketing, patenting and licensing. Evidence suggests that this approach has improved American universities' performance in commercialising research (Goldfarb and Henrekson, 2003[31]) .

Real estate management units

In the **Netherlands**, the government transferred higher education estate ownership to universities themselves in 1995. Case-study evidence indicates that this decision led universities to develop real estate management units composed of managerial staff with substantial private sector experience. These units manage universities' properties and have become a substantial proportion of the higher education personnel (Engelen, Fernandez and Hendrikse, 2014[32]).

Entrepreneurial universities

In the **United Kingdom**, the 1988 Education Reform Act, the 1992 Further and Higher Education Act, and the 2004 Higher Education Act have made universities more autonomous and have triggered internal changes that aim to make universities more adaptive, resourceful, and competitive (Middlehurst, 2004[33]). Specifically, this legislation has prompted universities to expand their managerial staff, creating offices devoted to technology transfer, marketing, management of public affairs and globalisation. These offices have non-academic employees whose roles relate to university-business links and internationalisation (Shattock, 2009[34]).

In England, the former Higher Education Funding Council for England (HEFCE) published trends in the composition of the workforce by academic, professional and support roles; and noted "the shift in professional service roles from transactional services to a more strategic approach to higher education institutional support" (HEFCE, 2010[35]). Quality assurance agencies also play a role in reviewing the quantity and quality of human resources, especially in institutional audits and evaluations. For example, the Institutional Evaluation Programme (IEP) provides independent evaluation of institutional capability to higher education institutions that are members of the European University Association (EUA, 2018[36]).

In many higher education systems, the expanding ratio of executive and managerial professionals to academic staff has fuelled heated debates about its impact on the institutional costs (Kelchen, 2018[37]), and has caused consternation among academic staff, who perceive their role in the governance of higher education institutions to be diminishing.

Distribution of staff by field

Where demand for graduates and enrolments is growing – for instance, in fields such as computer science or health professions – instructional staff numbers may need to rise to meet student and labour market demand and maintain the quality of provision. In other fields, and other higher education systems, decreasing enrolment has led institutions to reduce staff numbers in those fields to keep operating at an efficient level.

Institutions may need to pay staff in some fields more than others, if those staff could expect to earn more outside of higher education (Hemelt et al., 2018[38]; Stange, 2013[39]). To avoid staff shortages in these fields (or to avoid attracting only low-quality staff), the higher cost of staff needs to be reflected in the capacity to charge higher fees, or the field needs to be funded at a level that allows institutions to pay salaries in line with earnings expectations for that field of study.

Governments can use information levers to support institutional staff planning, analysing and publishing data on trends in student choice of fields and distribution of staff by fields of study. In England, the former funding council provided information on trends in academic staff numbers alongside trends in student numbers by subject area, paying particular attention to "strategically important and vulnerable subjects" (HEFCE, 2010[35]).

Distribution of staff by academic rank

In order to contain costs, some systems may pay comparatively low salaries (compared to other professions or other higher education systems) across all staff ranks in the career ladder, from junior to senior categories. Alternatively, they may reduce the ratio of academics in senior categories to those in more junior roles, or place increased reliance on academics holding temporary contracts.

The distribution of staff by rank is highly variable across countries (Finkelstein, Conley and Schuster, 2016[40]) Having a high proportion of more junior, lower-cost staff may reduce costs, but raise questions about institutional capability and the quality of academic work (May, Strachan and Peetz, 2013[41]; TEQSA, 2018[42]).

Governments may legislate to impose a minimum number of staff in senior categories (e.g. in Portugal), in order to balance cost and quality. They may also publish data on the distribution of staff by category. Although many countries do not set policy in this field, quality assurance agencies may also cover this aspect of human resources in their standards.

Distribution of staff by age

The higher education workforce is ageing, and this trend is expected to continue. It reflects, in part, the ageing of the general population in OECD countries, but is also a function of the permanence of staff in employment, and in some cases, the trends in student numbers (Willekens, 2008[43]). In systems where student numbers rose rapidly and subsequently fell (or austerity measures were imposed), hiring was also episodic, with a large and steadily ageing cohort that has not been substantially renewed or replaced.

In the face of ageing academic workforces, some countries have developed initiatives and policies to attract young talent to the profession. These can target funding to facilitate the entry of younger staff to more stable positions (e.g. initiatives such as the New Lecturer Recruitment programme in the United Kingdom in the early 2000s, which provided funding for recruitment, research support, mentoring programmes and lighter teaching loads; and the Canada Research Chairs programme aiming to establish more than 2 000 university research chairs). In some cases, a mandatory age of retirement has been set and measures have been taken designed to make earlier retirement more attractive (Hanover Research Council, 2009[44]; Courty and Sim, 2015[45]). Box 5.4 presents some examples of country policies to address ageing of the academic workforce.

Government agencies and collective bargaining may influence the structure of academic careers, possibly by revising employment contracts and appraisal systems, permitting academics to adjust the balance of responsibilities over the course of their careers; to work on a reduced schedule; or to take appointment as an emeritus professor at the last stage of their career. The focus needs to shift from the age of staff to their human capital (Willekens, 2008[43]), and to the understanding that a balanced aged distribution brings a wide range of talents. Although some believe that creativity is associated with youth, recent research shows

that there are different life cycles of creativity; and some scholars are most creative early in their careers, while others are later on (Weinberg and Galenson, 2019[46]).

Box 5.4. Policies to address ageing of the academic workforce

Emeritus status

In **Spain**, legal reforms have developed the role of emeritus professorship as a way to support staff renewal as well as the maintenance of the value of retired and experienced faculty. The 2007 amendment of the Universities Law broadened the capacity of universities to hire emeritus professors, extending this status to distinguished academics who had not previously held civil servant status (Sánchez, 2016[47]). The number of emeritus professors, though still low, increased after the reform (Veintimilla and Espín, 2014[48]).

Attracting young academics

In **Estonia**, the government aims to attract young and talented students to academia and research. In 2015, it implemented the Dora Plus programme, co-financed by the European Union, to support the mobility of national researchers through grants, provide scholarships to international master's and doctoral students, and fund marketing initiatives to increase the visibility of opportunities in Estonia. The programme aims to increase the attractiveness of the country to young professionals (European Migration Network, 2019[49]).

Information on an ageing workforce

Australia systematically collects information about its higher education system that serves as a framework for informing policies and institutions. As a requirement of the Higher Education Support Act of 2003, every higher education institution provides data about its workforce to the Australian Department of Education to facilitate research (Hugo and Morriss, 2010[50]). The data have been used to provide analysis and policy recommendations regarding the ageing of the academic workforce (Bradley et al., 2008[51]; Hugo and Morriss, 2010[50]).

Gender, diversity and representativeness of staff

Gender equality is an aspiration in most OECD higher education systems. The proportion of women in academia has been increasing over time, but women tend to be under-represented in senior staff categories and certain fields, and face more precarious employment conditions (Hovdhaugen and Gunnes, 2019[52]; Jarboe, 2017[53]).

Governments have been using several policies to get institutions to promote the representativeness of women where they are under-represented. Gender distribution among academic staff is the most common policy in national strategies on human resources in higher education in Europe (European Commission/EACEA/Eurydice, 2017, p. 26[11]).

Some governments provide targeted funding to increase the number of female professor. In the Flemish Community of Belgium, for example, the government has included the share of women in research positions at all levels among the indicators used for research formula funding, while in Norway, institutions receive additional funding for appointments of female faculty members (OECD, 2019[3])).

Gender is one category often covered by equal opportunities legislation, in addition to others such as ethnicity, disability, religion, age, political beliefs and sexual orientation. In the UK, the research funding councils established an Equality Challenge Unit as a central resource to support higher education

institutions in furthering equality in the sector (HEFCE, 2010[35]). Box 5.5 presents some illustrative policies to address different dimensions of representativeness: ethnicity, gender and language.

Box 5.5. Policies promoting representativeness of staff

Ethnic representativeness

In the **United Kingdom**, the Race Relations (Amendment) Act of 2000 imposed new obligations on all public bodies, including higher education institutions, to promote an increased diversity of staff. It places a duty on universities to keep a record of the ethnic composition of their employees, to implement equality policies and to evaluate the effectiveness of such policies. The results of the evaluation, the data gathered and the policies themselves are publicly released. Evidence suggests that the Act has had a positive impact on the number of minority professors, including in senior posts (HEFCE, 2010[35]).

Gender representativeness

Germany's Women Professors Programme (WPP) seeks to increase the number of female staff and to promote gender equality in higher education. Co-financed by the central government and the states, the WPP funds academic positions awarded to women if participating higher education institutions submit gender action plans that are positively evaluated. The programme requires institutions to devote the funds replaced by the WPP external funding to gender equality policies. An evaluation of the programme shows that it has had a significant positive impact on the number of female professors (Löther, 2019[54]).

Language representativeness

Finland is pursuing a strategy of internationalisation of its higher education system that grants greater autonomy to institutions and allows English as a language of instruction, while simultaneously guaranteeing the rights of the Swedish-speaking minority population. To do so, the Government Decree on Universities 770/2009 requires certain universities listed in the Universities Act of 2009 to demand proficiency in Swedish of their employees. While allowing for institutional reform and adaptation to the global market of education, the reform preserves linguistic diversity in higher education institutions (Ylönen, 2015[55]).

Staff qualifications

Higher education systems may establish minimum standards concerning the academic and professional qualifications required to enter into or advance in the academic profession, on the premise that formal training – typically to the postgraduate level – yields quality (European Commission/EACEA/Eurydice, 2017[11]). A doctorate, even if not legally required, is often a prerequisite to enter an academic career in OECD countries, especially in the university sector (Huisman, De Weert and Bartelse, 2002[56]). The Netherlands, for example, has set targets for minimum qualifications in public higher education institutions: at least 80% of the academic staff must hold at least a master's degree (OECD, 2019[3]).

Quality assurance agencies may ensure that a minimum proportion of staff holds the necessary academic and professional (e.g. clinical practice, teacher training) qualifications, according to the mission of institutions and programmes.

In systems experiencing rapid massification, some governments have developed training programmes to bring the qualification level of academic staff to minimum levels and have allowed current staff the time and resources to upskill (e.g. funding of doctoral studies of existing or new staff). Some governments may

also make it possible or easier to recruit foreign staff with the required qualifications, especially to address shortages in the short-term.

Equally important, where a government has aimed to establish or refocus sectors of higher education – often with the creation or strengthening of professional education – they have used new standards of training, coupled with public subsidy, to renew (and presumably upskill) the sector's workforce (OECD, 2019[57]).

Staff numbers and student-to-staff ratios

The ratio of students to academic staff is a central characteristic of educational institutions, shaping the structure of their costs, and providing the principal resource with which student learning – along with research and societal engagement – can be supported.

Student-to-staff ratios may be used as a proxy for the quality of teaching and student-instructor interaction in rankings and media reports. As a result, these ratios may influence consumer choice among institutions. Moreover, such ratios are typically monitored by quality assurance agencies as a proxy for quality, and institutions or programmes often have minimum staffing ratios (and qualifications) set by external quality assurance bodies.

Student-to-instructor ratios are a very rough proxy for quality, since they do not reflect the duration, intensity or quality of interaction between students and instructors. Nonetheless, rigorous quasi-experimental studies show that sharp changes in student-to-instructor ratios, all else being equal, lead to substantial changes in learning outcomes. In Italy, for example, a reform that changed the admission requirements for university Science, Technology, Engineering and Maths (STEM) programmes led to a sharp rise in student-to-staff ratios, a reduction in student access to teaching resources, declining grades, and a long-term decline in the formation of human capital – as reflected in declining returns to investment in STEM degrees (Bianchi, 2019[58]).

The digitalisation of learning and teaching has the potential to alter the relationship between student and academic staff numbers, possibly decreasing the need for academic staff and/or by replacing academic staff with other professionals. Thus, the use of student-to-staff ratios by quality assurance agencies as a proxy for quality, or as a policy target by government ministries, poses risks to cost and innovation. Mandating staffing levels may lock higher education institutions into long-standing ways of developing and providing instruction that fail to exploit the potential of digitalisation, and that commit them to cost structures that are difficult to sustain.

5.4. Structuring the work and careers of the higher education workforce

The second core task of institutions in the area of human resource management is to structure the workforce and career progression. Institutions need to make decisions regarding the careers of academic, professional and managerial staff (as well as their duties and workload) and reflect on the implications of digitalisation for academic work.

As with the task of mobilising human resources, the task of structuring the workforce in higher education may be carried out by autonomous higher education institutions using private law contracts, or it may be defined in public law or in collective bargaining agreements.

The profile and numbers of staff in higher education result from the recruitment practices of higher education institutions, and also from the way that staff careers are structured. To improve the quality and equity of higher education, career structures need to be sufficiently attractive to appeal to, and retain, talented staff. At the same time, they need to be designed to balance cost and efficiency. In addition, academic career structures need to address adequately the multiple functions and roles that universities

and other types of higher education institutions perform in modern societies. Career structures for academic staff can be common to all institutions in a system, or to sectors within the system, or they can be specific to individual institutions.

As the missions of higher education institutions have become more varied, it is increasingly difficult for academics to perform all roles well: training future professionals; conducting research; engaging in international projects; collaborating with business, public service and the social and cultural sectors; offering pastoral care; and educating future scholars (Coates and Goedegebuure, 2012[5]). Academic roles in many systems are becoming more differentiated and increasingly linked to individuals' capabilities and preferences, with different components of administration, management and leadership, and other activities. Moreover, different institutions with different missions often have different portfolios of academic types, often with individually negotiated employment arrangements.

Insufficient differentiation in roles and career paths within and among higher education institutions may lead to inefficient use of staff skills. Existing labour contracts and collective bargaining agreements may delay the adoption of digital technologies, delaying innovation and possible efficiency gains.

In many higher education systems, there is a high incidence of non-standard employment contracts. They may exist for good reason, for instance to employ professionals whose main employment is outside of higher education, but who bring an important contribution to the education of future professionals. However, in many cases, those employed through non-standard employment contracts have completed doctorates and aspire to, but cannot secure, a permanent academic appointment. Engaging such staff effectively in the academic workforce is a core challenge to higher education institutions; this issue risks diminishing the quality of teaching and learning, the student experience and learning outcomes.

The following sections discuss the factors that shape staff careers and whether they promote or hinder the performance of higher education, and give some examples of interventions governments could adopt to shape institutional practices to address performance problems that may emerge.

The employment status of academic staff

A pressing issue for higher education is the share of standard versus non-standard forms of employment contracts for staff, as institutions seek to balance stability against flexibility in their staffing. Some forms of staff employment status (e.g. civil servant status, tenure) come with strong employment guarantees for the staff concerned and place strict limits of the flexibility of human resource managers in higher education institutions. For this reason, some systems have abolished civil servant status for academic staff (e.g. Austria), or tenure arrangements (e.g. the United Kingdom), and have granted institutions the right to determine the employment and working conditions of their staff. Even in highly regulated systems, with clearly regulated careers, institutions usually have a degree of autonomy in managing some academic staff outside of the regular career structure. In some systems, institutions typically seek to increase the number of externally funded positions, especially in research, which offer fixed-term employment.

These trends reflect wider generic changes in the labour markets of OECD member countries, which have shifted towards greater flexibility and "casualisation" in employment. They have led to a declining proportion of staff in standard forms of employment in many countries' higher education systems. Many staff are not on a clearly defined career path, with the career path reserved for those in intermediate and senior categories of the profession.

Competition in research incentivises universities to hire academics with established research records. This means that the transition from doctoral training to academic career necessitates a period of post-doctoral work in a research-only, fixed-term contract. This "apprenticeship" phase is the most challenging step in the academic career path, given the imbalance between the number of new doctorate holders and the number of available post-doctoral positions in many systems (Fumasoli, Goastellec and Kehm, 2015[59]).

In some higher education systems, academic careers have evolved towards the coexistence of a protected elite professoriate with a precarious academic "proletariat" (Teixeira, 2017[60]). Academics with external research grants seek to focus their time on research by "buying out" their teaching time. This reduces the number of permanent academic staff available for teaching, increases the share of instruction assigned to casual, mainly teaching-only positions, (Laudel and Gläser, 2007[61]), and allows institutions to pay higher salaries to their full-time permanent staff, who are mostly rewarded for research performance. The growing use of part-time academics at research-intensive institutions, holding constant the use of full-time academics, has been shown to be associated with increased external research expenditure at an institution, while using casual staff to reduce the teaching loads of full-time academics allows them to generate more external research funding (Zhang and Ehrenberg, 2010[62]).

In countries such as Germany, Estonia, Austria and Finland, fewer than one-third of academics have a permanent employment contract (European Commission/EACEA/Eurydice, 2017[11]). In the United States, contingent academic staff are also now in the majority of all academic staff at colleges and universities, representing almost three-quarters of the teaching staff at non-profit higher education institutions (Gyurko et al., 2016[63]), compared to around one-fifth of the teaching staff four decades ago (Kezar and Maxey, 2013[64]). Many systems have some form of tenure-track positions, but there is intense competition for those positions in most countries, and many people remain in temporary contracts. While it is true that some institutions and systems rated as high-performing in bibliometric measures have high levels of casualisation, there are risks and trade-offs from this trend.

Extensive casualisation of staff - and the deterioration of working conditions for some - may have detrimental effects on attracting and retaining talent, and on the motivation and performance of staff (Klopper and Power, 2014[65]). A study of researchers with fixed-term contracts in Finland shows that the stress caused by job insecurity and the job dissatisfaction caused by poor career prospects and salaries are driving some away from academia (Aarnikoivu et al., 2019[66]). Casualisation that results in precarious employment may also hinder academic freedom, with harmful consequences for the quality of higher education (Karran, Beiter and Appiagyei-Atua, 2017[67]).

Most importantly, casualisation of academic work may have an adverse effect on students. There is evidence from the United States that institutions with a higher concentration of non-permanent (contingent) academics, particularly working part-time, are those where students at risk of non-completion (such as part-time and low-income students) are most likely to study (Hurlburt and McGarrah, 2016[68]).

On balance, research suggests that the increased use of temporary part-time academics has some negative consequences for the quality of teaching and learning (Baldwin and Wawrzynski, 2011[69]). The effects are complex and heterogeneous across institutions, student types and study levels, but research has shown that, in US universities, students taught by part-time instructors are less likely to take subsequent classes in a subject (Bettinger and Long, 2004[70]); less likely to complete their studies (Ehrenberg and Zhang, 2005[71]); and, in one institution (where a randomised design was used), students of less experienced instructors who did not possess a doctorate performed worse in follow-on related curriculum (Carrell and West, 2010[72]). Jaeger and Eagan (2011[73]) also found that high levels of exposure to part-time faculty in the first year of college are consistently found to affect negatively student retention to the second year.

The impact of temporary and part-time instructors on learning varies by programme and institution type. In occupationally oriented programmes adjunct instructors may have a small, positive effect on continued enrolment in a study programme (Bettinger and Long, 2010[74]). In research-led universities the intensive research commitments of permanent staff may result in weak investments in undergraduate teaching. In one elite research-intensive university, it was found that undergraduate students learned more from non-tenured faculty than tenured professors in their first-term courses. The differences were present across a

wide variety of subjects and were particularly pronounced for average and less-qualified students (Figlio, Schapiro and Soter, 2015[75]).

In some higher education systems, the expansion of non-standard employment is constrained by quality assurance agencies, which may set limits on the ratio of indefinite to fixed-term contracts (TEQSA, 2018[42]). In many countries, collective bargaining between governments, employers and unions allows for the negotiation of terms and conditions of employment, such as employment relationships, professional rights, wages, equality, hours of work and workload. In these systems, collective bargaining and social dialogue arrangements are another way of steering the behaviour of institutions in the use of non-standard employment (ILO, 2018[76]).

Some countries are discussing or undertaking reforms to their academic career structure to enable more predictable careers. An example is Germany, which has traditionally had a high share of staff in non-standard contracts (Kehm, 2019[77]). In Ireland, a 2016 government-commissioned report produced a set of recommendations, including establishing a two-year qualification period for the granting of contracts with indefinite duration, and requiring the employer to give preference to staff with existing contracts in recruitment for posts with indefinite contracts (ILO, 2018[76]). Some countries have regulations limiting the share of staff on non-standard contracts (e.g. Italy, Netherlands, Austria and Portugal) (European Commission/EACEA/Eurydice, 2017, p. 26[11]). In Estonia, fixed-term contracts can only be used if a position cannot be filled with a permanent employee; temporary employment with the same employer cannot last longer than five consecutive years, then it must end or be followed by an ongoing contract (OECD, 2019[3]). In France, fixed-term contracts, either full or part-time, cannot exceed four years (European Commission/ EACEA/ Eurydice, 2018[78]).

In the United Kingdom, a higher education workforce survey, conducted by the Universities and Colleges Employers Association (UCEA), showed that the sector's employment of casual staff has been falling, with strong growth in open-ended and full-time employment (UCEA, 2017[79]). However, there has been significantly more growth in research-only and teaching-only positions, as opposed to traditional positions that combine teaching and research (UCEA, 2018[80]). Academics with responsibilities for both teaching and research have been in the minority in the United Kingdom since 2014 (Frølich et al., 2018[4]).Box 5.6 presents some examples of countries' policies addressing the casualisation of the academic workforce.

Box 5.6. Policies addressing the casualisation of the academic workforce

Addressing the impact of casualisation on academic freedom

In **Denmark**, the government is addressing some of the effects of the casualisation of higher education staff on academic freedom. As a response to International Labour Organization/United Nations Educational, Scientific and Cultural Organization (ILO/UNESCO) recommendations (ILO-UNESCO, 2016[81]), criticism from trade unions and advice from international experts, Denmark reformed its Universities Act in 2011 (Karran and Mallinson, 2017[82]). The changes included an explicit commitment to protect individual and institutional academic freedom. The reform may serve to protect the academic freedom of higher education staff, especially for those who hold non-standard forms of employment.

Regulating the duration of fixed-term contracts

Germany is responding to its historically high rates of non-standard contracts of academic staff. After critical evaluations of its Law on Fixed-Term Contracts in Higher Education and Research (Jongmanns, 2011[83]), the legislation was amended in 2016 to increase the length of contractual periods of higher education staff. Since the reform, fixed-term contracts must last at least the time required to develop the skills that young scientists are expected to acquire (e.g. the time needed to write a doctoral thesis),

and positions funded by third parties must be awarded through contracts whose minimum duration is that of the project being performed. Although no evidence of its impact is yet available, the reform is likely to reduce the labour precariousness of young academic staff in Germany (Hüther and Krücken, 2018[84]).

Promoting tenure-track schemes

Austria's Research, Technology and Innovation Strategy 2011-2020 viewed tenure-track schemes as a means of increasing the attractiveness of its higher education system to talented individuals. This project led to an amendment of the University Act in 2015 to allow higher education institutions to establish tenure tracks that can lead to permanent academic positions. Since the reform, young academics work less often for long periods under fixed-term contracts, and achieve career stability sooner through a simplified procedure. A number of universities have implemented the tenure-track model, likely improving the capacity of Austria to attract highly skilled staff (OECD, 2018[85]).

Academic roles and workload policies

Specialisation of roles

In traditional research universities, with traditionally structured roles, each academic carries out both teaching and research responsibilities. While there is evidence of synergies between postgraduate teaching and academic research (Palali et al., 2018[86]), studies increasingly point to trade-offs between teaching and research (Fox, 1992[87]; Christensen et al., 2011[88]), and find no association between research productivity and teaching effectiveness (Hattie and Marsh, 1996[89]; Marsh and Hattie, 2002[90]). Instead, evidence points to important increases in research productivity that can be achieved with greater differentiation in roles (Jonker and Hicks, 2014[91]).

In many research universities, there has been an increasing differentiation or disaggregation of roles, often between full-time, research-active staff with continuing appointments and modest teaching responsibilities, and those on fixed-term, often part-time, appointments with mainly (or exclusively) teaching duties.

Outside of research-intensive universities, such as in universities of applied sciences, polytechnics or colleges of higher education, the roles of academic staff may be weighted almost exclusively to teaching and engagement missions. In these sectors of higher education, part-time teaching may be prevalent, as part-time staff have outside jobs, and their professional experience contributes to the effectiveness of their teaching in occupationally oriented programmes.

How academics allocate their time

Some European higher education systems have regulatory frameworks that define the duties and working time of academics, including in different categories of the career, and in different sub-sectors of higher education, reflecting different missions (European Commission/EACEA/Eurydice, 2017[11]). There is some evidence that patterns of academic staff time allocation have been favouring research, including in the non-university sector (Milem, Berger and Dey, 2000[92]; Teichler, Arimoto and Cummings, 2013[93]). This is consistent with evidence about the quantity of research output, which has grown sharply in the past decades in many higher education systems.

The allocation of time to different roles changes as academics progress through their career. A study in the United States shows that tenure and promotion influence the allocation of time: full professors spend more time on service activities (relative to teaching and research) and longer-term associate professors spend more time teaching than doing research (Link, Swann and Bozeman, 2008[94]). Women, on average,

allocate more time to service (engagement) and less time to research; this may be a contributing factor in the gender gap observed in salaries. In the United Kingdom, a study on the evolution of academic workloads since 1945, shows evidence that the biggest change has been the growing amount of time academics devote to administrative activities.

To counterbalance a focus on research performance that risks diminishing investment in teaching, some countries have been introducing targeted funding for teaching excellence, while others have funding initiatives, such as matching funds, to reward staff for the development of engagement initiatives. Conversely, some governments have supported occupationally focused institutions to widen opportunities for staff to engage in research or engagement activities, as in Portugal's Polytechnic Modernisation Programme (OECD, 2019[57]), and in the universities of applied sciences in the Netherlands (Frølich et al., 2018[4]).

Elsewhere, higher education institutions or systems – such as the University of California (UC) System – are experimenting with new academic roles, such as the tenure-track teaching positions created for the "teaching faculty series". These positions are designed to meet the long-term instructional needs of a university. Their primary responsibility is teaching, and their secondary responsibility is to engage in research. As part of the tenure system, they also participate in institutional governance, with voting rights on departmental decisions; they are eligible for appointment to Senate committees; and they are evaluated for promotion in the same manner as research faculty in the UC system.

Digitalisation in learning and teaching

Digitalisation holds the promise of improved efficiency in learning and teaching by reducing the marginal cost of additional enrolments (Christensen et al., 2011[88]). It has the potential to promote the quality of the learning experience and outcomes through the use of learning analytics, customisation and adaptation (Colvin, 2016[95]). Digitalisation can also widen access to higher education through increasing the diversity of the student population. Digital approaches have particular potential for continuing professional development and lifelong learning (European Commission, 2014[96]). At the same time, digitalisation creates the potential for reorganisation of traditional academic roles and responsibilities (ACE, 2014[97]). Digitalisation can facilitate the unbundling of roles – course development, teaching, assessment, and advising – that have rested in the hands of solitary academic staff. It can create new positions for other professionals in academia, and more "hybrid", "third space" careers (Whitchurch, 2008[98]; White and White, 2016[99]).

In practice, however, the impact of the use of digital technology in learning and teaching on cost, quality and academic work has been mixed (Lillejord et al., 2018[100]; Natow, Reddy and Grant, 2017[101]). Introducing new technology does not necessarily lead to innovative and more effective practices, or reductions in marginal cost. Staff may adapt new technologies to traditional practice, or they may resist its implementation. Even eager and able adopters may be deterred by career structures and assessment systems that prevent them from making full use of its potential.

Hitherto, the changing digital education environment appears to have been technology-driven and has had limited capacity to harness technology for academic goals. Technologists, rather than educators, have tended to design the approaches used, which has impacted on pedagogical quality, especially in terms of supporting collaborative learning and learning analytics. Many academics are not well prepared to drive digitally-supported learning and teaching alongside technologists (Laurillard, 2016[102]; 2015[103]).

A review of experimental evidence on the effectiveness of technology-based approaches in education shows that effectiveness varies by how provision is organised and by the types of students it serves. Two promising, cost-effective approaches are: computer-assisted learning and behavioural interventions (nudging); and the combination of blended, online and in-person learning (Escueta et al., 2017[104]). Many current online courses may be difficult for the students who are least prepared – precisely those students

for whom online provision could extend educational opportunities the most; and they might be better off taking equivalent in-person courses (Bettinger and Loeb, 2017[105]).

Governments in several countries promote digitalisation in higher education, recognising its potential and also the challenges to its effective implementation (see Box 5.7); many are offering targeted funding for digitalisation initiatives, including the development of the digital skills of staff (European Commission/ EACEA/ Eurydice, 2018, p. 75[106]). Quality assurance agencies are adjusting their review standards to the digitalisation of learning and teaching, recognising that requirements regarding student-to-staff ratios and staff profiles may need to change (OECD, 2019[107]). However, there is a concern that the uptake of technology in teaching, learning and innovation in pedagogy is still insufficient, and that design and delivery is still traditional in most countries. Experts recommend that governments examine to what extent their higher education strategies, regulation, funding, accreditation, quality assurance, assessment and certification frameworks support new modes of learning (European Commission, 2015[108]); and create favourable framework conditions to make the most of digital education opportunities in higher education (Henderikx and Jansen, 2018[109]).

Guidelines and criteria for new modes of teaching and learning using technology have not yet been adopted by quality assurance systems; blended and online learning are often assessed against the same criteria as face-to-face education. One promising recent development has been the revision of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) (ENQA, 2015[12]), which are now more open to innovation in the use of technology in teaching. One barrier is that quality assurance agencies are almost entirely focused on degree provision, whereas the expansion of digital education may be more promising in continuous professional development and lifelong learning.

Box 5.7. Policies promoting digitalisation in higher education

Distance education to widen access

In **Spain**, the Catalan regional government created a specific public higher education institution in 1995 that is obligated by law to provide distance education using new technologies. This institution, the *Universitat Oberta de Catalunya* (UOC), has a legal mandate to employ information and communications technology (ICT) to facilitate access to education to individuals for whom in-person learning is difficult due to personal, geographical or work reasons. Research shows that UOC's internet-based teaching system has been able to disproportionally attract adult students engaged in work, with children and with prior educational experience (Sangrà, 2002[110]), showing that it may be an effective tool to meet the demands of lifelong learners who may find face-to-face education unobtainable in their circumstances.

Digitalisation for improving learning and teaching

Denmark is pursuing a strategy of digitalisation that, among other elements, aims to improve the quality of teaching and learning outcomes in higher education. Since 2015, the Danish government has included an increase in the use of new technologies as one of the performance goals in the three-year development contracts that it signs with universities. International comparisons indicate that these contracts have prompted Danish universities to record high levels of use of digital tools. Despite the uncertainty about the impact of this strategy on education outcomes, cross-country comparisons show that Danish students experience ICT-supported teaching and learning, such as virtual teaching or incorporation of videos and social media, on a more frequent basis because of this policy (Tømte et al., 2019[111]).

Digitalisation to counter territorial inequality

Brazil's 2000-2010 National Education Plan included distance education as one of the means of addressing educational inequality within the country. In 2005, this policy led to the creation of the *Universidade Aberta do Brasil* (UAB), a higher education network that combines online teaching, periodical face-to-face tutoring and de-centralised centres of education; which was developed in collaboration between the Ministry of Education, universities, states and municipalities (Duran and Costa, 2016[112]). The UAB structure was designed taking into account, among other factors, population dispersion and mobility hardships within the Brazilian territory that could be overcome by using ICT (Costa and Pimentel, 2010[113]). Data show that UAB has reduced regional and socio-economic inequities in tertiary education (Borges, 2015[114]) and that students report positive learning experiences with e-learning (Cidral et al., 2018[115]).

5.5. Encouraging good performance in the higher education workforce

The third core task of institutions in the area of human resource management is to encourage good performance from the higher education workforce. Institutions need to make decisions regarding staff appraisal, promotion, remuneration, professional development, mobility and retirement to encourage high performance and make the fullest use of staff capabilities.

As with the other core tasks of mobilising human resources and structuring their careers, supporting staff to perform to the best of their abilities may be undertaken by higher education institutions acting with full autonomy, or it may be the subject of public law, collective bargaining agreements or targeted funding that nudges institutions into action (see an example of the latter in Box 5.8).

Box 5.8. Improving human resource management to promote performance

Rewarding and developing staff in higher education in the UK

In the early 2000s, the UK government provided additional resources for rewarding, retaining and developing staff in higher education. The former Higher Education Funding Council for England used these resources in an initiative to improve human resource management practices in an attempt to raise the level of performance in the higher education sector (HEFCE, 2000[116]). An evaluation of the programme observed the evolution of human resource management from a transactional approach focused on administration to a transformational approach focusing more on strategy and change within the sector. There was also evidence that the initiative produced fundamental change in human resource practices with positive impacts (Deloitte & Touche, 2002[117]).

In the following sections, we discuss the factors that shape staff performance, and give some examples of how governments and other steering actors shape institutional practices to try and induce better performance from higher education institutions.

Staff appraisal

Staff appraisal systems are meant to promote good performance from staff and inform professional development. However, in some systems, there are no robust systems of staff appraisal and the link between performance, promotion and remuneration is not strong. In many systems, regular staff appraisal procedures have often been limited to summative peer assessment at recruitment, at the award of tenure, and at promotion to a higher category in the profession (e.g. *habilitation* in some European systems).

Regular staff appraisal with more formative purposes, such as peer feedback and team teaching, and linked to professional development, seems to be under-developed compared to other professions. Many systems only evaluate the research performance of staff, which can have negative effects on the quality of the education provided, and the incentives to participate in engagement activities. Countries are developing different policies to address the bias toward research performance and to promote teaching performance (Box 5.9).

The most common means of teaching assessment is student feedback surveys (European Commission/ EACEA/ Eurydice, 2018, p. 88[106]). However, commonly used instruments to evaluate the teaching performance of teachers can be flawed. It has been shown that teacher quality affects student achievement, but that measures of teacher effectiveness are negatively correlated with students' evaluation of professors (Braga, Paccagnella and Pellizzari, 2014[118]). There is also evidence of gender bias in both teaching and research evaluation (Mengel, Sauermann and Zölitz, 2019[119]; Hengel, 2017[120]). The European University Association has recently developed some reflections and recommendations on how to improve the evaluation of learning and teaching (Dewhirst and Anna, 2019[121]).

Box 5.9. Policies promoting teaching performance

Teaching Excellence and Student Outcomes Framework

In 2017, the **United Kingdom** introduced the Teaching Excellence and Student Outcomes Framework (TEF) to create indicators of teaching performance and to complement the Research Excellence Framework (REF). TEF covers three aspects: teaching quality, learning environment and student outcomes, and learning gain. It classifies universities into three groups according to the value judgements of a panel of experts who use different data sources (Gunn, 2018[122]). The TEF has sparked intense criticism about its validity as a measure of teaching quality (Gibbs, 2017[123]; Rust, 2017[124]), though experience suggests that it may increase institutional efforts to improve teaching quality (Bothwell, 2017[125]).

National Forum for the Enhancement of Teaching and Learning in Higher Education

The Higher Education Authority (HEA) in **Ireland** has implemented different programmes aimed at improving teaching quality in higher education as a part of the National Strategy for Higher Education to 2030. Through the National Forum for the Enhancement of Teaching and Learning in Higher Education, the HEA has funded, among other initiatives, institution-level projects designed to improve teaching through the Learning Impact Awards, and has rewarded professors with outstanding teaching records through the Teaching Experts Awards. Although systematic reviews have not yet been performed, preliminary evidence suggests that the National Forum potentially leads to positive results in teaching quality (Henard, 2017[126]).

Performance agreements: dropout rates and completion rates

The **Netherlands** introduced performance agreements in 2012 through which the government and each higher education institution agreed upon certain goals that influence the funding the institution receives. Two elements related to teaching quality and student learning were used as criteria for the performance agreements: dropout rates and completion rates. As a consequence of these agreements, institutions that reduce dropout rates and increase completion rates received higher state funding. Evidence shows that, at least in research-oriented universities, this initiative improved student completion and retention, although the effect of performance agreements on teaching quality itself is uncertain (Jongbloed et al., 2018[127]).

A combination of sources of evidence, such as student input, peer review, student achievement and self-assessment, can overcome the weaknesses of each source and enhance their strengths, and may be the best way to demonstrate teaching effectiveness (Chalmers and Hunt, 2016[128]). A recent review of assessing teaching in higher education by a joint ILO-UNESCO body formulated a number of policy recommendations regarding the development of consistent standards of effective teaching and quality assessment practices, staff training and professional development (Jarrell, 2019[129]).

Many countries have regulatory frameworks for staff appraisal. The introduction of performance-based funding for institutions can also have an effect on staff appraisal schemes by reflecting system-wide objectives. Quality assurance frameworks often include standards on staff appraisal and dismissal procedures for under-performing staff, which is the case for 26 jurisdictions in Europe (European Commission/EACEA/Eurydice, 2017[11]). Over half of the 28 European systems surveyed have a national teaching prize, but they weigh much less and have lower visibility and impact than research awards (Bunescu and Gaebel, 2018[130])

Having well-designed staff appraisal frameworks will ensure that the performance of staff is aligned to the mission of the institution (including the weight assigned to different work duties), and ensure that staff have a further incentive to perform.

Promotion

Career advancement in higher education follows two basic models: promotion or competition, with some systems having a hybrid model. In a competition model, promotion is dependent on a position becoming available, and those seeking advancement in the career applying for vacant positions in an institutional or national competition. In the promotion model, those who meet specified criteria of teaching, research and other activities can be promoted to the next category in the career based on an evaluation of their performance. This is the model in systems having tenure tracks.

Some countries have regulatory frameworks governing public higher education institutions that define performance criteria for promotion and that link promotion to performance appraisal. A well-documented issue with promotion in higher education is the emphasis put on research performance relative to teaching (European Commission/ EACEA/ Eurydice, 2018, p. 89[106]). Some countries, like the Netherlands, are devising policies to give more recognition to the educational role of academic staff (Dutch Ministry of Education, 2015[131]; VSNU et al., 2019[132]).

Some countries have granted more autonomy to institutions for financial and human resourcing, which institutions may use to promote staff on the basis of merit. Promotion, along with other aspects of human resource management, can be subject to external quality assurance systems, which is the case for 26 European jurisdictions (European Commission/EACEA/Eurydice, 2017[11]). For instance, in the United Kingdom, the Quality Assurance Agency has a code for institutions that indicates they should act transparently in all their activities, including promotion.

The relative under-representation of women in senior academic ranks raises questions about whether promotion processes in higher education are equitable. Research in New Zealand found that men have had a greater probability of being promoted than women, even when controlling for assessed research performance, field of study, age and other observable factors (Brower and James, 2020[133]). This suggests a level of bias, albeit probably unconscious, in the promotions processes of New Zealand's universities. Similar disparities in the ranks of men and women in many other OECD jurisdictions raise the question of whether this bias occurs in other countries also.

Remuneration

Differences between and within countries

A comparative study of academic remuneration and benefits at public universities in 28 countries investigated whether the academic profession remains attractive enough to attract and retain talent (Altbach et al., 2012[134]). The analysis finds significant differences in remuneration worldwide when adjusted for purchasing power parity. In addition to disparities between countries, there are differences within countries, with some institutions being able to offer better remuneration packages to their staff. There are also differences between types of institutions (with research universities typically paying higher salaries), and between the academic profession and comparable professions outside of academia.

Performance-based rewards are becoming more common. In some countries, remuneration frameworks may steer the behaviour of higher education institutions in this area. In France and Portugal, every academic, independently of their institution or discipline, is paid according to a single national salary grid. In Australia, universities set their own base rate for staff in negotiation with staff associations, although government funding as a share of total funding influences the negotiations. In the United Kingdom, base rates are agreed by a national committee of the employers' body and representation from the main trade unions (ACU, 2008[135]). Performance-based allowances, bonuses or salaries are also common in some countries (e.g. the Netherlands and Finland, (Eurydice, 2018[136]; The Finnish Union of University Researchers and Teachers, 2016[137])).

In other systems, such as Mexico or the United States, remuneration is set by all private and many public higher education institutions within a market-like environment. There is a high level of heterogeneity between staff categories and within the same category; differences among disciplines and institutions can be significant (Curtis and Kisielewski, 2016[138]).

Institutions adjust to cost pressures in some fields by increasing class size and increasing teaching from less expensive casual staff. The highest paid academics teach fewer undergraduates and fewer undergraduate courses than their lower paid colleagues (Courant and Turner, 2017[139]).

In many countries, remuneration levels of academics are not keeping pace with similarly educated workers in the workforce in general, and there is evidence of wage compression in some disciplines such as accounting, economics and finance, as competing non-academic salaries increase. These disciplines may experience decreased morale and increased turnover as experienced staff look for better paid jobs elsewhere (McDonald and Sorensen, 2017[140]).

Policy responses

Poorly designed remuneration structures will not attract and retain the best in the profession and will not promote the best performance from those already in the profession. The current two-tier labour markets, with an expansion of the share of those in non-standard contracts with low wages, will discourage many, who will therefore transition to employment outside academia (in all likelihood the most talented).

Insufficient remuneration makes additional employment important for academics in some countries, either within the same institution (e.g. continuing education, executive education, summer schools), at another institution, or in non-academic employment. Compounded with low morale, additional employment for academics may lead to poor teaching and less engagement with research and other activities.

On the other hand, well-designed remuneration structures can contribute to the capacity of higher education institutions to recruit and motivate highly skilled teachers and researchers.

Professional development

The calibre of higher education teachers is the most important factor for student learning, and training in teaching skills is important for a well-performing system. Research shows that students learn better from improved teaching, and that co-ordinated professional development of academics improves student outcomes, including retention and graduation rates, as well as leading to greater faculty satisfaction, engagement and sense of belonging (Condon et al., 2016[141]). However, to the detriment of student learning, many academics receive little teaching development support. Despite evidence to the contrary, the sector still hangs on to the idea that being an expert in a discipline makes one an effective teacher in the area.

Traditional lecture-based practices are still pervasive despite research findings that this approach is ill-adapted to how students learn. There is evidence that staff development is often not systematic in higher education, and that teaching development often consists of learning on the job (European Commission/ EACEA/ Eurydice, 2018, p. 87[106]), with some exceptions (see Box 5.10 for examples). The situation tends to be worse for casual staff, who tend to have less access to professional development, despite the fact that they are responsible for an increasing proportion of the teaching load in many systems. They are more likely to use evidence-based teaching practices that produce positive student outcomes, if provided with professional development opportunities (Eagan et al., 2014[142]).

Box 5.10. Policies promoting professional development of staff

Initial teacher training and continuing professional development

Sweden is committed to improving teaching quality through continuing professional development. In particular, the Swedish Higher Education Ordinance of 2002 makes the granting of permanent academic positions conditional on the completion of teacher training (Lindberg-Sand and Sonesson, 2008[143]). Although the Swedish government funds the programmes for professional development, universities have the autonomy to set the conditions and forms of training. Research shows that this pedagogical training has positive effects on professors' self-evaluation of teaching skills and their confidence (Ödalen et al., 2018[144]).

Professional development to improve teaching quality

France has implemented programmes of continuing professional development for academic staff as a means of improving teaching quality. In 2014, the Bertrand report highlighted the need to adjust teaching methods for a more diverse student population and to the new degree structure developed through the Bologna process (Bertrand, 2014[145]). As a response, the French government created the Mission for Pedagogy and Digitalisation in Higher Education programme in 2015. This programme organises conferences on new pedagogical initiatives for academics and funds proposals for innovative teaching practices, especially those that involve information and communications technology (Bunescu and Gaebel, 2018[130]).

Mandatory periodic training

Since 2014, **Latvia** has required university professors to engage in a minimum of 160 hours of teacher training to retain their positions. This mandatory training includes mobility programmes and attending conferences and seminars that are likely to improve professors' skills (Bunescu and Gaebel, 2018[130]).

However, the importance of staff development is increasingly being recognised and monitored in quality assurance. In Europe, the European Standards and Guidelines require that each institution "offers

opportunities for, and promotes, the professional development of teaching staff" (ENQA, 2015[12]). In the United States, the American Council on Education, made effective teaching a priority, recommended that higher education institutions invest in professional development, and endorsed the online Course in Effective Teaching Practices developed by the Association of College and University Educators (Gyurko et al., 2016[63]).

Initial preparation

A doctoral degree is still commonly required training to enter the academic profession in many higher education systems; and in most jurisdictions in the OECD. Typically, a master's degree is the minimum (European Commission/EACEA/Eurydice, 2017[11]; AFT, 2019[146]).

Many teachers begin teaching in higher education without formal training in teaching skills. Comprehensive professional development targeting the teaching skills of academic staff is not common in many systems (European Commission/EACEA/Eurydice, 2017[11]). The process of massification has increased focus on the attrition and progression of students and more emphasis on student learning and teaching quality (Gillard, 2008[147]). Many jurisdictions have broadened initial training to encompass doctoral and teaching training.

Universities in the Netherlands introduced a University Teaching Qualification (UTQ) in the mid-2000s. The government incentivised obtaining this qualification and by 2016, the majority of lecturers had obtained the qualification (de Groot and Kouwenaar, 2018[148]). In Norway, newly appointed university teachers need to prove pedagogical skills.

Continuing professional development

Staff professional development – particularly through the sabbatical system – has traditionally focused on research skills. Increasing attention is now being paid to development related to learning and teaching in higher education.

Teaching enhancement (formal pedagogical staff development or training provided to teachers) is a legal requirement in Denmark, France, Latvia, Lithuania, the Netherlands and Norway, while many other countries (Finland, Ireland, Sweden, the United Kingdom) have system-wide frameworks for professional development in teaching (Bunescu and Gaebel, 2018[130]). EU project funding supports co-operation on learning and teaching enhancement through training courses, learning and teaching centres, summer academies, international exchanges and compendia of good practices (Bunescu and Gaebel, 2018[130]).

Quality of teaching staff is an essential dimension of most external quality assurance frameworks, with some requiring evidence of provision of training in teaching for academic staff. (TEQSA, 2017[21])

One important priority for professional development is to improve and increase the use of technology in teaching. A study in the Netherlands showed substantially increased technological pedagogical knowledge among academics after completing an online teacher training programme to develop those skills. It also led to lowered belief in the merits of traditional knowledge transmission (Rienties, Brouwer and Lygo-Baker, 2013[149]).

Reviews of the impact of teaching development programmes in higher education found evidence of impact on teachers' attitudes, knowledge and skills; teachers' behaviour and practice; and the student learning experience; although most studies cannot establish causality or calculate the net effect of development programmes due to a lack of baseline measures (Parsons et al., 2012[150]; Stes et al., 2010[151]).

One major obstacle to participation in teaching training is the low value granted to it in recruitment and promotion criteria. According to a survey of experts in 28 European countries, teaching enhancement does not count for promotion in 20 higher education systems (Bunescu and Gaebel, 2018[130]).

Leadership development

The role of the higher education leader has shifted from academic leadership to a role that combines academic leadership with the responsibilities of leading large, complex, entrepreneurial and multi-stakeholder organisations. Institutional leaders need professional management skills and experience. These new responsibilities make it harder to recruit staff with the necessary requisites (Turpin, De Decker and Boyd, 2014[152]).

There are examples of leadership development programmes for higher education; for instance, Advance HE in the United Kingdom aims to provide support and advice on leadership, governance and management for all higher education institutions (AdvanceHE, 2019[153]).

Mobility

Domestic mobility

Mobility between higher education institutions counters inbreeding, and avoids the entrenching of a culture of unfair power dynamics and hierarchical relationships (Altbach, Yudkevich and Rumbley, 2015[9]). More importantly, quality and productivity of research are also enhanced by mobility (Inanc and Tuncer, 2011[154]; Horta, 2013[155]). For these reasons, some governments provide funding for staff exchange programmes and collaboration schemes in research, education and engagement.

Mobility between higher education and other sectors of economic activity in government, industry and the social sector has the potential to bring new ideas and innovation to those sectors. It can also facilitate joint research projects, with staff from outside bringing new sets of skills and social capital to higher education, including to the classroom, improving the student learning.

In Europe, system-wide “knowledge triangle” policies to promote interaction between research, education and innovation, and support a knowledge-based society, have been encouraged by governments and the European Commission.

Some countries support higher education staff placements in organisations outside higher education, and placements of outside staff in higher education. In the United States, the American Association for the Advancement of Science runs a programme that places scientists and engineers working in academia, non-profits and industry temporarily in various federal agencies (AAAS, 2019[156]). In Canada, an initiative provides Science Policy Fellowships to academic researchers so they can spend a year in federal departments to enhance collaboration between science and policy development (Mitacs, 2019[157]). In Australia, secondments have been used to increase knowledge exchange between academics and policy makers in health (O’Donoughue Jenkins and Anstey, 2017[158]).

Countries also put in place system-wide regulations that guarantee portability of acquired benefits, and the right to return to their original position for those who take part in outside placements (e.g. Portugal).

These policy interventions allow higher education institutions to reward the temporary placement of their staff in organisations outside of higher education. This is especially important for staff involved in programmes with a high volume of work-based learning, applied research, and professional knowledge. Some examples include combined professorial positions between higher education and industry (e.g. in Norway and France (Deloitte, 2012[159]; Vandevelde, 2014[160])), and recognition of sectoral mobility in the appraisal process, as well as industrial sabbaticals, secondments, and part-time professorships (European Commission, 2006[161]; Vandevelde, 2014[160]).

These types of initiatives are also promoted by quality assurance standards requiring occupationally specific expertise in some fields of study for the accreditation of some degree programmes.

International mobility

Countries engage in a number of policy initiatives to promote the international mobility of staff (Helms et al., 2015[162]). A number of governments provide funding for visiting academics to spend time in the host country for professional purposes (e.g. Centre for International Mobility Scholarships in Finland, British Council grants in the United Kingdom, and the Fulbright Visiting Scholar Programme in the United States).

Conversely, there are also programmes and grants to send academics abroad for temporary stays (e.g. Top 500 Innovators programme in Poland, Fulbright Scholar Program in the United States, and *Consejo Nacional de Ciencia y Tecnología* (CONACyT) scholarships in Mexico). There are also project-based research grants for international teams, such as those funded by the European Union, the National Science Foundation in the United States (Partnerships for International Research and Education (PIRE) programme), and an international co-operation programme in Brazil managed by CAPES (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*). Some countries also have policies to repatriate their diaspora academics living in other countries (e.g. RAÍCES programme in Argentina, 100 Scholar Programme in China, and the Alon Programme in Israel). The European Union also funds staff training mobility via the Erasmus+ programme, including job shadowing, attendance at seminars, workshops, courses, practical training and study visits.

At the European level, documents such as "European higher education in the world" encourage member states to develop comprehensive internationalisation strategies (European Commission, 2013[163]). Some countries (like Lithuania, Finland and Slovenia) set mobility targets (Racké, Forsthuber and Crosier, 2013, p. 3[164]). Others have policies on staff mobility, but without targets (e.g. Germany and Norway); and others have internationalisation initiatives, of which staff mobility is a part (e.g. Estonia and France (Racké, Forsthuber and Crosier, 2013[164])) (European Commission/ EACEA/ Eurydice, 2018, p. 16[106]). Box 5.11 presents some illustrative policies to promote staff mobility.

International collaboration is associated with higher levels of research productivity and impact (Lawson et al., 2019[165]). International academic mobility also increases the supply of human capital in the receiving country, stabilising the cost of academic staff in fields where there is a shortage of academic staff. Universities in the United Kingdom commonly recruit internationally and almost one-third of the UK academic workforce comes from outside the United Kingdom (UCEA, 2017[79]).

International mobility of higher education staff is often linked to increased patterns of collaboration across institutions (Racké, Forsthuber and Crosier, 2013[164]).

Box 5.11. Policies promoting staff mobility

Promoting geographic, between-sectors and interdisciplinary mobility

In 2011, **Spain** implemented the Science, Technology and Innovation Act that declares geographic, between-sectors and interdisciplinary mobility as a right of researchers and academic staff. It also requires universities and research centres to actively promote the mobility of their personnel and it obliges them to include mobility as one of the criteria for selection and promotion of staff. In addition, it establishes special forms of leave that allow professors to work temporarily in external institutions and companies for research and engagement purposes, with the right to return to their original position with no loss of benefits (Pérez, 2015[166]).

Promoting international mobility

Sweden implemented the Knowledge without Borders – Higher Education in the Era of Globalisation law in 2008 as a means of increasing the internationalisation of higher education. The legislation

required universities to promote staff mobility and the Swedish government has provided almost EUR 2 million funding annually since its implementation. Originally, the Swedish government also financed substitute teachers taking the place of staff on mobility (Racké, Forsthuber and Crosier, 2013[164]).

Estonia has encouraged short-term international mobility for its young lecturers through the Kristjan Jaak Scholarship programme (Racké, Forsthuber and Crosier, 2013[164]). This initiative funds stays abroad of academics under 35, covering both travel expenses and accommodation. During these short-term visits, Estonian academics are expected to conduct fieldwork, get to know other educational facilities, contact international faculty and experts or take part in conferences (Education Agency, Archimedes Foundation, 2019[167]).

A review of policies to enhance teaching and learning among higher education institutions in Europe identified student and staff exchanges, among other activities, as major means of enhancing learning and teaching in general, and for the development of teaching staff in particular (Gaebel et al., 2018[168]).

Reliable data on academic circulation is scarce, with no country holding a comprehensive system for recording or monitoring skilled migration flows (especially data on returns and circulation) at the international level (Wickramasekara, 2003[169]).

Retirement

About 55% of academic staff in higher education in OECD countries are 45 years old or older. This age distribution is important in human resource forecasting and for higher education workforce planning in the long-term (2020-2040) in member countries (OECD, 2019[3]). For example, in some systems, delayed retirement is slowing the entry into the career by younger academics, a phenomenon that may have negative effects on productivity and innovation in higher education.

To deal with the issue, some systems have set a mandatory retirement age, or have offered financial incentives to timely retirement. However, critics point out the discriminatory character of compulsory retirement and the failure to acknowledge the contributions of older academics. Provisions to allow staff to contribute in retirement (e.g. emeritus professor appointments), can make retirement more attractive to both academics and their institutions.

An alternative perspective is to focus on the longevity, rather than ageing, of the workforce. This view suggests considering flexibility of retirement age accompanied by flexible work arrangements and changing duties with age. Consideration should be given to encouraging senior academic staff to focus on advising and mentoring younger colleagues (Weinberg and Scott, 2013[170]).

In the United States, the government eliminated the retirement age at 70 years old in 1986 through the Federal Age Discrimination in Employment Act, and the exemption for higher education was lifted in 1993. A review of the literature on the effects of age on performance concludes that there is no strong relationship between age and performance. Many older academics remain active and productive in research, implying that responses to the question of the ageing of staff should relate to the performance of individuals, rather than their age (Willekens, 2008[43]). A recent large-scale analysis in Norway corroborates this finding – most of the variance in publication rate at the individual level is due to other factors beyond age (as well as gender and academic position), and the effect of age varies significantly across different fields of study (Rørstad and Aksnes, 2015[171]).

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6 System-wide co-ordination of higher education provision

This chapter examines the policies governments use to co-ordinate and shape higher education systems. The size and form of the network of higher education institutions within a given higher education system have a fundamental impact on the way resources can be allocated and deployed. The number of institutions and their location, legal status, size, mission, subject focus and research intensity are all components of the basic landscape of higher education systems, within which higher education policies operate. Sometimes, however, public authorities use policy to reshape the landscape or architecture of higher education. This has most often involved either encouraging the expansion or diversification of higher education provision, or promoting co-operation and concentration of higher education activities to build critical mass, promote excellence or achieve efficiency savings. The chapter examines policies from OECD jurisdictions aimed at achieving both of these broad objectives.

6.1. System-wide co-ordination in higher education: diversification and concentration

The previous sections of this analytical framework have focused on policies to mobilise and allocate financial resources to students and higher education institutions, and policies that affect the allocation and deployment of human resources within and by higher education providers. These policies focus primarily on regulating and steering financial and human resources within the existing landscape of higher education, rather than seeking to alter this landscape in a substantial way.

However, the size and form of the network of higher education institutions within a given higher education system have a fundamental impact on the way resources can be allocated and deployed. The number of institutions and their location, legal status, size, mission, subject focus and research intensity are all components of the basic landscape – or architecture – of higher education systems with which higher education policies have to contend. In addition to these "hard" features of the landscape come the "softer", cultural aspects, such as policy and institutional traditions, discussed in Chapters 1 and 2.

In some circumstances, however, public authorities use policy to reshape the landscape or architecture of higher education. Historically, one of two main goals has driven such reshaping policies:

1. Governments wish to encourage an **expansion and/or diversification of higher education provision** to cater to more students and different kinds of student.
2. Governments wish to **concentrate higher education activities** – or some types of higher education activity – in a smaller number of institutions or in specific institutions to build critical mass, promote excellence or achieve efficiency savings.

Diversification policies have often unleashed centrifugal forces in the higher education system through increasing the number of institutions, establishing institutions in places where they did not previously exist, creating new types of institution or altering the profiles of established institutions. Over the course of the 20th and early 21st centuries, many OECD countries have established institutions of higher education distinct from long-established institutional models (such as the comprehensive research university or the elite professional school). The result has been a more differentiated landscape of higher education providers, styles of provision and programme types. Today, while examples of fundamental reforms to the institutional landscape in higher education are rare, governments across OECD jurisdictions are concerned with ensuring adequate diversity of provision to meet evolving demand for advanced learning opportunities.

In contrast to diversification policies, policies to promote concentration or specialisation in higher education seek to create centripetal forces, through which existing activities, or activities in specific fields, are concentrated in fewer places. In some cases, such policies may address a real or perceived need to contract a higher education system in the face of declining student numbers. In such cases, a primary driver is nearly always a desire to achieve cost savings by maintaining economies of scale as numbers reduce. More frequently, concentration and institutional profiling policies have been motivated by a desire to promote specialisation and excellence in particular areas of teaching, research or innovation, by bringing scarce human and physical resources together or focusing activities in particular domains. Such policies often reflect the assumption that academic excellence requires critical mass in terms of staff, student numbers and skills, and that institutions and departments perform best when they focus on what they are good at, rather than trying to do everything. In some cases, institutional profiling, building critical mass and efficiency are all identified as objectives of reform policies.

In practice, concentration policies of different types – whether these involve consolidation, alliances, mergers or more pronounced institutional profiling – tend to increase diversity and differentiation in higher education systems. A network of institutions that becomes more specialised in terms of profile, mission, disciplinary or regional focus will necessarily be more differentiated.

6.2. Diversifying higher education provision to serve multiple needs

As demand for higher education increased over the course of the 20th century, governments across the world had to find solutions to accommodate increased numbers of students from a more diverse range of backgrounds (Teichler, 2015[1]; Reimer and Jacob, 2011[2]; Teichler, 2004[3]). In OECD and partner countries, the response to this core challenge of expanding demand for higher education has varied, but in addition to allowing established institutions to expand, has often involved one of more of the following approaches:

1. Creating more public research universities replicating long-established institutions, either by creating new campuses or by "upgrading" existing non-university institutions. In the United States, a good example of this approach is Virginia's now largest public university, George Mason University, which was initially established in the 1950s as a branch campus of the University of Virginia (itself established in 1819) and which became independent in 1972. Examples of this approach from other countries include universities founded or re-founded in the 1960s, such as the Universities of Warwick or East Anglia in the United Kingdom; the Universities of Bielefeld or Duisburg in Germany; or the Universities of Nanterre or Rennes in France. The development of new campuses of France's *grandes écoles* would also fit into this pattern of "replication" of existing institutional models.
2. Creating new forms of public higher education institution, usually to provide advanced education in applied or professional fields. At different times, examples included the establishment of polytechnics in the United Kingdom, Finland or Portugal; Colleges of Advanced Education (CAEs) in Australia; *fachhochschulen* in Germany and Austria; or *hogescholen* or *hautes écoles* in the Netherlands and Belgium. More recent examples include the development of polytechnic universities in Mexico (created in 2002) or the *Istituti Tecnici Superiori* (ITS) in Italy (created in 2010). In many cases, such institutions were not created from scratch, but rather developed out of existing professional institutions (technical colleges, mining schools, teacher training colleges, etc.), and "reclassified". In a number of countries, particularly in Europe, these developments led to the establishment of binary systems of higher education with distinct academic and professional pathways, many of which survive to this day.
3. Creating new forms of higher education qualification to provide education better tailored to the needs and aspirations of the new populations of students entering higher education. A major trend in this respect has been the creation of short-cycle degree programmes, often lasting two years, to complement more established qualifications such as bachelor's or master's degrees. The United States was a pioneer in this regard, with the creation of the two-year associate degrees in the early 20th century, later accompanied by the progressive development of (two-year) community colleges. In the United States, two-year degrees can be both stand-alone credentials and "transfer" qualifications allowing access to the third year of bachelor's programmes in partner universities. Many other OECD countries have also introduced various forms of short-cycle qualification in higher education. In many cases, these qualifications are provided primarily or exclusively in universities of applied sciences or further education colleges, although exceptions exist, such as France's *Instituts universitaires de technologie* (IUTs), which provide two-year programmes within larger university institutions. More recently, the emergence of "alternative" credentials, such as certificates and "badges", has raised the question for policy makers of whether and how to include these in the landscape of formally recognised higher education qualifications.
4. Permitting or encouraging the expansion of private sector provision to absorb student demand. Governments in many countries have allowed the expansion of private sector higher education providers to create capacity for more students. Sometimes, as in many central and eastern European countries in the period after 1989, in some countries in southern Europe in the 1980s-90s, or in Mexico or Brazil to this day, this approach has primarily been a pragmatic response to

the inability of the state to increase public provision (Teixeira, 2009[4]). In other countries, such as the United States and, more recently, the United Kingdom (Hunt and Boliver, 2019[5]; NAO, 2017[6]), some policy makers have argued that private higher education providers are able to respond effectively to the needs of specific groups of learners and provide welcome competition for established public (or private non-profit) higher education institutions.

These four approaches to expanding and diversifying the higher education focus on expanding the range of providers and the range of higher education qualifications. Cutting across these approaches are two further considerations, which have been important in discussions relating to diversity of provision:

- First, distance and online learning have been developed and promoted, thus increasing *diversity in modes of learning* in higher education. While distance and online learning is provided by all types of higher education institution, including public open universities in countries such as the United Kingdom or Spain, the more recent global expansion of these models of learning has been driven by private providers.
- Second, the expansion of physical and distance provision of higher education has a *spatial dimension*, as it has made higher education more accessible to the populations of more remote regions. Historically, expansion of the physical network of higher education institutions has been driven by governments' desire to improve the regional "coverage" of higher education. The expansion of online and distance learning is sometimes presented by policy and law makers as a means of reaching underserved student populations, including those in more remote regional locations.

The extent to which the policies and policy priorities above are pursued in a given jurisdiction tends to be related to the rate of expansion in student numbers. The creation of new public institutions and new programme types; the expansion of the private sector and online provision; and the development of regional campuses have usually gone hand in hand with increases in demand for higher education.

In more stable systems, such as those in much of Europe, North America, Australasia or Japan, policies in recent years have typically focused on management and fine-tuning of existing patterns of higher education provision and diversity, rather than fundamental reform. This might include, for example, refining the roles of different institutional types within a binary system, rather than creating a binary system in the first place.

The sections below review key drivers and challenges relating to the different approaches noted above to expanding and diversifying higher education provision.

Promoting diversity through distinct institutional types

The rationale for creating and maintaining distinct categories of institution

As noted, governments have frequently responded to growing demand for higher education by supporting growth of traditional universities or creating new universities, modelled closely on existing academically oriented institutions. In practice, such expansion methods often lead to greater diversity in the institutional landscape, as newly established universities have distinct profiles, reputations and performance, despite their nominally identical legal status to older institutions. This increased diversity often – but not always – takes the form of greater "vertical" differentiation between universities, with older institutions frequently maintaining greater prestige and resources than their younger peers. However, fostering "vertical" differentiation has rarely been a primary – or even an explicit – policy goal of governments when creating new public universities (Teichler, 2004[3]).

In contrast, the creation of new and distinct types of institution, such as universities of applied science, has nearly always resulted from an explicit desire to introduce greater diversity into higher education provision.

The advocates of such policies have often argued – with varying degrees of success – that new institutional forms can create "horizontal" rather than "vertical" differentiation, whereby the new institutions have a distinct, but equal, status to universities within the higher education landscape (Kyvik, 2009[7]; Kyvik, 2004[8]).

Government decisions to create or formalise the status of new institutional categories in higher education have historically been justified by different objectives, often in combination. These include:

- *promoting social equity*: creating alternative opportunities to pursue tertiary education for populations – including, in some systems, students from vocational tracks of secondary education – who may be less willing or less able to pursue highly academic programmes in university;
- *satisfying skills demand*: responding to growing demand for skilled professionals in the labour market, including in occupations where tertiary qualifications had not previously been required and for which appropriate educational pathways are not widely provided in traditional universities;
- *limiting costs*: expanding access to higher education through institutions that are less costly to establish and operate than research universities.

These considerations played a role in the creation of professionally oriented higher education institutions in OECD countries, particularly during the large-scale expansion efforts of the 1960s and 70s. They remain relevant issues as policy and law makers seek to manage, maintain or reform higher education systems in which distinct institutional categories coexist.

Policy questions and challenges linked to binary differentiation

A number of key questions and challenges arise for policy makers in developing, managing or reforming horizontal differentiation between higher education institutions in their systems.

A first challenge might be summarised as achieving the *right balance between useful differentiation and harmful fragmentation*. In differentiated higher education systems with a formal distinction between different categories of institution, policy makers may vary the specific legal characteristics of each institutional category. While most jurisdictions with such systems distinguish institution types by their mission and programmatic focus (often in terms of professional orientation as opposed to academic), in some systems, each category of institution has distinct funding arrangements, governance models, quality assurance procedures and degree-awarding powers.

While differential conditions may be desirable to reflect the distinct missions of different institution types, they also bring with them the risk of fragmentation in the system. Although it may be appropriate to use differentiated criteria to judge the quality of professional and academic programmes, for example, the existence of separate quality assurance systems for professionally oriented institutions can be interpreted by observers as a sign of poorer quality in the institutions. In theory, the greater the formal differences between institutions, the greater the risk of fragmentation between different sub-sectors, which can undermine the goal of a single, coherent and permeable higher education "system".

Among the other challenges that arise from strict horizontal differentiation is the potential for barriers to student and staff mobility between sub-systems, as well as certain forms of co-operation, such as joint programmes. For example, a formal distinction between the degree titles awarded by universities and universities of applied science can create additional barriers for students wishing to transfer between institutions in different sub-systems. In Flanders, the Netherlands or Denmark, for instance, university colleges (respectively *hogescholen* and *professionshøjskoler*) award professional bachelor's degrees, distinct from the bachelor's awarded by universities. This contrasts with the situation in Germany, where *fachhochschulen* award bachelor's degrees that are directly equivalent to those awarded by universities.

Whereas in Germany and Denmark, direct transfer between a bachelor's in an applied science university and a master's in a university is possible (albeit not guaranteed), holders of a professional bachelor's in Flanders and the Netherlands are always required to follow a one or two-year bridging programme (Flemish Government, 2019[9]). This difference reflects different approaches to university entrance. However, in such cases, questions arise about whether requirements for bridging programmes represent an excessive barrier to permeability (Inspectie van het Onderwijs, 2019[10]). More generally, the existence of distinct types of bachelor's degree may be poorly understood in other countries without this practice, creating barriers to international mobility for holders of professional bachelor's degrees in particular.

Another recurrent challenge has been *creating parity of esteem* between professionally and academically oriented institutions of higher education. Mirroring, to a large extent, issues seen in vocational tracks in many secondary education systems, professionally oriented institutions have historically suffered from more limited prestige than universities in many OECD countries. Although the narrative that universities and non-university higher education institutions are distinct but equal has been used in many countries by governments and by institutional leaders, this has not always been the perception in society at large. Professionally oriented higher education institutions tend to attract students from less advantaged backgrounds, including those who are the first in their families to attend higher education. This may be because such institutions offer more direct routes to the labour market, or (in some countries) shorter, and thus more affordable, programmes. As a result, while professionally oriented institutions can play a role in widening access to higher education, questions arise as to their role in reproducing existing inequalities (Reimer and Jacob, 2011[2]; Triventi, 2013[11]). While social stratification may be particularly evident in some binary or formally differentiated higher education systems, it is also present in nominally unitary, but informally stratified systems, such as those in the United Kingdom and Australia (Raffe and Croxford, 2015[12]; Jerrim, Chmielewski and Parker, 2015[13]).

While avoiding unwanted fragmentation and segregation between distinct higher education sub-systems is a challenge for many binary higher education systems, so too is the *tendency for institutions in distinct subsystems to converge* in terms of missions, activities and profiles. Analysts in many OECD countries have observed a tendency for higher education institutions in binary systems to push the boundaries of their formal roles in the system. Professionally oriented institutions in many OECD countries (such as the Netherlands and Portugal) have sought to expand their activities in applied research and researcher training, moving towards the traditional "territory" of universities (VSNU, 2019[14]; OECD, 2019[15]). Some authors argue that universities have also tended to "professionalise" programmes, as the public focus on labour market relevance in higher education has increased – a trend they identify as "professional drift", in contrast to the "academic drift" they believe has occurred in professionally oriented institutions (Codling and Meek, 2006[16]).

The difficulty with these arguments is that even if "academic" and "professional drift" could be measured – which is difficult given their vague definitions – it is far from proven that these trends are problematic. In a number of OECD countries, governments have either removed binary divides entirely, as in the United Kingdom and Australia in the 1990s, or reduced the level of differentiation between universities and universities of applied science by loosening rules and encouraging greater research activity in professionally oriented institutions, as in Sweden, Norway and the Netherlands. Some analysts question whether binary systems are relevant in modern higher education systems, arguing that strict enforcement of rules relating to a binary divide can hinder valuable diversification at institutional level (van Vught, 2008[17]). Others argue for more differentiated "ecosystems" of institutions, rather than simple binary distinctions (Parker, Dempster and Warburton, 2018[18]).

New types of qualification in higher education

The rationale for creating new types of undergraduate qualification

In recent decades, many OECD countries have reformed their systems of professionally oriented post-secondary qualifications, in some cases, creating new forms of qualification in the "space" between the end of secondary education and traditional models of higher education. In most cases, governments have sought to expand the range of study options available to support widened access to education and training, and respond to growing demand for skills.

In Europe from the late 1990s, the Bologna reforms (bringing a common three-cycle qualification system – bachelor's, master's, doctorate – and the development of national qualification frameworks) have spurred education authorities to rethink their qualification systems and the linkages between vocational and higher education. Two common developments have included:

- In binary higher education systems, such as the Netherlands or Germany, the conversion of the first-level diplomas awarded by universities of applied science into *bachelor's degrees* (sometimes explicitly "professional" bachelor's, sometimes without a formal distinction compared to academic bachelor's degrees).
- In binary and non-binary systems, the introduction, reform or further development of *two-year, professionally oriented qualifications* at level five in the European Qualifications Framework (usually corresponding to International Standard Classification of Education, or ISCED, Level 5), sometimes allowing students to obtain a bachelor's qualification with one or two years additional study in a higher education institution. In some cases, such programmes are formally considered part of the higher education system, while in other jurisdictions, they are considered to be part of the post-secondary training system outside of higher education.

In some countries outside Europe, short tertiary qualifications, such as the associate degree, have existed for many years and are well-established elements in the higher education landscape. In the United States, associate degree programmes, mostly provided in public community colleges, exist in applied professional fields (similar to short-cycle programmes seen in many European countries) and as general education programmes designed to allow students to transfer into the third year of a four-year bachelor's degree. This role of associate degrees as transfer programmes counting towards academic (as opposed to professional) degrees is a distinct feature of the United States' education system. As in Europe, however, discussions continue in the United States and other parts of the OECD regarding the role of short-cycle programmes in the higher education system and their value for students entering the labour market (Kim and Tamborini, 2019[19]).

In some OECD countries, short-cycle programmes play a major role in the tertiary education landscape; while in others, they do not exist. In 2018, over 20% of the population aged 25-34 in Canada and Korea held a short-cycle tertiary qualification as their highest level of qualification. The equivalent figure was 10% or more in Austria, France, Sweden and the United States (OECD, 2019[20]). In contrast, in countries such as Germany, Italy or Finland, short-cycle tertiary programmes are non-existent. As we discuss below, the wide variation in the definition, legal status and forms of short-cycle qualifications in place means international data relating to this level of education and training must be interpreted with care.

Box 6.1. Examples of short-cycle programmes in the OECD

England and Wales

Two main forms of short-cycle tertiary qualification exist in England and Wales. *Higher National Diplomas* (HND) are long-established, professionally oriented qualifications taking two years full-time study to complete. They are generally offered by Further Education Colleges (which also provide a range of other vocational and upper secondary qualifications). Primarily classroom-based programmes, HNDs are offered in a wide range of fields, with a large proportion of students in business, engineering and computing. A completed HND is usually considered as equivalent to one year of a bachelor's degree, and students can often transfer to bachelor's programmes in related fields in the second year after completing an HND.

Foundation degrees were formally launched in 2001 in universities, as well as colleges, as an alternative two-year qualification aimed at students with work experience looking to upgrade their skills through combining study and work-based learning. Unlike for HNDs, there are no formal academic entry requirements for foundation degrees, but transfer to bachelor's programmes is often possible. In 2018, foundation degrees accounted for around 2% of undergraduate enrolment in England and Wales, with HNDs representing less than 1% of enrolled students (HESA, 2019[21]).

The Netherlands

Unlike England and Wales, the Netherlands has maintained a strictly differentiated system of secondary and post-secondary education, with distinct academically and professionally oriented streams. Until recently, the only option for students completing the two main upper secondary professional streams to pursue higher education was to embark on a four-year professional bachelor's programme (*hoger beroepsonderwijs* – HBO) at a university of applied science. Following earlier pilots, in 2013, the Netherlands formally introduced the "associate degree" (Ad) qualification into its legislative framework, as a two-year programme based on the content of the first two years of HBO bachelor's degrees. Since January 2018, these training programmes have been accredited as self-standing qualifications. This has been a factor in a steep increase in enrolment observed in the academic year 2018-19. The most recent data show around 11 000 students enrolled in associate degree programmes – this compares with a total of around 455 000 students in the whole higher professional education (HBO) sector (Onderwijs in Cijfers, 2019[22]).

Policy questions and challenges linked to introducing new tertiary qualifications

Two closely related questions or challenges for policy makers emerge regularly in systems with short-cycle qualifications at the tertiary level.

First, technical and legal questions frequently arise about how *best to position short-cycle qualifications*, which lie at the boundary between vocational and higher education, in qualifications frameworks. Even if there is widespread agreement in Europe, for example, about positioning short-cycle programmes at Level 5 of the European Qualifications Framework (EQF), similar programmes in different countries are classified as post-secondary, non-tertiary programmes, outside the scope of higher or tertiary education (as in Germany); as qualifications fully integrated in the higher education system (as in France or the United Kingdom); or even "tertiary" but not "higher" education (as in Austria). Austria recently "upgraded" the status of the final years in professional high schools (*Berufsbildende höhere Schulen* – BHS) to qualify as tertiary education. While they are a reflection of distinct educational traditions, such differences in status and classification can be a source of confusion for students and employers, potentially reducing the

signalling value of short-cycle qualifications – particularly in increasingly internationalised labour markets such as those in the European Union.

Second, on a more fundamental level, students, institutions and policy makers may be concerned about *the value of short-cycle programmes in the labour market*. In some educational systems, this question is not currently a major concern, as short-cycle programmes are well established, flexible and demonstrably effective. In France, for example, the two-year *Diplôme universitaire de technologie* (DUT) is highly valued by employers, with graduates achieving high rates of employment or – in many cases – subsequent progression to bachelor's programmes in related fields (Guiomard, 2017[23]). In the United States, with its distinct system of transfer-oriented "associate of arts" and professionally oriented applied associate degrees, the picture may be more variable. In particular, many students in associate of arts degrees do not go on to transfer to bachelor's programmes, raising questions about the value of their generalist two-year qualifications in the labour market (Schneider and Sigelman, 2018[24]). At the same time, while graduates from applied associate degrees tend to achieve good earnings levels when they initially enter the labour market, their earnings growth is slower than that of graduates with traditional bachelor's degrees, meaning that a gap opens up over time. This raises questions about the durability of the skills they acquire in such programmes, and is a concern shared in many OECD countries.

Promoting and controlling private provision

The rationale for expanding private provision of higher education

Until the last decade, governments had tended to encourage or permit the expansion of private higher education provision in their systems for one of two main reasons:

1. To respond to increased demand for higher education that outstrips public authorities' ability to supply higher education opportunities in the public sector. In such cases, expanding private provision allows some or all of this excess demand to be "absorbed", although, as discussed below, in countries where such approaches have been implemented (or allowed to develop) concerns have often arisen about the quality of the educational offer added to the system.
2. From a more ideological starting point, to (attempt to) increase competition, widen student choice and increase institutional responsiveness in the higher education system – ultimately with a view to improving effectiveness, efficiency and cost-effectiveness.

In OECD and partner countries, examples of the first pattern have historically been more frequent than the latter, particularly in central and eastern Europe after the fall of communism, in some southern European member countries and in much of Latin America from the 1990s onwards. In some cases, such as Poland or (to a lesser extent) Portugal, the private sector has since declined in terms of enrolment. In other systems, the private sector has continued to expand, as in Mexico and Brazil, where the private sector accounts for, respectively, one-third and three-quarters of undergraduate enrolment (ANUIES, 2018[25]; INEP, 2017[26]).

Policies to introduce free market principles into higher education with the explicit objective of increasing competition and enhancing performance have been comparatively rare. In Chile, for example, some of the expansion of private sector higher education in the 1990s took place in a wider context of radical neo-liberal policies. However, the country faces many of the same issues as other Latin American nations, where governments would simply have been unable to finance large-scale expansion of the public higher education sector in light of other pressures on public spending. The expansion of the private sector in mainstream, campus-based higher education in the United States has been comparatively small in terms of total enrolment in the United States (NCES, 2019[27]) and negligible in the United Kingdom, despite attempts to develop a higher education "market" (NAO, 2017[6]). In New Zealand, public funding of private post-secondary education began in the mid-1990s as a trial. It grew rapidly in the late 1990s, with some

providers catering for underserved groups. However, while more than 200 private providers are eligible for public funding, they collectively represent only around 13% of domestic enrolments (but 18% among students who are Māori or of Pacific descent – two groups who have been under-represented at degree level and above). In much of continental Europe, private higher education providers continue to play a limited role in the higher education landscape.

In contrast, the last decade has seen the expansion and emergence of alternative higher education providers and platforms such as Coursera, providing online programmes, sometimes in collaboration with established higher education institutions. The scale of these providers in terms of number of enrolled students is difficult to measure, as they often fall outside the framework of data reporting for official statistics.

Policy questions and challenges linked to managing private provision

Two recurring challenges facing policy makers in jurisdictions with large and rapidly expanding private provision of higher education are ensuring the quality and relevance of provision, and supporting wider access to higher education in institutions that invariably charge fees.

In countries such as Italy, Mexico and Brazil, many private, non-profit higher education institutions enjoy excellent reputations for the quality of their teaching and research. In the United States, private, non-profit universities count among the nation's – and the world's – most prestigious institutions of higher education. In contrast, many of the private institutions that have developed rapidly to respond to growing demand in different countries, at different points in time, have had generally poor reputations for quality. Such situations have developed, for example, in Poland, Portugal, Mexico, Brazil and – on an arguably smaller scale – in the United States in the for-profit sector.

The response in all the example cases noted above – and in other countries – has been to implement (or at least propose to implement) different forms of external regulation, accreditation and quality assurance. In Poland and Portugal, the implementation of stricter accreditation rules, notably relating to requirements for teaching staff, led to a reduction in the number of programmes and higher education providers in the private sector (Teixeira, 2009[4]; OECD, 2019[15]). In Brazil, the federal Ministry of Education has overseen the implementation of a comprehensive system of regulation and quality evaluation covering all private higher education institutions in the country. While the system struggles to promote quality improvement, it has undoubtedly done much to eliminate the least scrupulous providers and protect students (OECD, 2018[28]). In the United States, the Obama administration proposed the "gainful employment" regulation to remove eligibility for federal student funding for programmes whose graduates failed to achieve specific threshold earnings post-graduation, although the proposal was not implemented in full. In Mexico, the federal authorities have struggled to develop any satisfactory regulation and quality assurance in the private sector, creating ongoing risks of poor provision for students (OECD, 2018[29]).

OECD member and partner countries have adopted radically different approaches to supporting widened access to higher education through the private sector. In the United States and Brazil, federal authorities provide needs-based financial aid to students studying at private institutions, provided these institutions meet mandated accreditation standards. Indeed, the Brazilian *Programa Universidade para Todos* (Prouni) was introduced in 2005 with the explicit aim of boosting participation in higher education in the private sector by providing additional needs-based grants covering tuition fees (MEC, 2019[30]; IDados, 2016[31]). In contrast, in countries without or with only limited systems of student financial aid, students wishing to study in private sector institutions, or for whom private institutions are the only option, have gone unsupported. In systems such as Mexico and many states in Central and Eastern Europe, this has led to the paradoxical situation where students from wealthier backgrounds tend to study in selective, but free, public universities, while those from less well-off backgrounds pay to study in the private sector.

Distance and online learning: promoting new modes of provision

The rationale for policy relating to new modes of providing higher education

The expansion of online post-secondary learning opportunities in OECD member and partner countries in recent years has been driven by two trends in particular:

1. The development of *online, credit-bearing degree programmes*, including fully online bachelor's and master's qualifications, as well as "blended" programmes combining online and campus-based study. These programmes are provided by accredited higher education institutions, including open universities in countries where these exist (including Germany, Mexico, Spain and the United Kingdom).
2. The emergence of *shorter, non-credit bearing online courses* such as such as Massive Open Online Courses (MOOCs) and certificate-based workforce credentials. Many of these learning programmes are offered by non-traditional education and training providers, such as coding academies or digital learning platforms (e.g. EdX or Coursera), or by higher education institutions working in collaboration with those platforms in the design and delivery of instruction and assessment of learning.

Official data for 2017 suggest that around 15% of the 20 million students enrolled post-secondary education in the United States were enrolled in exclusively online programmes, and a further 18% were enrolled in some online courses. The proportion of students enrolled in exclusively online programmes varied from around 11% in public universities and community colleges (which account for almost three-quarters of total student enrolment in the United Sates) to 19% in non-profit private institutions and almost 50% in the (much smaller) for-profit private higher education sector (Lederman, 2018[32]; NCES, 2019[33]). In the United Kingdom, in 2016–17, online learning accounted for 8% of enrolment at UK higher education institutions, with the Open University accounting for 65% of all online learning (Universities UK, 2018[34]). Available data on enrolment in online learning in higher education typically capture only enrolment in accredited programmes, where providers are obliged to report information to official statistics bodies. They do not provide an accurate picture of the numbers of individuals following non-credit-bearing online programmes.

The rapid development of technology and the emergence of alternative providers of online non-credit-bearing courses have increased the diversity of the higher education offer and opened up a wide range of new learning opportunities. Policy makers in OECD and partner countries have, in some cases, reacted to these trends by adapting their regulatory, licensing and quality assurance regimes, but have rarely sought to play a major role in steering the development of online provision. A recent survey of digital education policies in Europe found a considerable number of initiatives targeting school education, but relatively few in higher education (Conrads et al., 2017[35]). This reflects the primary responsibility of higher education institutions for making decisions about modes of provision and the emergence of private sector actors, but equally the weaker role of public policy in promoting online learning compared to the other forms of system-wide diversification discussed above.

Policy questions and challenges linked to new modes of provision

In most OECD and partner countries, the most prominent policy discussions relating to online and distance learning have revolved around programme accreditation, quality assurance and the related topic of the eligibility of students following non-credit-bearing online programmes for public student aid. In addition, there are some examples of government initiatives to promote online learning in the public higher education sector.

Governments and quality assurance bodies in some systems have adopted specific regulatory and accreditation frameworks for credit-bearing online programmes and their providers. Where this has been

the case, authorities have tended to adapt the same basic guidelines and principles applied to classroom-based programmes to account for the online environment. Some existing models of quality assurance frameworks for online provision, such as that in Brazil, include specific guidance relating to tutoring and student access to mentoring, and support or require a proportion of learning to happen in physical distance-learning "poles" (OECD, 2018[28]).

In the United States, regional accrediting bodies have adopted specific policies for distance education, while the Distance Education Accrediting Commission (DEAC) is a national accreditor specialising accreditation of online providers and programmes (DEAC, 2019[36]). The United States federal government has recently adapted the federal regulations that apply to accreditation of higher education providers, including provisions that make it easier for online providers to operate across state boundaries. The same regulations aim to facilitate accreditation of non-credit-bearing programmes and make students in such programmes eligible for some types of federal student aid (U.S. Department of Education, 2019[37]).

In many other OECD countries, little attention has thus far been paid to online education within higher education quality assurance frameworks, even for credit-bearing programmes leading to established academic qualifications. A recent report from the European Association for Quality Assurance in Higher Education (ENQA) identifies accreditation of online provision as a major gap in the European quality assurance landscape. The report proposes ways in which the European Standards and Guidelines (ESG) for quality assurance – which make no reference to online provision – can be implemented for e-learning providers (ENQA, 2018[38]).

As noted, examples of proactive public policies to promote online learning in higher education have been rare. A notable exception has been the *France université numérique* (FUN) initiative, through which the French Ministry of Higher Education and Research funds a national platform for MOOCs to promote uptake of online learning and encourage (public) higher education institutions to make greater use of digital content (FUN MOOC, 2019[39]).

6.3. Concentration and specialisation for critical mass, quality and efficiency

In contrast to diversification policies, policies aiming to promote concentration or specialisation in higher education seek to bring together existing activities in fewer places or concentrate the development of particular activities in specific locations. This section considers the two most frequent approaches to concentration and specialisation in higher education observed in OECD jurisdictions:

- *complementary specialisation* – a process through which individual higher education institutions specialise in their missions and capacities, taking into account the specialisation of other institutions in the system to ensure maximum complementarity;
- *concentration of investment and capacity in higher education* – a process whereby public investment for specific objectives is directed to a limited number of institutions, or teaching and research capacities are brought together (pooled) through collaboration, alliances and mergers.

Complementary specialisation of higher education institutions

The rationale for complementary specialisation

Specialisation in the missions and capacities of higher education institutions – *complementary specialisation* – can yield substantial benefits for higher education systems. It permits them to function more efficiently, and at a higher level of quality, as they profit from a division of labour and task specialisation.

Responsibility for the development of a network of higher education institutions marked by a suitable level of complementary specialisation rests jointly with institutions themselves and with higher education steering bodies.

In well-functioning higher education systems, higher education institutions develop and refine their own institutional profiles, identifying the distinctive features and commitments of their own institution, taking into account the wider network or ecosystem of institutions with which they compete and collaborate. These profiles will often include an account of:

- *teaching and learning profile*: the fields of teaching and the student profiles that are areas of priority for the institution; how the programmes are linked to critical local, national or international needs; how the institution contributes to and draws upon the teaching and learning capacities of other higher education institutions; and the institution's distinctive pedagogical commitments;
- *research profile*: the institution's balance between theoretically-led and applied research; its priority research areas; the relationship between these areas and its teaching mission; and how the institution plans to perform to a high level in its priority areas;
- *external impact and engagement profile*: how the research and teaching activities of the institution are linked to regional and national needs; how teaching and research support the business, public, and voluntary sectors in their endeavours and draw upon their capabilities in institutional activities;
- *internationalisation*: what internationalisation strategy is appropriate to the institution's profile, and in what ways the institution wishes to be internationally engaged.

While higher education institutions bear responsibility for developing their own profiles, governments may choose to support and reward specialisation through the adoption of a higher education legal framework and strategic planning processes that establish a responsibility for institutional specialisation; through the system's funding methodologies for teaching and research; through the development of performance plans that elicit specialised profiles; and through the adoption of public consultation processes that stimulate debate and support consensus-building about institutional specialisation.

Notwithstanding the potential benefits of specialisation, many higher education systems operate with low levels of specialisation – to the detriment of their collective performance in teaching, research and innovation. Where specialisation is weakly developed, the teaching, research and engagement activities in departments, faculties and institutions are planned and implemented in isolation from one another. In this process, there is no reference to the goals of the institution as a whole, to the activities of other institutions in the system or to national priorities. For example, with respect to the education mission of higher education institutions, the absence of effective specialisation risks leading to duplication of costly study programmes and missed opportunities for collaboration that can improve the quality of teaching; regional or disciplinary gaps in the offer of programmes; and insufficient diversification in modes of provision and pedagogies.

With weakly differentiated and co-ordinated educational profiles, the system is less transparent for students looking to choose an institution or programme, and for institutions looking to partner with others. Low specialisation is often manifested in doctoral training and research by the multiplication of doctoral training programmes across a wide range of institutions; with each programme operating at a small scale and with overlapping research profiles; and low levels of collaboration in postgraduate training, low levels of resource and little research output.

Policy questions and challenges related to complementary specialisation

Low levels of specialisation among institutions within a higher education system result from internal constraints facing institutional leaders, and from public authorities who have little capacity or incentive to use the steering tools of government to promote it.

In Portugal, for example, relatively low levels of institutional specialisation result from institutional core funding for instruction and infrastructure that is provided on an historical basis, without directly taking into account the specific missions and potentially differentiated needs and objectives of different institutions; and from the absence of continuing funding streams provided by the Ministry of Science, Technology, and Higher Education that encourage specialisation among institutions (OECD, 2019[15]).

The limited autonomy of Portuguese higher education institutions with respect to human resource management further hinders the development of specialisation. Apart from the limited scope of autonomy achieved in "foundation universities," national legislation governs the structure of careers, staff workload, and staff compensation, setting sharp limits on the ability of leaders to reallocate resources in light of a new profile. If profiling is to raise the effectiveness and efficiency of the higher education system, institutions must have the capacity to implement their own institutional strategies, reallocating human and financial resources against the profiles they have set (OECD, 2019[15]).

In Finland, by way of contrast, universities operate with a wide capacity to manage human resources against institutional profiles and specialisations, and operate with a regime of research funding and performance-based instructional funding that stimulate specialisation. When national authorities became convinced that specialisation had not advanced sufficiently to achieve research excellence at current funding levels, they moved vigorously to support further specialisation of universities into distinct areas of strength. The Ministry of Education and Culture and the Academy of Finland collaborated in developing a plan by which core funds were reduced and reallocated to a competitive funding pool in support of specialisation. Institutions were tasked with developing plans for a specialised profile, and these plans were reviewed by external panels convened by government. Profiling plans were required to commit to areas of research strength by targeting and reallocating the institution's own resources, and to promote collaboration and division of work between universities, research institutes and universities of applied sciences. Universities applied for competitive profiling funding by submitting institutional plans for high-quality/high-impact research, outlining which steps they would take and when, and identifying how they would reallocate institutional resources to achieve their profile. This system of funding remains in place (Academy of Finland, 2020[40]).

Concentration of investment and capacity in higher education

The rationale for concentration of investment and capacity in higher education

Declining student numbers, growing fiscal pressures and intensified international competition for prestige, research talent and funding have increasingly led governments to seek the concentration of higher education institutions and their research and teaching capacities.

This concentration may be achieved through the concentration of public investment – most typically in research funding – and through the concentration of institutions and their capabilities, by supporting (or, requiring) institutional collaborations, alliances and mergers.

Collaborations, alliances and mergers among higher education institutions may aim for concentration that enhances the quality of teaching and learning, achieves economic efficiencies, or combines research capacities into agglomerations that more effectively compete for international research funding, research talent, scientific prominence and standing in global rankings.

These three strategies for concentrating institutional capabilities may be usefully distinguished as shown in Table 6.1.

Table 6.1. Collaborations, alliances and mergers in higher education

	Collaborations	Alliances	Mergers
What is it?	Arrangements between institutions (rather than individuals), embedded in formal agreements or partnerships	A more extensive form of collaboration that covers a wider range of operations	At least one institution ceases to exist as a legal entity through incorporation within an existing or new institution
What does it involve?	May involve sharing of legal rights and privileges, human resources, physical space, equipment and technology, or information	Partners share a wide scope of capacities, but retain separate identities and legal statuses, and agreements are revocable.	The original components of the merged entity may retain distinct names, brands, governance and operations to varying degrees.
Examples	The Hamburg Open Online University (HOOU, 2020[41])	The Barcelona Knowledge Campus (Universitat de Barcelona, 2020[42])	The University of Manchester Merger (Georghiou, 2015[43])

Source: Adapted from Williams (2017[44]), "Collaboration, alliance, and merger among higher education institutions", https://dx.doi.org/10.1787/cf14d4b5-en.

A recent OECD examination of concentration through collaborations, alliances and mergers among higher education institutions found that each of the 19 OECD or EU jurisdictions selected for study was currently pursuing an investment of institutional concentration initiative, or had done so recently (Williams, 2017[44]).

Policy questions and challenges related to concentration

Higher education institutions may *voluntarily* choose to undertake institutional concentration initiatives, since it can be advantageous to do so. For example, institutions faced with falling enrolments may voluntarily choose to enter into alliances or mergers in order to continue operations. On balance, voluntary initiatives that concentrate institutional capacities have occurred more frequently among private, independent institutions than among public institutions; and less often in teaching than in the research, engagement, support services or administrative operations of higher education institutions. When institutions choose to engage in concentration initiatives, they typically opt for the least disruptive and most revocable options – for example, to alliances that permit them to share capacities in preference to mergers (Williams, 2017[44]).

Left to their own choices, the leaders of higher education institutions may choose to do what is optimal for them, their academic staff or local stakeholders – but this could yield poor results for the higher education system and the wider society. For example, in Lithuania, demographic decline led to sharp enrolment declines commencing from the academic year 2008-9 onward. Falling student numbers led to an unusually large number of higher education institutions relative to the size of Lithuania's population and enrolments, to declining student-to-teacher ratios in its public institutions, and to forecasts from the government's research and education analysis centre (MOSTA) that five of the nation's universities would have no entering students by 2020. Nonetheless, the network of public higher education institutions remained largely unchanged, putting at risk the quality of educational offering and instruction, and creating the "fragmentation, duplication, and inefficient use of resources in research" (OECD, 2017[45]).

Because the uncoordinated decisions of higher education institutions about the scale and co-ordination of their operations may not lead to socially optimal results, public authorities often make the concentration of higher education institutions and their capabilities – and the concentration of public investment – a policy priority. Governments have chosen to pursue concentration within higher education systems by altering the underlying legal bases within which institutions operate; for example, by authorising research and applied science universities to enter into alliances or mergers. Recurring funding instruments for teaching

and research may be used deliberately to induce concentration; for example, by changing research funding methodologies to concentrate a larger share of public spending in a small number of institutions with a preponderance of high impact publications. This happened in Australia in the late 1980s, for example (Croucher et al., 2013[46]). Most frequently, however, governments have chosen to adopt episodic and targeted policy initiatives to steer systems towards greater concentration, providing additional resources – including additional study places, new hiring lines for academics, one-time increases to base operating budgets, additional capital investments, or lifting caps on international student enrolments (Williams, 2017[44]).

When governments attempt to adopt and implement concentrating initiatives, they encounter three broad types of constraints:

- First, some governments find it difficult to marshal strong evidence that low levels of concentration have harmful effects on the research, teaching and learning performance of their system – most especially the latter.
- Second, the benefits of additional concentration may take some years to be fully realised, and the promise of offsetting government support may depend upon future budgets and parliaments.
- Finally, where trust is low, agreements that yield concentration can be difficult to achieve. The relatively intense and sustained pace of concentration initiatives in Nordic higher education systems reflects, in part, the advantageous analytical capacities of government, and especially the foundation of trust and consultation that are conducive to concentration initiatives (Williams, 2017[44]).

Ministries or other higher education steering bodies are also constrained by the legal and political framework within which they operate: institutions or faculties may have a statutory or constitutional basis that makes reorganisation leading to concentration infeasible; academic staff may have a legal basis of employment, such as civil service status, that prevents the reorganisation of work; and stakeholder groups may wield sufficient influence in public debates and parliamentary deliberations to block moves towards greater concentration of investments or institutions. Where macroeconomic or fiscal conditions impose spending neutrality – or declining real spending levels – concentration initiatives will be painfully redistributive, and prove especially difficult to undertake.

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Higher Education

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Investment in higher education in OECD countries has increased substantially over the last 20 years, as a result of higher enrolment, increasing costs, government priorities related to skills, and research and innovation. Faced with economic and fiscal challenges, public authorities across the OECD need now more than ever to make thoughtful decisions about how to mobilise, allocate and manage financial and human resources in higher education. Effective action on the part of governments requires knowledge of international trends and alternative policy approaches; evidence from research and policy evaluations; and the practical experience of peers in other countries. The OECD Higher Education Resources Project addresses these needs by providing an accessible international evidence base for policy makers in *Resourcing Higher Education*, and targeted system-specific analyses in upcoming policy briefs and national policy reviews .

PRINT ISBN 978-92-64-50522-3
PDF ISBN 978-92-64-16336-2