Higher Education

Resourcing Higher Education in Portugal

OECD

Higher Education

Resourcing Higher Education in Portugal

OECD

BETTER POLICIES FOR BETTER LIVES

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Member countries of the OECD.

This document was produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Please cite this publication as:
OECD (2022), *Resourcing Higher Education in Portugal*, Higher Education, OECD Publishing, Paris, https://doi.org/10.1787/a91a175e-en.

ISBN 978-92-64-73465-4 (print)
ISBN 978-92-64-75189-7 (pdf)
ISBN 978-92-64-94817-4 (HTML)
ISBN 978-92-64-68747-9 (epub)

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

Photo credits: Cover © elettaria/Shutterstock.com.

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

© OECD 2022

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at https://www.oecd.org/termsandconditions.

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 is increasingly expected to make key contributions to innovation, economic development and lifelong learning. As the scope of higher education activities has increased – and societal expectations have grown – policy makers and institutional leaders have faced significant challenges in deciding how best to mobilise, allocate and deploy resources in higher education in ways that are both effective and efficient. Large exogenous shocks to economies and public budgets – such as the coronavirus (COVID-19) pandemic – make appropriate choices about how to invest in higher education all the more crucial.

The OECD initiated the Resourcing Higher Education Project to support member countries in narrowing the gap between domestic policy making in the area of higher education resourcing and international evidence on the subject. The project seeks to do this by analysing policy approaches that affect the mobilisation, allocation and deployment of financial and human resources in higher education and sharing lessons learned about the effects of these approaches.

As part of the project, the OECD Higher Education Policy Team has worked closely with OECD and partner jurisdictions to examine key aspects of their higher education resourcing policies; to compare these with policies in other, similar jurisdictions and to identify, where possible, international evidence that can support and guide future policy development. System-specific analyses covering multiple aspects of resourcing policy are developed and published as “resourcing country reviews”, which draw on wide-ranging, in-country stakeholder consultation, as well as local and international evidence sources. More targeted analyses of specific aspects of national higher education resourcing policies have been developed and published in a series of thematic policy briefs.

Portugal was one of the first OECD jurisdictions to participate in a review of higher education resourcing. This report presents the findings and recommendations emerging from this review, undertaken by the OECD Higher Education Policy Team. In line with the terms of reference agreed in advance with Portugal’s Minister for Science, Technology and Higher Education, the review has a strong focus on core operating funding for public higher education institutions, where there is a broad consensus that a more transparent and rational allocation model must be restored. The review also focuses on policies to improve the strategic funding of the higher education system and introduce steering and accountability mechanisms that can support the system to adapt to changing demographic and economic conditions, as well as policies to promote widened access to higher education. The review team hopes that the analysis in this report captures the many strengths of Portugal’s higher education system, but equally supports public authorities, higher education institutions and stakeholders as they refine resourcing policies in the coming years.

Andreas Schleicher

Director for Education and Skills
Special Advisor on Education Policy to the Secretary General

Acknowledgements

The OECD review of the resourcing of higher education in Portugal was prepared as part of the OECD Resourcing Higher Education Project at the request of Portugal's Minister for Science, Technology and Higher Education. The Portuguese authorities and the European Commission co-funded the review.

The OECD is grateful to Manuel Heitor, Minister of Science, Technology and Higher Education from November 2015 until March 2022, for initiating the review and to his successors, Elvira Fortunato (Minister Science, Technology and Higher Education) and Pedro Teixeira (Secretary of State for Higher Education), for their continued commitment to the project. The review team also thanks Edgar Romão (Institute for Financial Management of Education – IGeFE) for acting as country co-ordinator and Pedro Barrias (Ministry of Science, Technology and Higher Education) for comments on the draft report.

Warm thanks also go to the representatives of higher education institutions from across Portugal and stakeholder organisations who dedicated their time to online interviews conducted in 2021 and 2022 for the review and who shared analyses and data with the review team. Further thanks go to colleagues in the Directorate-General for Education and Science Statistics (DGEEC) and the Directorate-General for Higher Education (DGES) for providing data and patiently explaining key aspects of Portugal's higher education policy landscape.

While the report draws on data and analysis from the OECD, Portuguese sources, and a range of other published sources, any errors or misinterpretations remain the responsibility of the OECD team.

The review was co-ordinated by Simon Roy (OECD, Higher Education Policy Team), who was lead author of the review report. Ana Moreno Monroy (OECD, Centre for Entrepreneurship, SMEs, Regions and Cities) was a member of the core review team and undertook the analysis of data and territorial patterns and trends presented in Chapters 2 and 5. Thomas Weko, team leader and senior analyst of the OECD Higher Education Policy Team, provided advice throughout the project. Paulo Santiago, Head of the Policy Advice and Implementation Division in the Directorate of Education and Skills and Andreas Schleicher, Director of the Directorate for Education and Skills, reviewed the publication and provided feedback.

Marika Prince edited the report and provided administrative support for the finalisation of the project. Rachel Linden assisted with the editorial and production processes.

Table of contents

Foreword 3

Acknowledgements 4

Abbreviations and acronyms 8

Executive Summary 9

1 Assessment and recommendations 13
- The context for the review – Portugal's higher education system 14
- Core funding for higher education institutions 17
- Supporting future development of the higher education system 23
- Resourcing accessible higher education 29
- References 33
- Notes 34

2 Patterns and trends in Portugal's higher education system 35
- What is the scale and location of higher education provision in Portugal? 36
- Who participates in and completes higher education in Portugal? 47
- How will demographic trends affect demand for higher education? 51
- How will economic trends affect future demand for advanced skills? 56
- References 63
- Notes 66

3 Core funding for higher education institutions 67
- Elements in higher education funding systems and focus of this chapter 68
- The adequacy of core public funding to higher education institutions in Portugal 71
- Allocating core funding: balancing equal treatment, stability and performance 80
- Policy issues and recommendations to Portugal 95
- References 102
- Notes 105

4 Supporting the future development of the higher education system 107
- Supporting the future development of the public higher education system 108
- Key priorities for the sustainable development of higher education in Portugal 110
- Policy tools to support institutional profiling, performance and "systemness" 117
- Policy issues and recommendations to Portugal 128
- References 135

5 Resourcing accessible higher education 139
Policies to promote access to higher education 140
Creating an accessible higher education network 141
Tuition fees and student financial aid in Portugal 151
Student services and housing 157
Policy issues and recommendations to Portugal 160
References 164
Notes 167

FIGURES

Figure 2.1. Enrolment in higher education establishment by type and status 39
Figure 2.2. Academic staff in higher education institutions by institution type 40
Figure 2.3. Enrolment by higher education campus in Portugal in 2020/21 43
Figure 2.4. Net flows of students by municipality 44
Figure 2.5. Local attractiveness and diversity of origin of students across municipalities and FUAs 45
Figure 2.6. Age of enrolment by type of degree in 2019/20 48
Figure 2.7. Tertiary educational attainment rate by region in Portugal 50
Figure 2.8. Annual population change rate by parish in mainland Portugal 2011-21 52
Figure 2.9. Age pyramid for Portugal in 2020, 2035 and 2080 54
Figure 2.10. Population by age group and region in Portugal in 2020 and 2035 55
Figure 2.11. Ageing index of academic staff by type 56
Figure 2.12. Graduates from bachelor's and master's degrees per 10 000 population in 2019 60
Figure 3.1. Elements in higher education funding systems 68
Figure 3.2. Expenditure on higher education institutions by source 74
Figure 3.3. Recent changes in enrolment and total core funding in Portugal 75
Figure 3.4. Expenditure per student by destination of funds in the OECD 76
Figure 3.5. Expenditure per student by destination of funds in the Eurozone 77
Figure 3.6. Core funding per weighted student in 2009 and 2022 – Universities 83
Figure 3.7. Core funding per weighted student in 2009 and 2022 – Polytechnic institutes 84
Figure 3.8. Change in enrolment and core funding per weighted student – Universities 85
Figure 3.9. Change in enrolment and core funding per weighted student – Polytechnics 86
Figure 3.10. Allocation of core funding for education and operations 87
Figure 4.1. Research capacity in polytechnics 115
Figure 5.1. Isochrones for different driving times compared to FUA borders 143
Figure 5.2. Share of population with access to a higher education campus 144
Figure 5.3. Accessibility of higher education and degree of urbanisation 145
Figure 5.4. Cumulative access to study places in mainland Portugal 147
Figure 5.5. Competitive accessibility to study places in mainland Portugal 148
Figure 5.6. Inequality in access to higher education across municipalities in Portugal 149
Figure 5.7. Accessibility of study places and participation rates in higher education 150
Figure 5.8. Accessibility to study places and unemployed graduates 151
Figure 5.9. Tuition fees in Portugal over time 152
Figure 5.10. Tuition fees and financial support for students in OECD jurisdictions 154
Figure 5.11. Proportion of students receiving a student grant by public HEI 156
Figure 5.12. Income of institutional “Social Action Services” (SAS) 158

TABLES

Table 1. Summary overview of main findings of the review and policy recommendations 10
Table 2.1. Number of HEIs in Portugal by type and share of enrolment (2020/21) 36
Table 2.2. Access routes to public higher education institutions (2019/20) 37
Table 2.3. Enrolment in higher education establishments in Portugal (2020/21) 38
Table 2.4. Enrolment and academic staff in higher education by region in Portugal 41
Table 2.5. Occupancy rates by sector of higher education and region 46

Table 2.6. Graduates by subject area and specialisation index by region in 2019/20 61
Table 3.1. Income of public HEIs by income source 71
Table 3.2. Expenditure by type in public higher education institutions 78
Table 3.3. Variable and fixed funding: potential advantages and disadvantages 88
Table 3.4. Additive and distributive formula allocation models 90
Table 3.5. Parameters for allocating core funding for education and operations 92
Table 3.6. Cost factors by field of education used in Portugal's funding formula 93
Table 3.7. Subject-area weightings (cost factors) in selected OECD jurisdictions 94
Table 4.1. Progression from vocational secondary education to higher education 111
Table 4.2. Doctoral graduates by public university in 2020/21 114
Table 4.3. FCT-funded R&D units co-ordinated by public polytechnic institutes 116
Table 4.4. Key design features of institutional-agreement systems 123
Table 5.1. Targets for widening access in the *Contrato de Legislatura* 2020-23 140
Table 5.2. Grants awarded through the +Superior programme in 2020/21 157
Table 5.3. Students living away from home in higher education in Portugal 159

Follow OECD Publications on:

https://twitter.com/OECD

https://www.facebook.com/theOECD

https://www.linkedin.com/company/organisation-eco-cooperation-development-organisation-cooperation-developpement-eco/

https://www.youtube.com/user/OECDiLibrary

https://www.oecd.org/newsletters/

This book has...

StatLinks
A service that delivers Excel® files from the printed page!

Look for the StatLink at the bottom of the tables or graphs in this book. To download the matching Excel® spreadsheet, just type the link into your Internet browser or click on the link from the digital version.

Abbreviations and acronyms

	Original	English
A3ES	Agência de Avaliação e Acreditação do Ensino Superior	Agency for Evaluation and Accreditation of Higher Education
ADHEP		OECD Analytical Database of Higher Education Providers
BAföG	Bundesausbildungsförderungsgesetz	Federal Training Support Act (German student grants system)
CET	Cursos de Especialização Tecnológica	Post-secondary, non-tertiary Technological Specialisation Course
CNA	Concurso Nacional de Acesso	National Access Competition
CROUS	Centres régionaux des œuvres universitaires et scolaires	Regional Centres for University and School Services
DGEEC	Direção-Geral de Estatísticas da Educação e Ciência	Directorate-General for Education and Science Statistics
DGES	Direção-Geral do Ensino Superior	Directorate-General for Higher Education
ECTS		European Credit Transfer and Accumulation System
EEA		European Economic Area
ESEP	Escola Superior de Enfermagem do Porto	Higher School of Nursing, Porto
FCT	Fundação para a Ciência e Tecnologia	Foundation for Science and Technology
FTE		Full-time Equivalent
FUA		Functional Urban Area
GDP		Gross Domestic Product
GVA		Gross Value Added
IAS	Indexante dos Apoios Sociais	Social Support Index (reference value)
ICT		Information and Communication Technologies
IEFP	Instituto do Emprego e Formação Profissional	Institute for Employment and Vocational Training
IGeFE	Instituto de Gestão Financeira da Educação	Institute for Financial Management of Education
IP	Instituto Politécnico	Polytechnic Institute
IPCA	Instituto Politécnico do Cávado e do Ave	Polytechnic Institute of Cávado and Ave
ISCTE	ISCTE – Instituto Universitário de Lisboa	ISCTE – University Institute of Lisbon
NUTS		Nomenclature of Territorial Units for Statistics
OE	Orçamento do Estado	State Budget
PhD	Philosophiae Doctor	Doctor of Philosophy
PISA		Programme for International Student Assessment
PNAES	Plano Nacional para o Alojamento no Ensino Superior	National Plan for Housing in Higher Education
PRR	Plano de Recuperação e Resiliência	Recovery and Resilience Plan
STEAM		Science, Technology, Engineering, Arts and Maths
TeSP	Cursos Técnicos Superiores Profissionais	Professional Higher Technical Programmes
TL2		Territorial Level 2 (large regions)
UTAD	Universidade de Trás-os-Montes e Alto Douro	University of Trás-os-Montes e Alto Douro

Executive Summary

Enrolment in higher education in Portugal reached its highest ever level in 2020/21, when almost 412 000 students were enrolled in one of the country's 106 higher education institutions (HEIs). Over 80% of these students were enrolled in public universities and polytechnics, with just over 50% in public university programmes and around 30% in public polytechnic programmes. The higher education attainment rate among those aged between 30 and 34 in Portugal increased by 16 percentage points between 2012 and 2021 – from just under 28% to almost 44% – and is now above the average of the 27 European Union (EU) member states. Recent higher education graduates in Portugal are more likely to be employed and earn, on average, around 50% more than their peers without tertiary qualifications. While employment in knowledge-intensive services and high-technology manufacturing in Portugal is lower than in many other OECD countries, employment in skills-intensive sectors is forecast to grow strongly in the coming decade.

Despite its considerable successes, Portugal's higher education system faces challenges. The population of Portugal is ageing at a faster pace than populations in most OECD countries. The population aged 20-29 that constitutes the bulk of current demand for higher education is projected to decrease in Portugal by 13.5% between 2020 and 2035, with the greatest decreases (of up to one-third) in Alentejo, the North Region (Norte) and Madeira. This contrasts with a projected 10% growth in this age cohort in the Lisbon metropolitan area in the same period. While public universities generally fill more than the basic number of regulated study places they have available, student demand for places in public polytechnics is more variable, with some institutions, particularly in Alentejo and the Central Region (Centro) already struggling to attract students. These demographic trends will inevitably require the higher education system to adapt.

Total spending on public higher education institutions in Portugal in 2018 was the equivalent of 0.9% of the nation's Gross Domestic Product (GDP), compared to an average in OECD countries of 1.1%. On average, around 70% of total income in public universities and 80% in public polytechnics comes from public sources. Following the significant public funding reductions implemented after the 2008 financial crisis, total core funding from the state budget for public HEIs in Portugal increased by 15% in nominal terms between 2017 and 2021. However, the decision not to apply a formula-based allocation process from 2009 onwards has led to core-funding allocations to individual institutions becoming progressively misaligned with real enrolment levels.

This OECD review has analysed the way in which core public funding for day-to-day operations is allocated to public higher education institutions in Portugal, the way in which public funds are used to support the strategic development of the higher education system and the use of public resources to promote the accessibility of higher education. The review has drawn on national and international evidence and data sources, as well as extensive consultations with higher education institutions and stakeholders in Portugal. The table overleaf summarises the main findings and the policy recommendations to Portugal in these areas that have resulted from the review.

Table 1. Summary overview of main findings of the review and policy recommendations

Main finding	Recommendations
1. Core funding for higher education institutions	
Ensure clarity about the purpose of the core operating grant to public HEIs	
Since 2009, core funding to public HEIs in Portugal has been allocated on an incremental, historical basis, without application of the funding formula established in law. This has led to significant divergence in the level of funding that public HEIs receive per student.	1. Ensure that the design of a future model for allocating the core operating grant is guided by the principles of transparency, equity and efficiency, with complementary support outside the core model for institutions in regions with declining populations.
In contrast to some other OECD systems, Portugal does not provide HEIs directly with a distinct core grant for research – the core operating grant partly funds the salaries of staff engaged in research.	2. Ensure the purpose of the core operating grant for public HEIs, including its contribution to co-financing research, is made explicit in future secondary legislation.
Short-cycle Professional Higher Technical Programmes (TeSPs) now form part of polytechnics' "core business". Until at least 2027, a significant proportion of funding for TeSPs will come from EU funds.	3. From 2027 onwards, aim to integrate funding of TeSPs into the core-funding formula, in recognition of these programmes' status as a core component of polytechnics' educational activity.
Develop a new model for allocating core public funding to HEIs, guided by the principles of transparency, equity and efficiency	
Current disparities in the level of core funding per student received by public HEIs are inequitable and significantly disadvantage institutions that have experienced enrolment growth in recent years.	4. Develop, using zero-based budgeting, a new model to allocate the core operating grant from the state budget to public HEIs, in which a majority of core funding is allocated using a formula.
As in other OECD systems, fixed costs in HEIs in Portugal (permanent staff and buildings) represent a high share of total costs.	5. Consider allocating a minority of the core operating grant to public HEIs (perhaps between 15% and 25%) as a fixed funding component, which remains stable for an extended period.
Although underlying staff costs in universities are higher than in polytechnics, the cost factors for different study fields used in the 2008 iteration of the funding formula may not be fully justified.	6. Review the validity of the 2008 cost factors used in the previous model, assessing if the differences between subject fields and between university and polytechnic programmes reflect real costs.
International experience suggests that it is important to limit the number of parameters in funding formulas and provides mixed evidence of the effectiveness of output and outcome-related funding.	7. Link all or most variable core funding in the new model to simple student-related parameters. Alongside enrolment, consider the use of output parameters (degrees and doctorates awarded).
Recognise that implementation of a new funding allocation model will require a transition period and additional resources	
Restoring allocation of core funding to a rational basis with a new formula-driven model will inevitably lead to some institutions receiving a lower share of the budget envelope. They will need time to adapt.	8. Introduce the new funding allocation model progressively, with a transition period to allow institutions that, under the model, will receive a lower share of the budget envelope to adapt.
Alongside revision of the core-funding model, it would be advisable to provide additional support to HEIs in areas facing demographic decline, while also reviewing tuition-fee policy (see below).	9. Design the transition period to account for planned complementary funding for strategic investment and adjustment and possible revisions to tuition-fee policy.
Portugal spends a lower percentage of its GDP on higher education than the average of OECD countries, while the introduction of a new funding model creates opportunities to secure additional resources.	10. Seek to mobilise additional public resources for core funding of public higher education institutions, highlighting how these resources will support clear quality and efficiency objectives.
2. Supporting the future development of the higher education system	
Update the country's vision for the higher education system, recognising more explicitly the need for restructuring	
The current "Contract for the Legislative Term" (Contrato de Legislatura), establishing shared policy priorities, ends in 2023.	11. Prepare and adopt a new national strategy for the sustainable development of the public higher education system from 2024.
There is a need to build on existing efforts to encourage and support institutions to make clear strategic choices about the areas in which they wish to focus.	12. Include in the strategy a greater focus on the need for individual HEIs to develop distinct profiles and centres of excellence.
There is no reason to believe the demographic decline of interior regions can be fully stopped – let alone reversed.	13. Ensure that the strategy adopts an explicit and realistic approach to adapting the public HE system to demographic change.
Require HEIs to develop clear profiles and realistic development strategies in institutional agreements	
The experience of other OECD jurisdictions suggests that a system of institutional strategic development agreements would help to support institutional profiling and targeted investment in Portugal.	14. Introduce a system of institutional agreements for public HEIs, with an agreement concluded between government and each HEI, indicatively for a four-year period.
Implementation of such a system of agreements will require capacity in the public administration.	15. Form a small secretariat to organise the institutional-agreement system and to monitor progress on an annual basis.
Experience from other OECD systems, notably Ireland, has illustrated the value of involving international peers in the agreement process.	16. Involve international experts as peer reviewers in the assessment of institutional plans and achievement of intended results.
To be effective, institutional-agreement systems require an appropriate monitoring process, which is sufficiently light touch to avoid undue burden on institutions, but adequate to monitor progress in relation to agreed goals.	17. Conduct light-touch monitoring on an annual basis, using existing data collection processes, wherever possible. 18. At the end of the (indicatively) four-year implementation period, conduct a thorough review of progress.

Main finding	Recommendations
Allocate strategic funding to all public HEIs and provide adjustment funds to institutions with the greatest need to adapt	
International experience has shown the value of allocating strategic development funding to HEIs to support future-oriented activities.	19. Provide multi-annual allocations of strategic development funding to all public HEIs (e.g. 5% of the core-funding envelope).
As institutional agreements provide a solid accountability framework, allocation of funds should be as simple as possible.	20. Allocate the majority of strategic development funding to institutions as a lump sum payment on a pro-rata basis.
HEIs in interior and island regions in Portugal will require additional investment to help them adapt to the changing demographic context.	21. In addition to the strategic development funds, provide adjustment funding to institutions with the greatest restructuring needs.
Ensure other policy tools support institutional profiling and system coherence	
Study-place allocation must ensure there are sufficient places to serve currently under-served student populations in metropolitan areas but can also be used for strategic steering of the HE system.	22. Revisit the criteria used to allocate study places through the numerus clausus system to align them better with student demand, employment outcomes and centres of excellence.
As noted in a previous OECD review, legal teaching-load requirements unnecessarily restrict workload models in HEIs.	23. Amend legislation governing employment of academic staff to facilitate more flexible workload models.
There is scope for the Agency for Assessment and Accreditation of Higher Education (A3ES) explicitly to consider institutional profiles as part of their quality assessments of HEIs.	24. Ensure complementarity with institutional profiles and strategic development agreements is considered as part of A3ES institutional evaluations.
A review of Foundation for Science and Technology (FCT) funding instruments and an assessment of the capacity of these to support institutional profiling would help to inform appropriate policy decisions.	25. Ensure FCT research funding allocation criteria are supportive of the broader profiling and restructuring agenda.
3. Resourcing accessible higher education	
Maintain commitment to territorial coverage of higher education, with a strong focus on quality and relevance in regional locations	
Particularly for individuals from low-income backgrounds, having a higher education campus in their home locality or region is likely to increase their chances of entering and completing higher education.	26. Maintain physical accessibility of campuses as a criterion for planning the future of the higher education system, focusing on ensuring territorial coverage for entry-level tertiary programmes.
Demographic changes mean restructuring of the institutional network will be needed, while there is a strong case for concentrating specialised provision in a limited number of locations.	27. Recognise that maintaining the territorial coverage of the higher education network does not imply maintaining the existing configuration of institutions.
Consider linking tuition fee levels to socio-economic criteria, while increasing financial support to the students most in need	
Recent reductions in tuition fees have been applied equally for all students. A more targeted approach would represent a more effective use of limited resources and benefit those most in need.	28. Introduce a differentiated system of tuition fees with the lowest fees for grant recipients and graduated higher fees for other students.
In common with systems in several other OECD systems, the current system of student grants in Portugal requires students to enrol for at least 30 credits.	29. Review the current eligibility criteria for student grants to evaluate if the system is sufficiently flexible to support an increasingly diverse student population, particularly adult learners.
The outcomes of the +Superior programme for grant recipients have not been thoroughly evaluated.	30. Commission an independent evaluation of the +Superior programme.
Explore methods to ensure more equitable investment in student services across the territory	
Variation in per-student investment in Social Action Services does not appear to have a clear justification. More systematic analysis is required to establish the causes and justification for the differences.	31. Analyse the factors that explain the current variation in the per-student levels of investment in student services between public HEIs and consider the case for minimum levels of provision.
There are limited incentives for HEIs to share student services. There is scope to incentivise such sharing of resources, where practical.	32. In locations with multiple public HEIs, require HEIs to develop solutions that allow student services to be shared between institutions.
The National Plan for Housing in Higher Education (PNAES) has increased supply of subsidised student housing. Future investments must pay careful attention to projected changes in student demand.	33. Ensure that future investments in publicly funded student housing are targeted in locations with the greatest unmet need for student housing.

1 Assessment and recommendations

This chapter synthesises key policy issues and recommendations identified by the OECD review team in the three main areas covered by the review: the core public funding model for higher education institutions in Portugal, the strategic steering and funding of future development of the public higher education system and the resourcing of policies to support widened access to higher education.

The context for the review – Portugal's higher education system

Higher education enrolment and attainment rates in Portugal have increased substantially in the last decade

Enrolment in higher education in Portugal reached its highest ever level in 2020/21, with almost 412 000 students enrolled in one of the country's 106 higher education institutions (HEIs). Following a substantial decline in enrolment following the 2008 financial crisis, student numbers increased by 15% between 2014/15 and 2020/21. Over 80% of these students were enrolled in public universities and polytechnics, with just over 50% in public university programmes and around 30% in public polytechnic programmes. Much of the expansion in enrolment in the last decade has been concentrated in the North Region (Norte), while enrolment has decreased in absolute and relative terms in the regions of Alentejo, the Algarve and the Azores. Around two-thirds of students in public higher educations in Portugal study at institutions near their homes, with the remaining third moving to another locality to study. More than half (54%) of all students who move municipality to attend higher education go to institutions in the municipalities of Lisbon, Porto and Coimbra. However, most students (three-quarters) attending higher education in the Lisbon functional urban area (FUA) are local to the urban area.

The number of study places in public HEIs accessible through the largely centralised General Access Regime – the main entry route for school leavers to access higher education – is regulated by the government through a nationwide system of *numerus clausus*. Public universities generally fill more than the basic number of regulated study places they have available, while student demand for places in public polytechnics is more variable, with some institutions over-subscribed and others, particularly in Alentejo and the Central Region (Centro), left with empty places after the National Access Competition (CNA) has been completed. These institutions, like their counterparts across Portugal, have increasingly diversified their student recruitment, notably through specific, institution-level entry routes for candidates for short-cycle programmes in polytechnics (Professional Higher Technical Programmes – TeSPs), students aged over 23 and international students. Despite efforts to diversify enrolment, the share of first-time entrants to higher education aged below 25 in Portugal in 2020 was 91%, compared to an OECD average of 83% (OECD, 2021[1]).

The higher education attainment rate among those aged between 30 and 34 in Portugal increased by 16 percentage points in less than a decade, from just under 28% in 2012 to almost 44% in 2021. Portugal now has a tertiary-education attainment rate among 30-34 year-olds above the average of the 27 European Union (EU) member states (41.6% in 2021), although still somewhat below the levels seen in parts of Northern Europe, the Netherlands, Switzerland and Ireland, where attainment rates now exceed 50% for the same age group (Eurostat, 2022[2]).

Higher education graduates in Portugal generally have good job prospects and demand for advanced skills is growing

In 2020, 87.9% of higher education graduates aged 25-64 in Portugal were employed, compared to 82% of upper secondary graduates and only 70% of those without an upper secondary qualification in the same age group. The average employment rate for higher education graduates in OECD member countries was 84.6% in the same year. Among recent graduates – those aged 25-34 – the equivalent values were 84% for tertiary graduates in Portugal, compared to 83% for tertiary graduates on average in the OECD and 82% and 73% respectively for those with and without upper secondary qualifications in Portugal (OECD, 2022[3]). Moreover, the average earnings advantage for higher education graduates in Portugal remains significant. OECD data show that young higher education graduates in Portugal (aged 25-34) have, on average, consistently earned around 50% more than those with upper secondary or post-secondary, non-tertiary qualifications (OECD, 2022[3]). Unemployment data in the second half of 2020 for recent graduates show considerable variation between programmes, with registered unemployment rates ranging from

below 1% for nursing and medicine to over 10% for tourism and marketing-related degrees (DGEEC, 2022[4]). Given these latest programme-level unemployment data are for a period during the COVID-19 pandemic, unemployment rates among graduates, and notably those from tourism and hospitality programmes, must be interpreted with caution.

Although the share of employment in knowledge-intensive services and high-technology manufacturing in Portugal is lower than in many other OECD countries, employment in skill-intensive sectors is forecast to grow strongly in the coming decade. The European Union's skills agency, Cedefop, predicts that employment in high-tech occupations in Portugal will grow by 18% between 2020 and 2030, double the average rate of growth in European Union countries overall (Cedefop, 2022[5]). High-tech employment growth will be driven by the services sectors, notably in fields such as information and communications technologies (ICT), energy, and administration, with strong demand for a range of professional occupations. Cedefop predicts that four out of five new job openings in Portugal in the coming decade will require either high or medium-level qualifications.

The total supply of graduates from bachelor's or master's degrees in Portugal (over 90% of all higher education graduates each year) remained slightly below the average of OECD countries in 2019, with 73 new bachelor's and master's graduates per 10 000 population, compared to an OECD average of 79. The number of new bachelor's and master's graduates in sciences and engineering (including construction) relative to population was above the average of OECD countries – reflecting Portugal's traditional strengths in these fields – but the number of graduates in ICT fields per 10 000 population, at 1.1, was below the OECD average of 2.9, and significantly below leading countries, such as the United States (4.3), Denmark (5.9), Finland (7.6) and Ireland (12.6) (OECD, 2021[1]).

Demographic change will reduce demand for higher education among traditional student populations, particularly in interior and island regions

The population of Portugal is ageing at a faster pace than populations in most OECD countries. The share of population over 65 was already 22% in 2020, about nine percentage points above the average of OECD countries (13%). Statistics Portugal's population projections for 2035 and 2080 show that all age groups below 60 are projected to shrink in coming decades, while the group of people older than 60 is projected to increase. The population aged 20-29 that constitutes the bulk of demand for higher education is projected to decrease in Portugal by 13.5% between 2020 and 2035 (Statistics Portugal, 2020[6]). The pattern of demographic change will vary between regions. Whereas the 20-29 age cohort is projected to increase by 10% between 2020 and 2035 in the Lisbon Metropolitan Area and by 4% in the Algarve, it is projected to decline in all other regions of Portugal, with the decrease ranging from -14% in Alentejo to -26% in the North Region and more than -30% in the island region of Madeira.

Given that over 80% of students completing scientific-humanistic tracks in upper secondary education (two-thirds of all upper secondary students) already enter higher education directly after school, these demographic trends will inevitably lead to a decline in the number of "traditional" higher education students in Portugal overall, and interior and island regions in particular.

Efforts to increase higher education participation among graduates of upper secondary vocational tracks will only partially compensate for a decline in the volume of students completing the scientific-humanistic track and entering higher education. Upper secondary vocational graduates are also more likely to enter professionally oriented programmes adapted to their needs (such as short-cycle courses), rather than established polytechnic programmes or academically oriented programmes in universities. Actions to encourage adult populations to engage in upskilling and reskilling in higher education and attract more international students to Portugal will also bring additional students into the higher education system. However, the scale of these additional inflows is not certain and – in the case of upskilling and reskilling at least – will also require further innovation in the design and delivery of educational offerings.

Spending on higher education in Portugal is below the average in OECD countries and the funding system needs reform

In 2018, the most recent year for which international data are available at the time of writing, total spending on public higher education institutions in Portugal was the equivalent of 0.9% of Portugal's Gross Domestic Product (GDP). Public expenditure was equivalent to around 0.7% of GDP, compared to OECD averages of 0.9% for public expenditure and 1.1% of GDP for total spending. Total expenditure on core services (excluding spending attributed to ancillary services and research) per full-time-equivalent (FTE) student in public HEIs in Portugal was 68% of the average in the OECD, after adjusting for purchasing power parity. In absolute terms, not taking into account differences in purchasing power between countries, total per-student spending in euros in Portugal in 2018 was around 80% of the average of OECD Eurozone member countries. Just over 70% of spending on public HEIs came from domestic public sources, compared to around 80% in the 22 European Union (EU-22) countries that are also OECD members, while spending from international sources (primarily EU funds) was substantially higher than the average of European Union OECD members (OECD, 2021[1]).

Personnel costs (essentially salaries and social security) accounted for almost 74% of the total outgoings of public higher education institutions in Portugal. This proportion was almost 80% in polytechnics, but only 71% in universities, where rates of expenditure on facilities and other operating expenses are higher than in the polytechnic sector. These figures compare with an average rate of expenditure on personnel costs in public and government-dependent higher education institutions in the OECD of 68% (OECD, 2022[3]).

Following the significant funding reductions implemented after the 2008 financial crisis, total core funding from the state budget for public HEIs in Portugal increased by 15% in nominal terms between 2017 and 2021. Since 2020, funding increases have been part of the latest iteration of the "Contract for the Legislative Term" (covering 2020-23), in which Portugal's government committed to increase the budget envelope for core public funding by 5% in 2020 (compared to 2019), to compensate for government-mandated reductions in tuition fees, and subsequently to increase the budget by at least 2% annually between 2021 and 2023 (Government of Portugal, 2019[7]). As a result of these recent increases, nominal total investment – not taking into account inflation – has broadly kept pace with changes in total enrolment (total enrolment in full-time-equivalent students increased by 13% in the period), but not with faster enrolment growth in the polytechnic sub-sector. As discussed in depth in Chapter 3 of this report, the decision not to apply a formula-based allocation process from 2009 onwards has meant that core-funding allocations to individual institutions have become progressively misaligned with real enrolment levels.

The remainder of this overview of the assessment and recommendations emerging from the review of higher education resourcing in Portugal is structured around the three topics that have been the focus of the analysis:

1. This first section (Chapter 3 in the report) examines the allocation of *core public funding for operations and instruction* to higher education institutions, focusing on the operating grants funded from the annual state budget (*Orçamento do Estado* – OE). Given the distinct questions at play, it was agreed from the outset that this review would not examine the operation of Portugal's national research council, the Foundation for Science and Technology (FCT), or have an explicit focus on research funding as such. The FCT is responsible for providing most of the dedicated public financial support to the legally distinct research units in which most research in Portuguese higher education occurs[1]. However, as academic staff whose posts are funded from the state budget are also active in research, the discussion and recommendations consider the extent to which the core operating grant should also be explicitly regarded as a tool for supporting the research mission of higher education and whether research-related parameters might influence funding allocation.
2. The second section (Chapter 4 in the report) focuses on the way governments can use funding, dialogue and regulation to help steer the future development of national higher education systems. It examines the use of performance or mission-linked and strategic funding for higher education

institutions, institutional performance agreements and associated steering mechanisms, such as the regulation of study places. This section examines the range of policies available to governments to steer resource use in higher education over the medium to long term.

3. The final section (Chapter 5 in the report) examines, again from an international perspective, the direct and indirect material support for students in Portugal funded from public sources. It starts by considering the fundamental question of the location and accessibility of higher education institutions across the Portuguese territory, before examining the public student-aid programmes and the support that government provides for student services.

Core funding for higher education institutions

Ensure clarity about the purpose of the core operating grant to public higher education institutions

The core operating grant for public higher education institutions provided from the state budget in Portugal is designed to provide a "base" level of funding to permit the institutions to operate. An allocation formula adopted by ordinance in 2006 linked funding allocations to the delivery of education in the first and second cycles (bachelor's and master's degrees), recognising staff costs as the main cost driver in delivering this education. However, for a range of reasons, core public funding has not been fully allocated using a formula since 2009.

In contrast to some other university systems in Europe, such as Denmark, Finland or the Netherlands, Portugal does not provide a specific core grant directly to universities for research. Rather, the Foundation for Science and Technology (FCT) awards direct grants to research units associated to HEIs that are evaluated as "good" or above in the periodic research assessment exercise, in addition to competitive project-based funding. The FCT also directly funds researcher posts through the Stimulus Programme for Scientific Employment and provides grants for doctoral researchers. As academic staff who are associated with research units are paid by their employer higher education institution, it has – more or less tacitly – been accepted that the core operating grant to HEIs also contributes to funding research activity.

During consultations undertaken for this review, leaving aside the discussion of the adequacy and transparency of the grant allocations (discussed below), three main questions arose about the expected "coverage" and purpose of the core operating grant from the state budget:

- The first was the extent to which the core operating grant should support the regional development function and public-service mission of public higher education institutions without necessarily linking funding levels to enrolment or other activity.
- The second question was whether or not the contribution of the core operating grant to research activities, including PhD training, should be more explicitly acknowledged in policy design, including through the inclusion of research parameters in a future allocation model.
- The third question stemmed from the fact that the existing (but currently unused) 2006 funding formula contains no provision for funding short-cycle TeSP programmes in polytechnics, although these programmes now make up a significant proportion of polytechnics' educational activity.

The first question touches on probably the most fundamental issue facing those designing a future higher education funding model in Portugal. Enrolment levels in institutions (particularly polytechnics) in interior regions and the islands have been declining steadily and – even with additional student recruitment among adult populations, vocational secondary graduates and internationally – this trend will inevitably continue in the coming decades. The adoption of a student-driven allocation model will, inevitably, lead to institutions with declining enrolment receiving a smaller share of overall funding compared to today.

The public-service role of higher education institutions in regional locations is clear. As discussed below, mechanisms can be built into funding allocation models to protect smaller institutions. However, to respect the criteria of transparency and equity for all institutions and to promote efficient use of resources, core-funding allocations should primarily be based on real levels of activity in institutions. Failure to link funding allocations to student numbers in recent years in Portugal has created an inequitable situation whereby some institutions receive considerably lower levels of public resources than their counterparts elsewhere in the country to support the education of their students. This brings attendant risks for the quality and the support services these institutions can provide. Reform of the core-funding allocation model should seek primarily to address this inequity. Beyond the stability mechanisms that can be included in the core allocation model highlighted below, the specific task of supporting institutions in regions facing demographic decline to adapt and pursue their public-service mission in the face of changing circumstances is best left to other funding and steering mechanisms, outside the scope of the core-funding model.

As noted, the core operating grant to public HEIs contributes to funding academic research by (partially) funding staff wage costs. This role of the grant could be made more explicit in the formulation of funding regulations and potentially through the inclusion of doctoral graduates as a funding allocation parameter in a new formula (see below). However, given the existing architecture of performance-linked funding for research in Portugal, it makes sense that primary responsibility for creating incentives for good research, for assessing the quality of research outputs and for funding research more generally should continue to rest with the FCT and the policies it implements.

Short-cycle Professional Higher Technical Programmes (TeSPs) are now well established as part of polytechnics' core business and are likely to become increasingly important as vehicles to support upskilling and reskilling among the adult population. The Flemish Community of Belgium, which recently integrated similar short-cycle programmes into its higher education system, adapted its funding formula to encompass these programmes, using standard student-related parameters, but with a distinct set of cost factors. Such an approach would make sense in Portugal in the medium term. However, it is recognised that a large proportion of funding for TeSPs until 2027 will come from EU funds and that the offer of TeSPs is still in a development and expansion phase. It may therefore be appropriate to delay full integration of TeSPs into a new core-funding model until after 2027.

Recommendations

1. Ensure that the design of a future model for allocating the core operating grant to public higher education institutions in Portugal is guided by the principles of transparency, equity of treatment between funded higher education institutions and efficiency. To promote transparency and efficiency in the higher education funding system as a whole and to create incentives for innovation and adaptation, provide support for institutions located in regions experiencing demographic decline through separate, complementary funding and steering mechanisms outside the core funding allocation model (see recommendations below).
2. In new secondary legislation or equivalent policy documents establishing a revised allocation model for the core operating grant paid to HEIs from the state budget, ensure the purpose and objectives of the grant, including its contribution to co-financing research in universities and polytechnics, are made explicit (see also recommendations concerning allocation criteria).
3. In the period up to 2027, direct European and national funding for short-cycle programmes (TeSPs) through the strategic funding routes proposed below. From 2027 onwards, aim to integrate funding of TeSPs into the core funding formula, in recognition of these programmes' status as a core component of polytechnics' educational activity.

Develop a new funding allocation model, guided by the principles of transparency, equity and efficiency

To provide an equitable distribution of scarce public resources to public higher education institutions, Portugal needs to adopt a rational funding allocation model for the core operating grant. Although opinions among higher-education-institution representatives and policy makers consulted during this review about the best future policy differ, there was a broad consensus that the formula from 2006 requires changes and cannot be re-applied in its current form. Given the multiple developments in Portugal's higher education system since 2006 and the lessons that can be drawn from the experience of other OECD higher education systems over the last decade, it makes sense to design a new allocation model from first principles, rather than attempting to adapt previous policy instruments or proposals. Equally, in order to restore the allocation of the core operating grant to a rational footing, it is appropriate to use a zero-based budgeting approach, whereby the entirety of the core operating grant allocations for each institution will ultimately – after an appropriate transition period, discussed below – be determined by the new allocation model.

The discussion in Chapter 3 examines the main choices that can be made in designing a new allocation model and the choices made by other OECD jurisdictions. Among these, the three most important decisions for Portugal are, arguably, whether or not to include a "fixed" (invariable) component in the allocation to each institution; whether to revise or maintain the existing subject-area cost factors used in the previous allocation model; and which parameters to use in the model to drive the allocation of funds. A fourth question is whether to work with fixed unit payments or a purely distributive formula. While Portugal's system of study-place regulation (*numerus clausus*) would theoretically provide spending safeguards to permit a system that uses fixed unit payments, there is a consensus among policy makers that a distributive system is the only feasible option in the Portuguese context.

In relation to the first decision, the high proportion of fixed or semi-fixed costs in Portugal's higher education institutions, partially determined by the country's comparatively rigid rules governing employment of academic staff, could justify the use of a fixed component in the new funding model. The experience of

Denmark, which moved from a mostly variable funding model (the "taximeter") to one where 25% of core funding to institutions is allocated as a fixed basic grant to ensure stability and a focus on quality, could be instructive for Portugal, particularly as Denmark also has a largely binary system of higher education with a mixture of small and large institutions (OECD, 2021[8]). Any fixed component should in any eventuality be kept to a modest share of total core funding to ensure the criteria of equity and efficiency are respected.

As discussed in Chapter 3, the cost factors used until 2009 in the previous funding formula in Portugal are broadly aligned with those in other OECD jurisdictions examined for this review. In contrast to the situation in other jurisdictions, the cost factors in Portugal were – notwithstanding methodological limitations – calculated on a rational basis with reference to average staff costs. While it would be possible to use these cost factors without further amendment, there appears to be a case to review the level of the factors used for certain programme groups. Underlying staff costs in universities are higher than in polytechnics – because of lower teaching loads and higher qualification levels among staff in universities – and also higher in subjects requiring extensive access to laboratories, studios or other expensive facilities than in classroom-based subjects. Nevertheless, as student-staff interaction is a key element of educational quality and staff costs are the main cost driver in higher education, some of the lowest cost factors currently used may not be fully justified. Additionally, there may a case for reducing the number of cost categories to simplify – and thus increase the transparency of – the funding system.

In terms of the parameters to include in the model, international evidence, including recent trends, suggests that it is best to keep their number to a minimum. This is not only to ensure the funding system is easily understood and minimise administrative burden associated with data reporting, but also because the real effectiveness of including multiple parameters attached to a small proportion of funding is doubtful. Advanced OECD higher education systems tend to link a majority of core funding to simple input (enrolment) or student output parameters (credits or degrees). Portugal has previously used only enrolment parameters for first and second-cycle programmes. Given the previous recommendations on the scope and purpose of the core operating grant, TeSP students should, in the medium term, be included in the student-linked parameters, once the financing of TeSP programmes has been mainstreamed. Despite the limited evidence of the effectiveness of using educational output indicators (credits or degrees obtained) in funding models, a mix of enrolment and graduation parameters could be considered to signal the importance of study completion within the system. The effects of including output parameters (e.g. degrees awarded) on actual funding allocation would need to be modelled as part of development of the new formula.

From a logical standpoint, there may also be a case for including the number of doctoral degrees awarded in the selected reference period as a parameter in a new formula, to acknowledge the role of universities in doctoral training and the staff resources – largely paid for by the core grant – dedicated to this activity. However, those designing the new funding formula would need to reflect carefully on the appropriate cost factor (weighting) to attach to each doctoral degree awarded. Other OECD jurisdictions that use the parameter of "doctoral degrees awarded" in institutional funding (such as the Netherlands or the Flemish Community of Belgium) apply this parameter, along with others, for the allocation of separate budget envelopes for institutional research grants, not for the allocation of their respective teaching grants. Portugal does not allocate a separate budget envelope as a direct research grant to institutions. Moreover, it would be important not to give excessive weight to doctoral training in a revised formula for Portugal's core operating grant. As such, further careful modelling of the effects of different weightings for doctoral degrees would be required, if a decision were taken to include doctoral graduates as a parameter in the new formula.

In order to ensure the purpose of the core operating grant in Portugal remains clear, to ensure that the funding formula remains simple and to preserve the role of the FCT as the government body with primary responsibility for monitoring and funding research, it would not be advisable to include research output parameters in the core funding formula.

Recommendations

4. Develop a new model to allocate the core operating grant from the state budget to public HEIs, in which a majority of core funding is allocated using a formula. Adopt a zero-based budgeting approach, starting from first principles and factoring in an appropriate transition period to allow institutions to adapt to the new system (see below).
5. To create additional stability in the system and in recognition of high fixed costs in the higher education sector, consider allocating a minority of the core operating grant to public HEIs (perhaps between 15% and 25%) as a fixed funding component, which remains stable (other than adjustments for inflation) over time. Denmark provides a helpful policy example to draw on for lessons during the detailed policy-design phase if this option is pursued.
6. As part of the detailed design phase for the new model, review the validity of the existing (2008) cost factors for the two sub-systems of the public higher education sector, assessing if the current cost differences between subject fields and between university and polytechnic programmes are justified. The review should acknowledge the higher cost of delivering subjects in laboratory and studio-based disciplines and the generally higher staff costs in universities, but equally the importance of funding adequate student-to-staff ratios across all fields of study. The review should also assess the impact on institutional funding of using a more limited set of three or four cost factors for each sub-sector of the higher education system.
7. Link all or most variable core funding in the new model to simple student-related parameters. For bachelor's and master's programmes (and, in the medium term, short-cycle programmes), the number of enrolled students is the simplest option, although additionally including a parameter for degrees awarded would send a signal about the importance of degree completion, complementing other policies to promote progression and completion. If the option is retained, the most appropriate parameter to recognise resources spent on doctoral training would be the number of doctoral degrees awarded. However, careful modelling would be required to assess the effects and appropriateness of including this parameter in the allocation model for the core grant. To reduce the impact of year-on-year fluctuations in student activity, the average values of parameters for the previous two reference years could be used in the formula calculation.

Recognise that implementation of a new funding allocation model will require a transition period and additional resources

While designing a new core funding allocation model based on the principles of transparency, equity and efficiency is an important step, it is clear that implementing such a model will additionally require both time and money.

Given the disparities in the level of core funding per weighted student between institutions analysed in Chapter 3 of this report, a primarily formula-driven model, if applied with immediate effect, would inevitably lead to funding increases for some institutions. More problematically, it would lead to reductions for certain institutions in interior regions and the islands that have experienced enrolment decline. As explained below, this review recommends channelling complementary public funding to higher education institutions, through a separate funding route, to support strategic investments and profiling, with dedicated funds to support institutions in interior regions and the islands. The latter dedicated funding will support institutions as they adapt – notably to attract students in realistic growth areas, where institutions can offer high-quality provision and to consolidate provision in fields where student numbers are projected to decline. Notwithstanding this additional financial support, institutions with declining enrolment will need to adjust to

a situation where they receive a smaller share of total core funding than they do at present and will require a transition period to allow them to prepare.

The preparations and modelling for a new formula allocation system could potentially be completed in time for its use for the 2024 state budget, presented in autumn 2023. The transition period should last no longer than strictly necessary, as a key goal of the reform should be to restore an equitable distribution of funds. There are at least two possibilities for structuring the funding system during a transition period:

- A system whereby a new formula is applied to a progressively increasing share of the total core budget envelope, with the remainder distributed on the current historical basis, perhaps over a three-year period.
- A system where the formula is not initially applied directly, but annual increases in the budget envelope for the core grant are distributed exclusively – or nearly exclusively – to the institutions that are currently under-funded in comparison to the share of funds they would receive if the formula were applied. Funding for institutions that would receive a lower share of total funding if the formula were applied would see their core funding allocation frozen or increased only modestly.

Careful modelling will be required to analyse the impact of a change to the core funding system and to determine the length of the transition period required to avoid severe financial shocks for institutions that stand to receive a reduced share of core funding. The time required will depend to a large extent on the additional resources that can be secured for the core funding envelope and notably if annual budget increases can be secured that go beyond the 2% increase currently planned. Care must be taken in designing transition arrangements to account for the funding needs of institutions that are currently under-funded, as well as those of those institutions needing to adjust their profile and activities to operate with a lower share of state budget funds.

Portugal currently allocates a below-average proportion of national wealth to higher education institutions, compared to both the OECD and European Union averages. As discussed below, to mobilise additional resources for higher education, the government should consider a more nuanced, graduated approach to tuition-fee regulation than the blanket reductions introduced in recent years, whereby fees are differentiated progressively according to family or student income. However, there is a case for mobilising additional public funds for higher education, if it can be demonstrated that the system is being put on a more efficient and sustainable footing.

Recommendations

8. Introduce the new, formula-centred funding allocation model progressively, with a transition period to allow institutions that, under the model, will receive a lower share of the budget envelope to adapt. The new model could either be applied to a progressively larger share of the budget envelope for core funding each financial year or funding allocations could be adjusted "manually" to rebalance the allocation of funds in line with the model until it is feasible to apply the model in full. To move as swiftly as possible to an equitable funding distribution, the transition period should be as short as possible.
9. Design the introduction of the model and the transition period taking into account a) planned complementary funds for strategic investment and profiling and dedicated funds to support institutions in interior regions and the islands and b) possible adjustments to tuition-fee policy.
10. Seek to mobilise additional public funding for core funding of public higher education institutions on the grounds that this will support clearly defined quality and efficiency objectives and in light of Portugal's comparatively low levels of investment in higher education at present.

Supporting future development of the higher education system

Update the country's vision for the higher education system, recognising more explicitly the need for restructuring

With the *Contrato de Legislatura* for 2020-2023, Portugal established a series of clear targets for the future development of the public higher education system. The strategy seeks to widen access to higher education, diversify and enhance the educational offering, including through provision of more flexible programmes for adults, and strengthen the country's research base through the creation of additional researcher posts. This strategy has been helpful in informing institutional strategies and in guiding the direction of the system and targeted funding that has been allocated to initiatives such as Impulso Adultos and Impulso Joven STEAM. However, the strategy embodied in the *Contrato de Legislatura* and the approach taken to accompanying policies, such as the regulation of study places, fail to address in an effective and sustainable manner the fundamental challenges brought by demographic change.

Attempts to "protect" public higher education institutions in interior and island regions by allocating them additional study places and not adjusting core funding to real student numbers are doomed to fail in the medium term. There is no reason to believe the demographic decline of interior regions can be fully stopped – let alone reversed – even with successful economic policies. The number of local students in traditional cohorts will inevitably decrease further. Students from other parts of Portugal or abroad can be attracted to institutions if these institutions are able to offer programmes and a learning experience that is sufficiently distinct and of sufficiently high quality. It is unlikely such student flows can fully compensate for a decline in local students in a country where such a large proportion of students go to nearby institutions to attend higher education.

Equally, new student populations, from vocational secondary tracks and the adult population, can be attracted to well-designed, high-quality programmes, such as TeSPs or other types of short course. But developing new offerings and building quality in specialised areas linked to strong institutional profiles requires significant changes to institutional structures and staffing profiles. In the area of innovation, the only chance HEIs have of supporting the development of their regional economies – and this potential must not be over-stated – is by ensuring high-quality staff and applied and practice-oriented research

linked to regional needs. The need for adaptation and restructuring must be acknowledged explicitly in national higher education strategy and supported appropriately with targeted resources.

Not only are past and current policies to protect interior and island institutions likely to be ineffective, but, as noted earlier, they harm institutions and students elsewhere in Portugal, which receive fewer resources than they should. There is an urgent need to create additional, relevant capacity in higher education to cater to currently under-served populations in vocational-secondary tracks and the workforce in the metropolitan areas of Lisbon and Porto.

More generally, there is a need to build on existing efforts to encourage and support institutions to make clear strategic choices about the areas in which they wish to focus and those that are best left to other institutions. In a small country such as Portugal, it is particularly important for institutions to situate their own strategies in relation to those of other institutions, so that they contribute to building a coherent and efficient higher education system. This requires a guiding framework at national level, in the form of a national strategy, which identifies priorities and provides mechanisms for institutions to profile and co-ordinate themselves.

Recommendations

11. In preparation for the period after 2023, when the current *Contrato de Legislatura* ends, prepare and adopt a new national strategy for the sustainable development of the public higher education system, which identifies clear priorities for the future development of the system.
12. Alongside existing targets for widening access, diversifying provision and priority fields in education and research, include a greater focus on the need for individual HEIs to develop distinct profiles and centres of excellence. There might be scope for the higher education sector to map potential centres of excellence and specialist areas in different HEIs as a complement to the strategy itself and thus provide another reference point for the institutional profiling plans suggested below. The Dutch experience with sector plans (see Chapter 4) might be instructive in this regard.
13. Ensure that the strategy adopts an explicit and realistic approach to adapting the public higher education system to demographic change and acknowledges the need for consolidation in parts of the system and expansion in others, in the best interests of students. As part of this, ensure that the distinct and specific missions of universities and polytechnics are maintained and sharpened, as the binary structure will support institutional profiling.

Require HEIs to develop clear profiles and realistic development strategies in institutional agreements

The diversity of local and regional contexts in which public higher education institutions operate, as well as their specific subject mixes and strengths and weaknesses, are already reason enough to favour a differentiated, institution-by-institution approach to allocating strategic funding and assessing institutional performance. Increasing institutional specialisation and profiling will further strengthen the case for such an approach.

The experience of other OECD jurisdictions suggests that a system of institutional strategic development agreements would be an appropriate policy tool to adopt in Portugal, to support increased profiling, help target strategic investment and monitor institutional performance. Institutional agreements should link to the national strategy and policy framework described in the previous recommendation and include a self-assessment of the challenges and opportunities faced by the institution, definition of a profile based on strategic choices and priorities, definition of specific goals and specification of measures needed to reach

these goals. To ensure institutional profiles and strategies contribute to a coherent system, careful co-ordination at sector level and between institutions will be required. As part of their profile development, institutions should identify their contribution to skills development and innovation at national and regional level and, as appropriate, their contribution to the economic development and attractiveness of their home regions or of Portugal as a player in European and global networks.

The principle of institutional agreements is that institutions commit to efforts to sharpen and develop their profiles, strategies and activities in pursuit of clear objectives and that, in return, public authorities – in this case the Government of Portugal – commit to providing strategic funding to support change, in addition to the core operating funding discussed in Chapter 3. The scale of this funding, discussed in the next recommendation, will naturally influence the ambition of institutional development plans, although it is likely to represent a relatively modest proportion of total public funding to each institution.

It is crucial that higher education institutions undertake a realistic assessment of future student demand. Assessments should identify existing programmes – or new programmes – that will be able to attract new student groups in currently under-served local populations and high-quality specialist programmes linked to institutional profiles that will be capable of attracting students from elsewhere in Portugal and abroad. In light of Portugal's low numbers of graduates in ICT fields (see above), there is certainly scope for institutions to explore how the offer of ICT-related programmes can be increased. Equally, the assessments must identify programmes that will see student numbers decline and identify options for consolidating these within the institution, through co-operation with other institutions or simply through programme closure. As part of this, a clear staffing policy will be required, identifying where new staff posts are required and identifying options for staff displaced by programme restructuring. Although such restructuring is likely to be challenging, options might include transfer to other programmes, sharing of posts in co-operative programmes between institutions or, for suitably qualified staff, specialisation in research, innovation or service activities, rather than teaching.

For public authorities – in this case the Directorate-General for Higher Education (DGES) – institutional-agreement systems require sufficient internal capacity to prepare the process and organise the evaluation, approval and monitoring of the institutional agreements themselves. At least one additional full-time-equivalent post is likely to be required to form the core of a secretariat for the institutional agreements system in the DGES. The process for approval, monitoring and final evaluation of the institutional agreements will require careful specification. Experience from other OECD systems, notably Ireland, suggests the involvement of international experts as peers in the review and evaluation of institutional plans can be very productive and greatly increase the credibility of the process.

Recommendations

14. Introduce a system of institutional agreements for public higher education institutions, with an agreement concluded between government and each public HEI, indicatively for a four-year period. The agreements should contain: a) a self-assessment of challenges and opportunities for the institution, including a realistic assessment of future student demand; b) an institutional profile based on strategic choices; c) a set of clearly formulated development objectives, including the future programmatic offer; d) planned activities to achieve the objectives, using available strategic funds and own resources; and e) well-defined (quantitative or qualitative) indicators of success. Institutions will require an indication of the level of available additional funding to inform the formulation of planned activities.
15. Take necessary steps to strengthen human resources in the public administration to allow a small secretariat to be formed to organise the institutional-agreement system and monitor progress on an annual basis.
16. Involve international experts as peer reviewers in the initial assessment of institutional plans, prior to government approval, and in the final assessment of implementation after the four-year period. Ireland's experience in this regard may be particularly instructive for Portugal.
17. Conduct light-touch monitoring on an annual basis, using existing data collection processes, wherever possible – and recognising some goals can only be monitored through qualitative assessment and will not be assessed on an annual basis. The Directorate-General for Education and Science Statistics (DGEEC) has particularly strong expertise in the development, collection and processing of higher education indicators and will be a significant asset to Portugal in implementing an agreement system.
18. At the end of the (indicatively) four-year implementation period, conduct a thorough review of process, involving the same international peers, if possible. Consider asking institutions to provide case studies of particularly successful initiatives as the basis for awarding modest competitive bonus payments to institutions. In cases of significant under-performance by institutions, require institutions to prepare remediation plans, but avoid budget reductions, which risk being counterproductive.

Allocate strategic funding to all public HEIs and provide adjustment funds to institutions with the greatest need to adapt

The achievement of the objectives in institutional strategic development agreements will require investments, which, in turn, will require some additional public funding. Given that the reform of the system of core funding discussed above will also require some additional public funding throughout the transition phase, the level of funds available for the strategic development agreements is likely to be limited. Nevertheless, particularly in light of the role of skills in shaping Portugal's future development trajectory, investing in activities that improve the effectiveness and efficiency of the public higher education system represents a sound policy choice.

Experience from other OECD jurisdictions suggests that investments of 3% to 5% of core institutional funding can be effective in supporting change in higher education institutions. However, as investment needs for upgrading and restructuring higher education in Portugal are considerable, a budget envelope equivalent to at least 5% of total core funding would be appropriate. In addition, institutions in interior and island locations, which have greater adaptation needs and stand to lose out from a more rational core-funding allocation system will ultimately require a greater level of assistance, at least during the

restructuring phases. These institutions could be allocated additional “adjustment funding”, potentially from European Union Structural and Investment Funds.

The scope to use EU funds for adjustment funding for HEIs in eligible regions will need to be explored further. Of the three regions in continental Portugal that are classified as less developed under EU cohesion policy, the North Region has the highest number of HEIs, meaning there is generally competition for Structural Funds, while Alentejo has only one university and two polytechnics, leading to reported difficulties in absorbing funds (Pinto, Nogueira and Edwards, 2021[9]). The Central Region, like the North Region, has large and attractive HEIs, but also a range of institutions in interior locations that face greater challenges. Even if EU funds can be mobilised to support adjustment funding, these disparities between the number of HEIs to support and regional funds available mean that additional national funding is likely to be required to ensure equitable treatment of institutions with greater adjustment needs.

Once funding allocations are calculated in a transparent way – indicatively a percentage of core funding for all institutions and with an additional percentage allocation for HEIs requiring adjustment – funds can be allocated to institutions as a lump sum payment, over which they have discretion for internal allocation. This would allow flexibility and avoid additional administrative burden. Accountability for the funds would be ensured by the strategic development agreements and accompanying monitoring processes. It may be appropriate to hold back a proportion of the budget envelope available for strategic development funds and allocate it to institutions on a competitive basis through targeted calls for proposals. Allocation of contributions for large infrastructure projects could be a candidate for such an approach. In all cases, the benefits, in terms of targeting, of a call for proposals should be weighed against the administrative burden for institutions and the central administration.

Recommendations

19. Provide multi-annual allocations of strategic development funding to all public higher education institutions to support achievement of the goals in their strategic development agreements. As funds permit, the level of funding could initially be around 5% of the total state budget funding envelope for public higher education institutions.
20. Allocate the majority of strategic development funding to institutions as a lump sum payment on a pro-rata basis, as a proportion of their core funding allocation (in the first year of allocation, with subsequent years in the indicatively four-year period maintained at this level, even if core funding falls as a result of declining enrolment). Accountability can be ensured through the strategic development agreement. Where appropriate, a minority of the available budget envelope could be awarded through competitive calls for proposals.
21. In addition to the strategic development funds, provide adjustment funding to institutions with greatest restructuring needs. These are the institutions that face the greatest level of enrolment decline and which will lose out most from a formula-based core-funding allocation model. Explore the feasibility of using European Structural and Investment Funds for this purpose, but ensure additional national funding is available to permit equitable allocations to all institutions in similar circumstances, irrespective of their region.

Ensure other policy tools support institutional profiling and system coherence

Many institutions in interior and island regions already have difficulty filling their allocation of study places (*vagas*) through the National Access Competition (and certainly through the first phase of the competition, when students select their first choice of study location). This problem will only become worse, as the youth cohort declines further. Attempts to persuade students to relocate to interior regions through restricting

study places in Lisbon and Porto have failed because many students simply do not wish to move to these regions, including because of the additional costs they would incur. Limiting study-place in certain fields in the country's two largest cities also restricts access to higher education for the large populations of under-served young people in these metropolitan areas.

There is thus a clear rationale for revisiting current criteria used in the *numerus clausus* system to ensure they allow greater expansion of study places designed to serve currently under-served student populations in metropolitan areas, while encouraging reduction of study places in locations where student numbers are declining and there is little hope of attracting students from elsewhere in Portugal based on the uniqueness and quality of the educational offering. The *numerus clausus* system can also be used as a tool to incentivise expansion of the educational offering in ICT-related fields, where Portugal is likely to face growing skills shortages. Consideration should also be given to introducing caps on study places for programmes that have significant and persistently poor graduate employment outcomes.

In contrast, where institutions in interior and island regions do offer programmes with strong potential to become excellence programmes – those linked to strong research centres or local industries, for example – there is a case to support the development of these programmes by restricting expansion of study places (or even cutting existing study places) in other locations that offer the programmes in question at equivalent or lower quality. Ideally, such intervention should be avoided by encouraging HEIs to co-ordinate their profiles and avoid direct competition in strategic fields for institutions in interior and island regions.

Another complementary measure, already recommended in the 2019 OECD review of higher education, research and innovation in Portugal is to remove the minimum teaching-load requirements from the legislation governing academic careers, to allow staff and institutions greater flexibility to define variable workload models. Two further policy areas, not directly covered by this review, could support the profiling and strategic development of the public higher education network discussed above. First, institutional evaluations by the Agency for Assessment and Accreditation of Higher Education (A3ES) could explicitly consider the institutional profile as part of their quality assessment. Second, FCT funding should clearly support the profiling process in a complementary manner. A review of the FCT funding instruments and an assessment of their capacity to support institutional profiling would help to inform appropriate policy decisions.

Recommendations

22. Revisit the criteria used to allocate study places through the *numerus clausus* system, removing the wide-ranging presumption against increasing study places in Lisbon and Porto and introducing restrictions on study places for programmes that stand little chance of attracting additional students or which have persistently poor graduate employment outcomes. In parallel, use the *numerus clausus* system strategically to restrict study places in programmes of equivalent or lower quality to excellent programmes located in interior and island regions.
23. Amend the decree-laws governing employment of academic staff to remove restrictive requirements regarding teaching load and facilitate more flexible workload models.
24. Ensure complementarity with institutional profiles and strategic development agreements is part of the evaluation criteria used by A3ES for institutional evaluations.
25. Ensure FCT research funding allocation criteria are supportive of the broader profiling and restructuring agenda, while analysing the need for a stronger focus on applied and practice-oriented research in polytechnics. Commission an external evaluation of FCT funding to ensure a critical reflection is held on the orientation of the investments made by this strategic agency and its complementarity with overall system goals.

Resourcing accessible higher education

Maintain a commitment to ensuring territorial coverage of higher education, but ensure a strong focus on quality and relevance in regional locations

In recent decades, Portugal has successfully – and substantially – increased the reach of its higher education system, initially expanding the network of public higher education institutions across the country and subsequently expanding participation through an increasingly diverse set of programme offerings. Compared to OECD countries of similar size, Portugal has a dense network of institutions that contributes to the accessibility its higher education system. Particularly for individuals from low-income backgrounds, for whom moving to attend higher education would be financially challenging, and those who lack the capacities and preparation needed to study successfully online, having a higher education campus in their home locality or region is likely to increase their chances of entering and completing higher education.

It is, therefore, appropriate for Portugal to maintain a commitment to the “physical accessibility” of higher education across the territory of the country. This is particularly the case for the offer of initial higher education programmes, such as short-cycle qualifications or professionally oriented bachelor’s programmes that attract large student numbers and that may be particularly well aligned with the needs of populations less able or willing to move further afield to study. Having high-quality opportunities to study in short-cycle TeSP and professionally oriented bachelor’s programmes in core subjects, such information technology, teacher education and certain areas of social care that are distributed across population centres and regions is particularly important, for example. As programmes become more advanced and more specialised, the case for concentration of offerings in a limited number of locations becomes stronger. Student demand for such programmes is more limited and specialist academic staff would ideally be concentrated in a small(er) number of centres, allowing sufficient critical mass and peer effects to deliver the quality of education and the learning environments that students require.

There is scope in Portugal for higher education institutions to sharpen their institutional profiles and to strengthen or create distinct centres of excellence providing specialised and advanced programmes, based on existing strengths in the areas of research and regional engagement. Equally, some existing provision,

particularly at bachelor's level and higher, may become surplus to requirements, as demographic trends evolve, and student demand falls further. This is likely to lead to institutional restructuring in some cases and may ultimately require some smaller institutions to work together as campuses within a single institutional structure. As shown by the development of branch campuses in higher education systems as diverse as Denmark and France, maintaining the territorial coverage of the higher education system does not imply higher education institutions need to be built or maintained in conventional forms. In some cases, there will be a trade-off to be made between maintaining "local" provision of higher education and ensuring sufficient critical mass, quality and relevance, including in terms of the employment opportunities offered to graduates in the region. In such cases, a careful evaluation of how students can best be served will be required.

Recommendations

26. Maintain physical accessibility of campuses as a criterion for planning the future of the higher education system, focusing on ensuring territorial coverage for entry-level tertiary programmes such as TeSP and other undergraduate programmes with strong student demand and high relevance to local and regional economies.
27. Recognise, in line with the recommendations above, that maintaining the territorial coverage of the higher education network does not imply maintaining the existing configuration of institutions. As part of strategic planning for the system it will be important to assess the role, in the medium term, of networked higher education campuses, exploiting the benefits of in-person and digital learning.

Consider linking tuition-fee levels to socio-economic criteria, while increasing the value of financial support to the students most in need, as public finances allow

Portugal has made considerable efforts in recent years to support low-income students to enter and complete higher education, through reducing study costs (with tuition-fee reductions) and increasing the reach of the student-grant system. From an international perspective Portugal is situated clearly in a cluster of European countries, which include Austria, Belgium, France and Italy, with comparatively low tuition fees in the public higher education sector and student financial aid systems focused exclusively on the lowest-income students. In light of the financial constraints facing Portugal's government – like other OECD governments – in the coming years, it will be challenging to increase greatly the level of investment in existing student-grant mechanisms, which already depend for a majority of their resources on European funds.

The decision to cut regulated tuition fees in public HEIs for all students and compensate institutions for the lost revenue has absorbed significant public resources to pay for what is effectively an untargeted subsidy that benefits not only students from lower-income backgrounds, but also those from middle and high-income backgrounds. A more nuanced approach would involve a progressive system of tuition fees, with the lowest fees for students in receipt of a grant, mid-range fees for students that do not qualify for a grant but come close to the eligibility requirements and higher fees for other students from more affluent backgrounds. The Flemish Community of Belgium operates such a model. In 2021/22, grant recipients (*beursstudenten*) in the Flemish system paid annual tuition fees of EUR 113.20 to attend publicly funded HEIs full-time, those who nearly qualify for a grant (*bijna-beursstudenten*) paid EUR 505.90, while other students paid EUR 961.90 (Flemish Government, 2022[10]).

Portugal's system of student grants already provides financial support for students in short-cycle TeSP programmes and provides for grants that are reduced pro-rata from students studying part-time, as long as they are enrolled for at least 30 credits per year. As the government and higher education institutions

proceed with efforts to expand programme provision for adults seeking upskilling and reskilling opportunities, it would be appropriate to investigate whether the current grant system is sufficiently flexible to support a more diverse student population and whether it is most appropriate to support adult learners through the grant system or other mechanisms.

The +Superior programme continues to provide grants to low-income students studying in designated public higher education institutions in interior and island regions. To the knowledge of the OECD review team, since the inception of this programme in 2014, there has not been an independent evaluation of its effectiveness and efficiency. In order to plan for the future of this policy instrument, such an evaluation is required, in order to understand better which students take up +Superior grants and why, what they study, how successful they are in their studies and how they fare after obtaining qualifications. It is important that any future programme ensures the interests of students take absolute priority and that they are directed to study opportunities that are appropriate to their needs and offer them strong employment prospects. Low-income individuals should only be encouraged to move to study if these conditions are met.

Recommendations

28. Introduce a differentiated system of tuition fees, similar to the system used in the Flemish Community of Belgium, with the lowest fees for grant recipients, a medium fee level of lower-income students that do not qualify for grants and a return to higher fees for other students. Use resources freed up by such a policy to increase the eligibility threshold and level of student grants.
29. Conduct a review of the current eligibility criteria for student grants (such as the 30 credit enrolment requirement) to evaluate, in greater depth than was possible for this review, if the system is sufficiently flexible to support the increasingly diverse student population that the government aspires to achieve, whether changes are required or whether other policy instruments should be used to support adult learners.
30. Commission an independent evaluation of the +Superior programme to gain a better understanding of the profile of students supported, their rationale for their study choices and their study and employment outcomes. Use the findings from the evaluation to inform the future direction of this policy, ensuring the interests and outcomes of students take precedence over other considerations.

Explore methods to ensure more equitable investment in student services across the territory

Although it is difficult to compare investment levels in student services across HEIs that operate in different contexts and serve different student populations, the current variation in per-student investment in Social Actions Services does not appear to have a clear justification. More systematic analysis would be required to establish the causes and justification for the differences observed between institutions. While a return to earmarked funding of student services used previously in Portugal is likely to create administrative burden, reduce the flexibility of institutions and lead to inefficiencies, minimum national standards or guidelines may be required to ensure more uniform levels of student-service provision across the country. Moreover, in cities and towns where multiple HEIs are located, there is a strong case for pooling student services between the institutions to ensure accessibility and efficient use of resources. This could be guaranteed by co-operation agreements between institutions or, potentially, the creation of legally separate, jointly owned student service operations.

The National Plan for Housing in Higher Education (PNAES) appears to respond to a real need for additional student accommodation in Portugal, particularly in larger cities where rental prices are increasingly unaffordable for students who move location to study. The allocation criteria for PNAES funding have sought to ensure investments are targeted in locations with greatest unmet need for subsidised student accommodation. Any future public investment in student housing should also ensure appropriate targeting on the localities with greatest unmet student need to avoid inefficient deployment of limited resources.

Recommendation

31. Analyse the factors that explain the current variation in the per-student levels of investment in student services between public HEIs in Portugal and the effects of this variation in selected locations. On this basis, evaluate the case for minimum national standards or guidelines – such as a minimum level of services that should be provided – for institutional Social Action Services, which could, in turn, be assessed through institutional audits.
32. In locations with multiple public HEIs, require HEIs to develop solutions that allow student services to be shared between institutions, where there is a rational justification for this, to increase access and improve efficiency.
33. Ensure that future investments in publicly funded student housing are targeted in locations with greatest unmet need for housing from students and are planned with future enrolment levels clearly in focus.

References

Cedefop (2022), *Employment growth in high-tech occupations*, Skills Intelligence, https://www.cedefop.europa.eu/en/tools/skills-intelligence/employment-growth-high-tech-occupations?country=PT&year=2020-2030#4 (accessed on 28 July 2022). [5]

DGEEC (2022), *Dados e Estatísticas de Cursos Superiores - Edição 2021 (Data and statistics on higher education programmes - 2021 Edition)*, https://infocursos.medu.pt/ (accessed on 14 January 2022). [4]

Eurostat (2022), *Indicators*, https://ec.europa.eu/eurostat/databrowser/ (accessed on 20 January 2022). [2]

Flemish Government (2022), *Studiegelden (Tuition fees)*, https://onderwijs.vlaanderen.be/nl/studenten/kosten-toelagen-en-werken/studiegelden (accessed on 26 July 2022). [10]

Government of Portugal (2019), *Contrato de Legislatura entre o Governo e as Instituições de Ensino Superior Públicas 2020-2023 (Contract for the Legislative Term between the Government and public higher education institutions 2020-2023)*, https://www.igefe.mec.pt/Files/DownloadDocument/72?csrt=6785169830679341608 (accessed on 28 May 2020). [7]

OECD (2022), *OECD Statistics - Education and Training*, OECD.Stat, https://stats.oecd.org/ (accessed on 8 July 2022). [3]

OECD (2021), *Education at a Glance 2021: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/b35a14e5-en. [1]

OECD (2021), "Resourcing higher education in Denmark: Thematic policy brief", *OECD Education Policy Perspectives*, No. 49, OECD Publishing, Paris. [8]

Pinto, H., C. Nogueira and J. Edwards (2021), *Higher Education and Smart Specialisation in Portugal*, Publications Office of the European Union, Luexmbourg, https://doi.org/10.2760/21040. [9]

Statistics Portugal (2020), *Resident population (projections 2018-2080) by Sex, Age and Scenario*, https://www.ine.pt/ngt_server/attachfileu.jsp?look_parentBoui=426128132&att_display=n&att_download=y (accessed on 12 November 2020). [6]

Notes

[1] Research and development (R&D) units may be established as part of higher education institutions, with or without the status of separate “organic units” in the institution’s structure, or as fully independent private entities, outside the structure of higher education institutions, but in which higher education institutions can participate. Of the 348 units evaluated by the FCT in the 2017 evaluation process for R&D units, 249 (72%) were integrated into the structure of higher education institutions.

2 Patterns and trends in Portugal's higher education system

This chapter provides a broad overview of the main features and trends that characterise Portugal's higher education system, setting the context for the discussion in the subsequent chapters, which focuses on different aspects of higher education resourcing policy. The chapter starts with an overview of the higher education landscape in Portugal, before analysing current demand for higher education along socio-economic, demographic and territorial lines. The chapter then examines the effect of demographic and economic trends on projected future demand for higher education and advanced skills.

What is the scale and location of higher education provision in Portugal?

Portugal has a binary higher education system with multiple access pathways

Portugal has a broadly binary structure of higher education provision, with universities offering academically oriented education and a network of polytechnic institutes and schools providing professionally oriented education in fields as diverse as nursing, information technology, agronomy, teacher education, management and the visual and performing arts. As shown in Table 2.1, in the academic year 2020/21, there were a total of 36 public and 70 private higher education institutions (HEIs) in Portugal. Over 80% of students are enrolled in public-sector institutions, with just over 50% in public university programmes and around 30% in public polytechnic programmes. Of the 19% of students enrolled in private HEIs, a majority are enrolled in university programmes. The 47 private HEIs with polytechnic status, despite their number, collectively enrolled fewer than 6% of all students in Portugal in 2020/21. This review focuses primarily on the resourcing of Portugal's network of public universities and polytechnics.

Table 2.1. Number of HEIs in Portugal by type and share of enrolment (2020/21)

	University		University with polytechnic organic unit(s)			Polytechnic institute or school		Military and police training institutions**		Total	
	Number	Share of total enrolment	Number	Share of total enrolment*		Number	Share of total enrolment	Number	Share of total enrolment	Number	Share of total enrolment
				U	P						
Public	7	37.3%	7	13.2%	2.4%	20	28.2%	2	0.3%	36	81.4%
Private	22	10.2%	1	2.7%	0.2%	47	5.6%	0	-	70	18.7%
Total	**29**	**47.3%**	**8**	**15.9%**	**2.6%**	**67**	**33.8%**	**2**	**0.3%**	**106**	**100.0%**

Note: * U = University and P = Polytechnic. ** The two institutions (not covered by this review) are the Instituto Universitário Militar, which includes an organic unit offering technical education with polytechnic status, and the Instituto Superior de Ciências Policiais e Segurança Interna.
Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021).

Most large HEIs are structured into administratively distinct faculties and schools with the legal status of "organic unit" (*unidade orgânica*), sometimes referred to in data collections as "educational establishments" (*estabelecimentos de ensino*). In 2020/21, the network of higher education institutions comprised 288 operational organic units[1]. Seven public universities (as well as the Universidade Católica Portuguesa, Portugal's largest private university) have one or more organic units within their overarching structure offering professionally oriented polytechnic programmes. In most cases, these organic units were previously independent schools in areas such as nursing, technical engineering, education or design, which were integrated into the university structures over time. In all cases – and notably in the cases of the Universidade dos Açores, the Universidade da Madeira and the Universidade do Algarve – there is no public polytechnic institute in close proximity, meaning that the public universities are the main provider of "polytechnic" programmes in their respective regions.

Universities can confer bachelor's degrees (*licenciaturas*), second-cycle master's degrees (*mestrados)* and PhDs, following the Bologna cycles used in the European Higher Education Area. As in other European countries, longer, integrated master's degrees (*mestrados integrados*) are still offered in certain professional fields, such as medicine, pharmancy and architecture, with such programmes provided exclusively in universities[2]. Polytechnics provide bachelor's and second-cycle master's programmes, as well as short-cycle Professional Higher Technical Programmes (TeSP) (Government of Portugal, 2018[2]).

Box 2.1. Admission to public higher education institutions in Portugal

The main route for accessing undergraduate programmes in public universities and polytechnics in Portugal, the National Access Competition (CNA), is organised by the Directorate-General for Higher Education (DGES) at the end of each school year. Applicants must be holders of a secondary-school diploma or legally equivalent qualification; have obtained – within the previous four years – the minimum grades in the school-leaving exams required for the programmes for which they wish to apply; and fulfil other prerequisites for their chosen programmes, such as physical or linguistic ability.

Qualified candidates compete for study places (*vagas*) fixed annually by HEIs with approval from the DGES. This system of centrally co-ordinated *numerus clausus* may include specific conditions for public HEIs, such as study-place allocations for local students in the island regions of Portugal. The CNA has three successive phases. The first phase is open to candidates transitioning from upper secondary education (the "general" stream) and reserves spaces for candidates from island regions, Portuguese emigrant families, military personnel and those with disabilities. As a rule, candidates with the best secondary school-leaving exam marks are placed in the first phase and have the greatest chance of accessing their first choice of programme. The second phase allows candidates from the general stream, but narrows special groups to those with disabilities only, and the third and final phase allows applications from a single non-differentiated group.

Table 2.2. Access routes to public higher education institutions (2019/20)

	Number of entrants 2019/20	Share of new entrants 2019/20
General Access Regime	44 942	74.3%
National Access Competition (CNA)	44 242	73.2%
Local competitions	700	1.2%
Applicants over 23 years old	3 116	5.2%
Holders of higher education degrees	1 252	2.1%
Holders of Technological Specialisation (CET) certificates	132	0.2%
Holders of short-cycle qualifications (TeSP)	1 445	2.4%
Other forms of access	6 288	10.4%
Change of institution / programme	3 305	5.5%
Total	**60 480**	**100.0%**

Note: Technological Specialisation (CET) programmes have been superseded by Professional Higher Technical Programmes (TeSP).
Source: DGEEC (2022[3]) *Dados e Estatísticas de Cursos Superiores (Data and statistics on higher education programmes)* https://infocursos.medu.pt/bds.asp (accessed on 10 July 2022).

At institutional level, "local competitions" are used for programmes in the visual and performing arts and "special competitions" in a range of situations, including for international students, candidates older than 23, candidates with a post-secondary professional diploma (CET or TeSP) or, since 2020, applicants with an upper-secondary vocational diploma – see Table 2.2. Admission to second and third cycle programmes is determined by HEIs themselves.

Source: DGES (2022[4]), *Informação Geral – Concurso Nacional de Acesso (General Information – National Access Competition)*, https://www.dges.gov.pt/pt/formas_de_acesso (accessed on 21 January 2022).

The admission process for individuals wishing to access higher education in Portugal depends on the situation and age of the applicants, the status of the institution to which they are applying, and the type of programme they wish to follow. Private higher education institutions are responsible for organising

admission procedures for their programmes through institutional-level selection processes ("institutional competitions"). For public institutions, as detailed in Box 2.1, the main access route for undergraduate programmes is the National Access Competition (CNA), organised centrally by the Directorate-General for Higher Education (DGES), taking into account students' results in secondary-school leaving examinations in the fields required for the programme they wish to follow (for example, in mathematics, Portuguese or foreign languages). In 2019/20, 73% of new entrants to public higher education institutions were placed based on their preferences and examination results in one of the three phases of the National Access Competition. The remainder of new entrants entered through a range of access routes organised at institutional level, including specific routes for accessing TeSP programmes and for those aged over 23 (see Table 2.2). Since 2020, following a recommendation from a previous OECD review (OECD, 2019[5]), Portugal's government introduced specific competitions for students graduating from vocational secondary programmes[3], allowing them to access a specific set of undergraduate programmes (Government of Portugal, 2020[6]).

Universities are structured into larger organic units than polytechnics

The largest organic units in Portugal's higher education system, in terms of student enrolment, are in public universities, while the smallest are in private polytechnics. Universities enrol a majority of students (63%), but account for only around two-fifths of organic units (Table 2.3). The average number of students per organic unit in public universities (2 621 students) is more than double the equivalent ratio in private universities (1 294). While the scale of public polytechnics is similar to that of private universities (1 242 students per organic unit, on average), private polytechnics operate at a much smaller scale than any other type of institution, with 396 students per organic unit, on average.

Table 2.3. Enrolment in higher education establishments in Portugal (2020/21)

	University			Polytechnic			Total		
	Organic units	Enrolment	Share in enrolment (%)	Organic units	Enrolment	Share in enrolment (%)	Organic units	Enrolment	Share in enrolment (%)
Public	79	207 064	50.3	102	126 640	30.7	187	335 139	81
Private	41	53 072	12.9	60	23 784	5.8	101	76 856	19
Total	**120**	**260 136**	**63.2**	**162**	**150 424**	**36.5**	**288**	**411 995**	**100**

Note: Not including military and police training institutions (with six organic units and 1 435 students), which are not covered in this review.
Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021).

Enrolment is at record levels thanks to the expansion of public HEIs

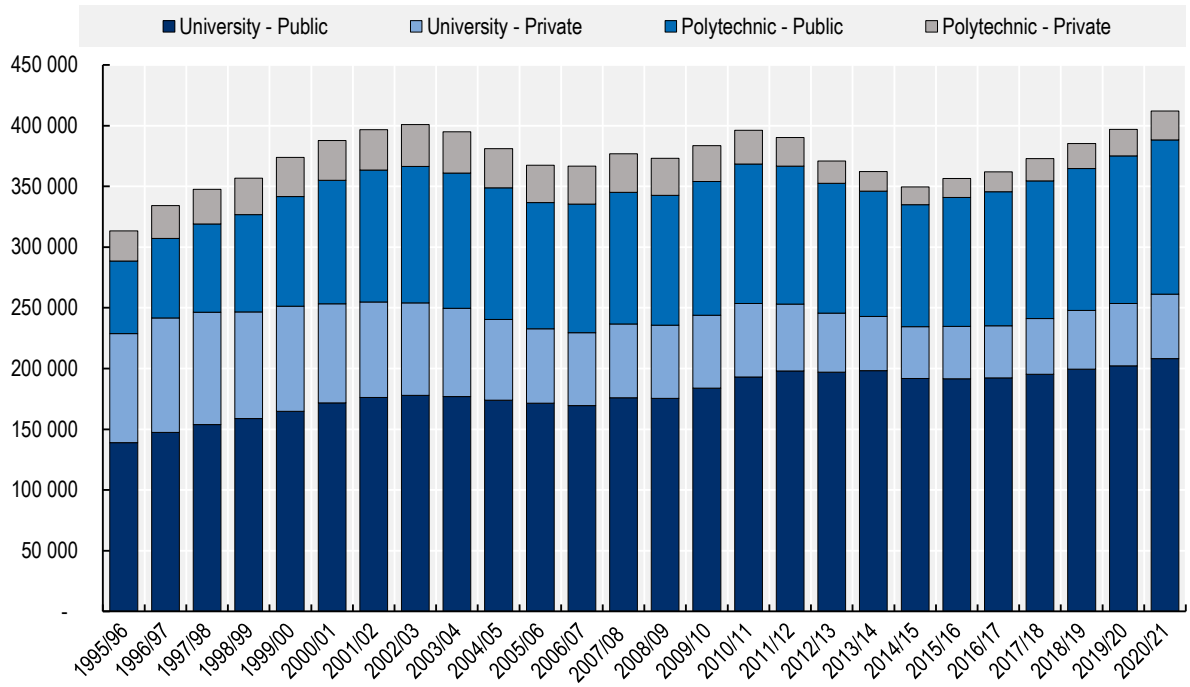
Enrolment in higher education in Portugal reached its highest ever level in 2020/21, with 411 995 enrolled students. This equated to 392 464 full-time-equivalent (FTE) students and marked a 15% increase from 358 450 in 2014/15 (see Figure 2.1). Enrolment was cyclical over the 25 years between 1996 and 2021, reaching peaks after economic downturns in 2002/03, 2007/08 and 2010/11 which, like the 2020/21 peak, followed economic recessions. The increase in enrolment in recent years has also been driven by the introduction of short-cycle Technological Specialisation Programmes (CET) and – from 2016 onwards – Professional Higher Technical Programmes (TeSPs), as well as the creation of specific admission routes to higher education for students aged over 23. Both these measures have attracted new student populations to higher education.

In absolute terms, enrolment growth between 2016 and 2021 was greatest in public institutions. While the increase in student numbers between 2016/17 and 2020/21 accrued to all types of institutions, enrolment

in private institutions grew slightly faster, leading to an increase of two percentage points in their share of total enrolment (from 16% in 2016/17 to 18% in 2020/21). However, this recent increase in the share of total enrolment in private institutions occurred against a backdrop of a long-term decline in the relative importance of private higher education in Portugal. The share of students enrolled in private institutions decreased from 37% in 1995/96 to 16% in 2016/17. Public institutions have consistently attracted over 80% of total enrolment since 2012/13. Between 2016/17 and 2020/21, public polytechnics accounted for half of the total increase in enrolment in higher education in Portugal: 20 238 out of the 40 995 additional students (DGEEC, 2021[1]).

Figure 2.1. Enrolment in higher education establishment by type and status

Number of students including international students expressed in headcounts between 1995/96 to 2020/21



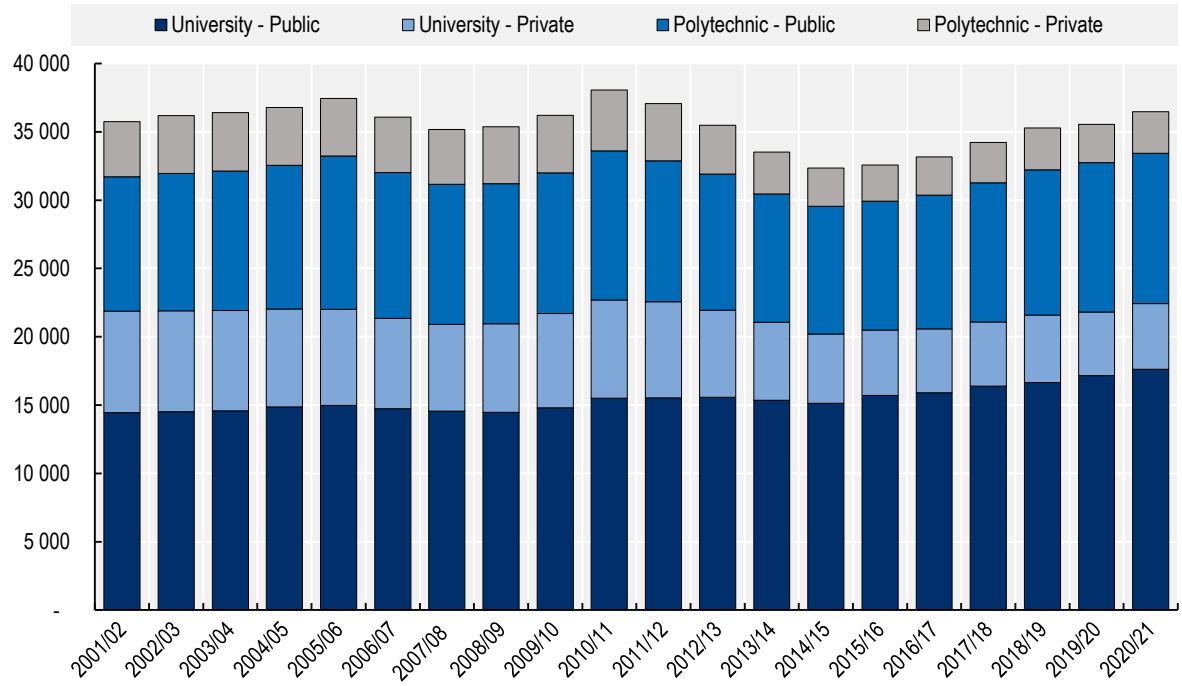
Note: Includes students enrolled in programmes provided by higher education institutions, except those enrolled for preparing a dissertation or project work and those enrolled in specialisations that, cumulatively, do not amount to 60 European Credit Transfer and Accumulation System (ECTS) points or 300 contact teaching hours distributed in two teaching semesters and a final evaluation.
Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021).

StatLink https://stat.link/puw2bv

In line with enrolment trends, only public higher education institutions have increased the number of academic staff they employ over the last decade (see Figure 2.2). In 2020/21, a total of 36 473 individual academic staff members, equating to 25 663 FTE posts, worked in higher education institutions across Portugal. This is roughly the same number as in the early 2000s. A net decrease of 1 591 individual academic staff between 2010/11 and 2020/21 resulted from contraction in private higher education institutions (where academic staff numbers fell by 3 795), compensated by a more limited expansion in public institutions (by 2 204). Academic staff numbers generally increased during periods of higher enrolment, although between 2015/16 and 2020/21 enrolment grew faster than the total number of academic staff (an increase of 17% for students, compared to 12% for staff).

Figure 2.2. Academic staff in higher education institutions by institution type

Number of academic staff (docentes) expressed in headcount between 2001/02-2020/21



Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021).

StatLink https://stat.link/48qarb

An increasing number of international students come to study in Portugal, but the proportion of non-Portuguese academic staff is growing only slowly

In 2019, the share of international students within total enrolment in higher education in Portugal was in line with the (then) EU-28 average of 9% (Eurostat, 2022[7]). This placed Portugal 17th out of 35 European countries for which data are available in terms of the share of international students, on a par with Belgium and France. The share of international students among enrolled students in Portugal increased by five percentage points between 2013 and 2019, the sixth-largest increase in the same group of 35 European countries. The increase in the share of international students in higher education programmes between 2013 and 2019 is likely to have been influenced by legislation adopted in 2014 that regulates the status of international students and makes it easier for them to access higher education (Government of Portugal, 2014[8]). The share of international students enrolled in bachelor's programmes increased from 8.1% in 2014/15 to 13.1% 2019/20, while the increase in second-cycle master's programmes was from 15.2% to 27.5%.

In 2020/21, around 40% of international students (18 528 out of 47 072) were enrolled in bachelor's programmes and just under 40% in second-cycle and integrated master's programmes (18 133). Most international students (80%) attend public higher education institutions. Data at the organic unit level for 2019/20 show international students concentrated in 100 units (out of 288 in Portugal), 23 of which had at least a 20% share of foreign students. Among public institutions, the Instituto Politécnico de Bragança and the Instituto Politécnico da Guarda are notable in that international students represent, respectively, 38% and 34% of total enrolment in bachelor's and master's programmes.

Non-Portuguese academic staff still represent a comparatively small share of total academic staff in both public and private higher education institutions. In 2020/21, non-Portuguese staff represented only 3.8% and 4.5% of total academic staff in public and private institutions respectively. The share of international staff is larger and growing faster in universities (where the share increased from 3.7% to 5% between 2001/02 and 2020/21) than in polytechnics (where the increase was from 1.7% to 1.9% in the same period). Despite a fall of five percentage points in the share of foreign staff with Spanish nationality in the last five years, Spain is still the first country of origin of international academic staff in public institutions (19.2%), followed closely by Brazil (18.7%). The share of Brazilian academic staff in Portuguese higher education institutions increased by 10 percentage points between 2015/16 and 2020/21.

Public institutions in Lisbon and the North and Central regions, attract most students, while some programmes in interior and island regions operate below capacity

Much of the expansion in enrolment in higher education in the last decade has been concentrated in the North Region, while enrolment has decreased in absolute and relative terms in Alentejo, the Algarve and the Azores. The North Region was the location of 85% (13 254 out of 15 727) of additional enrolments in Portugal between 2010/11 and 2020/21. This represents five additional enrolments per 1 000 inhabitants in the region over that period (see Table 2.4). While the North Region concentrated one-third of enrolments in 2020/2021 – three percentage points more than a decade before – the Lisbon Metropolitan Area has consistently concentrated around 37% of enrolment. The Algarve experienced the largest decrease in enrolment rates between 2002/03 and 2020/21, with a decrease of 6.3 students per 1 000 inhabitants. Unlike other regions with declining enrolment rates, the change in the Algarve was the result of both an absolute decline in enrolment and an increase in population (the latter driven particularly by individuals retiring to the region).

Table 2.4. Enrolment and academic staff in higher education by region in Portugal

	Total enrolment (headcount)			Enrolment rate per 1 000 inhabitants			Academic staff (headcount)			Academic staff per 100 enrolled students		
Region	2002/03	2010/11	2020/21	2002/03	2010/11	2020/21	2002/03	2010/11	2020/21	2002/03	2010/11	2020/21
Lisbon Metropolitan Area	151 390	150 034	153 149	56.5	53.4	53.5	14 455	14 816	13 271	9.5	9.9	8.7
North Region	122 427	123 754	137 008	33.1	33.4	38.3	10 795	12 129	12 184	8.8	9.8	8.9
Central Region	87 501	85 749	88 169	37.2	36.7	39.8	7 319	7 611	7 785	8.4	8.9	8.8
Alentejo	21 441	18 410	17 640	27.6	24.2	25	1 831	1 596	1 572	8.5	8.7	8.9
The Algarve	11 331	10 896	9 613	28.3	24.4	21.9	1 077	1 209	983	9.5	11.1	10.2
Autonomous Region of Madeira	3 078	3 551	3 721	12.4	13.3	14.6	353	329	401	11.5	9.3	10.8
Autonomous Region of the Azores	3 663	3 874	2 695	15.1	15.7	11.1	361	374	277	9.9	9.7	10.3
Portugal	**400 831**	**396 268**	**411 995**	**38.6**	**37.5**	**40**	**36 191**	**38 064**	**36 473**	**9.0**	**9.6**	**8.9**

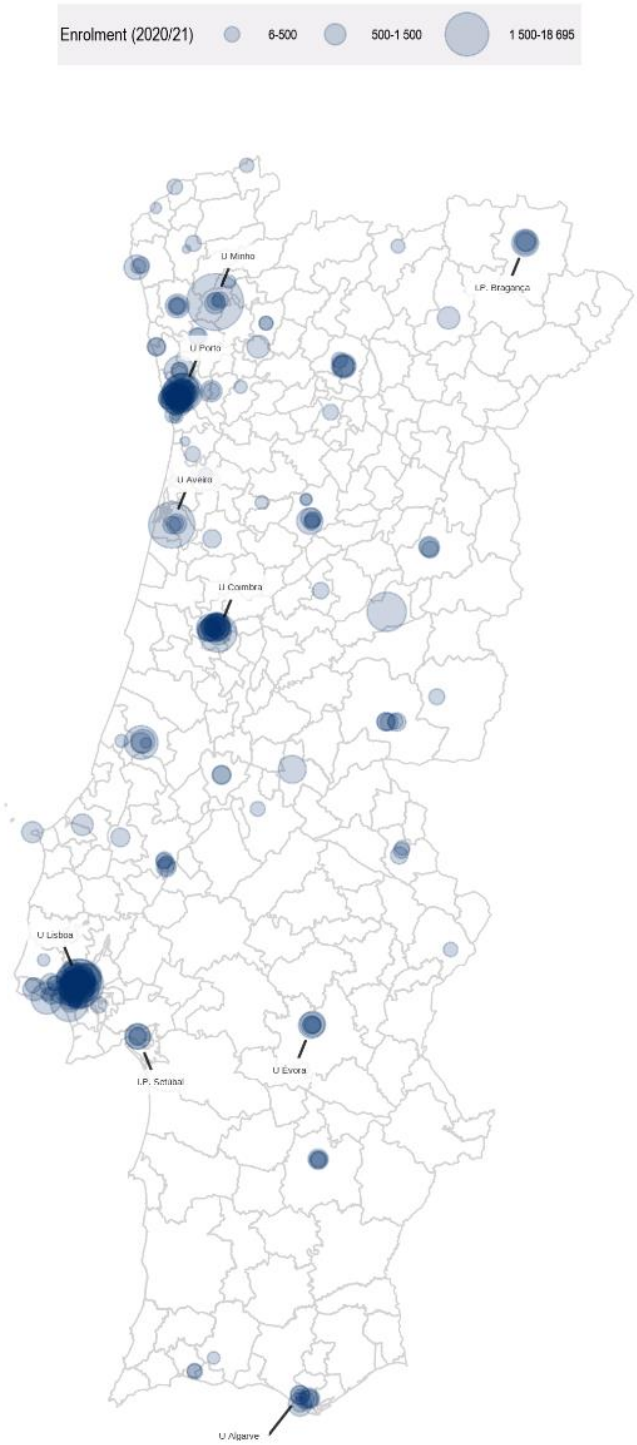
Note: Regions are Territorial Level (TL) 2 regions. Headcount data are used to illustrate trends, as data on full-time equivalent students and staff are available only from 2012/13 onwards.
Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021).

As the number of academic staff generally increased more slowly than enrolment, the number of academic staff per every 100 students declined in the last decade across all regions of Portugal, except in the Azores and Madeira. The number of academic staff per 100 enrolled students is lowest in the Lisbon Metropolitan Area, the region with the highest total level of enrolment.

As shown in Figure 2.3, in 2020/21, 378 300 domestic higher education students, originating in 309 different municipalities in Portugal attended higher education campuses located in 62 municipalities across the country. Only 28 of the 62 municipalities that are home to a higher education campus have a positive net flow of students, meaning that more students move to the municipality to study than residents leave to study elsewhere (see Figure 2.4). At the municipal scale, Lisbon, Porto and Coimbra are the main nodes of higher education in Portugal. Lisbon, Porto and Coimbra account for, respectively, 30%, 15% and 9% of inflows, together receiving more than half of all students who move municipality to attend higher education.

As illustrated in Figure 2.5, student-flow data demonstrate that higher education institutions in the municipalities of Lisbon and Porto enrol a majority of their students from their local metropolitan areas (the core city and surrounding municipalities), while campuses outside Lisbon and Porto enrol a majority of their students from outside their local area. As an example, around three-quarters of students (74%) attending a higher education campus in the functional urban area (FUA) of Lisbon – which groups Lisbon municipality and surrounding suburban municipalities – come from the FUA of Lisbon. Furthermore, almost all students (93%) entering higher education who live in the FUA of Lisbon attend a higher education institution located in the same area. This level of both local attractiveness and relative homogeneity in places of origin is unique in the Portuguese context. Higher education institutions in the FUAs of Porto and Coimbra and the municipality of Bragança all attract around three-quarters of “local” students, but local students account, respectively, for only 58%, 42% and 33% of total higher education enrolment in these three areas.

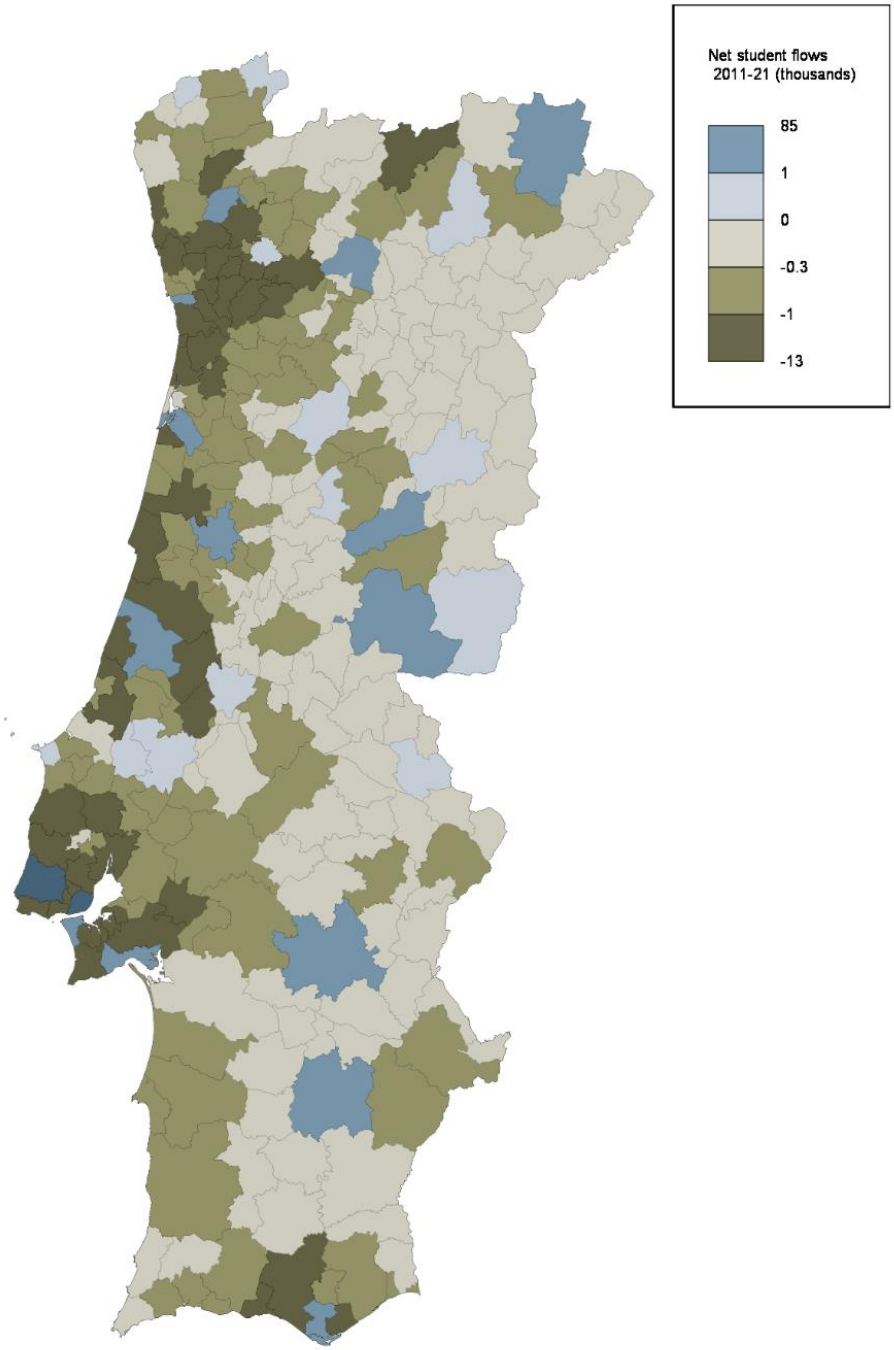
Figure 2.3. Enrolment by higher education campus in Portugal in 2020/21



Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021). Source of administrative boundaries: Agência para a Modernização Administrativa (2021[9]) Portal de dados abertos da Administração Pública, accessible at: https://dados.gov.pt/en/datasets/freguesias-de-portugal/ (accessed on 22 September 2021).

Figure 2.4. Net flows of students by municipality

Net flows of students (number of incoming students minus number of outgoing students) by municipality in mainland Portugal (2020/21)



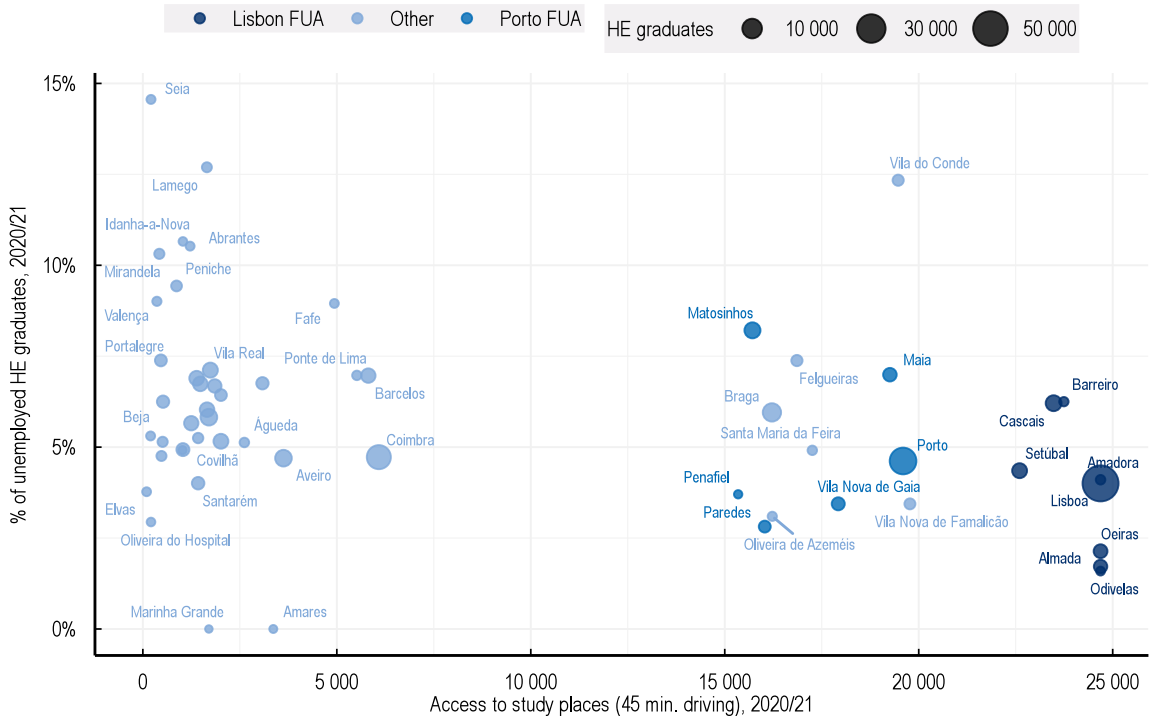
Note: Domestic students only.

Based on a matrix containing the number of enrolled students in higher education organic units by municipality of permanent residence. Permanent residence means the place where the student's household has lived for most of the time in the 12 months prior to the time of enrolment. Start (residency/home location) and end (organic unit/campus) locations defined by geographical centroids of municipal boundaries.

Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021). Source of administrative boundaries: Agência para a Modernização Administrativa (2021[9]) Portal de dados abertos da Administração Pública, accessible at: https://dados.gov.pt/en/datasets/freguesias-de-portugal/ (accessed on 22 September 2021).

Figure 2.5. Local attractiveness and diversity of origin of students across municipalities and FUAs

Data for 2020/21. Includes municipalities with at least one higher education campus



Note: Local attractiveness is defined as the share of students attending a higher education campus (organic unit) located in their place of residence. Diversity of origin is defined as the share of students coming from local areas as a proportion of the total number of students. FUA refers to functional urban areas.

Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021). Source of administrative boundaries: Agência para a Modernização Administrativa (2021[9]) *Portal de dados abertos da Administração Pública*, accessible at: https://dados.gov.pt/en/datasets/freguesias-de-portugal/ (accessed on 22 September 2021).

The number of study places offered in each region has not always evolved in line with enrolment and student demand in recent years. Higher education campuses in regions with declining numbers of prospective students of traditional student age (see below), including Alentejo and the Algarve, increased the number of study places they offered between 2018 and 2021 by 4%. In contrast, campuses located in regions with comparatively high student demand, such as the North and Central regions, increased the number of study places they offered by only 1% (DGES, 2021[10]). Two polytechnics in interior regions with comparatively low student demand increased their study place offer by, respectively, 21% and 27% between 2018 and 2021 – double the rate of the Universidade do Porto, the fastest-expanding university, where the number of places increased by only 11%.

In Portugal, "occupancy rates" – the ratio between the number of first-time students enrolled in each programme through General Access Regime[4] and the number of regulated study places available in that course – are frequently used as an indicator of student demand for a specific programme or institution in the public higher education system (DGEEC, 2022[11]). As shown in Table 2.5, public universities generally fill in excess of the basic number of study places they have available through the General Access Regime (primarily the National Access Competition). The only exception is the Universidade dos Açores, which fills slightly under 100% of available study places in through this primary access route. The picture is more varied in the public polytechnic sector, where fewer institutions fill their study places through the General Access Regime, particularly in Alentejo and the Central Region. In contrast, public polytechnics in the

Lisbon Metropolitan Area and the Algarve enrol more students through the General Access Regime than the basic level of study places they have available. As can be seen in Table 2.5, occupancy rates in the private sector are significantly lower than in the public sector.

Table 2.5. Occupancy rates by sector of higher education and region

Occupancy rates (first-time students entering through the General Access Regime as a proportion of available regulated study places) for 2020/21 by TL2 region and sector of higher education

	Public university		Public polytechnic		Private university		Private polytechnic	
	Number of organic units	Occupancy rate (%)	Number of organic units	Occupancy rate (%)	Number of organic units	Occupancy rate (%)	Number of organic units	Occupancy rate (%)
North Region	19	107.7	29	91.3	21	79.1	31	55.1
Lisbon Metro Area	35	107.9	16	104.3	15	77.2	20	54.6
Central Regionl	12	101.7	32	86.7	4	61.5	4	27.7
Alentejo	4	101.6	14	76.4			1	15.2
The Algarve	4	115.9	5	104.1	1	34.1	1	59.7
The Azores	4	97.6	4	96.3				
Madeira	4	101.5	2	101.8			2	57.1
Portugal	**82**	**106.1**	**102**	**91.3**	**41**	**76.2**	**59**	**55.1**

Note: Occupancy rates are calculated as the ratio of students enrolled for the first time through the General Access Regime in initial cycles of higher education (bachelor's degree (*licenciatura 1.º ciclo*), integrated master's (*mestrado integrado*) and preparatory for integrated master's (*preparatórios de mestrado integrado*)) to study places (*vagas*) fixed through the numerus clausus system. Enrolment of students undertaking an international mobility period are not included. The data do not include enrolment in the Universidade Aberta (Open University) or the military and police training institutions.
Source: DGEEC (2022[11]) *Estatísticas da Educação 2020/21 (Educational statistics 2020/21)*, https://www.dgeec.mec.pt/np4/1372.html (accessed on 15 July 2022).

Although occupancy rates – calculated in the way described above – do provide a valuable indicator of the attractiveness of higher education institutions and mainstream initial study programmes for traditional study groups, they must be interpreted with care. Crucially, occupancy rates do not take into account students accessing first-cycle higher education programmes through routes other than the General Access Regime and most notably the "special competitions" for international students, students over the age of 23, existing holders higher education qualifications, those changing courses, competitions for students in upper-secondary vocational education and certain additional "special regimes". After students entering through these other access routes are taken into account, all but 10 of the 169 organic units in the regular public higher education sector fill at least 100% of the regulated study places they had on offer (variation may exist between programmes, with study places in some cases not 100% filled). Eight of the 10 organic units that filled less than 100% of the student places once all enrolments are taken into account were located in public polytechnics and one in each of the public universities located in island regions (Madeira and the Azores) (DGEEC, 2022[11]).

Who participates in and completes higher education in Portugal?

The creation of new admission routes has increased opportunities to enter higher education

Higher education participation and attainment rates in Portugal have been increasing steadily over the last decade. The higher education attainment rate among those aged 30 to 34 in Portugal reached 43.7% in 2021, compared to only 27.8% in 2012 (Eurostat, 2022[7]). Portugal now has a tertiary-education attainment rate among 30–34-year-olds above the average of the 27 European Union member states (41.6% in 2021), albeit still somewhat below the levels seen in parts of Northern Europe, the Netherlands, Switzerland and Ireland, where attainment rates now exceed 50% for the same age group.

The current admission process for accessing higher education in Portugal, outlined in the previous section, ensures that most candidates that apply to enter higher education are eventually admitted, despite a comparatively selective admission procedure. Over time, the introduction of new admission routes to higher education has helped to widen and diversify access to higher education. Procedures for applicants aged over 23 were introduced in 2006 and integrated into revised secondary legislation on access to higher education in 2014 (Government of Portugal, 2014[12]), while more recent policies have aimed to increase participation in higher education among those graduating from the vocational tracks of upper secondary education (Government of Portugal, 2020[6]). The proportion of international students has also increased steadily over the last decade. In 2019/20, largely as a result of these developments, only 73% of new students were admitted to undergraduate programmes through the National Access Competition, compared to 90% in 2012 (DGES, 2022[4]).

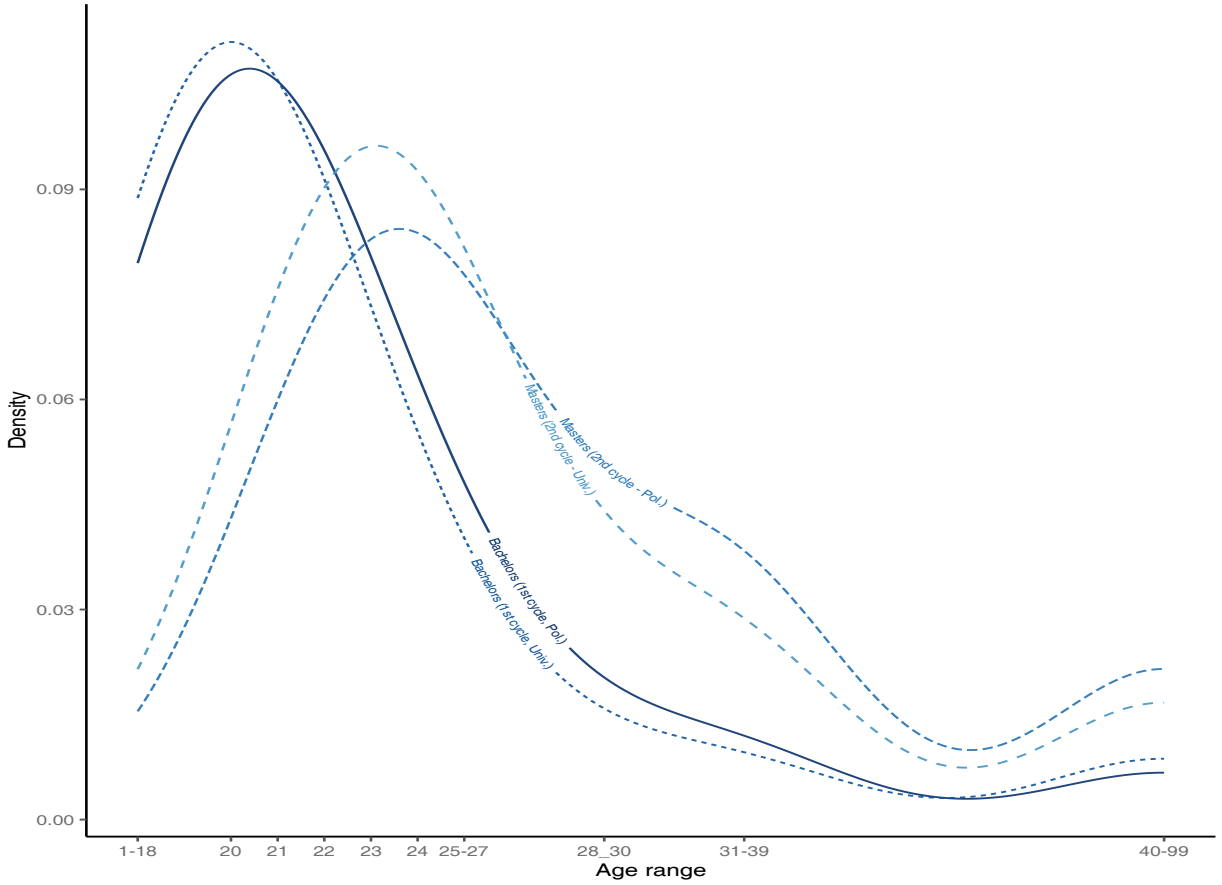
A majority of students enrolled in higher education in Portugal are aged between 20 and 25, although students enrolled in polytechnics have an older average age profile. National data show that 83% of domestic students enrolled in higher education in 2017/18 were younger than 30 and 74% were younger than 25. Data for 2021 show that about half (51.5%) of 20-year-olds in Portugal were enrolled in a higher education institution, compared to just over 40% in 2015. The government has set a target for 60% of 20-year-olds to be enrolled in higher education in 2030 (DGES, 2021[13]).

The vast majority of students in higher education in Portugal are under 25

Although the entry regulations provide a specific pathway for older students to access to higher education, the share of enrolment in bachelor's programmes of students above 23 is still small, especially in public institutions (5.2% in 2019/20 – see Table 2.2). The share of first-time entrants to higher education aged below 25 in Portugal – as opposed to enrolled students aged below 25 – was 91% in 2020, compared to an OECD average of 83% (OECD, 2021[14]). As illustrated in Figure 2.6, the probability of an individual being enrolled in higher education decreases sharply among those over 30 and increases slightly again after 40, as people this older age group enrol in greater numbers in master's programmes. Students in polytechnics are on average older than those in universities, reflecting the wider range of offerings in polytechnics targeting the adult working population. In 2020/21, the share of master's students aged over 30 in polytechnics was 32%, compared to 23% in universities.

Enrolment of students combining study and work in Portugal's higher education system fluctuated around 30 000 in the period 2016/17 to 2020/21, reaching a maximum of 9% of total enrolment (33 271 students) before the COVID-19 pandemic in 2019/20. In 2020/21, working students were enrolled in 100 of the 288 organisational units in the country, nine of which with working students accounting for more than a quarter of total enrolment. Polytechnics concentrate the largest share of the offer of degree programmes offered through evening classes under the so-called "after-work regime" (*regime pós-laboral*).

Figure 2.6. Age of enrolment by type of degree in 2019/20



Note: Excludes students in integrated master's programmes (universities). "Density" refers in the vertical axis refers to the likelihood of an event happening – in this case a student being a certain age.
Source: Authors' elaboration based on DGEEC (2022[3]), *Dados e Estatísticas de Cursos Superiores - Edição 2021 (Data and statistics on higher education programmes - 2021 Edition)* https://infocursos.medu.pt/ (accessed on 14 January 2022).

Drop-out rates from undergraduate programmes in Portugal are comparatively high

Older students are more likely to drop out of their studies or take a longer-than-standard time to complete their programme than their younger counterparts. An analysis conducted in 2018 showed that only 46% of students in Portugal who started a – nominally three-year – bachelor's degree in 2011/12 had successfully completed the degree four years later (in 2014/15). 29% of all students had left their bachelor's programmes without graduating by the end of the four-year period analysed. Among students entering bachelor's degrees after secondary education through the National Access Competition, 51% had completed their programme four years later, and 21% had dropped out of higher education. Among students entering through the special competition for those aged over 23 in 2011/12, only 30% had graduated by 2015/16 and 50% had left the higher education system (DGEEC, 2018[15]).

These patterns are confirmed in international data on completion rates in bachelor's degrees, the most recent of which at the time of writing dates from 2017. In OECD jurisdictions with available data, an average of 39% of students in bachelor's degrees completed their programmes within the theoretical duration (three or four years), with the proportion having successfully graduated rising to 67%, on average, three years after the end of the theoretical programme duration (i.e., six years later for three-year bachelor's programmes). In Portugal, the equivalent figures were respectively 30% of students completing within the

theoretical three-year duration of the programme and 65% having graduated after six years. The proportion of bachelor's students graduating "on time" in Portugal was around the same as in the Netherlands and Belgium – both countries with largely open access systems of higher education – but well below the proportions in Ireland and the United Kingdom (63% and 72% respectively) (OECD, 2019[16])

Family background has a significant influence on participation in higher education

Individual-level data on the socio-economic characteristics of students could give a complete picture of the differences in the socio-economic profile of people accessing and graduating from higher education compared to society at large. However, such data are not readily available in Portugal. Moreover, it is not possible to discern the effect of socio-economic background on participation from aggregated entry and completion statistics as the applicant pool already reflects selection based on income and socio-economic background, with those from more advantaged backgrounds more likely to be in a position to apply. This report uses information available on the level of education of students' parents as a proxy for the socio-economic profile of students, acknowledging that the influence of differences in family background is more pronounced in basic education than in higher education (DGEEC, 2018[15]; OECD, 2019[17]).

As in other OECD countries, the socio-economic background of students affects their decisions to enter higher education in Portugal. PISA data from 2018 show that 25% of top-performing 15-year-olds from a disadvantaged socio-economic background in Portugal did not expect to complete higher education, compared to only 3% of top-performing students from advantaged backgrounds (OECD, 2019[18]). Individuals whose parents have not attained tertiary education are under-represented among new entrants to bachelor's programmes in Portugal. In 2015, 61% of new entrants to bachelor's and integrated master's programmes did not have tertiary-educated parents, compared to 78% of 18–24-year-olds in the population at large. This disparity is larger in Portugal than in other OECD countries that have historically had low levels of tertiary attainment. Thus, in Chile 67% of tertiary entrants had parents without tertiary qualifications, compared to 70% of 18-24-year-olds overall, while the ratio was 71% to 82% in Italy (OECD, 2019[17]). Whether or not students have tertiary-educated parents does not seem to influence on average the number of years it takes students to finish their degrees (DGEEC, 2018[15]).

In Portugal, available data on completion of bachelor's degrees among students with different entry examination scores shows a positive correlation between scores and completion, with only 19% of students with the bottom scores on entry having graduated four years after starting their degree, compared to 58% of students with mean scores (DGEEC, 2018[15]). Students who access higher education with lower scores in national entrance exams in Portugal are likely to have received lower quality basic education, which is, in turn, strongly correlated with lower socio-economic background.

The socio-economic status of parents influences the choice of upper-secondary programme, which influences participation in higher education, as students who choose a vocational upper-secondary pathway have a substantially lower probability of entering higher education. As in other OECD countries, students without a tertiary-educated parent in Portugal are more likely to follow a vocational upper-secondary pathway than a general one (OECD, 2021[14]). In 2019/20, 81% of students that followed the general scientific-humanistic pathway had entered higher education within one year of completing secondary school, with 80% enrolled in bachelor's or integrated master's programme and 1% in a short-cycle TeSP programme. This compares to just 24% of students that followed a vocational pathway who enter higher education within one year of completing secondary school. Of the minority of vocational students that do enter higher education, half enrol in TeSP programmes. The proportion of graduates form the secondary vocational track of upper-secondary education and entering a bachelor's programme within one year doubled between 2018/19 and 2019/20 (12% compared to 6%) (DGEEC, 2021[1]). This likely reflects the first effects of the new dedicated admission route to higher education for graduates from secondary vocational education that was launched in 2020, with the aim of further increasing transition rates into higher education among this population.

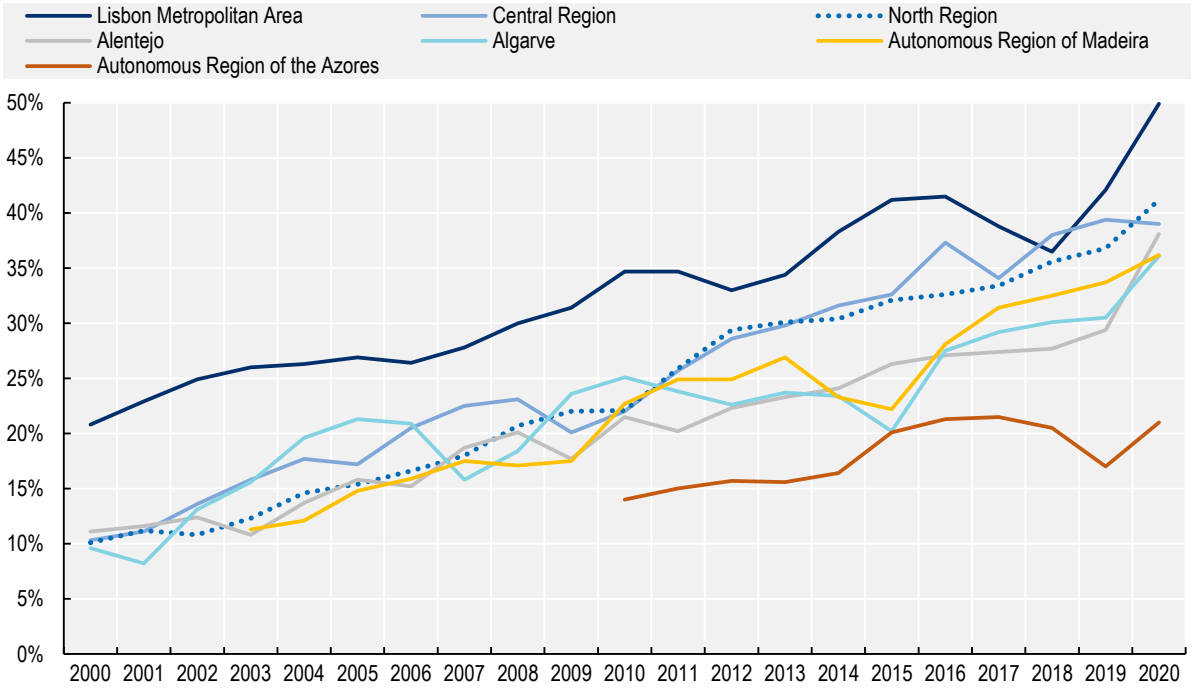
Regional location has less influence on individuals' chance of completing higher education in Portugal than in the past

In 2021, a total of 1.7 million individuals in the active population in Portugal held a higher education qualification (DGEEC, 2021[1]). Older people and those living outside the metropolitan area of Lisbon are less likely to have obtained a tertiary-education qualification. In 2020, the share of adults aged 25-54 with tertiary education in Portugal, at 32.1%, was more than double the share among 55–74-year-olds (14.6%). The share of tertiary-educated adults in the Lisbon Metropolitan Area was 38% – 10 percentage points higher than the national average of 28%, and more than double the rate in the two regions with the lowest attainment rate: Alentejo and the Autonomous Regions of the Azores (16%).

Regional differences in tertiary attainment are, however, smaller among younger age cohorts, as the regional gap in attainment among 25–34-year-olds has consistently closed in the past two decades. As illustrated in Figure 2.7, tertiary education attainment rate data for 25–34-year-olds show smaller variation across Territorial Level (TL) 2 regions than for the adult population as a whole, ranging from 21% in the Azores to 50% in the Lisbon Metropolitan Area. While a rapid increase between 2000 and 2017 allowed lagging regions to catch up, the gap between the Lisbon Metropolitan Area and other regions increased again between 2017 and 2020.

Figure 2.7. Tertiary educational attainment rate by region in Portugal

Share of population aged 25-34 years with a tertiary-education qualification by Territorial Level 2 region, 2000-20



Note: Higher education includes International Standard Classification of Education (ISCED) levels 5-8.
Source: Eurostat (2022[7]) *Indicators*, https://ec.europa.eu/eurostat/databrowser/ (accessed on 20 January 2022).

StatLink https://stat.link/whbisn

How will demographic trends affect demand for higher education?

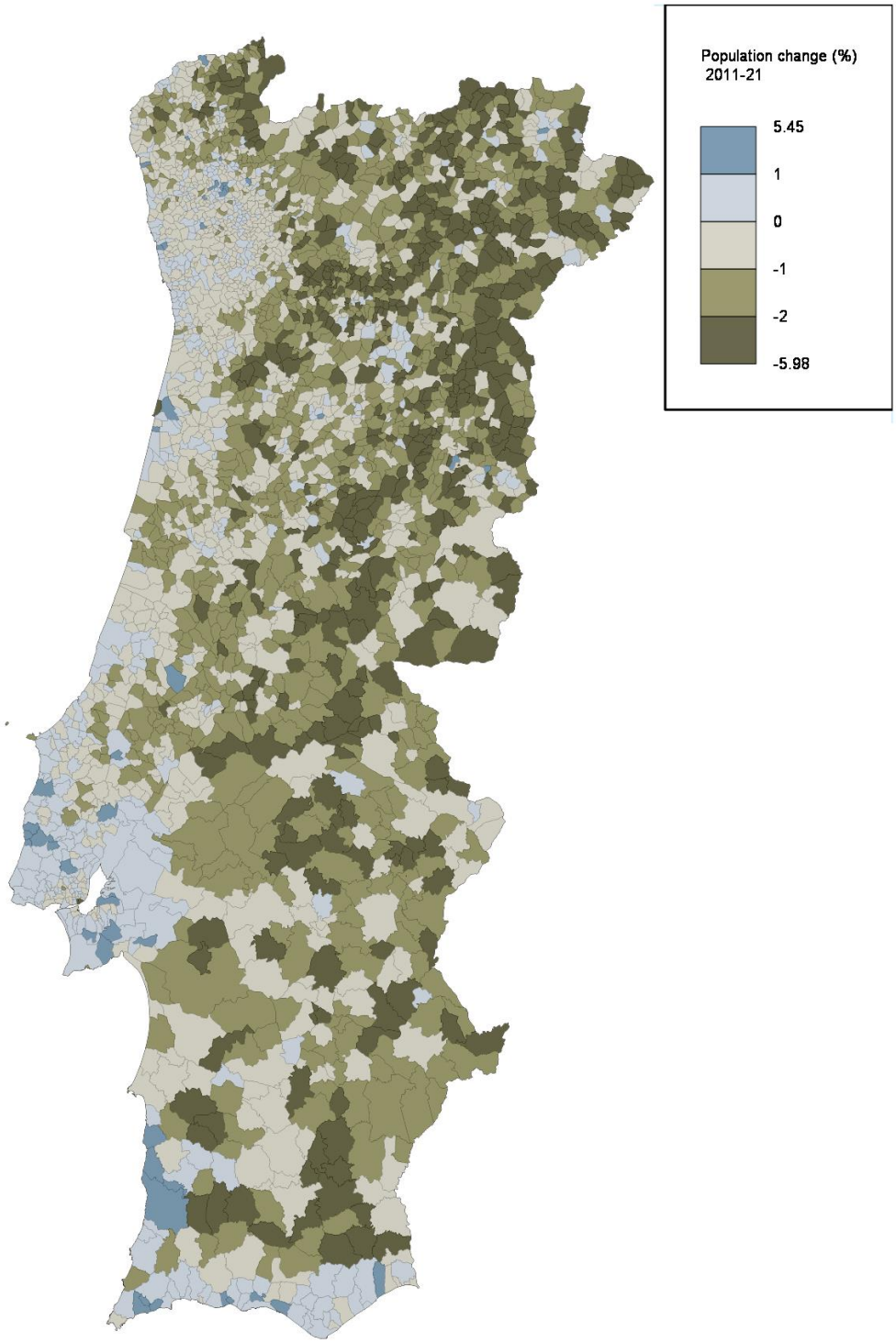
This section analyses how ongoing population trends will affect the future flow of students into higher education in Portugal. It first analyses concentration and suburbanisation trends and what they imply for demand for higher education in Portugal's interior regions. It then focuses on the effect of population ageing on the future demand for education and the effect of ageing on the availability of academic staff.

The population of interior regions is declining as a result of demographic ageing, while suburban areas in the littoral are growing

Preliminary census data for 2021 shows that the population of Portugal shrank at a rate of 0.17% annually between 2011 and 2021. All Portuguese TL2 regions, except the Lisbon Metropolitan Area and the Algarve, experienced population decline over the last decade. The fastest rates of decline were in Alentejo (- 0.72%), the Autonomous Region of Madeira (- 0.4%) and the Central Region (- 0.44%). Population decreases in the last decade were driven by natural population change (deaths exceeding births) that were not compensated for by positive migration trends. Emigration rates out of Portugal, which have historically been comparatively high, slowed substantially after 2015 (Statistics Portugal, 2021[19]).

At a lower geographic scale, only 21% of parishes (*freguesias*) in mainland Portugal (680 out of 3 223), mostly in littoral and suburban areas, experienced population growth between 2011 and 2021. In parallel, 16% of parishes in mainland Portugal (513), most of them located in the interior of the country, experienced average annual population decreases of 2% or more in the same period (see Figure 2.8).

Figure 2.8. Annual population change rate by parish in mainland Portugal 2011-21



Note: Annual population change computed as compound annual growth.
Source: Authors' elaboration based on Statistics Portugal (2021[20]). *Censo 2021: Resultados provisórios (Census 2021: Preliminary results)*, https://www.ine.pt/scripts/db_censos_2021.html (accessed on 22 September 2022).

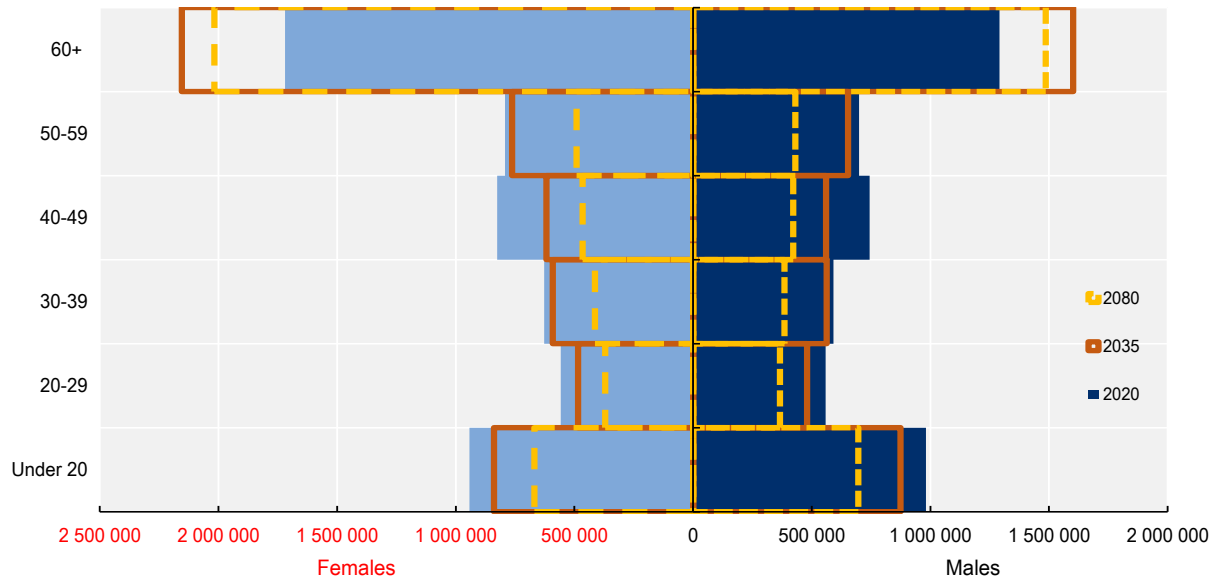
Despite population decline in interior regions, the share of the population living in cities and their commuting zones (functional urban areas - FUAs) in Portugal, at 57%, is smaller than the average of OECD countries (75%) and of EU member states (60%). Portugal also has a smaller concentration of its population (41%) in FUAs with more than 500 000 inhabitants, compared to the OECD average (60%) (OECD, 2020[21]).

Population decline and the movement of people towards urban and suburban areas are expected to continue in the coming decades. Projections prepared by Statistics Portugal indicate that the population of Portugal will decrease from 10.3 million in 2020 to 10.2 million in 2035 (- 1.4%), 9.7 million in 2050 (- 6.6%) and 8.2 million in 2080 (- 20.5%) under a neutral (neither pessimistic nor optimistic) migration scenario (Statistics Portugal, 2020[22]). Under a “low-migration” scenario, Statistics Portugal predicts that the Portuguese population could fall to 6.1 million in 2080 (Statistics Portugal, 2020[23]).

Declining student numbers and an ageing academic workforce will be the norm in the coming decades

The population of Portugal is ageing at a faster pace than populations in most OECD countries. The share of population over 65 in 2020 was already 22%, about nine percentage points above the average of OECD countries (13%). As illustrated in Figure 2.9, the Statistics Portugal projections for 2035 and 2080 show that all age groups below 60 are projected to shrink in coming decades, while the population older than 60 is projected to increase. The population aged 20-29, which constitutes the bulk of traditional demand for higher education, will decrease in absolute terms by over 70 000 men (a 14% decrease) and 72 000 women (a 13% decrease) between 2020 and 2035, equating to a total decrease of 13.5% compared to 2020. Statistics Portugal projects that the population aged 20-29 will shrink by another 230 000 between 2035 and 2080, meaning a decline of over one-third in this age group between 2020 and 2080.

Figure 2.9. Age pyramid for Portugal in 2020, 2035 and 2080

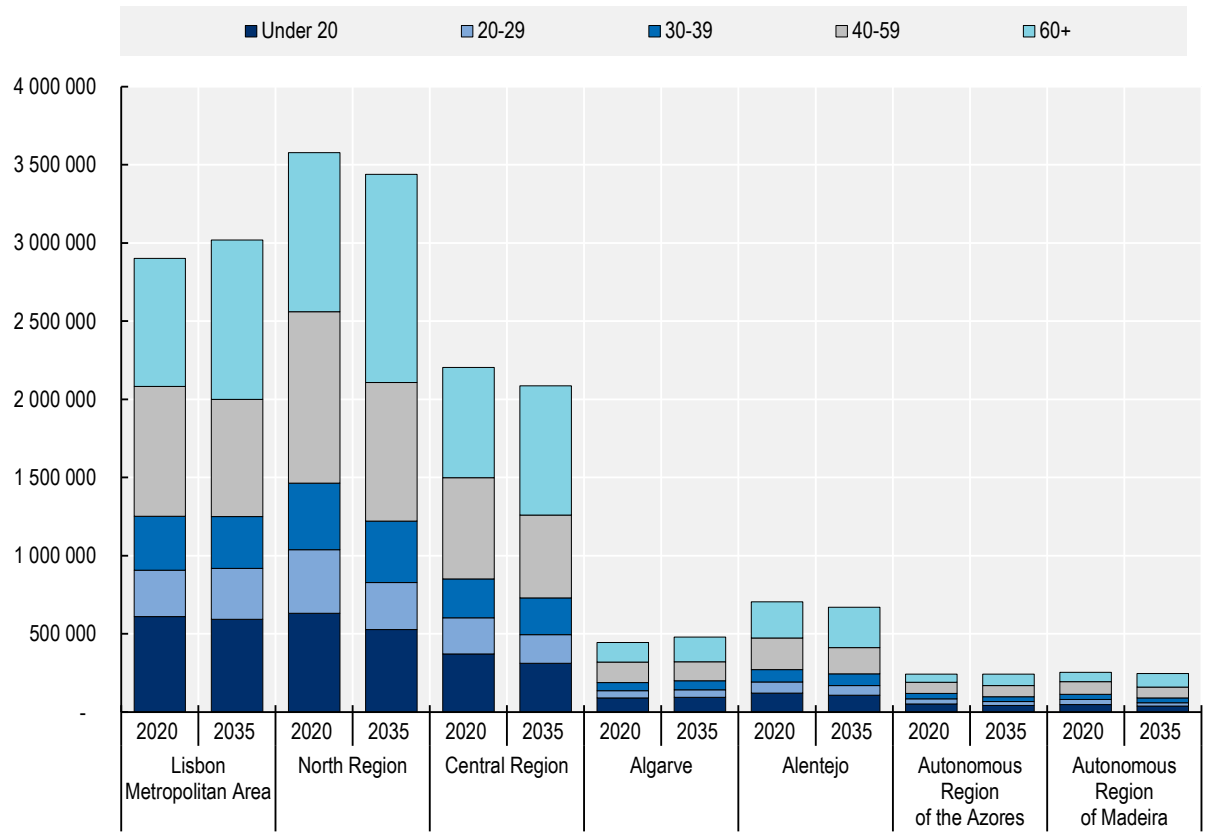


Note: Projections based on the "central" scenario of evolution for resident population which assumes: 1) a moderate recovery of future fertility levels for a Total Fertility Rate (TFR) of 1.59 children per woman in 2080 (up from 1.41 in 2018); 2) continuation of recent improvements in mortality and the pace of growth in life expectancy, with life expectancy at birth reaching 87.92 years for men and 93.30 years for women in 2080; and 3) continuation of trends in immigration and emigration, with the maintenance of positive annual international net migration over the projection period, reaching a net migration of 14 020 in 2080 (up from 11 570 in 2018).
Source: Statistics Portugal (2020[22]) Resident population (projections 2018-2080) by Sex, Age and Scenario. https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0010035&contexto=bd&selTab=tab2 (accessed on 12 November 2021).

StatLink https://stat.link/mj2n8r

As illustrated in Figure 2.10, patterns of population change will vary between the regions of Portugal. In the Lisbon Metropolitan Area, the population aged 20 to 29 is projected to increase by almost 10% between 2020 and 2035, while the increase in the Algarve is project to be almost 4%. In contrast, the population in this age cohort in all other regions of Portugal is projected to decline, with the decrease ranging from – 14% in Alentejo to – 26% in the North Region and more than – 30% in Madeira.

Figure 2.10. Population by age group and region in Portugal in 2020 and 2035



Note: Projections based on the "central" scenario of evolution for resident population which assumes: 1) a moderate recovery of future fertility levels for a Total Fertility Rate (TFR); 2) continuation of recent improvements in mortality and the pace of growth in life expectancy and 3) continuation of trends in immigration and emigration, with the maintenance of positive annual international net migration over the projection period.

Source: Statistics Portugal (2020[22]) Resident population (projections 2018-2080) by Sex, Age and Scenario. https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0010035&contexto=bd&selTab=tab2 (accessed on 12 November 2021).

StatLink https://stat.link/hiezyx

These population trends will inevitably lead to a decline in the number of "traditional" higher education students in Portugal – young Portuguese residents who enter higher education in the years immediately after completing secondary education. This phenomenon will be particularly stark in the North Region, the nation's most populous region. In contrast, demand for higher education among traditional age cohorts of local residents will continue to grow in the Lisbon Metropolitan Area.

Efforts to increase higher education participation among graduates of upper-secondary vocational tracks – and thus boost overall higher education participation and attainment rates – will only partially compensate a decline in the volume of students completing the scientific-humanistic upper-secondary track and transitioning to higher education. Upper-secondary vocational graduates are also likely primarily to enter short professionally oriented programmes adapted to their interests and needs, such as TeSPs, rather than established polytechnic bachelor's programmes or academically oriented programmes in universities.

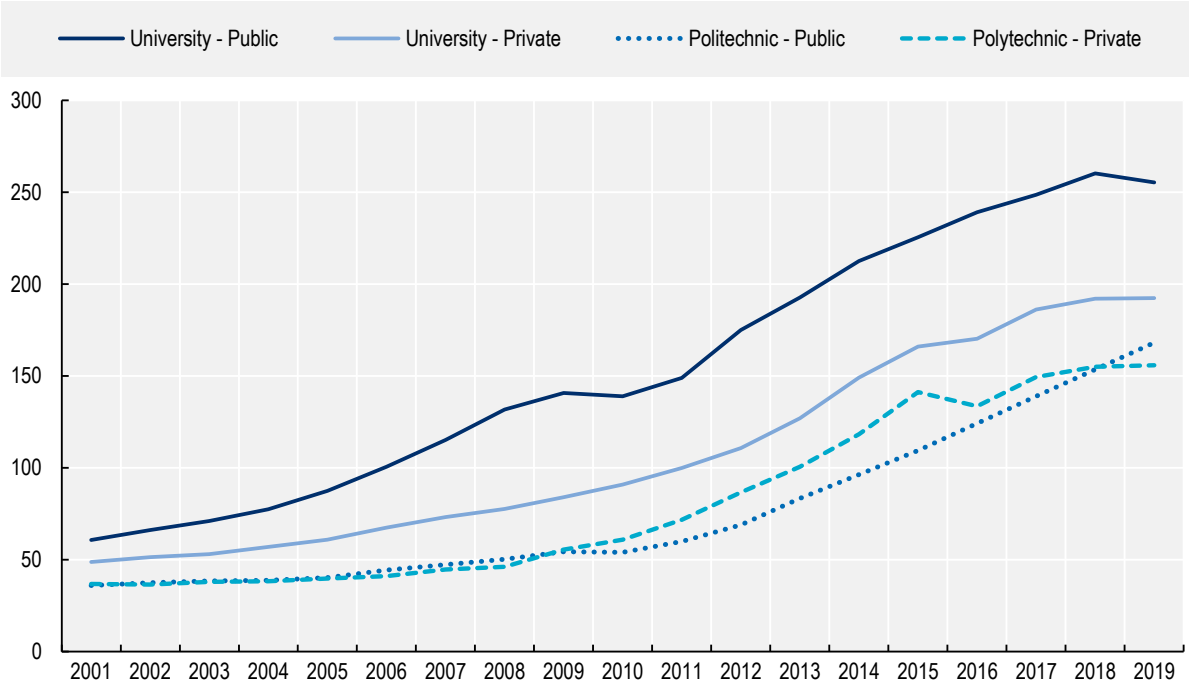
Actions to encourage adult populations to engage in upskilling and reskilling in higher education and attract more international students to Portugal are also likely to bring additional students into the higher education

system, although the scale of these additional inflows is not certain and – in the case of upskilling and reskilling at least – will also require new, more flexible educational offerings, adapted to the needs of new learner populations. This demographic context will create pressure to reduce the scale of higher education provision outside the Lisbon region in the decade to come.

The population of academic staff in Portugal's higher education institutions will also get older. As shown in Figure 2.11, the ageing index for academic staff – the number of academic staff aged 50 or more for every 100 academic staff aged 39 or less – has been increasing steadily over the last two decades. The ageing index reached its historical maximum at 193 on average across institution types in 2019. The ageing of academic staff is more prevalent in public universities, where the ageing index was 255 in 2019, than in public polytechnics, where the equivalent figure was 168.

Figure 2.11. Ageing index of academic staff by type

Ageing index is the number of academic staff aged 50 or more for every 100 academic staff aged 39 or less



Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021).

StatLink https://stat.link/s4b9ep

How will economic trends affect future demand for advanced skills?

Higher education graduates in Portugal have generally good job and earnings prospects, although there is variation between level and field of study

A key reason many people choose to access higher education is to improve their job and income prospects. On average, higher education graduates in Portugal fare well in the labour market in comparison to their counterparts in many other OECD countries and residents of Portugal with lower levels of educational attainment. In 2020, the employment rate of higher education graduates in Portugal aged 25-64 was

87.9%, compared to an average for OECD member countries of 84.6% and employment rates in Portugal of 82% for upper-secondary graduates and only 70% for those without an upper-secondary qualification. For the age group that includes recent graduates – those aged 25-34 – the equivalent values were 84% for tertiary graduates in Portugal compared to 83% for tertiary graduates on average in the OECD and 82% and 73% respectively for those with and without upper secondary qualifications in Portugal (OECD, 2022[24]).

OECD data show that young higher education graduates in Portugal (aged 25-34) have, on average, consistently earned around 50% more than those with upper-secondary or post-secondary, non-tertiary qualifications. This compares with an average earnings advantage in OECD countries of 36% and suggests there is sustained demand for higher education graduates and their skills in the Portuguese economy. Those with short-cycle qualifications in Portugal had an earnings advantage of around 10% compared with those with upper-secondary or post-secondary, non-tertiary qualifications in 2018, although this was before large numbers of graduates from the new TeSP programmes had entered the labour market (OECD, 2022[24]).

As in other OECD countries, graduate labour market outcomes are influenced by cyclical economic and labour market conditions and the degree of alignment between skills supply and skills demand. The 2008 and 2011 economic crises took a toll on job creation in Portugal, with overall employment rates only returning to pre-crisis levels in 2020. Between 2008 and 2018, Portugal was one of few OECD countries where regional productivity, measured in terms of Gross Value Added (GVA) per employed person, improved. However, this occurred without significant job creation (OECD, 2020[25]). Austerity policies that followed the financial crisis reduced opportunities for stable public-sector jobs that were traditionally accessed by higher education graduates, especially women (Suleman and Figueiredo, 2019[26]). More recently, the unemployment rate in Portugal has been below the OECD average, even at its peak during the COVID crisis in May 2021 (8.1% in Portugal, compared to 8.8% on average in the OECD), although total youth unemployment (among 15-24 year-olds) remained among the highest in OECD countries, at 24.4% in mid-2021, compared to 19% before the pandemic (OECD, 2021[27]). Unemployment among young people in Portugal is concentrated among those without – or with lower levels of – qualifications.

The proportion of recent higher education graduates (graduating between 2001 and 2020) registered as unemployed with the Institute for Employment and Vocational Training (IEFP) in December 2021 was 4.2%. These data do not take into account graduates who may be unemployed but are not registered with the national employment agency. Registered unemployment rates were lowest among recent graduates from private polytechnics (3.4%) and public universities (3.6%) and somewhat higher among graduates from public polytechnics (4.9%) and private universities (5.4%) (DGEEC, 2022[28]).

Employment prospects for higher education graduates also differ by level and field of study. Employment rates among bachelor's graduates deteriorated more than for master's or doctoral graduates after the 2008 financial crisis (Alves, Morais and Chaves, 2017[29]). Moreover, graduates from arts and humanities tend to face longer spells of unemployment, lower job stability and lower wages than graduates in fields such as health and law (Suleman and Figueiredo, 2019[26]). Unemployment data in the second half of 2020 for recent graduates show considerable variation between programmes, with registered unemployment rates ranging from below 1% for nursing and medicine to over 10% for tourism and marketing-related degrees (DGEEC, 2022[3]). Given these latest programme-level unemployment data are for a period during the COVID-19 pandemic, unemployment rates among graduates of tourism and hospitality programmes, in particular, must be interpreted with caution.

Demand for advanced skills in Portugal remains lower than in the most advanced OECD economies and is concentrated in certain regions

In Portugal, as in OECD countries more generally, digitalisation has resulted in the upskilling of job profiles. Nevertheless, high-tech jobs in Portugal still represent a relatively small share of all jobs and are highly

concentrated in the North Region and the Lisbon Metropolitan Area. In 2018, the sectors in Portugal with the highest shares in employment overall were distributive trade, repairs, transport, accommodation and food service activities (26%), and public, education and social services (20%), while high-tech services accounted for around 16% of employment[5]. The importance of manufacturing in terms of jobs and Gross Value Added decreased in all TL2 regions between 2000 and 2017 (OECD, 2020[21]). Moreover, the share of high and medium-tech manufacturing jobs in Portugal, at 19.4%, was well below the European Union average of 37.9% in 2020.

Portugal concentrates a significant proportion of employment in sectors that require skills that can be automated. As a result, Portugal is among OECD countries that are estimated to have the highest risk of job automation over the next 10 to 20 years, with about one out of four jobs in the private sector at high risk of automation (OECD, 2021[30]). Moreover, a majority of jobs in high-value-added services in 2018 were concentrated in the Lisbon Metropolitan Area (60% of jobs in information and communications technologies (ICT); 56% of jobs in financial and insurance activities, and 50% of jobs in professional, scientific, technical and support activities) and in the North Region (respectively 20%, 23% and 28% of employment in the same sectors). In line with these regional sectoral specialisations, the risk of automation is higher in regions with a smaller share of high-skill services, such as Alentejo, than in the Lisbon Metropolitan Area (OECD, 2021[30]).

Analysis of current job vacancy adverts in May 2022, using data from Burning Glass, showed that advanced digital skills are in high demand in the Portuguese labour market. “Software programmer” was the job profile most frequently sought by employers in Portugal, while “systems analyst” and “ICT-support technicians” emerged as, respectively, the fourth and seventh most frequently sought profiles (Brighter Future, 2022[31]). Other job profiles that certainly require some form of higher education qualification among the top-ten most sought-after job profiles in Portugal were human-resources specialists (fifth most frequent) and a broad category including biomedical, materials and security engineers (ninth most frequent). As is typical in many OECD countries, particularly in the period after the COVID-19 pandemic, the other most-sought-after job profiles in Portugal do not typically require higher education qualifications and include sales workers, waiters and bartenders and support staff in offices. For the latter category, however, changes to job profiles resulting from automation and digitalisation will mean a proportion of such roles are likely to require some form of post-secondary education.

Although a high proportion of high-skill employment is concentrated in the Lisbon Metropolitan Area and the North Region, all Portuguese regions have been improving their innovation standing in the European context. Portugal as a whole was ranked as a “Moderate Innovator” by the 2021 European Innovation Scoreboard, based on a range of indicators covering economic performance and structure, education, and research and innovation. Portugal’s main strengths, in an EU context, are its attractive research system and digitalisation and use of information technologies (European Commission, 2021[32]). Across regions, the North Region, the Lisbon Metropolitan Area and the Central Region rank as “Moderate Innovators” and the remaining regions as “Emerging Innovators”. All regions improved their innovation performance compared to 2014 (European Commission, 2021[33]).

The increases in innovation capacity, combined with increasing qualification levels among the population, provide a foundation to support more of the productive sector in Portugal to move into higher added-value areas of activity. Indeed recent economic analyses in Portugal, conducted in the wake of the COVID pandemic, argue that Portugal must maintain a strong focus on increasing skills levels and innovation capacity to attract foreign direct investment, allow the country to develop a high-value-added role in global value chains (notably in research and development (R&D) and design functions), promote business creation and increase productivity across the economy (Alexandre et al., 2021[34]).

Portugal produces comparatively higher numbers of engineering graduates, but few ICT specialists

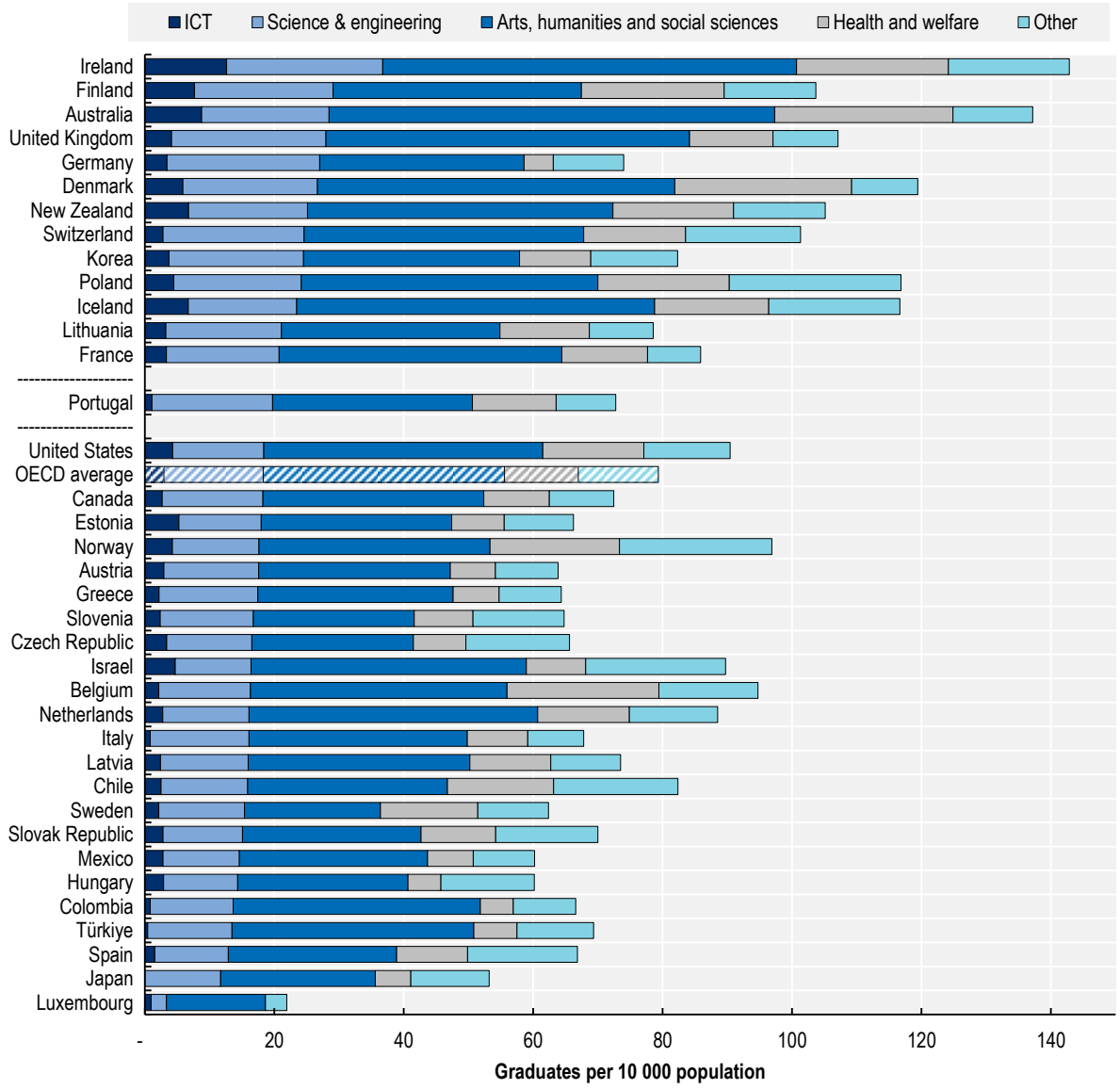
As noted, the expansion of Portugal's higher education system in recent decades has allowed the country to increase the proportion of younger age cohorts obtaining a degree to such an extent that tertiary attainment among those aged 30-34 exceeded the EU average for the first time in 2021. However, relative to the country's population, the number of students graduating each year in Portugal with a bachelor's or master's degree (over 90% of all higher education qualifications awarded in the country) remained slightly below the average of OECD countries. With 73 new bachelor's and master's graduates per 10 000 population in 2019, compared to an OECD average of 79, Portugal "produced" proportionally the same number of graduates at these qualification levels as Canada and Germany (respectively 72 and 74 new graduates per 10 000 inhabitants in 2019). In comparison, France graduated 86 students per 10 000 population from bachelor's and master's programmes in 2019, the Netherlands 88, Finland 104 and Ireland 143 – almost twice as many graduates in relative terms as in Portugal (OECD, 2022[24]).

Apart from the capacity of higher education systems to create opportunities for students to access and successfully complete advanced study programmes, the volume of graduates at bachelor's and master's level relative to total resident population in a given country is influenced by at least three main factors. In countries with ageing populations, such as Portugal or Germany, graduate numbers relative to total population will be lower than for countries with more youthful populations, even if these countries admit and graduate equivalent proportions of resident young people, as youth cohorts make up a smaller proportion of the total population. In some higher education systems, such as Canada, short-cycle programmes account for a significant proportion of total enrolment and graduation in higher education, while bachelor's and master's programmes play a smaller role in the higher education landscape than in many European countries, some of which, such as Finland, have no short-cycle tertiary provision. Finally, the proportion of international students in a higher education system will also influence – sometimes significantly – overall graduate numbers. In countries such as Australia and the United Kingdom, where international students accounted for, respectively, 28% and 19% of total enrolment in higher education in 2019, "imported" students boost total graduate numbers. Depending on immigration rules and job opportunities, international graduates can, nevertheless, contribute to domestic skills supply.

As shown in Figure 2.12, although the overall number of bachelor's and master's graduates per 10 000 population in Portugal is slightly below the OECD average, this is partly because of comparatively low numbers of new graduates in the arts, humanities and social sciences (31 graduates per 10 000 population in 2019 compared to an OECD average of 37). In contrast, the number of bachelor's and master's graduates in sciences and engineering (including construction) was above the average of OECD countries, at 19 per 10 000 population in 2019, compared to 15 on average in the OECD. For comparison, in Ireland, the United Kingdom and Germany – the three countries with highest annual numbers of graduates in sciences and engineering – the equivalent figure was 24 graduates in sciences and engineering per 10 000 inhabitants in 2019. This situation reflects Portugal's strong tradition of advanced education in engineering and certain scientific fields.

In contrast, the number of bachelor's and master's graduates from information and communication technologies (ICT) fields per 10 000 population, at 1.1, was below the OECD average of 2.9, and significantly below leading countries such as the United States (4.3), Denmark (5.9), Finland (7.6) and Ireland (12.6). In 2019, the share of bachelor's and master's graduates from ICT-related programmes was 1.5%, compared to an average proportion in OECD countries of 3.7%. The low share of graduates in ICT in Portugal appears to result not only from a lack of supply from higher education institutions, but also a lack of demand from students. In 2021, 23% of study places offered in ICT remained vacant after the three phases of the National Access Competition: a significantly larger proportion of vacant places than in the higher education system as a whole (8%) (DGES, 2021[35]).

Figure 2.12. Graduates from bachelor's and master's degrees per 10 000 population in 2019



Note: Countries are presented in descending order of the number of bachelor's and master's graduates per 10 000 population in ICT, science and engineering (combined).
Source: OECD (2021[14]) Education at a Glance 2021: OECD Indicators, https://dx.doi.org/10.1787/b35a14e5-en

StatLink https://stat.link/deukwh

As shown in Table 2.6, the proportion of graduates in different fields of study varies between the regions of Portugal, reflecting differences in the Herfindahl index of concentration. For example, across regions, the share of graduates in ICT in 2019/20 was higher in Madeira (5.1%), the North Region (3.1%) and to a lesser extent the Azores (2.9%). In general terms, Alentejo and Madeira show a lower degree of concentration across fields than the national average, while the Azores shows a higher degree of concentration (indicated by a higher Herfindahl index).

Table 2.6. Graduates by subject area and specialisation index by region in 2019/20

General area	Portugal	North Region	Central Region	Lisbon M.A	Alentejo	The Algarve	The Azores	Madeira
Business sciences, administration and law	21.3%	20.2%	17.2%	25.8%	17.2%	18.2%	20.2%	15.1%
Engineering, manufacturing and construction	19.1%	20.7%	21.6%	18.2%	7.0%	11.2%	1.4%	14.1%
Health and social protection	16.8%	18.2%	19.9%	13.5%	17.1%	17.6%	24.9%	10.0%
Social sciences, journalism and information	11.4%	10.3%	9.3%	13.7%	8.6%	12.8%	20.2%	15.6%
Arts and humanities	9.5%	9.2%	11.2%	9.2%	8.5%	5.9%	5.0%	8.6%
Services	6.4%	6.5%	5.9%	5.5%	14.3%	10.1%	4.7%	12.0%
Natural sciences, mathematics and statistics	6.2%	4.8%	6.9%	6.5%	5.3%	17.6%	11.1%	6.1%
Education	4.1%	4.4%	4.0%	3.4%	6.5%	4.7%	6.2%	12.4%
Information and communication technologies (ICTs)	2.6%	3.1%	2.1%	2.5%	1.9%	0.6%	2.9%	5.1%
Agriculture, forestry, fisheries and veterinary science	2.6%	2.7%	1.9%	1.7%	13.6%	1.2%	3.3%	6.1%
Herfindahl index	0.143	0.146	0.148	0.154	0.125	0.140	0.167	0.121

Note: Data include all levels of higher education, including TeSP and doctoral education. The H index is calculated as $H = \sum_{i=1}^{10} sh_i^2$ where sh is the share of students in study field i. M.A. = metropolitan area; A.R. = Autonomous Region.
Source: DGEEC (2021[1]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021).

The role of higher education in reskilling adults remains limited

Portugal, like many OECD countries, is pursuing strategies to encourage adults to enter or re-enter higher education to enhance their skills. Policy goals for 2020-23 include stimulating the offer of undergraduate programmes outside working hours (referred to in Portugal and the "after-work regime" – *regime pós-laboral*) to promote upskilling and reskilling and capturing new audiences through an expanded offer of online courses, including through the Open University (Universidade Aberta) and distance programmes accredited in other higher education institutions.

The "UPskill" programme is an example of a national initiative aiming at reskilling in digital technologies, specifically targeting unemployed or under-employed professionals. The programme provides six months of training in ICT-related areas in a higher education institution, followed by a three-month internship in one of the participating companies. Participants receive a grant equivalent to the national minimum wage and a food allowance (UPskill consortium, 2022[36]). Other actions to raise the skills of adults in response to changing demands from the labour market include the "Impulso Adultos" programme (Impetus programme for adults), the InCode2030 Strategy (Government of Portugal, 2022[37]) and its Capacitar i4.0 programme and the Indústria 4.0 programme, focused on firm competitiveness.

"Impulso Adultos" is financed by the European Union Recovery and Resilience Programme for 2021-26 (*Plano de Recuperação e Resiliência* - PRR), which has allocated EUR 130 million to support universities and polytechnics design and deliver short upskilling and reskilling programmes for adults in co-operation with employers (DGES, 2021[38]).

The impact of these initiatives – and current needs for upskilling and reskilling in Portugal's working-age population – are difficult to assess because of a lack of data. Based on findings from the European Labour Force Survey, the share of adults in Portugal participating in lifelong learning, defined as formal and non-formal education and training in the previous four weeks, was 12.9% in 2021. This was slightly higher than the average level in the EU of 10.8%. This marks a slight increase in comparison to previous years,

although participation rates have been around 10% since data collection began in 2012. In the European Union, the highest rates of adult learning using this indicator (all above 20%) were in Sweden, Finland, the Netherlands and Denmark (Eurostat, 2022[7]). In Portugal, rates of participation were highest in the Lisbon Metropolitan Area (around 15%) and lowest in the autonomous island regions of Madeira and the Azores (around 10%).

In the higher education sector, the age profile of students provides an indication – albeit imprecise – of the level of participation of adults in advanced-level upskilling and reskilling during their careers. In 2020, 16.5% of all students enrolled in higher education in Portugal were aged between 30 and 64 – in other words in the age range by which most individuals have completed their initial education and which runs (nearly) until retirement. This is broadly in line with the average of EU countries (16.9%) and well above countries such as France and Belgium, which are characterised by particularly young student populations (the equivalent figures for France and Belgium were 7.3% and 8.2%). Nevertheless, here again, Finland and Sweden stand out, along with Estonia, as countries where more than 30% of students are aged between 30 and 64 (Eurostat, 2022[7]).

References

Agência para a Modernização Administrativa (2021), "Portal de dados abertos da Administração Pública (Portal for public administration open data)", *Freguesias de Portugal (Parishes of Portugal)*, https://dados.gov.pt/en/datasets/freguesias-de-portugal/ (accessed on 22 September 2021). [9]

Alexandre, F. et al. (2021), *Do made in ao created in: um novo paradigma para a economia portuguesa (From "made in" to "created in" - A new paradigm for the Portuguese economy)*, Fundação Francisco Manuel dos Santos, Lisbon, https://www.ffms.pt/pt-pt/estudos/do-made-ao-created-um-novo-paradigma-para-economia-portuguesa (accessed on 25 July 2022). [34]

Alves, M., C. Morais and M. Chaves (2017), "Employability of higher education graduates in Portugal : trends and challenges in the beginning of the 21st century", *Forum Sociológico* 31, https://doi.org/10.4000/sociologico.1841. [29]

Brighter Future (2022), *As ofertas de emprego voltaram a crescer em maio de 2022 (Job offers started to grow again in May 2022)*, Brighter Future - Fundação José Neves, https://brighterfuture.joseneves.org/BrighterFuture/BF_DetalheInsight_NoIframe?ComesFrom=4&InsightId=85 (accessed on 18 July 2022). [31]

DGEEC (2022), *Dados e Estatísticas de Cursos Superiores - Edição 2021 (Data and statistics on higher education programmes - 2021 Edition)*, https://infocursos.medu.pt/ (accessed on 14 January 2022). [3]

DGEEC (2022), *Desemprego dos diplomados (Graduate unemployment)*, Direção-Geral de Estatísticas da Educação e Ciência (DGEEC), https://www.dgeec.mec.pt/np4/92/ (accessed on 17 July 2022). [28]

DGEEC (2022), *Estatísticas da Educação 2020/21 (Educational statistics 2020/21)*, Direção-Geral de Estatísticas da Educação e Ciência (DGEEC), https://www.dgeec.mec.pt/np4/1372.html (accessed on 15 July 2022). [11]

DGEEC (2021), *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 15 November 2021). [1]

DGEEC (2018), *Percursos no ensino superior: Situação após quatro anos dos alunos inscritos em licenciaturas de três anos (Pathways in higher education: Situation after four years for students enrolled in three-year bachelor's degrees)*, Direção-Geral de Estatísticas da Educação e Ciência (DGEEC), https://www.dgeec.mec.pt/np4/414/ (accessed on 14 January 2022). [15]

DGES (2022), "Informação Geral – Concurso Nacional de Acesso (General Information – National Access Competition)", *Direção-Geral de Ensino Superior (DGES)*, https://www.dges.gov.pt/pt/pagina/informacao-geral-publico#comofunc (accessed on 21 January 2022). [4]

DGES (2021), *Acesso ao ensino superior 2021 - Reforço das vagas do Concurso Nacional de Acesso*, https://www.portugal.gov.pt/download-ficheiros/ficheiro.aspx?v=%3D%3DBQAAAB%2BLCAAAAAAABAAzNDI0tQAAjqPbrwUAAAA%3D (accessed on 13 January 2022). [13]

DGES (2021), *Acesso ao Ensino Superior 2021 - Vagas e Abertura do Concurso Nacional de Acesso (Admission to higher education in 2021 - Study places and opening of the National Admission Competititon)*, Direção-Geral do Ensino Superior (DGES), https://www.dges.gov.pt/pt/pagina/acesso-ao-ensino-superior-2020-vagas-e-abertura-do-concurso-nacional-de-acesso (accessed on 14 January 2022). [10]

DGES (2021), *Colocações 2021 - Concurso Nacional de Acesso (Placements 2021 - National Access Competititon)*, Direção-Geral do Ensino Superior (DGES), https://www.dges.gov.pt/coloc/2021/ (accessed on 17 July 2022). [35]

DGES (2021), *Programas "Impulso Jovens STEAM" e "Impulso Adultos" (Impetus programme for young people in STEAM and Impetus programme for adults)*, Direção-Geral do Ensino Superior (DGES), https://www.dges.gov.pt/pt/pagina/candidatura_IMPULSO (accessed on 18 July 2022). [38]

European Commission (2021), *European innovation scoreboard 2021*, https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/european-innovation-scoreboard_en (accessed on 13 January 2022). [32]

European Commission (2021), *Regional innovation scoreboard*, https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/regional-innovation-scoreboard_en (accessed on January 2022). [33]

Eurostat (2022), *Indicators*, https://ec.europa.eu/eurostat/databrowser/ (accessed on 20 January 2022). [7]

Government of Portugal (2022), *Portugal INCoDe.2030*, https://www.incode2030.gov.pt/incode2030 (accessed on 17 July 2022). [37]

Government of Portugal (2020), *Decreto-Lei n.º 11/2020 (Decree-law n.º 11/2020)*, https://dre.pt/dre/detalhe/decreto-lei/11-2020-131016733 (accessed on 13 July 2022). [6]

Government of Portugal (2018), *Decreto-Lei n.º 65/2018 - Altera o regime jurídico dos graus e diplomas do ensino superior (Decree-Law 65/2018 - amending the legal regime for levels and diplomas in higher education)*, https://data.dre.pt/eli/dec-lei/65/2018/08/16/p/dre/pt/html (accessed on 14 February 2022). [2]

Government of Portugal (2014), *Decreto-Lei n.º 113/2014 (Decree-law n.º 113/2014)*, https://dre.pt/dre/detalhe/decreto-lei/113-2014-55021010 (accessed on 15 July 2022). [12]

Government of Portugal (2014), *Decreto-Lei n.º 36/2014 Regulamenta o estatuto do estudante internacional (Decree-law n.º 36/2014 regulating the status of international students)*, https://dre.pt/dre/detalhe/decreto-lei/36-2014-572431 (accessed on 14 July 2022). [8]

OECD (2022), *OECD Statistics - Education and Training*, OECD.Stat, https://stats.oecd.org/ (accessed on 8 July 2022). [24]

OECD (2021), *Education at a Glance 2021: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/b35a14e5-en. [14]

OECD (2021), *OECD Economic Surveys: Portugal 2021*, OECD Publishing, Paris, https://doi.org/10.1787/13b842d6-en. [30]

OECD (2021), *OECD Employment Outlook 2021: Navigating the COVID-19 Crisis and Recovery*, OECD Publishing, Paris, https://doi.org/10.1787/5a700c4b-en. [27]

OECD (2020), *OECD Regions and Cities at a Glance 2020*, OECD Publishing, Paris, https://doi.org/10.1787/959d5ba0-en. [21]

OECD (2020), *Rural Well-being: Geography of Opportunities*, OECD Rural Studies, OECD Publishing, https://doi.org/10.1787/d25cef80-en. [25]

OECD (2019), *Education at a Glance 2019: OECD Indicators*, OECD Publishing, https://doi.org/10.1787/19991487. [16]

OECD (2019), *How does socio-economic status influence entry into tertiary education?*, OECD Publishing, https://doi.org/10.1787/22267077. [17]

OECD (2019), *OECD Review of Higher Education, Research and Innovation: Portugal*, OECD Publishing, Paris, https://doi.org/10.1787/9789264308138-en. [5]

OECD (2019), *PISA 2018 Results (Volume II): Where All Students Can Succeed*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/b5fd1b8f-en. [18]

Statistics Portugal (2021), *Censos 2021: Resultados provisórios (Census 2021: Preliminary results)*, https://www.ine.pt/scripts/db_censos_2021.htm (accessed on 22 September 2021). [20]

Statistics Portugal (2021), *Statísticas Demográficas 2020 (Demographic statistics 2020)*, https://www.ine.pt/scripts/db_censos_2021.html (accessed on 13 January 2022). [19]

Statistics Portugal (2020), *Destaque - Resident population projections 2018-2080*, https://www.ine.pt/ngt_server/attachfileu.jsp?look_parentBoui=426128132&att_display=n&att_download=y (accessed on January 2022). [23]

Statistics Portugal (2020), *Resident population (projections 2018-2080) by Sex, Age and Scenario*, https://www.ine.pt/ngt_server/attachfileu.jsp?look_parentBoui=426128132&att_display=n&att_download=y (accessed on 12 November 2020). [22]

Suleman, F. and M. Figueiredo (2019), "Entering the labour market in the context of higher education reform and economic recession: young bachelor and master graduates in Portugal", *Journal of Youth Studies*, Vol. 23/10, pp. 1396-1417, https://doi.org/10.1080/13676261.2019.1679744. [26]

UPskill consortium (2022), *UPskill*, UPskill Digital Skills and Jobs, https://upskill.pt/ (accessed on 24 March 2022). [36]

Notes

[1] The total number of organic units was 326 when those that had no enrolment in 2020/21, but had enrolment in previous years, are included.

[2] Integrated master's degrees are equivalent to between 300 to 360 ECTS credits and with a normal duration of between 10 and 12 semesters. The workload may be determined by requirements for access to certain regulated professions, in line with Portuguese and more general European requirements.

[3] Sometimes referred to as "double-certification programmes" (*cursos de dupla certificação*), as they are theoretically designed to prepare students to enter the labour market or access higher education.

[4] The General Access Regime for public higher education institutions comprises a) the National Access Competition (CNA) and b) "local competitions" in a limited number of subject areas, such as the visual and performing arts. It excludes students entering through "special" competitions for specific population groups and does not cover entry to short-cycle TeSP programmes.

[5] Including information and communication (2.1%), financial and insurance activities (1.7%), and professional, scientific, technical and support activities (11.8%)

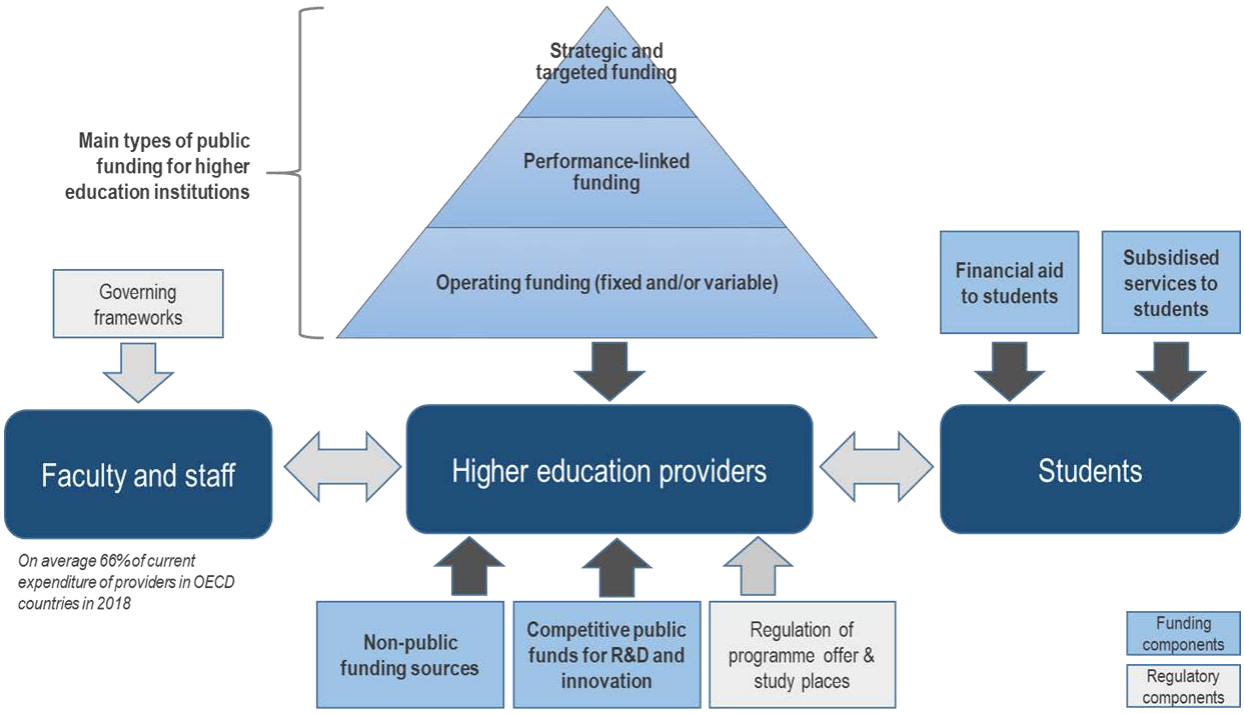
3 Core funding for higher education institutions

This chapter focuses the question of how best to allocate public funds to higher education institutions to support their day-to-day operations and the delivery of their fundamental educational mission. It examines the current approach to allocating funds to public universities and polytechnics in Portugal before analysing different design components of allocation models used in comparator OECD jurisdictions. The chapter concludes with recommendations for promising policy options for Portugal as it seeks to establish a transparent and equitable funding model, which pays adequate attention to the diversity of institutions and territorial operating contexts in the country.

Elements in higher education funding systems and focus of this chapter

Governments across the OECD allocate public funds to public or government-dependent higher education institutions (HEIs) to support their day-to-day operations and the fulfilment of their basic public service missions. Sometimes, as in most states of the United States, such "core" funding is provided – nominally at least – to support instruction (education) only. In other OECD jurisdictions, including many in Europe, institutions with university status also receive – sometimes substantial – core funding allocations explicitly to support research. In most OECD systems, core funding for operations, instruction and research is allocated to institutions as lump-sum payments (Golden, Troy and Weko, 2021[1]), which the institutions are then free to allocate internally to different departments and areas of activity. In some cases, the funding allocations are made on an incremental, historical basis, without direct reference to real levels of activity in individual institutions. In other cases, public authorities use formulas that link payments to inputs, such as the number of enrolled students; outputs, such as the number of degrees awarded or research publications produced, or – more rarely – outcomes, such as graduate employment rates.

Figure 3.1. Elements in higher education funding systems



As illustrated in Figure 3.1, core public funding to support the basic operations of higher education institutions, whether allocated using a fixed or variable (formula-based) model, is only one element in a wider higher education funding landscape. Governments may link a proportion of public funding for institutions to specific outputs and outcomes in an effort to steer and incentivise – rather than simply support financially – behaviour within the funded institutions. Public authorities may also provide financial support to institutions that is earmarked for specific purposes linked to the future development of the higher education system, whether in the form of grants for capital investment or other types of targeted funding.

Higher education institutions in most OECD countries receive additional revenue from non-public sources, including fees paid by students, as well as from public bodies the award funding on a competitive basis, such as national research and innovation councils. The relative weight of public funding compared to non-

public sources – which varies considerably across the OECD (see Figure 3.2 below) – determines to a large extent the influence public funding and funding models exert over institutional priorities and behaviour. However, public authorities influence institutional activities through other policy instruments, including programme approval, external quality assurance and regulation of study places. Some jurisdictions also exert a strong influence over the way HEIs deploy their resources, notably, as in Portugal, by establishing rules governing the employment of academic and non-academic staff. As wage costs account, on average, for around two-thirds of expenditure in higher education institutions in the OECD (OECD, 2022[2]), specific public policies related to human resources can have significant implications for financial management in HEIs. In other higher education systems, frameworks governing employment of staff may be established through collective bargaining or in other sector-level agreements.

In addition to funding institutions, public authorities in most OECD member countries provide financial aid to support students to pay for living costs and (where they exist) tuition fees, through systems of student grants or publicly regulated and subsidised loan programmes. In OECD systems with comparatively high tuition fees, such as the United States, the United Kingdom, Australia or Japan, public student aid systems are, in part, an indirect manner of financing institutions, as the public resources "received" by students – or at least a proportion of these resources – are used to pay fees to institutions. Finally, public authorities may directly finance other forms of support to students, such as subsidised housing, catering and sports facilities, medical support or transport, either through targeted grants to higher education institutions to provide these services or through subsidies to external service providers.

This report examines, from an international comparative perspective, how important elements of this higher education funding landscape operate in Portugal. It does so in the following order:

1. This chapter examines the allocation of *core public funding for operations and instruction* to higher education institutions, focusing, in the Portuguese context, on the operating grants funded from annual state budget (*Orçamento do Estado* – OE). Given the distinct questions at play, it was agreed from the outset that this review will not examine the operation of Portugal's national research council, the Foundation for Science and Technology (FCT), or have an explicit focus on research funding as such. The FCT is responsible for providing most of the dedicated public financial support to the legally independent research units in which most research in Portuguese higher education occurs. However, as academic staff, whose posts are funded from the state budget, are also active in research, the discussion and recommendations in this chapter will consider the extent to which the core operating grant should also be explicitly regarded as a tool for supporting the research mission of higher education and whether research-related parameters might influence funding allocation.
2. Chapter 4 focuses on the way governments can use funding, dialogue and regulation to help steer the future development of national higher education systems. It examines the use of *performance- or mission-linked and strategic funding* for higher education institutions, institutional *performance agreements* and *associated steering mechanisms*, such as the regulation of study places. While Chapter 3 (see below) takes up the question of the relative merits of including output and outcome parameters in formulas for allocating core funding, Chapter 4 will take a more comprehensive look at the range of policies available to governments to steer resource use in higher education over the medium to long term.
3. Chapter 5 examines, again from an international perspective, the *direct and indirect material support for students* in Portugal that is funded from public sources. It starts by considering the fundamental question of the physical accessibility of higher education institutions across the Portuguese territory, before examining the public student aid programmes and support government provides for student services.

Core funding for higher education institutions: design considerations

Governments allocate core funding to higher education institutions to allow them to operate on a day-to-day basis, to undertake their central missions in (undergraduate) instruction and to create a framework within which academic staff can pursue research and societal engagement activities, often using resources from other funding streams (such as competitive research funding). Public authorities designing systems for providing such core funding to higher education institutions need to consider four main questions:

1. Is the overall budget envelope available to provide core public funding **adequate** to allow institutions to cover the costs associated with providing good quality higher education? The specific contribution required from core public funding will depend on the other income streams available to higher education institutions and, in the case of education activities, particularly the level of tuition fees paid by students. Reaching judgements about the "reasonable" cost of providing different forms of higher education (programmes at different levels in different fields of study) – and this the level of public subsidy required – has proved extremely challenging in systems where this has been attempted. Not only is it difficult to establish objective measures of the quality level at which education should be provided, but it is notoriously difficult to infer "reasonable" costs from real costs observed in higher education institutions. In largely non-profit institutions, operating in imperfect market conditions, higher education institutions tend to spend, or make do with, the level of funding they actually have, without this necessarily corresponding to the level required to provide education efficiently and at high quality (Deloitte Access Economics, 2016[3]; Hemelt et al., 2018[4]). As such, policymakers and analysts are forced to use a range of proxy measures – including international comparisons – when assessing the "adequacy" of funding levels (PwC Strategy&, 2021[5]).
2. How can the available resources be allocated to higher education institutions in way that is **equitable (fair), predictable and transparent**? To promote quality and efficient allocation of limited funds, governments and society have an interest in ensuring that public funds are distributed to higher education providers in a way that takes account of differences in the cost of provision (recognising that education in some subjects costs more to deliver than in others) and real levels of activity and effort (notably – in the area of education – the numbers of students educated in different institutions). It is equally important, as a matter of good governance and to facilitate planning, that the public, politicians and institutions themselves can easily understand the basis and rationale for the way funds are distributed to institutions.
3. How can the funding allocation system ensure sufficient year-on-year **stability** in funding levels to avoid institutions experiencing harmful financial shocks? If the allocation model ties funding to the level of inputs (e.g. enrolled students) or outputs (e.g. degrees awarded), significant changes in the number of inputs or outputs can result in significant changes in funding allocations. However, higher education institutions have high fixed costs (staff and infrastructure) which cannot be modified rapidly. To avoid placing institutions in untenable financial situations in systems with dynamic patterns of enrolment, public funding allocation systems can use different mechanisms to reduce the scale of change in institutional allocations from one financial year to the next.
4. Finally, how, if at all, should funding allocation models be used to **incentivise and reward good institutional performance**? In recent decades, an increasing number of OECD jurisdictions have experimented with including output or outcome parameters in the formulas they use to allocated core public funding for instruction and research. For teaching grants, by far the most common approach has been to link funding to credits passed or degrees awarded, sometimes with the explicit intention of promoting faster progression and higher levels of successful course completion. The main questions policymakers when considering the use of performance-linked parameters in allocation models are the extent to which (and how) higher education institutions can influence the selected variables and whether such similar approaches have worked in practice in other settings.

This remainder of this chapter examines these four questions in relation to Portugal's model for allocating core funding from the state budget to public universities and polytechnics. It first considers the question of the adequacy of current core funding levels in Portugal. Then, given the trade-offs at play, the chapter examines policy options to balance equity of treatment of institutions, predictability, transparency, stability and performance orientation. After considering the approaches adopted in comparator OECD jurisdictions and, where possible, available evidence on the effectiveness of different policies, the chapter concludes with recommendations to Portugal.

The adequacy of core public funding to higher education institutions in Portugal

Public higher education institutions in Portugal rely on multiple income streams

Public higher education institutions in Portugal, like their counterparts in other OECD jurisdictions, rely on a combination of income sources to fund their activities. Table 3.1 summarises the share of institutional revenue in the public university and polytechnic sectors from different income streams, based on averages for the financial years 2019 to 2021 drawn from accounting data collated by Portugal's Institute for Financial Management of Education (IGeFE). The table shows that – on average – public institutions received around 56% of their total income from the core operating grant from the state budget, allocated by IGeFE on behalf of the government (see discussion below on the design of the current allocation model). This operating grant accounts for a higher average share of total income in public polytechnics (64%) than in public universities (53%), reflecting the higher relative weight of competitive and targeted public funding, as well as third-party private funding, in the public university sector.

In both the public university and polytechnic sectors, tuition fees paid by students account for the next largest share of institutional income, accounting for around 16% of total revenues across the two sub-sectors (on average 15% in public universities and 17% in public polytechnics). As detailed in Box 3.1, tuition fees for short-cycle, first-cycle and some second-cycle qualifications in public higher education institutions in Portugal are regulated by law. Following a period of regular fee increases, between 2019 and 2021, the then government implemented a policy of fee reductions, most recently in the 2021 state budget, which introduced a 20% reduction in the maximum regulated fees public institutions can charge for bachelor's programmes. Fees for other programmes were frozen. The government has accompanied these cuts with increases in the core operating grant, designed to compensate institutions for lost income (Government of Portugal, 2020[6]; Government of Portugal, 2021[7]).

Table 3.1. Income of public HEIs by income source

Average annual shares of income by revenue source over the three financial years 2019-2021

Sector/sub-sector	Core operating grant (revenue from taxes)	Other national public funding	Private third-party funding	Third-party funding from abroad	Student fees funding	Other	Total
All public HEIs	55.9%	8.3%	1.4%	11.1%	15.7%	7.6%	100%
Public universities	52.5%	10.2%	1.7%	11.3%	15.7%	8.6%	100%
Public Polytechnics	64.2%	2.7%	0.5%	9.7%	17.4%	5.4%	100%

Source: IGeFE (2022[8]) Data on institutional income and expenditure 2012-2021 (unpublished – supplied directly to the OECD).

Box 3.1. Tuition fees in higher education in Portugal

In the academic year 2021/22, regulated annual tuition fees in public higher education institutions were capped at EUR 697. This maximum rate applies for Professional Higher Technical Programmes (TeSP), bachelor's degrees, integrated master's degrees and second-cycle master's degrees required to access regulated professions. Institutions are free to establish fees for other second-cycle master's degrees, doctoral degrees, post-doctoral certificates and other forms of continuous education not leading to a degree. International students pay substantially higher fees than domestic and European Economic Area (EEA) students, although some institutions offer fee reductions for students from certain (generally Portuguese-speaking) countries. Private higher education institutions are free to set their fees at all levels of education.

Source: DGES (2022[9]) *Propinas (Tuition fees)*, https://www.dges.gov.pt/pt/pagina/propinas (accessed on 11 May 2022)

The third-largest source of income in public higher education institutions is classified as "third-party funding from abroad", which accounted for an average of 11% of total income in institutions in the years 2019 to 2021. The vast majority of these funds come from European Union (EU) structural and investment funds (notably the European Social Fund), which are managed in Portugal, and, to a lesser extent, centrally managed European Union programmes such as Erasmus+ (for education) and Horizon Europe (for research and innovation). In recent years, European Social Fund resources have, for example, been used to support the development and implementation of short-cycle Professional Higher Technical Programmes (TeSP) in institutions in eligible regions[1] across Portugal.

Remaining institutional income (on average around 17% across all public HEIs) came primarily from a combination of targeted government funding from specific programmes or transfers within the public administration, income generated by institutions from fees and charges for service provision and a modest level of income from private sector sources, such as companies or foundations.

Two factors are important in interpreting these average shares of institutional income from different sources. First, the average figures mask significant variation between public higher education institutions. Whereas the core public operating grant accounted for around 40% of total income in 2021 at the Universidade Nova de Lisboa and the Instituto Politécnico do Cávado e do Ave (IPCA), this proportion was over 75% in the three public, non-integrated nursing schools (in Coimbra, Lisbon and Porto), the Instituto Politécnico de Tomar (central Portugal), and the Universidade dos Açores (which serves the islands making up the autonomous region of the Azores). Similarly, while international (mostly EU) funds accounted for less than 10% of total revenue in 2021 in 18 of the 34 public higher education institutions, it accounted for more than 20% of total income in five institutions, including the Instituto Politécnico de Bragança, IPCA and the universities of Minho and Aveiro. These differences have implications for financial management within the institutions and the weight of the core operating grant in institutional finances.

Second, the data underlying the income shares presented above encompass only the revenue generated by public higher education institutions as legal entities and exclude the revenue of research and development (R&D) units associated to institutions. As noted above, Portugal has a distinctive institutional arrangement in its public research and higher education system, whereby R&D units are established as legally distinct public or private entities, either inside or outside the legal structure of universities or polytechnics. Almost three-quarters of R&D units are established as entities within higher education institutions. Many academic staff from universities and polytechnics – whose salaries are paid from the budgets of their home institutions – are associated to one or more R&D units. However, core operating grants and research grants awarded by the Foundation for Science and Technology (FCT), as well as most international and private funding for research projects accrue as revenue to the R&D units, not to the

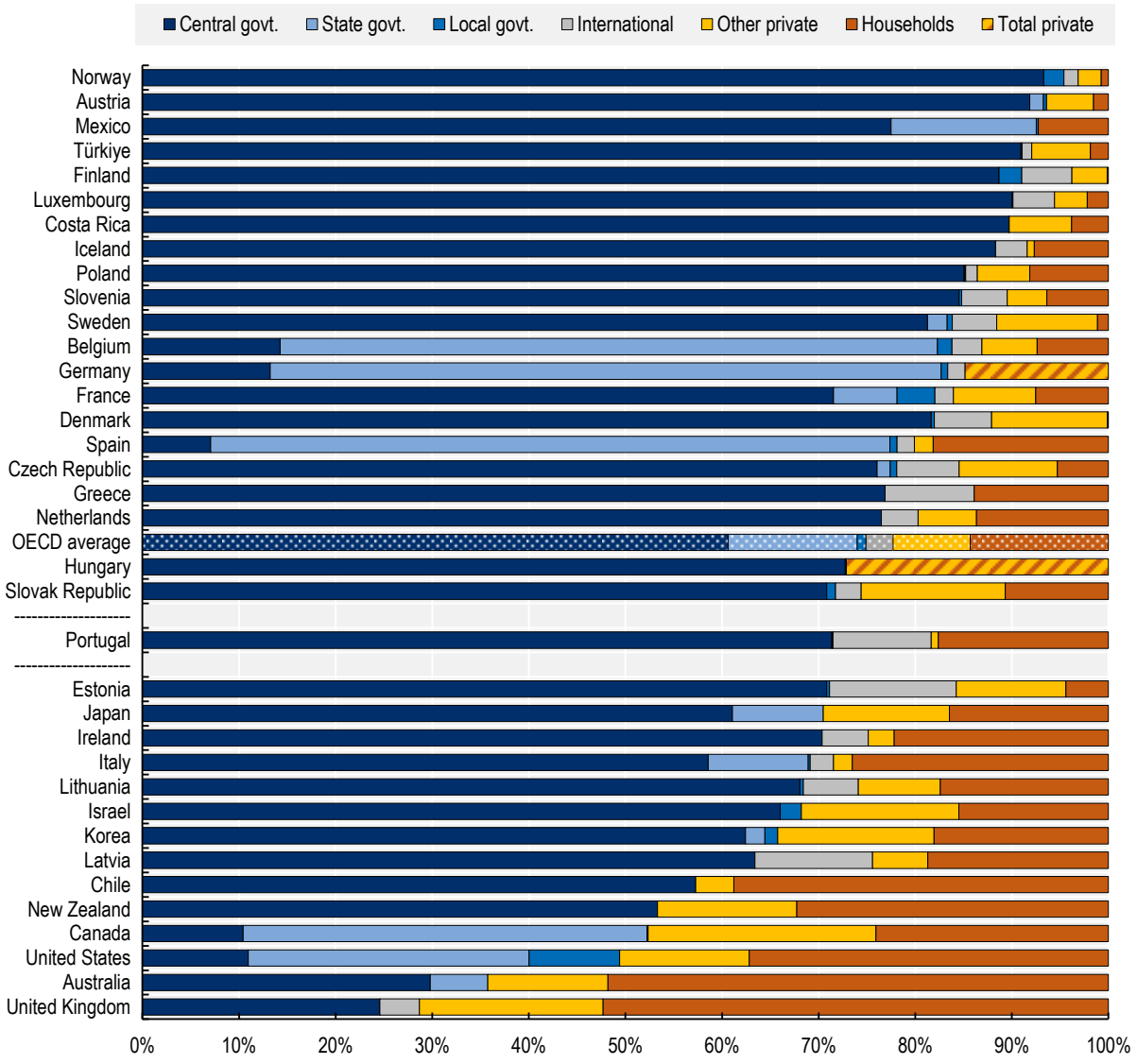
central budgets of higher education institutions. This situation differs from that in most other OECD countries, where research income accounts for a substantial share of institutional revenue, particularly in universities. As a result, international comparisons of funding levels must be interpreted with care.

Public HEIs in Portugal are less dependent on core public funds than their counterparts in major comparator systems

The time taken to collate and validate international data on the funding of education systems means that the most recent comparable data on expenditure on higher education institutions, at the time of writing, is for the financial year 2018. As illustrated in Figure 3.2, international data show that around 71% of total spending on public higher education institutions in 2018 came from public sources, 10% from international sources, 18% from households (primarily tuition fees and rent) and remainder from other private sources. These data include public spending on public R&D units associated to higher education institutions, meaning they are not directly comparable with the national data on institutional revenues in Table 3.1.

Figure 3.2. Expenditure on higher education institutions by source

Share of expenditure on public and government-dependent HEIs by source, 2018



Note: Countries are ranked in descending order by the proportion of expenditure from public sources. Disaggregated data on private expenditure are not available for Germany and Hungary (presented as "total private" expenditure). "Other private" expenditure refers to expenditure from private sources, other than household expenditure on fees. It includes expenditure by businesses and non-profit organisations. "Govt" = government. Missing data for Switzerland.

Source: OECD (2022[2]), Educational expenditure by source and destination, https://stats.oecd.org/ (Accessed on 6 July 2022).

StatLink https://stat.link/1rvz93

In 2018, the share of public spending within overall expenditure on public higher education institutions in Portugal (at 71%) was below the average for public and government-dependent private higher education institutions in OECD countries (75%) and for the 22 European Union (EU-22) countries that are also OECD members (79%). The corollary to this was that the relative contribution of households to public higher education institution in Portugal, at 18%, was above the OECD average for public and government-dependent institutions (14%) and substantially above the average for the EU-22 (9%). As a result of the

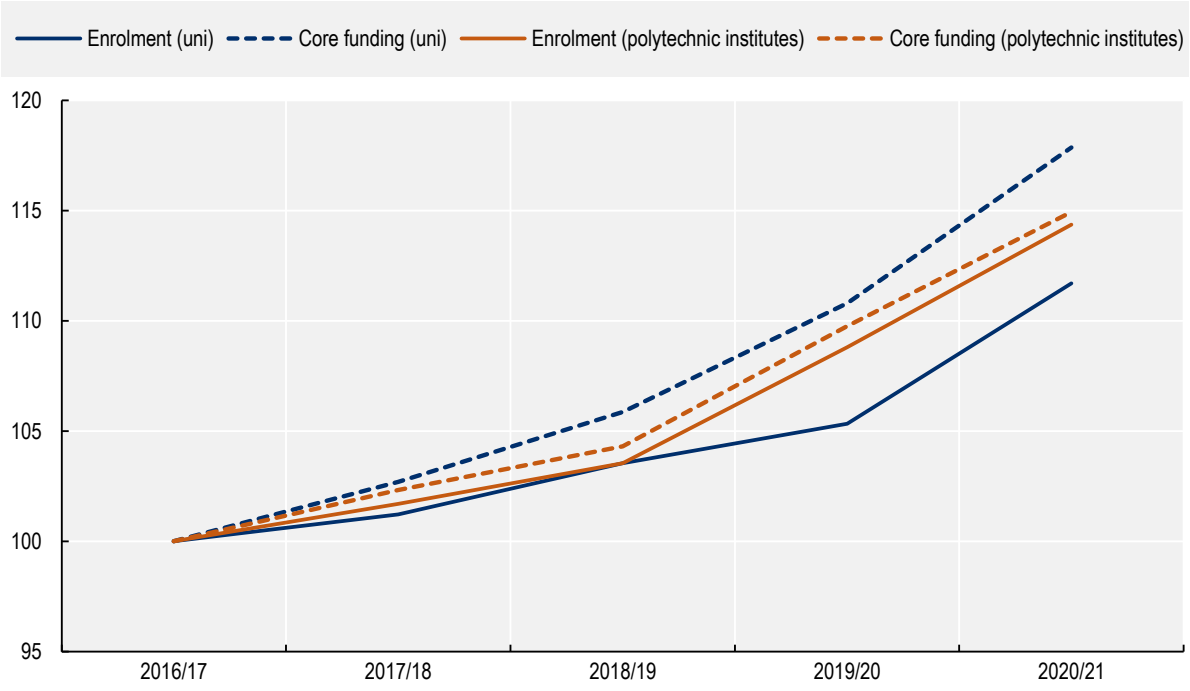
policy of tuition-fee reductions in recent years (see Box 3.1), this share will have declined since 2018. Also of note is that the share of spending from international sources (in Portugal's case, mostly EU funds) was substantially higher in Portugal (10%) than on average in public and government-dependent HEIs in the OECD (3%) or the EU-22 (5%), while the share of income from "other private" sources was considerably lower, at 1% of total spending, compared to 8% in the OECD and 7% in the EU-22.

Total investment in public HEIs in Portugal is low, but has increased in recent years

In 2018, total spending on public higher education institutions in Portugal was the equivalent of 0.9% of Portugal's Gross Domestic Product (GDP), and public expenditure around 0.7% of GDP. This compares with OECD averages of 1.1% of GDP for total spending and 0.9% for public expenditure. The highest levels of total investment in public or government-dependent higher education institutions relative to national income were in Canada (2.3% of GDP), the United Kingdom (2%), Australia (1.9%) and Norway (1.8%) (OECD, 2022[2]).

Figure 3.3. Recent changes in enrolment and total core funding in Portugal

Change in enrolment (FTE students) in public universities (uni) and polytechnic institutes between 2016/17 to 2020/21 and in core funding between 2017 and 2021. Index: 2016/17 (enrolment) and 2017 (core funding) = 100



Note: To allow inclusion of budget data for 2021, the chart plots FTE student enrolment in the academic years shown and core funding in the financial year covering the spring and summer terms of that academic year (i.e. 2020/21 enrolment with core funding for 2021). Ideally, enrolment data should be adjusted to align with the financial year, but this is not possible at the time of writing because enrolment data for the academic year 2021/22 had not been finalised.
Source: Core funding: IGeFE (2022[8]) Data on institutional income and expenditure 2012-2021 (unpublished – supplied directly to OECD). Enrolment: DGEEC (2022[10]) *Estatísticas – Ensino Superior (Statistics – Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (Accessed on 8 July 2022).

StatLink https://stat.link/q3ke45

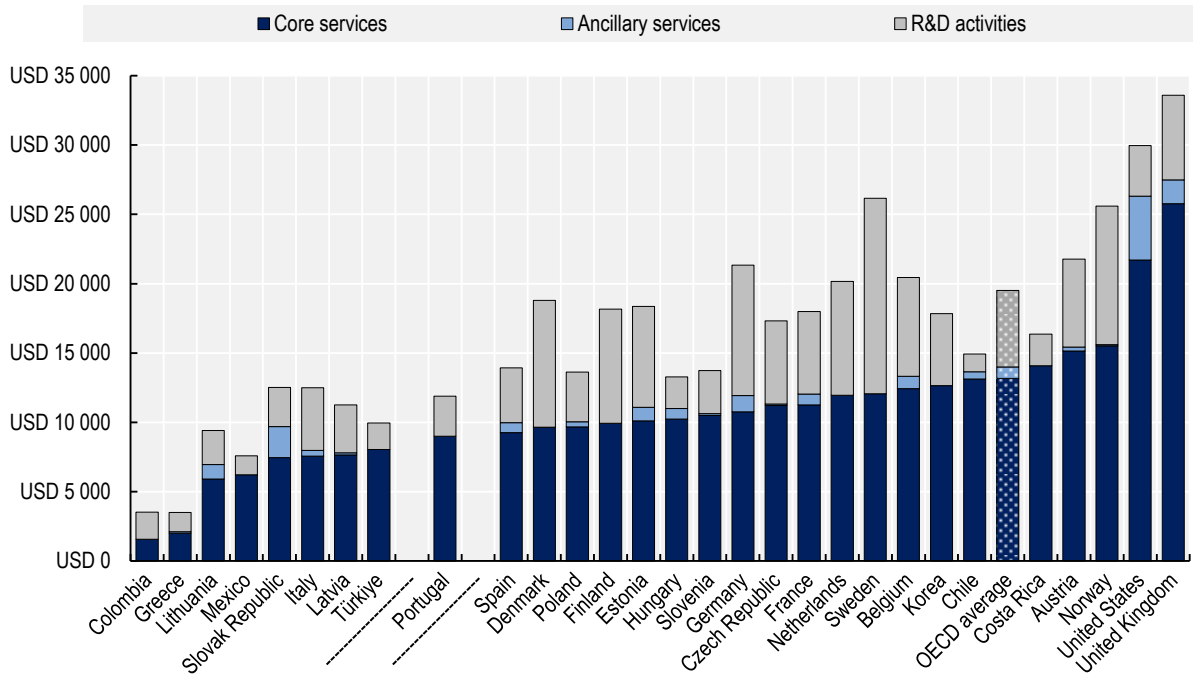
As shown in Figure 3.3, between 2017 and 2021 (in other words in the period since the last international data were collated), total core public funding for public higher education institutions in Portugal increased by 15% in nominal euros, reflecting government commitments. Since 2020, funding increases have been part of the latest "Contract for the Legislative Term" (covering 2020-23), in which Portugal's government committed to increase the budget envelope for core public funding by 5% in 2020 (compared to 2019) and subsequently by 2% annually between 2021 and 2023 (Government of Portugal, 2019[11]). As a result of the recent increases, nominal total investment – not taking into account inflation – has broadly kept pace with changes in total enrolment (total enrolment in full-time-equivalent (FTE) students increased by 13% in the period), but not with faster enrolment growth in the polytechnic sub-sector.

Per-student spending in Portugal is below the average of OECD countries

Portugal's comparatively low level of investment in higher education as a proportion of national wealth is reflected in the level of spending per student. As shown in Figure 3.4, total expenditure per FTE student in 2018 in public HEIs, after adjusting for purchasing power parity, was around 65% of the OECD average, although spending on core services (excluding spending attributed to ancillary services and R&D) was 68% of the average in the OECD.

Figure 3.4. Expenditure per student by destination of funds in the OECD

Expenditure per FTE student in United States Dollars (USD) expressed in Purchasing Power Parity (PPP) in public and government-dependent HEIs, 2018



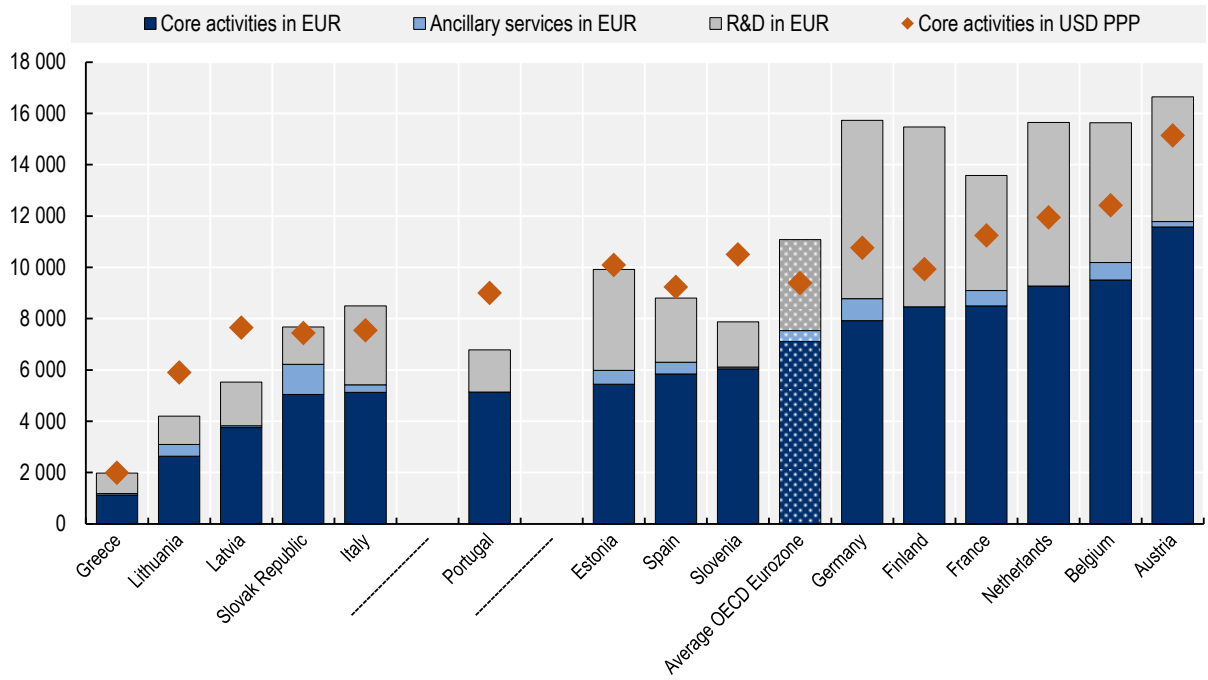
Note: Countries are ranked in ascending order by the level of spending per FTE student on core services. Data for Australia, Canada, Iceland, Ireland, Israel, Japan, New Zealand are not included as they have no disaggregation of R&D expenditure. Total spending per FTE student excludes adjustments for changes in fund balances. The term "Ancillary services" refers to services provided to students, such as housing, catering or sports facilities, although expenditure on such services is not systematically disaggregated in international statistics.
Source: OECD (2022[2]), Educational expenditure by source and destination, https://stats.oecd.org/ (Accessed on 6 July 2022).

StatLink https://stat.link/mvd5li

The OECD averages are somewhat distorted by the particularly high spending levels in public and government-dependent HEIs in the United States and the United Kingdom. The differences between expenditure levels in European states other than the United Kingdom were more modest. In purchasing power parity terms, per-student spending on core services in public HEIs in Portugal in 2018 was around 20% higher than in Italy, around the same level as in Spain and around three-quarters of the level in public HEIs in the Netherlands. In absolute terms, not taking into account differences in purchasing power between countries, per-student spending in Portugal (in euros) was around 80% of the average of OECD Eurozone member countries in 2018. Figure 3.5 also illustrates the effect of adjustments for purchasing power parity on spending levels. Whereas Italy, Portugal and Estonia all spend roughly the same amount in euros per FTE student on core services in public HEIs, PPP-adjusted spending in Italy is lower than in Portugal (owing to higher costs in Italy) and higher in Estonia (owing to lower costs in Estonia, compared to Portugal).

Figure 3.5. Expenditure per student by destination of funds in the Eurozone

Spending per FTE student in euros by type of expenditure in public and government-dependent private higher education institutions, 2018. Values for core activities converted into USD PPP shown on the same scale.



Note: Countries are ranked in ascending order by the level of spending per FTE student on core services. Total spending per FTE student excludes adjustments for changes in fund balances.
Source: OECD (2022[2]), Educational expenditure by source and destination, https://stats.oecd.org/ (Accessed on 6 July 2022).

StatLink https://stat.link/o0qjgb

The discussion hitherto has focused on average per-student funding levels. As discussed in more depth in the section below exploring funding allocation models, average spending figures for Portugal mask considerable variation between individual institutions in the level of total and public funding per student. Although some of this variation results from differences in institutional profiles and disciplinary mixes, disparities have increased in recent years as a result of the approach adopted to allocating public funding (see discuss in the next section).

Staff costs absorb a majority of institutional expenditure and academic employment is strongly regulated

A substantial majority of the resources entering higher education institutions in Portugal – as in other OECD jurisdictions – is used to cover the costs of employing academic and non-academic staff. In the financial year 2021, expenditure on personnel costs (essentially salaries, pensions and social security) accounted for an average of almost 74% of total expenditure in public higher education institutions in Portugal. This proportion was almost 80% in polytechnics, but only 71% in universities, where rates of capital and other expenditure are higher than in the polytechnic sector. These figures compare with an average rate of expenditure on personnel costs in public and government-dependent higher education institutions in the OECD of 68% (OECD, 2022[2]). As shown in Table 3.2, the proportion of expenditure devoted to personnel costs in Portugal was higher in 2020 and 2021 in comparison to 2019, reflecting lower operating expenditure on other cost items during the COVID-19 pandemic.

Table 3.2. Expenditure by type in public higher education institutions

Average proportion of total expenditure by type by sub-sector for financial years 2019-2021

Financial year	Sub-sector	Expenditure on personnel costs	Operating expenditure other than personnel costs	Capital expenditure	Other expenditure	Total
2021	Universities	71.4%	14.5%	6.6%	7.4%	100%
	Polytechnics	79.7%	11.7%	4.1%	4.5%	100%
	Total	73.6%	13.8%	5.9%	6.7%	100%
2020	Universities	72.5%	14.2%	5.5%	7.9%	100%
	Polytechnics	78.7%	11.0%	4.8%	5.5%	100%
	Total	74.1%	13.3%	5.3%	7.3%	100%
2019	Universities	69.2%	16.8%	4.9%	9.0%	100%
	Polytechnics	75.4%	12.4%	6.7%	5.5%	100%
	Total	70.9%	15.6%	5.4%	8.1%	100%

Source: IGeFE (2022[8]) Data on institutional income and expenditure 2012-2021 (unpublished – supplied directly to the OECD).

Given that core public funding from the state budget represents only around 56% of institutional income on average (see Table 3.1), most public higher education institutions in Portugal pay for a proportion of staff costs with other revenue. In 2021, core budget allocations covered around 78% of personnel costs in public universities and 86% in polytechnics. The proportion of staff costs covered by the state budget varied between 63% (Universidade Nova de Lisboa) to just over 100% in the three non-integrated public nursing schools (IGeFE, 2022[8]).

As in public higher education institutions in many other OECD jurisdictions, a high proportion of staff costs in public universities and polytechnics in Portugal can be considered as (largely) fixed costs, as, in most institutions, academic staff in career positions and non-academic staff with indefinite contracts are employed under comparatively protective public law employment rules, which permit dismissal of staff only in very specific circumstances. Even in the six public institutions that have transitioned to foundation status[2] and can thus employ staff on private-law contracts, a proportion of staff are still employed under public-law rules and institutions have tended to model conditions for staff employed on private-law contracts on those specified in public law (OECD, 2019[12]). The strong job security offered to permanent academic staff in Portugal's public higher education institutions is not particularly unusual. Similarly strong protections exist in many OECD higher education systems, particularly in Europe, but also, traditionally, in North America, where the tradition of academic tenure continues in public universities, even if the COVID-19 pandemic exposed the limits of the protection that tenure offers (Zahneis, 2022[13]).

As will be discussed in more depth in Chapter 4, a more notable feature of the framework for employment of academic staff in Portugal's public higher education institutions is the comparatively detailed set of rules set forth in legislation (see Box 3.2). In many OECD higher education systems, issues such as the balance of academic staff in different ranks or workload models governing the way staff allocate their time are left to individual institutions or, in some cases, specified in sector-level collective agreements concluded between staff unions and higher education employers. In Portugal, these are among the issues specified in the legislation governing academic careers in universities and polytechnics.

Box 3.2. The legal frameworks for employment of academic staff in Portugal

Academic careers in public higher education institutions are structured to a large extent by national legal frameworks, set out in separate decree-laws for university and polytechnic academic staff (*docentes*). As well as defining staff ranks and selection requirements, the specific legislation dealing with careers for university and polytechnic academic staff also specifies maximum and minimum ratios for particular ranks of staff (between 50% and 70% of permanent academic staff in universities should be full or associated professors, for example), imposes minimum and maximum teaching hours and contains general guidelines relating to staff evaluation, promotion and pay.

The legal frameworks specify that academic staff in universities are to have a teaching load of between six and nine hours teaching per week, with an equivalent requirement for polytechnic academic staff of between six and 12 hours per week. Among the recommendations of the last OECD review of the higher education and research system in Portugal (OECD, 2019[12]) was that the legal frameworks be amended to remove such uniform teaching requirements in order to facilitate the introduction of differentiated workload and career models in higher education institutions.

Source: Government of Portugal (1979[14]) Decreto-Lei n.º 448/79 Estatuto da Carreira Docente Universitária (Decree-Law 448/79 Statute of University Teaching Staff), https://dre.pt/dre/legislacao-consolidada/decreto-lei/1979-72873110 (Accessed on 22 July 2021); Government of Portugal (2009[15]) Decreto-Lei n.º 207/2009 Estatuto da Carreira do Pessoal Docente do Ensino Superior Politécnico (Decree-Law 207/2009 Statute of Polytechnic Teaching Staff) https://dre.pt/dre/detalhe/decreto-lei/207-2009-488490 (Accessed on 22 July 2021).

In addition to the existing legal framework, recent governments in Portugal have intervened in the higher education sector to promote the creation of more permanent positions for researchers and academic staff. Since 2018, the Stimulus Programme for Scientific Employment (*Programa de Estímulo ao Emprego Científico*) has been used to fund the creation of research positions for doctorate holders in research units, based on institutional employment and career development plans. The positions supported by the programme are initially funded for up to six years with recurring grants from the FCT, after which time there is an expectation that the individuals concerned will be able to apply for permanent career positions through competitions opened by host institutions.

However, a review of the programme noted that institutions have so far resisted opening competitions for permanent positions because funding from the state budget has been unpredictable in recent years, does not include a component for research and such recruitments mean that the institution will ultimately have to assume all employment-related costs under the rigid legal framework noted above (Nazaré et al., 2020[16]).

Allocating core funding: balancing equal treatment, stability and performance

This section of the report briefly examines the approach currently used to allocate core operating funding to public higher education institutions in Portugal, before considering how other OECD jurisdictions have calibrated different aspects of their core funding allocation models. It is clear from the interviews with higher education institutions and other stakeholders undertaken for this review, as well as the position of Portugal's government in mid-2022, that there is both a need and a political will to reform the current allocation approach used in Portugal. It is equally clear that an immediate application of the allocation formula adopted in 2006 would lead to significant funding cuts for institutions where the share of national enrolment has declined since application of the formula was suspended in 2008. Against this backdrop, this section explores in some detail the main policy-design options available to the Portuguese authorities and public higher education sector as they design a new allocation model that is fit for the future.

As highlighted in the introduction to this chapter, the allocation of core operating funds to public higher education institutions, to allow them to function on a day-to-day basis, is only one – albeit the most fundamental – aspect of the broader system of public funding for higher education institutions. Performance-linked, mission-linked or strategic funding, designed to support the future development, orientation and profiling of higher education institutions, and awarded in addition to core operating funds, also has an important role to play. Policy options for structuring such funding, as well as designing accompanying governance and accountability arrangements, are discussed in Chapter 4.

The previous OECD review of higher education, research and innovation in Portugal adopted a comparatively broad-brush approach to the question of funding (OECD, 2019[12]). It recommended a model where around 80% of direct-grant funding to institutions (as opposed to competitive funds) would be allocated based on real activity levels (inputs, such as enrolled students); 15% based on performance (measured by output or outcome indicators); and 5% would be allocated for institutional profiling and linked to multi-year institutional agreements. The concept of allocating a majority of funds based on a combination of input and output variables and creating a separate pot of mission-linked or strategic funding still appears eminently reasonable. However, this more detailed review will revisit some of the more specific elements proposed in the 2019 recommendations – particularly those related to performance funding – taking into account the experience of OECD jurisdictions in recent years and findings from the broader OECD Resourcing Higher Education Project, of which this current review is a part.

Portugal has used an historical approach to allocating core funding in recent years

Portugal adopted a new formula-based method for allocating core operating funds from the state budget to public higher education institutions in 2006. As explained in Box 3.3, this was primarily driven by student numbers weighted using "cost factors" to align payments for students in different subject fields with the notional costs of delivery. In addition, the formula included a compound parameter designed to measure efficiency (undergraduate graduation rates and a ratio of post-graduates obtaining degrees to academic staff) and the proportion of career academic staff holding a PhD.

Box 3.3. The 2006 funding formula

A 2006 ordinance (*portaria*) sets out a model for allocating core operating funding (*orçamento de funcionamento base*) to public higher education institutions each year. It calculates the share of the available state budget for each higher education institution using the following formula:

$$OTj = \sum_{i} [Iij * Fij * Ej * Qj] * D$$

Where:

- *OTj* is the share of the state-budget envelope for institution *j*;
- *Iij* is the number of students in a field of study *i* in institution *j* for the previous year (t-1);
- *Fij* is a cost factor for field of study *i* in institution *j*, based on average staff costs of all institutions, in turn calculated with reference to nationally fixed student-staff ratios, ratios of non-teaching staff to teaching staff and ratios of central administrative staff per student;
- *Ej* is a compound indicator of efficiency combining a measure of graduation rates for undergraduate students (*taxa de eficiência de graduação*) and a measure of graduation at master's and doctoral in relation to academic staff holding PhDs employed by the institution (*taxa de eficiência científica*);
- *Qj* is a measure of the proportion of academic staff holding a PhD in each institution;
- *D* is a unit payment (national base allocation per student), calculated by dividing the total budget to be transferred by the total number of students in the system, weighted by the cost factors, efficiency indicator and staff qualification factors associated with each institution's fields of study.

The ordinance provides for the application of a "cohesion factor" designed to limit year-on-year variation in the level of state-budget allocations to individual institutions. The adjustment mechanism limits budget reductions to 3% and budget increases to 5%.

Note: Note in the Ordinance text, the "=" sign in the formula was incorrectly represented as a "+" sign.
Source: Government of Portugal (2006[17]) *Portaria no 231/2006 (Ordinance 231/2006)* https://files.dre.pt/2s/2006/01/013000000/0080300807.pdf (accessed on 11 May 2022)

The 2006 formula was applied for the state budget allocations to public higher education institutions in the financial years 2006, 2007 and 2008. The application of the formula proved to be administratively burdensome owing to the data reporting and handling requirements for institutions, the Directorate-General for Education and Science Statistics (DGEEC) and the Institute for the Financial Management of Education (IGeFE). Moreover, disagreements between institutions and the authorities arose around the measurement of enrolment following the Bologna reforms to degree structures (IGeFE, 2022[18]). These challenges led to first to a simplification of the formula in the year 2009 and then to a suspension of the direct application of the formula from 2010 onwards. The underlying data driving the formula was not updated after 2009. Instead, annual budget adjustments were allocated between institutions using the reference data from 2008 until the financial year 2012, when the fiscal retrenchment caused by the financial crisis required significant budget cuts in higher education and rendered the use of an allocation formula redundant.

A detailed proposal for a revised formula was developed in 2015 by an expert committee appointed by the Minister of Science, Technology and Higher Education (MCTES, 2015[19]), but a change of government and a challenging fiscal context meant that this was never taken forward. The period 2016-19 was, instead, marked by attempts to restore a degree of stability and confidence in the higher education funding system,

through an agreement concluded between government and the public higher education sector and annual increases in the higher education budget distributed to institutions on a pro-rata basis. After the 2019 general election, the new government concluded a "Contract for the Legislative Term" (*Contrato de Legislatura*) mentioned above (see also Chapter 4), with an initial increase of 5% in the budget envelope for core funding to higher education institutions in 2020, followed by guaranteed increases in the envelope of 2% annually (Government of Portugal, 2019[11]).

In 2020, the IGeFE and DGEEC updated the data required to implement the 2006 formula and in 2021 used these data to calculate the allocation of a 0.5% increase in the total budget envelope. The total increase in the budget envelope was 2%, but the remaining 1.5% increase was distributed to institutions on a pro-rata basis (a 1.5% increase for each institution). The formula was thus not applied to re-calibrate the total allocations to each institution. As discussed below, this would have resulted in a significant redistribution of resources between institutions with "winners" in fast-growing institutions and "losers" in institutions with declining enrolment in interior and island regions.

The absence of a formula has led to significant divergence in per-student core funding levels between institutions in recent years

The use of an incremental, historical approach to allocating core funding to public higher education institutions over the last decade has led to a significant divergence in the level of core funding institutions receive per enrolled student. As noted, the legally adopted allocation formula in Portugal, in common with allocation models in other OECD jurisdictions, uses cost factors to provide differentiated payments for students in different subject fields. As higher education institutions have differing subject mixes within their educational offering – and thus differing cost structures – it is helpful to consider the amount of core funding allocated per "weighted" student, rather than simply per enrolled student, to account for this variation.

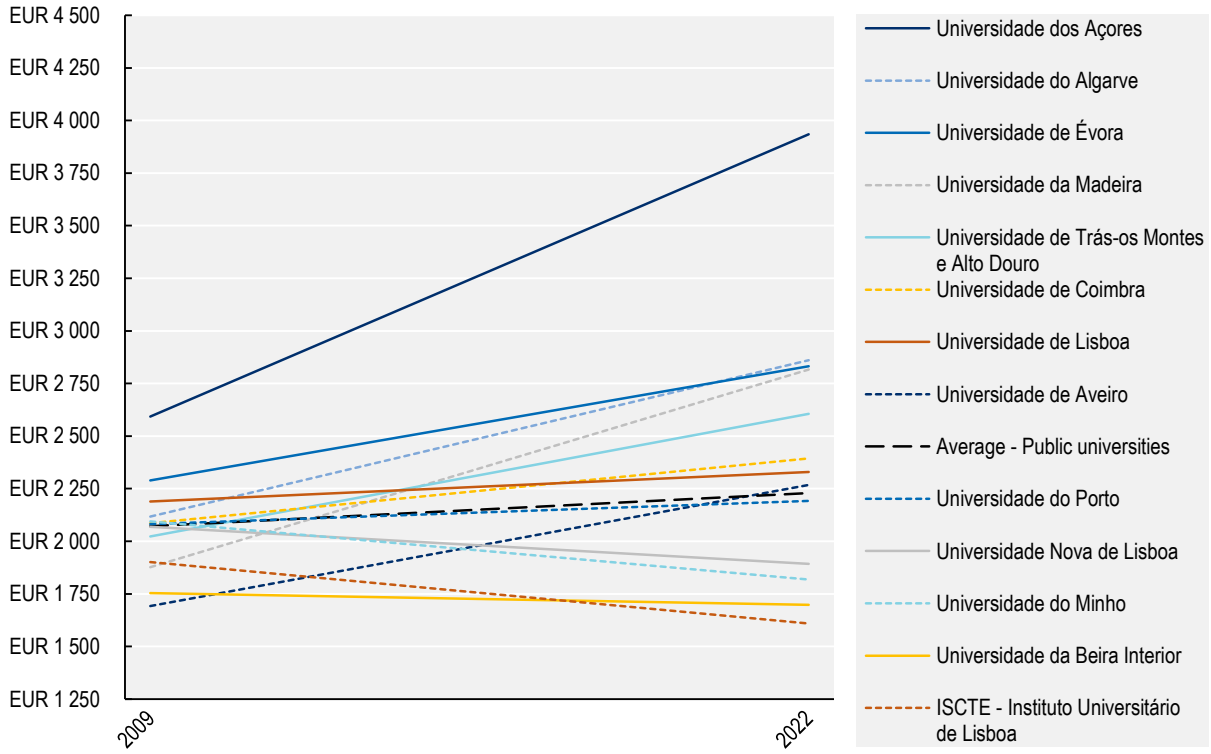
The number of "weighted" students in a given institution is calculated by allocating enrolled students to a cost category depending on their field of study (according to the classification used for the 2006 formula – see Table 3.6), multiplying the number of students in each cost category by the relevant cost factor and adding the numbers of weighted students from each category. Using this method, each student in medicine (in universities) counts, for example, for four "weighted students" (as the cost factor for medicine is four), while each student in classroom-based programmes in polytechnics counts for one weighted student (as the cost factor for such programmes is one).

Figure 3.6 shows the evolution of core funding from the state budget per weighted student in each of Portugal's 13 public universities between in 2009 (the year that the application of the formula was effectively suspended) and 2022 (the financial year at the time of writing). The chart shows that the level of core funding per weighted student in 2009 was comparatively consistent across public universities in mainland Portugal, ranging from EUR 1 691 for the Universidade de Aveiro to EUR 2 289 for the Universidade dos Açores – meaning that the Universidade dos Açores received 1.53 times more funding per weighted student than the Universidade de Aveiro.

However, as also shown in Figure 3.6, during the period of incremental increases in funding based on historical allocations after 2009, the levels of funding per weighted student diverged between universities. In 2022, the Universidade dos Açores received almost 2.5 times the level of funding per weighted student of the university with the lowest rate of funding (ISCTE – Instituto Universitário de Lisboa). In euro terms, this is a difference between EUR 3 934 and EUR 1 609 per weighted student. The five universities with the highest rates of funding per weighted student in 2022 are all in regions experiencing demographic decline, although the Universidade da Beira Interior, which is also in such a region, has the second-lowest rate of funding.

Figure 3.6. Core funding per weighted student in 2009 and 2022 – Universities

Core funding (from state budget – OE) per "weighted student" in first and second cycle in euros (nominal)



Note: The chart plots state-budget allocations (OE) per weighted student, obtained by dividing the total OE budget envelope for higher education institutions in 2009 and 2022 by the number of weighted students in 2007 and 2019, respectively. The weighting uses the cost factors specified for application of the 2006 formula.
Source: IGeFE analysis of funding for public HEIs per weighted student in 2009 and 2022 (Unpublished).

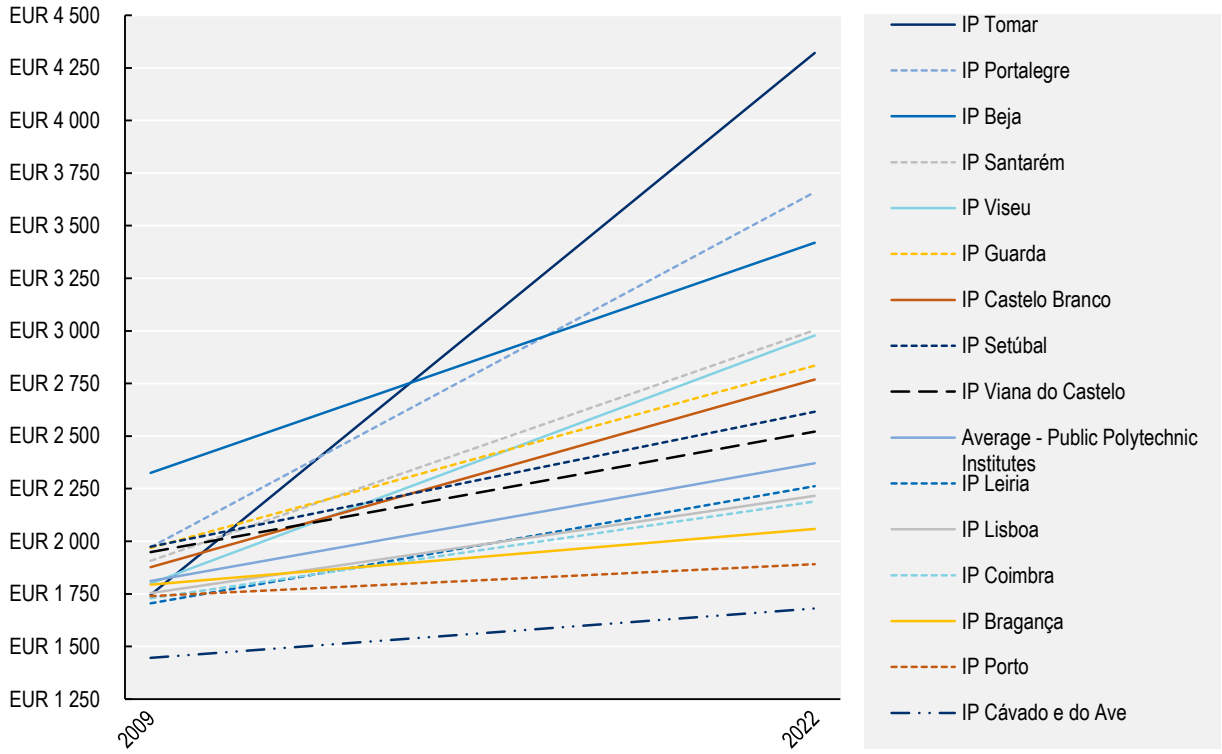
StatLink https://stat.link/do13xy

Figure 3.7 overleaf shows the equivalent data for the 15 public polytechnic institutes (IPs). The pattern is very similar to the situation in public universities, with a significant divergence in the level of core funding per weighted student in the period after 2009. By 2022, the polytechnic institute with the highest rate of funding (IP Tomar) received 2.6 times the level of core funding per weighted student as the institute with the lowest rate of funding (Instituto Politécnico do Cávado e do Ave – IPCA). In euros, this translated into a difference between EUR 4 321 per weighted student and EUR 1 681. Specific historical factors have affected the level of core funding in IPCA, which is also the only polytechnic to have transitioned to foundation status. Nevertheless, the rate of funding per weighted student in the IP Porto – the country's largest polytechnic – was less than half the rate in IP Tomar.

The five polytechnic institutes with the highest rates of core funding per weighted student in 2022 are all located in regions with declining populations in Portugal's interior. The IP Bragança is the only polytechnic located in an interior region with below-average core funding in 2022: a situation that reflects the comparatively high enrolment growth in this institution in the period between 2007/08 and 2020/21 (see below).

Figure 3.7. Core funding per weighted student in 2009 and 2022 – Polytechnic institutes

Core funding (from state budget – OE) per weighted student in first and second cycle in euros (nominal)



Note: The chart plots state-budget allocations (OE) per weighted student, obtained by dividing the total OE budget envelope for higher education institutions in 2009 and 2022 by the number of weighted students in 2007 and 2019, respectively. The weighting uses the cost factors specified for application of the 2006 formula.
Source: IGeFE analysis of funding for public HEIs per weighted student in 2009 and 2022 (Unpublished).

StatLink https://stat.link/vm0k49

Weighted funding per student has declined most in the institutions that have grown most

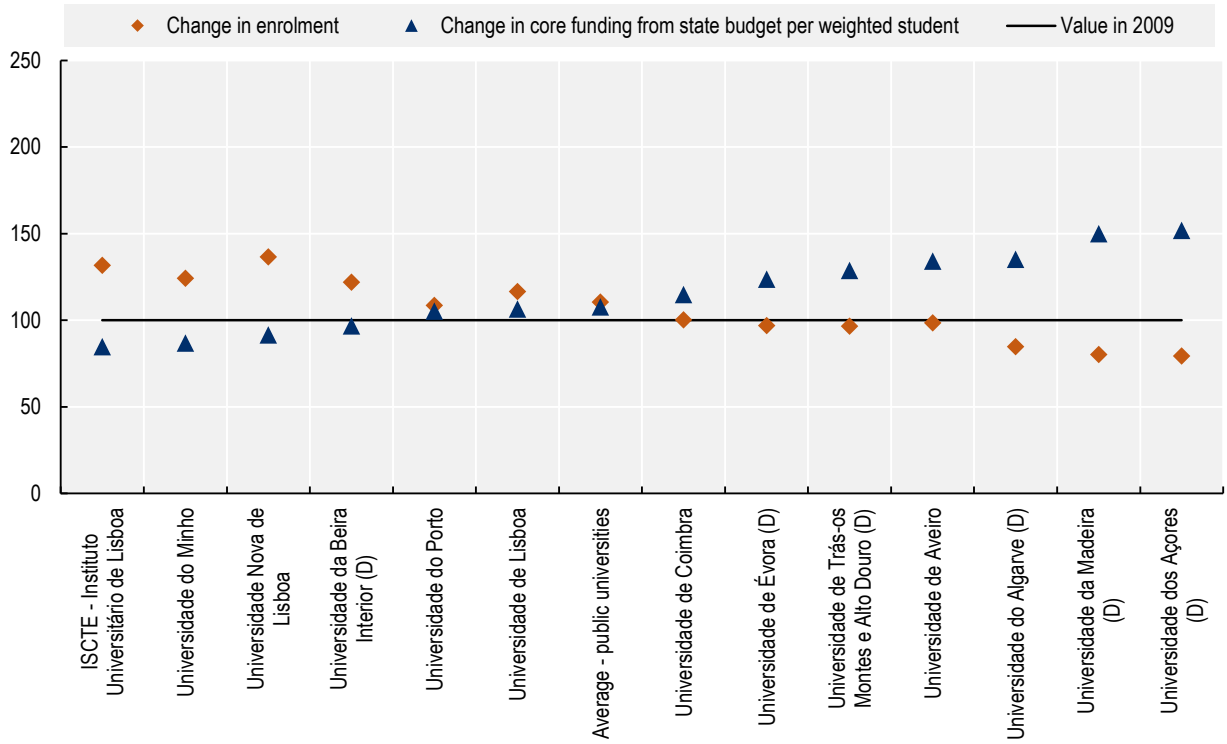
The divergence in core funding allocations per weighted student is the consequence of using an incremental, historical funding approach that takes no account of changes in the numbers of enrolled students in each institution. As illustrated in Figure 3.8, on average in the public university sector, core funding per weighted student in 2022 was around 8% higher in nominal euros than in 2009, despite growth in first and second-cycle enrolment in the sector of 10% of the same period. This is consistent with the general trend for the total budget envelope for core funding in recent years, already illustrated in Figure 3.3. However, given the impact of inflation over the 13-year period, this apparent increase represents a substantial real-terms reduction in funding. Unpublished analysis by IGeFE, based on public data on enrolment (DGEEC, 2022[10]) and annual initial budget allocation for each public university (DGO, 2022[20]), shows that the value of core funding per weighted student for public universities declined by around 7% in real terms between 2009 and 2022.

In euro terms, as shown in Figure 3.8, the level of core funding per weighted students has declined most in public universities that have experienced the highest rates of enrolment growth. In ISCTE, the Universidade do Minho and the Universidade Nova de Lisboa, first and second-cycle enrolment increased

by, respectively, 32%, 24% and 37% between 2007/08 and 2019/20, but core funding per weighted student decreased between the 2009 and 2022 by, respectively, 15.4%, 13.3% and 8.5%. Core funding payments per weighted student to several major universities, including Universidade de Lisboa, Universidade do Porto and Universidade de Coimbra increased in nominal terms by between 5% and 15% between 2009 and 2022, although this represents a real-terms reduction in funding per weighted student in all cases. In contrast, the Universidade do Algarve saw a 35% nominal-terms increase in funding per weighted student between 2009 and 2022, while core funding weighted student to the Universidade da Madeira and the Universidade dos Açores increased by over 50% in the same period.

Figure 3.8. Change in enrolment and core funding per weighted student – Universities

Index of change in core funding per weighted student in nominal euros between 2009 and 2022 (2009 = 100) and in enrolment (headcount) in first and second cycles between 2007/08 and 2019/20 (2007/08 = 100).



Note: The weighting uses the cost factors specified for application of the 2006 formula. D = institution located in a region experiencing demographic decline.
Source: IGeFE analysis of funding for public HEIs per weighted student in 2009 and 2022 (Unpublished).

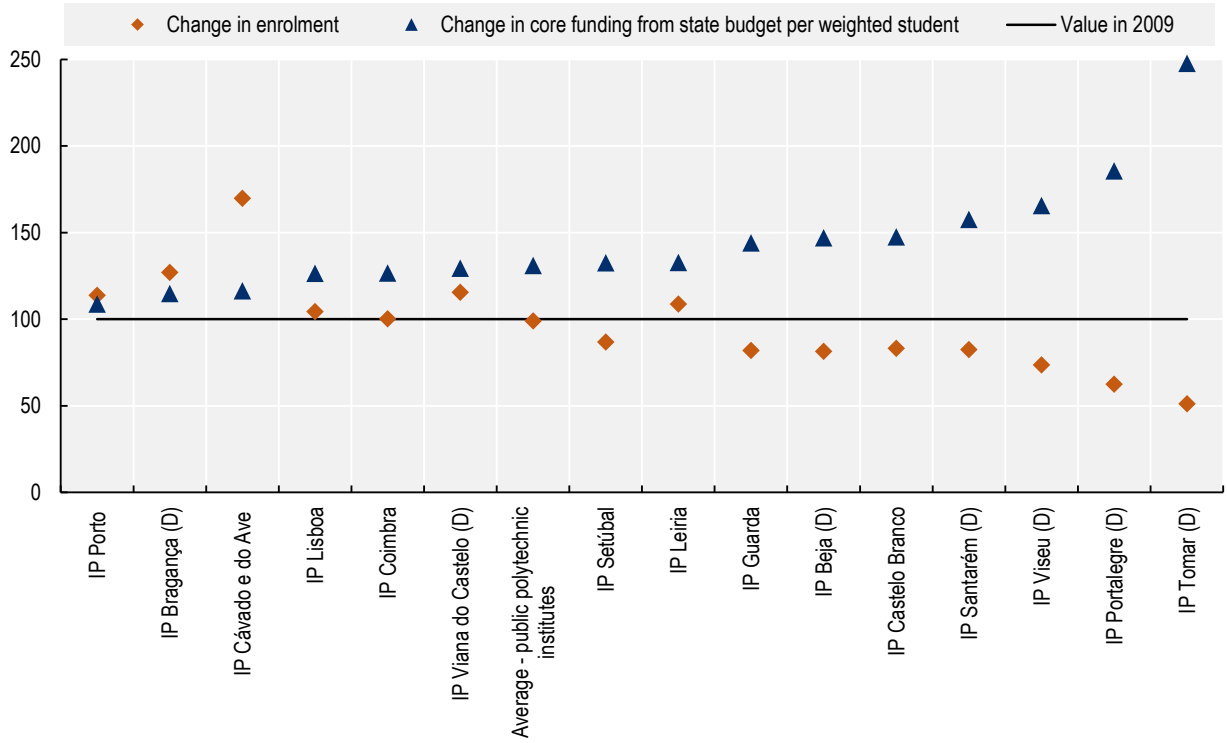
StatLink https://stat.link/p6rlbd

Again, the pattern is broadly similar in the public polytechnic sector, although a larger proportion of polytechnic institutes experienced enrolment decline between 2007/08 and 2019/20 than in the public university sector. Overall enrolment in public polytechnics declined by 1% between 2007/08 and 2019/20, while overall enrolment in public universities increased by over 10%. Moreover, average core funding per weighted student for the polytechnic sector increased by 31% in nominal terms (13% after adjusting for inflation) between 2009 and 2022, compared to the real-terms decline seen in the public university sector. All public polytechnic institutes had higher nominal core funding rates in 2022 than in 2009. Four polytechnic institutes – all located in regions with declining populations – experienced an increase in

nominal core funding per weighted student of over 50%: IP Santarém, IP Viseu, IP Portalegre and IP Tomar.

Figure 3.9. Change in enrolment and core funding per weighted student – Polytechnics

Index of change in core funding per weighted student in euros between 2009 and 2022 (2009 = 100) and in enrolment (headcount) in first and second cycles between 2007/08 and 2019/20 (2007/08 = 100).



Note: The weighting uses the cost factors specified for application of the 2006 formula. D = institution located in a region experiencing demographic decline.
Source: IGeFE analysis of funding for public HEIs per weighted student in 2009 and 2022 (Unpublished).

StatLink https://stat.link/es5rfb

Other OECD countries combine fixed and variable components in their models for allocating core funding to higher education institutions

As noted, since the effective suspension of the application of an allocation formula in 2009, Portugal has used an incremental, historical allocation model. It is not alone among OECD jurisdictions in doing so. Most US states, for example, owing in part to the constrained fiscal environment in which they operate and the significant role of tuition fees in institutional funding (at least for four-year colleges), fund their public higher education systems on the basis of historically determined annual state-budget appropriations. However, in recent decades an increasing number of OECD jurisdictions – like Portugal – have adopted allocation models which award all or a proportion of core funding to higher education institutions based on some form of variable-driven formula.

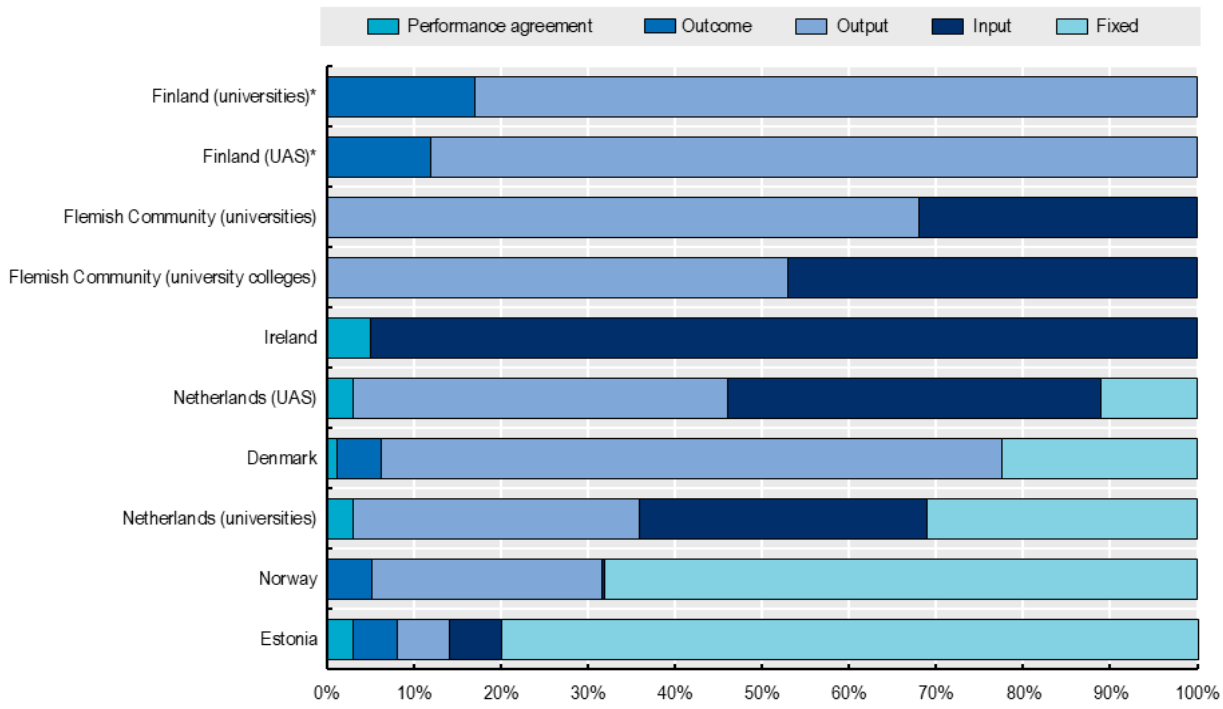
Figure 3.10 illustrates the proportion of core funding for education and operations in public and government-dependent higher education institutions (i.e. excluding specific allocations for research, where these exist) that is allocated based on different variables in selected European comparator jurisdictions.

The jurisdictions were selected as they are, like Portugal, small to medium-sized higher education systems with binary structures and they represent different – and often innovative – approaches to core funding allocation.

The first key distinction shown by Figure 3.10 is between jurisdictions that allocate a proportion of core funding as a fixed payment, unrelated to specific input, output or outcome variables, and those that use purely formula-driven allocation models to provide variable payments. The choice of whether or not to include a fixed component in allocation models – and the relative weight of this fixed component – is a fundamental question for those designing higher education funding systems. Estonia and Norway both distribute over 60% of the core funding between public higher education institutions as fixed payments, which are usually adjusted annually to take into account inflation, but which otherwise remain constant over time. In both systems, the remaining core funding is allocated to institutions based on a combination of input, output and outcome-driven formulas (see below) and, in the case of Estonia, funds linked to institutional performance agreements. Italy uses a similar approach. The Dutch and Danish allocation models use a mixed approach, combining fixed and variable components, while Ireland, the Flemish Community of Belgium and Finland use purely formula-driven approaches to allocate core funding for education and operations to public HEIs (this, by definition, excludes strategic and competitive targeted funding that may be in addition to core funding).

Figure 3.10. Allocation of core funding for education and operations

Share of core public funding for education and operations allocated using different allocation criteria



Note: * In Finland, projected core funding is set out in four-year institutional performance agreements with every public or government-dependent HEI. However, a majority of this funding allocation is calculated using a formula and funding is not made dependent on achievement of objectives in the performance agreements, as in other jurisdictions with performance agreements included here. The Flemish Community of Belgium also uses a base component (*sokkel*) and a variable component in its allocation model, but the base component is also driven by student numbers, so is not strictly a "fixed" component.

The appropriate balance between fixed and variable funding has been a subject of discussion in funding policy design in several OECD jurisdictions. In broad terms, variable – typically student-related – funding

makes it possible to link funding to real levels of activity and outputs in a transparent and equitable manner, which is widely acknowledged as a crucial characteristic for sound allocation models. Nevertheless, variable funding linked to enrolment or graduation can also create incentives for institutions to maximise enrolment and or graduation rates, potentially to the detriment of quality standards, if other safeguards are not effective. Although efforts by institutions to increase enrolment and graduation contribute positively to the societal objectives of widening access and increasing higher education attainment, care is required to avoid situations where the funding system drives a culture of "quantity" is over "quality". Risks in this respect may include increased class sizes and reduced student-staff interaction, if academic staff numbers do not keep pace with enrolment growth, or pressure on staff to ensure students pass exams to maximise graduation rates, rather than maintain rigorous academic standards. The extent to which such risks translate into reality naturally depends on a range of factors outside the design of the funding model, including the external and internal quality assurance systems and institutional strategy.

The question of the best balance of incentives for quantity and quality has been prominent in recent higher education funding reforms and related policy debates in Denmark and the Netherlands. The 2019 higher education funding reform in Denmark, for example, (re-)introduced a fixed component in the allocation model (the "basic grant" or *grundtilskud*) for all types of institutions, equivalent to around 25% of core funding for education, with the explicit goal of reducing institutions' focus on graduate numbers and promoting long-term planning and stability (OECD, 2021[21]). A recent government-commissioned study in the Netherlands sought to identify the optimal balance between the fixed component (*vaste voet / "fixed foot"*) and variable components in the Dutch funding allocation model for public universities and universities or applied science (de Zwart et al., 2021[22]).

Table 3.3. Variable and fixed funding: potential advantages and disadvantages

	Potential advantages	Potential disadvantages
Variable funding	• Variable funding aligns payments to institutions with real activity and output levels, facilitating an equitable and efficient allocation of resources • In contexts where enrolment is increasing, institutions receive additional funding to cover costs associated with serving additional students (and maintain quality of education) • Variable funding rewards institutions that succeed in attracting students through offering high quality, relevant and innovative programmes	• Fluctuation (instability) in funding over time as enrolment changes, reducing medium to long-term predictability of income, reducing capacity of institutions for long-term planning and investments (e.g. in infrastructure) • In contexts where enrolment is declining, income will often decline faster than largely fixed institutional costs (staff and overhead) • Variable funding can create incentives to maximise enrolment and graduation (quantity), which, in some situations, may create risks for quality • Competition for students, promoted by variable funding, may not always be desirable in higher education systems governed by public-service principles
Fixed funding	• Predictability and stability of income, creating space for innovation and long-term investments • Fixed funding facilitates investment in public-service missions that are not directly linked to student numbers, including institutional role in regional and local development	• Fully fixed funding models lead to irrational, inequitable and non-transparent differences in funding levels to individual institutions • Limited incentives for institutions to invest in new programmes or innovations to make existing programmes relevant and attractive to students • Potentially more limited incentives to invest in student support and guidance to promote timely progression and completion of students

Note: Summary developed by the OECD, drawing on de Zwart et al (2021[22]) *Verkenning naar de optimale verhouding tussen vaste en variabele onderwijsbekostiging in het hoger onderwijs (Exploration of the optimal ratio between variable and fixed funding for instruction in higher education)*, https://www.berenschot.nl/media/i0kk5fgd/berenschot-rapport-vast-variabele-onderwijsfinanciering.pdf (accessed on 6 July 2022).

The Dutch study reviewed the main arguments for and against the use of fixed and variable components in funding allocation models (developed further in Table 3.3), noting, in particular, the contribution of variable funding to transparency, equity of treatment of institutions and efficiency (and, in principle, quality)

and the role of fixed funding in guaranteeing stability and recognising that fixed costs in institutions cannot be adjusted as rapidly as student enrolment. The report notes that universities of applied sciences in Dutch regions that are beginning to experience population decline argue for an increase in the proportion of core education funding allocated as a fixed payment, but that the leaders of other HEIs consider that changes to the ratio between fixed and variable funding would have little impact on their decision-making or the operation of their institutions. The report's authors conclude that the ratio between fixed and variable funding should not be considered by government as a steering instrument (whereby changes in the ratio would lead to changes in institutional behaviour), but rather as a facilitating or contextual factor for other institutional and government policies (de Zwart et al., 2021[22]).

The analysis and debates conducted in the Netherlands occur in the specific context of that higher education system, which is characterised by a largely open admissions system and concerns among some commentators that the variable funding system has driven a focus on quantity at the expense of quality. In systems such as Finland and Ireland, which allocate all core public funding using a formula or formula-like model, the potentially negative effects of using a variable funding approach are not a significant topic of discussion in policy circles. This, in part, reflects that fact that student numbers in these systems are effectively controlled by a combination of strongly selective admission systems (in both countries) and government regulation of study places (in Finland). This, combined with high demand for higher education places, reduces the risk of significant and uncontrollable fluctuation in student numbers year-on-year, which could trigger problematic reductions in institutional income in fully formula-based funding systems, if student numbers were to fall. In both countries, policymakers tend to assume that a combination of accreditation and quality assurance policies and institutions' own interest in maintaining their reputations will also act to guarantee quality, further countering the risk that HEIs prioritise enrolment and graduation rates over quality objectives.

Different mechanisms can be used to moderate problematic year-on-year changes in funding levels

Just at OECD jurisdictions have taken different views on the relative merits of fixed and variable funding, so the interests and perspectives of higher education institutions themselves can be divergent. In crude terms, expanding institutions have a strong interest in variable funding mechanisms, as such models compensate them financially for each additional student they enrol or graduate. In contrast, as illustrated by the case of many public HEIs in interior and island regions in Portugal – and the Dutch universities of applied science in regions undergoing demographic decline mentioned in the previous discussion – institutions experiencing shrinking enrolment have an intrinsic interest in fixed or non-student-related funding streams. A key challenge posed by fully variable funding models driven by student or graduate numbers for such institutions is that funding allocations will decline each year as enrolment falls, while the institutional cost base (essentially staff and infrastructure) will be remain largely constant. Even in higher education systems with more flexible employment arrangements than in Portugal, adjusting the cost base of a large and complex organisation such as a university or polytechnic is inherently difficult and requires time.

Some OECD jurisdictions that use variable allocation models have incorporated specific design features in the models to limit the extent of year-on-year changes (and, in particular, reductions) in funding for individual institutions. Portugal's 2006 formula limits budget reductions to 3% and budget increases to 5% in a given financial year. The Danish funding model, implemented in a system where enrolment is still growing at a modest rate, also includes a mechanism whereby reductions of more than 2% in the budget for an individual institution are compensated from a contingency fund and reductions of between 1% and 2% are implemented over a period of two years (OECD, 2021[21]). The Flemish funding model, which, as shown is Figure 3.10, is largely driven by student variables, uses a different approach, whereby the distribution of the budget envelope between institutions is based on a rolling average of values for a five-year period ending two years before the financial year in question (t-7/t-6 to t-3/t-2, where t is the financial

year). This contrasts with other systems, where the previous year or previous two-year period are used as the reference period. As noted in a recent OECD review of the Flemish system, the disadvantage of this approach is that institutions that serve increasing numbers of students are only compensated with a significant delay for the additional educational activities they perform (OECD, 2021[23]).

Some systems use fixed unit payments, others use purely distributive formulas

Another difference observed between variable funding allocation models for higher education institutions in OECD jurisdictions is whether they are "additive" or "distributive". Additive models work bottom-up, fixing unit payments for specific inputs or outputs and calculating the sums to be paid to individual institutions by adding together the number of inputs or outputs observed in the reference period (multiplied by the relevant monetary values). The total envelope to be allocated is equal to the sum of all unit payments to be made. Distributive models take the available budget envelope as their starting point and divide the total budget available by the total number variable units observed in the reference period (e.g. weighted enrolled student, study credits passed, etc.). The value of these variable units will depend on the size of the budget available and the number of units observed during the reference period. If the number of units (e.g. students enrolled) increases faster than the total budget envelope in a given year, the payment for each unit will decline year-on-year.

Table 3.4. Additive and distributive formula allocation models

	Type of budget envelope	Government-imposed system of student caps (*numerus clausus*)	Formula allocation method		
			Fixed unit payments per input/output (additive formula)	Mixed (additive + distributive)	Purely distributive
Denmark	Closed	Yes – enrolment limits set with regard to employment outcomes and for medical programmes	Payments per 60 completed credits, differentiated by field		
Flemish Community or Belgium	Semi-open*	Only in medicine, dentistry and performing and visual arts			100% of budget envelope allocated using formula
Finland	Closed	Yes – enrolment limits are agreed as part of performance agreements			100% of budget envelope allocated using formula
Ireland	Closed	No – Institutions decide on student admission within quality assurance rules		Weighted fixed payments to cover fees + enrolment driven formula	
Netherlands	Closed	Institutions set admission limits (*numerus fixus*) in a limited number of (mostly medical) programmes			Variable component of core education funding allocated using formula
Norway	Open for some performance parameters	Institutions set admission limits in a limited number of (mostly medical) programmes		Weighted payments for graduate indicators + distributive for other performance criteria	
Scotland (United Kingdom)	Closed	Effectively – Government sets limits on number of state-funded places for Scottish residents (who pay no tuition fees)	Fixed payments per enrolled student differentiated by field		

Note: * The Flemish Community of Belgium uses a unique mechanism in its funding model (the "click" system) that automatically triggers a increase or decrease of up to 2% in the total budget envelope for the core public funding allocation to HEIs in a given financial year when enrolment in a given sub-sector (universities, university colleges, schools of arts) increases or decreases by more than 2% between two reference periods. In practice, in times of fiscal constraint, this rule is not always applied.

The risk – for government – of using fixed unit payments in the allocation model is that the authorities cannot control the size of budget envelope required to meeting funding obligations. This was effectively what happened during Australia's experiment with demand-driven university funding between 2012 and 2017 (Universities Australia, 2020[24]). From 2017 onwards, Australia re-introduced caps on student enrolment to bring the costs of the funding system under control. As summarised in Table 3.4, some other systems that use fixed unit payments (such as Scotland in the United Kingdom) also impose enrolment caps to maintain spending within available budget envelopes. This is also the approach used in many central and eastern European countries, where a certain number of "state-funded" study places are available each year. Denmark manages to implement a system of unit payments (per 60 study credits gained, with three cost categories depending on subject area) without a universal system of study-place regulation by using detailed projections of student numbers to calculate the annual budget envelope (OECD, 2021[21]). However, the Danish government does implement limits on study places (*numerus clausus*) in medical programmes and also restricts study places in fields from which graduates have persistently higher-than-average levels of unemployment.

In other systems, including in Finland, which does have a universal system of study-place regulation, public authorities used distributive allocation models, which allow the value of funding per student, graduate or credit to fluctuate – and often decline – over time, depending on the budget envelope and levels of study activity. When Portugal implemented an allocation formula in higher education, it, like Finland, combined a distributive allocation model with national regulation of study places. The role of study-place regulation (*numerus clausus*) as a steering tool for higher education systems is discussed in Chapter 4.

Student-related parameters dominate in the design of allocation formulas

Among OECD jurisdictions that use formula-based approaches to allocating core funding for operations and education to higher education institutions, a majority link all or most of this funding to student enrolment (an input variable), the number of degrees awarded or study credits successfully passed (output variables) or a combination of these. As summarised in Table 3.5 overleaf, systems such as the Flemish Community of Belgium and the Netherlands allocate a significant share of the education component of their core funding to enrolment (credits for which study enrol in Belgium and the number of enrolled students in the Netherlands), but also link an equivalent or greater share of funding to outputs (successfully completed credits in Belgium and degrees awarded in both countries). Finland and Denmark link a majority of core funding to student outputs (degrees and credits gained, respectively), although, as discussed, Denmark also has a fixed component in its funding model, which is not the case in Finland. Norway has chosen to link around 20% of core funding to HEIs to student credit and degree completion, maintaining a comparatively large fixed (or historical) component in its funding allocation model, like Estonia.

In addition to these core parameters, some OECD jurisdictions have linked a smaller share of total core funding to other input, output or outcome indicators, as illustrated in Table 3.5. Estonia, for example, includes financial rewards for enrolment of students in fields linked to institution's core missions (established in their profiles) and international students. Both Estonia and Denmark attach a relatively small share of funding to parameters linked to study duration (to incentivise timely progression and completion of studies) and the share of graduates in employment. Finland also attaches between 8% and 10% of the core education grant to graduate employment outcomes, focusing on the share of graduates in "graduate-level" jobs. Both Denmark and Finland a small proportion of total funding for education to the results of student feedback surveys, using these data as another proxy for educational quality. As discussed below, evidence on the effects of including output and outcome parameters in funding allocation models is mixed and inconclusive.

Table 3.5. Parameters for allocating core funding for education and operations

Parameters used in formula-based allocation for core public funding models for education

	Flemish Community of Belgium		Finland		Denmark	Netherlands		Norway**	Estonia
	Univ.	UC.	Univ.	UAS	Univ.	Univ.	UAS		
Input									
Number of credits for which students are enrolled	32%	47%							
Number of students (headcount)						33%	43%		
Share of international students									1.7%
Share of students enrolled in programmes related to HEI's core profile/mission									2.6%
Share of students spending mobility period abroad								0.3%	1.7%
Output									
Number of credits successfully completed	68%	53%			67.5%			20%	
Bachelor's and master's degrees awarded			71%	76%*		33%	43%	4.8%	
Doctoral degrees awarded								1.6%	
Credits gained in continuous learning			12%	12%					
Degrees completed in nominal study duration									6%
Other indicator of average study duration					3.75%				
Outcome									
Share of graduates in employment					3.75%				3.4%
Share of graduates in "graduate" employment			10%	8%					
Scores from student feedback (survey)			7%	4%	1.25%				
Private funding attracted for educational activities									1.7%
Funding from national Research Council								1%	
Funding from EU research programmes								1.6%	
Income for research from private sources								1%	
Research output (publications)								1.6%	
Total allocated through formula	100%	100%	100%	100%	76.25%	66%	86%	32%	17%

Note: Percentages indicate the proportion of core public funding for education and operations allocated using the relevant parameter. Denmark, the Netherlands, Norway and Estonia allocate a proportion of funding based on historical allocations (without use of a formula) – see Figure 3.10 – meaning that the proportions indicated here do not necessarily sum to 100%. * Includes a small allocation for vocational teacher-training degrees. ** Unlike other jurisdictions include here, Norway does not have separate components for education and research in its funding model, which partly explains the inclusion of research parameters in the core funding model for education and operations. Univ. = universities; UC = university colleges; UAS = universities of applied sciences.

Cost factors are commonly used to adjust payments to the notional cost of provision in different fields

In common with funding systems elsewhere in the OECD, the allocation formula adopted in 2006 for distributing core operating funding to HEIs in Portugal uses cost factors to adjust the payments to institutions to the notional costs of delivery in different fields of study. The cost factors (see Table 3.6) were calculated based on average staff costs across all institutions, with reference to nationally fixed student-to-staff ratios, ratios of non-teaching staff to teaching staff and ratios of central administrative staff to each student.

Table 3.6. Cost factors by field of education used in Portugal's funding formula

	University education			Polytechnic education	
U1	Medicine and dental medicine	4.00	P1	Performing arts and sign language	3.50
U2	Performing arts	3.56	P2	Nursing and dental technician	2.40
U3	Veterinary medicine	2.70	P3	Health technologies	2.00
U4	Engineering, exact and natural sciences, pharmacy, agriculture	2.50	P4	Technologies	2.00
U5	Art and design, architecture, education, psychology, physical education and sport, communication	1.90	P5	Agriculture, forestry, animal husbandry, veterinary science	1.69
U6	Mathematics, statistics and computing	1.60	P6	Nursery educators, teachers, animators, communication, art and design, sport	1.51
U7	Economics, management, tourism, geography and modern languages	1.20	P7	Information and Communication Technologies	1.30
U8	Humanities, other social sciences, law and political science	1.15	P8	Accounting, management, sales and marketing, solicitor training, secretarial training, tourism, modern languages, social work	1.00
UA1	Medicine, dental medicine and music	4.00	PA1	Nursing	2.42
UA2	Engineering, exact and natural sciences, pharmacy, agriculture	3.00	PA2	Technologies	1.40
UA3	Others	1.69	PA3	Others	1.40

Note: The cost factors shown are those calculated in 2008, the last year the formula was applied in full in Portugal, are were unchanged when the formula was applied for budget increases in 2022. The codes beginning UA and PA refer to cost factors for advanced (post-graduate) studies.
Source: IGeFE (2021[25]) *Índices de custo 2022 por áreas de formação (Cost factors 2022 by field of education)*, https://www.igefe.mec.pt/Page/Index/55?csrt=16906015704621263206 (accessed on 8 June 2022).

The approach to calculating cost factors in Portugal is, to some extent, logical as it recognises staff costs – and specifically student-to-staff ratios – as the primary driver of cost differentials between fields of study (Hemelt et al., 2018[4]; OECD, 2022[26]). Nevertheless, as discussed, existing, observed staff costs are an imperfect indicator of reasonable costs as they reflect multiple contextual factors, including the historical availability of funds to pay for posts and staff salaries. In systems and institutions where funding has historically been abundant it is likely that staff costs will be higher, as it has been possible to create more posts and promote more academic staff (or, in systems that allow such flexibility, pay staff more). The opposite in true in systems and institutions that have historically had low(er) levels of resources available. As such, while establishing average costs across a higher education system is probably the best-available approach to assessing cost levels as an input to funding formulas, it remains imperfect.

As shown in Table 3.7, the distribution of cost factors for different fields of study in Portugal's allocation formula is broadly consistent with those used in comparable OECD jurisdictions, although the two Nordic systems included here use a smaller span of values. In the case of Denmark, the low value of the weighting for medical studies is partly explained by the way funding of medical studies and university hospitals is organised in the country. Portugal has a comparatively large number of cost categories in its model,

particularly for universities (where Denmark and Finland use three categories, for example). However, it is not uncommon – albeit for reasons that are not entirely clear – for countries to use a greater number of cost categories for non-university institutions, as in the Denmark and the Flemish Community of Belgium (OECD, 2021[21]; OECD, 2021[23]).

Table 3.7. Subject-area weightings (cost factors) in selected OECD jurisdictions

Weighting factors for *undergraduate* students used in funding allocation formula in selected OECD jurisdictions

	Flemish Community		Netherlands		Ireland	Denmark (Universities)	Finland	Portugal	
	Univ.	UC	Univ.	UAS				Univ.	Poly.
Non-laboratory subjects (e.g. humanities and social sciences)	1	1	1	1	1	1	1	1.15.or 1.2	1
Subjects with fieldwork (e.g. computer science, education)	2	1.1 to 1.6	1.5	1.28	1.3	1.4	1	1.6 to 1.9	1.3 to 2
Laboratory subjects (e.g. engineering, physical sciences)	2	1.6	1.5	1.5	1.7	2.1	1.75	2.5	2.4
Clinical medicine	3.9*	-	3	-	2.3	2.1	3	4	-
Dentistry	3.9				4	2.1	3	4	
Veterinary studies	3	-	3	-	4	2.1	3	2.7	-

Notes: * Since 2017, university programmes in medicine in the Flemish Community have been funded through a ring-fenced budget with variable component of the teaching grant. Univ. = university. Poly. = polytechnic.
Source: OECD (2021[23]) Resourcing Higher Education in the Flemish Community of Belgium, https://doi.org/10.1787/26169177.

Evidence on the effectiveness of including output and outcome parameters in allocation formulas is inconclusive

Although an increasing number of OECD member countries have introduced output and outcome-related funding models, robust research into the effects of such systems has been limited. State governments in the United States were among the first in the OECD to embrace output-based funding, initially in the 1980s and 1990s and subsequently in another wave of reforms in the 2000s. As a result of this early experimentation, most available studies into the effects of performance funding are from the United States. A recent analysis of the results of these studies found only limited evidence of positive effects from output-based funding systems on target variables, such as student progression and completion rates (theoretically incentivised by linked payment to graduation rates and study duration). The analysis also found widespread examples of unintended and undesirable consequences, such as institutions becoming more selective at admission to ensure higher completion rates, but thus undermining states' broader objectives in terms of widening access (Ortagus et al., 2020[27]).

Fewer studies have investigated the impact of output and outcome funding in European higher education systems, although the evidence that does exist suggests a similarly limited impact. A study in Denmark found the completion-oriented "taximeter" system (the successor to which constitutes the variable component in the current Danish funding model) to have had a mixed influence on completion rates in Danish higher education institutions (Claeys-Kulik and Estermann, 2015[28]). Likewise, an evaluation of different performance-based funding formulas used in German federal states between 2000 and 2008 found that their introduction was rarely followed by significant changes in the outcomes they sought to influence, casting doubt on their efficacy, particularly given the cost of their implementation (Dohmen,

2016[29]). There is no evidence that the introduction of output variables in the funding allocation model using in the Flemish Community of Belgium in 2008 has had any impact on progression or completion rates in the Flemish higher education system (OECD, 2021[23]; de Zwart et al., 2021[22]). The few systems that have integrated outcome variables (such as graduate employment) in their funding allocation models, have not yet produced clear evidence of the impact of including these variables. Isolating the effect of the policies in question is inherently difficult, if not impossible, given the range of other factors, including other policies that influence outcomes.

Despite a trend to experiment with output-related funding models in the 2000s, there are signs that some OECD jurisdictions are moving away from the use of output and outcome indicators in the funding allocation policies. The review commission examining the first generation of Dutch performance agreements, which included a set of seven standardised indicators common to all institutions, concluded that the new generation of agreements should avoid centrally determined quantitative indicators and adopt a more qualitative approach to take better account of institutional contexts and a wider range of possible objectives at institutional level (Reviewcommissie Hoger Onderwijs en Onderzoek, 2017[30]).

More recently, a review by a government-appointed expert committee in Norway recommended removing most of the input, output and outcome indicators from the Norwegian core funding allocation model (see Table 3.5) on similar grounds to their Dutch counterparts some years earlier (Norwegian Ministry of Education and Research, 2022[31]). The committee argues that it was not possible to capture the range of outputs expected of higher education in a nuanced way in a funding formula and that including multiple indicators in the allocation model risked diverting the focus of institutions towards a limited number of outputs and contributing to a homogenisation of the higher education landscape. Instead, the committee recommends keeping the funding model simple – maintaining only the variables related to student credit acquisition – and channelling efforts to promote good outcomes through institutional performance agreements (see Chapter 4).

Policy issues and recommendations to Portugal

Taking into account the analysis above and the findings from the interviews conducted with representatives of higher education institutions and public authorities in Portugal, this section highlights that key issues in relation to the core funding model for public HEIs that Portuguese policymakers need to consider and provides recommendations for possible ways forward.

Ensure clarity about the purpose of the core operating grant to public higher education institutions

The core operating grant for public higher education institutions provided from the state budget in Portugal is designed to provide a “base” level of funding to permit the institutions to operate. An allocation formula adopted by ordinance in 2006 linked funding allocations to the delivery of education in the first and second cycles (bachelor’s and master’s degrees), recognising staff costs as the main cost driver in delivering this education. However, for a range of reasons, core public funding has not been fully allocated using a formula since 2009.

In contrast to some other university systems in Europe, such as Denmark, Finland or the Netherlands, Portugal does not provide a specific core grant directly to universities for research. Rather, the Foundation for Science and Technology (FCT) awards direct grants to research units associated to HEIs that are evaluated as “good” or above in the periodic research assessment exercise, in addition to competitive project-based funding. The FCT also directly funds researcher posts through the Stimulus Programme for Scientific Employment and provides grants for doctoral researchers. As academic staff who are associated

with research units are paid by their employer higher education institution, it has – more or less tacitly – been accepted that the core operating grant to HEIs also contributes to funding research activity.

During consultations undertaken for this review, leaving aside the discussion of the adequacy and transparency of the grant allocations (discussed below), three main questions arose about the expected "coverage" and purpose of the core operating grant from the state budget:

- The first was the extent to which the core operating grant should support the regional development function and public-service mission of public higher education institutions without necessarily linking funding levels to enrolment or other activity.
- The second question was whether or not the contribution of the core operating grant to research activities, including PhD training, should be more explicitly acknowledged in policy design, including through the inclusion of research parameters in a future allocation model.
- The third question stemmed from the fact that the existing (but currently unused) 2006 funding formula contains no provision for funding short-cycle TeSP programmes in polytechnics, although these programmes now make up a significant proportion of polytechnics' educational activity.

The first question touches on probably the most fundamental issue facing those designing a future higher education funding model in Portugal. Enrolment levels in institutions (particularly polytechnics) in interior regions and the islands have been declining steadily and – even with additional student recruitment among adult populations, vocational secondary graduates and internationally – this trend will inevitably continue in the coming decades. The adoption of a student-driven allocation model will, inevitably, lead to institutions with declining enrolment receiving a smaller share of overall funding compared to today.

The public-service role of higher education institutions in regional locations is clear. As discussed below, mechanisms can be built into funding allocation models to protect smaller institutions. However, to respect the criteria of transparency and equity for all institutions and to promote efficient use of resources, core funding allocations should primarily be based on real levels of activity in institutions. Failure to link funding allocations to student numbers in recent years in Portugal has created an inequitable situation whereby some institutions receive considerably lower levels of public resources than their counterparts elsewhere in the country to support the education of their students. This brings attendant risks for the quality and the support services these institutions can provide. Reform of the core funding allocation model should seek primarily to address this inequity. Beyond the stability mechanisms that can be included in the core allocation model highlighted below, the specific task of supporting institutions in regions facing demographic decline to adapt and pursue their public service mission in the face of changing circumstances is best left to other funding and steering mechanisms, outside the scope of the core funding model.

As noted, the core operating grant to public HEIs contributes to funding academic research by (partially) funding staff wage costs. This role of the grant could be made more explicit in the formulation of funding regulations and potentially through the inclusion of doctoral graduates as a funding allocation parameter in a new formula (see below). However, given the existing architecture of performance-linked funding for research in Portugal, it makes sense that primary responsibility for creating incentives for good research, for assessing the quality of research outputs and for funding research more generally should continue to rest with the FCT and the policies it implements.

Short-cycle Professional Higher Technical Programmes (TeSPs) are now well established as part of polytechnics' core business and are likely to become increasingly important as vehicles to support upskilling and reskilling among the adult population. The Flemish Community of Belgium, which recently integrated similar short-cycle programmes into its higher education system, adapted its funding formula to encompass these programmes, using standard student-related parameters, but with a distinct set of cost factors. Such an approach would make sense in Portugal in the medium term. However, it is recognised that a large proportion of funding for TeSPs until 2027 will come from EU funds and that the offer of TeSPs

is still in a development and expansion phase. It may therefore be appropriate to delay full integration of TeSPs into a new core funding model until after 2027.

Recommendations

1. Ensure that the design of a future model for allocating the core operating grant to public higher education institutions in Portugal is guided by the principles of transparency, equity of treatment between funded higher education institutions and efficiency. To promote transparency and efficiency in the higher education funding system as a whole and to create incentives for innovation and adaptation, provide support for institutions located in regions experiencing demographic decline through separate, complementary funding and steering mechanisms outside the core funding allocation model (see recommendations below).
2. In new secondary legislation or equivalent policy documents establishing a revised allocation model for the core operating grant paid to HEIs from the state budget, ensure the purpose and objectives of the grant, including its contribution to co-financing research in universities and polytechnics, are made explicit (see also recommendations concerning allocation criteria).
3. In the period up to 2027, direct European and national funding for short-cycle programmes (TeSPs) through the strategic funding routes proposed below. From 2027 onwards, aim to integrate funding of TeSPs into the core funding formula, in recognition of these programmes' status as a core component of polytechnics' educational activity.

Develop a new funding allocation model, guided by the principles of transparency, equity and efficiency

To provide an equitable distribution of scarce public resources to public higher education institutions, Portugal needs to adopt a rational funding allocation model for the core operating grant. Although opinions among higher-education-institution representatives and policy makers consulted during this review about the best future policy differ, there was a broad consensus that the formula from 2006 requires changes and cannot be re-applied in its current form. Given the multiple developments in Portugal's higher education system since 2006 and the lessons that can be drawn from the experience of other OECD higher education systems over the last decade, it makes sense to design a new allocation model from first principles, rather than attempting to adapt previous policy instruments or proposals. Equally, in order to restore the allocation of the core operating grant to a rational footing, it is appropriate to use a zero-based budgeting approach, whereby the entirety of the core operating grant allocations for each institution will ultimately – after an appropriate transition period, discussed below – be determined by the new allocation model.

The discussion above examines the main choices that can be made in designing a new allocation model and the choices made by other OECD jurisdictions. Among these, the three most important decisions for Portugal are, arguably, whether or not to include a "fixed" (invariable) component in the allocation to each institution; whether to revise or maintain the existing subject-area cost factors used in the previous allocation model; and which parameters to use in the model to drive the allocation of funds. A fourth question is whether to work with fixed unit payments or a purely distributive formula. While Portugal's system of study-place regulation (*numerus clausus*) would theoretically provide spending safeguards to permit a system that uses fixed unit payments, there is a consensus among policy makers that a distributive system is the only feasible option in the Portuguese context.

In relation to the first decision, the high proportion of fixed or semi-fixed costs in Portugal's higher education institutions, partially determined by the country's comparatively rigid rules governing employment of academic staff, could justify the use of a fixed component in the new funding model. The experience of Denmark, which moved from a mostly variable funding model (the "taximeter") to one where 25% of core funding to institutions is allocated as a fixed basic grant to ensure stability and a focus on quality, could be instructive for Portugal, particularly as Denmark also has a largely binary system of higher education with a mixture of small and large institutions (OECD, 2021[32]). Any fixed component should in any eventuality be kept to a modest share of total core funding to ensure the criteria of equity and efficiency are respected.

As discussed above, the cost factors used until 2009 in the previous funding formula in Portugal are broadly aligned with those in other OECD jurisdictions examined for this review. In contrast to the situation in other jurisdictions, the cost factors in Portugal were – notwithstanding methodological limitations – calculated on a rational basis with reference to average staff costs. While it would be possible to use these cost factors without further amendment, there appears to be a case to review the level of the factors used for certain programme groups. Underlying staff costs in universities are higher than in polytechnics – because of lower teaching loads and higher qualification levels among staff in universities – and also higher in subjects requiring extensive access to laboratories, studios or other expensive facilities than in classroom-based subjects. Nevertheless, as student-staff interaction is a key element of educational quality and staff costs are the main cost driver in higher education, some of the lowest cost factors currently used may not be fully justified. Additionally, there may a case for reducing the number of cost categories to simplify – and thus increase the transparency of – the funding system.

In terms of the parameters to include in the model, international evidence, including recent trends, suggests that it is best to keep their number to a minimum. This is not only to ensure the funding system is easily understood and minimise administrative burden associated with data reporting, but also because the real effectiveness of including multiple parameters attached to a small proportion of funding is doubtful. Advanced OECD higher education systems tend to link a majority of core funding to simple input (enrolment) or student output parameters (credits or degrees). Portugal has previously used only enrolment parameters for first and second-cycle programmes. Given the previous recommendations on the scope and purpose of the core operating grant, TeSP students should, in the medium term, be included in the student-linked parameters, once the financing of TeSP programmes has been mainstreamed. Despite the limited evidence of the effectiveness of using educational output indicators (credits or degrees obtained) in funding models, a mix of enrolment and graduation parameters could be considered to signal the importance of study completion within the system. The effects of including output parameters (e.g. degrees awarded) on actual funding allocation would need to be modelled as part of development of the new formula.

From a logical standpoint, there may also be a case for including the number of doctoral degrees awarded in the selected reference period as a parameter in a new formula, to acknowledge the role of universities in doctoral training and the staff resources – largely paid for by the core grant – dedicated to this activity. However, those designing the new funding formula would need to reflect carefully on the appropriate cost factor (weighting) to attach to each doctoral degree awarded. Other OECD jurisdictions that use the parameter of "doctoral degrees awarded" in institutional funding (such as the Netherlands or the Flemish Community of Belgium) apply this parameter, along with others, for the allocation of separate budget envelopes for institutional research grants, not for the allocation of their respective teaching grants. Portugal does not allocate a separate budget envelope as a direct research grant to institutions. Moreover, it would be important not to give excessive weight to doctoral training in a revised formula for Portugal's core operating grant. As such, further careful modelling of the effects of different weightings for doctoral degrees would be required, if a decision was taken to include doctoral graduates as a parameter in the new formula.

In order to ensure the purpose of the core operating grant in Portugal remains clear, to ensure that the funding formula remains simple and to preserve the role of the FCT as the government body with primary

responsibility for monitoring and funding research, it would not be advisable to include research output parameters in the core funding formula.

Recommendations

4. Develop a new model to allocate the core operating grant from the state budget to public HEIs, in which a majority of core funding is allocated using a formula. Adopt a zero-based budgeting approach, starting from first principles and factoring in an appropriate transition period to allow institutions to adapt to the new system (see below).
5. To create additional stability in the system and in recognition of high fixed costs in the higher education sector, consider allocating a minority of the core operating grant to public HEIs (perhaps between 15% and 25%) as a fixed funding component, which remains stable (other than adjustments for inflation) over time. Denmark provides a helpful policy example to draw on for lessons during the detailed policy-design phase if this option is pursued.
6. As part of the detailed design phase for the new model, review the validity of the existing (2008) cost factors for the two sub-systems of the public higher education sector, assessing if the current cost differences between subject fields and between university and polytechnic programmes are justified. The review should acknowledge the higher cost of delivering subjects in laboratory and studio-based disciplines and the generally higher staff costs in universities, but equally the importance of funding adequate student-to-staff ratios across all fields of study. The review should also assess the impact on institutional funding of using a more limited set of three or four cost factors for each sub-sector of the higher education system.
7. Link all or most variable core funding in the new model to simple student-related parameters. For bachelor's and master's programmes (and, in the medium term, short-cycle programmes), the number of enrolled students is the simplest option, although additionally including a parameter for degrees awarded would send a signal about the importance of degree completion, complementing other policies to promote progression and completion. If the option is retained, the most appropriate parameter to recognise resources spent on doctoral training would be the number of doctoral degrees awarded. However, careful modelling would be required to assess the effects and appropriateness of including this parameter in the allocation model for the core grant. To reduce the impact of year-on-year fluctuations in student activity, the average values of parameters for the previous two reference years could be used in the formula calculation.

Recognise that implementation of a new funding allocation model will require a transition period and additional resources

While designing a new core funding allocation model based on the principles of transparency, equity and efficiency is an important step, it is clear that implementing such a model will additionally require both time and money.

Given the disparities in the level of core funding per weighted student between institutions analysed above, a primarily formula-driven model, if applied with immediate effect, would inevitably lead to funding increases for some institutions. More problematically, it would lead to reductions for certain institutions in interior regions and the islands that have experienced enrolment decline. As explained in Chapter 4, this review recommends channelling complementary public funding to higher education institutions, through a separate funding route, to support strategic investments and profiling, with dedicated funds to support institutions in interior regions and the islands. The latter dedicated funding will support institutions as they adapt – notably to attract students in realistic growth areas, where institutions can offer high-quality provision and to consolidate provision in fields where student numbers are projected to decline.

Notwithstanding this additional financial support, institutions with declining enrolment will need to adjust to a situation where they receive a smaller share of total core funding than they do at present and will require a transition period to allow them to prepare.

The preparations and modelling for a new formula allocation system could potentially be completed in time for its use for the 2024 state budget, presented in autumn 2023. The transition period should last no longer than strictly necessary, as a key goal of the reform should be to restore an equitable distribution of funds. There are at least two possibilities for structuring the funding system during a transition period:

- A system whereby a new formula is applied to a progressively increasing share of the total core budget envelope, with the remainder distributed on the current historical basis, perhaps over a three-year period.
- A system where the formula is not initially applied directly, but annual increases in the budget envelope for the core grant are distributed exclusively – or nearly exclusively – to the institutions that are currently under-funded in comparison to the share of funds they would receive if the formula were applied. Funding for institutions that would receive a lower share of total funding if the formula were applied would see their core funding allocation frozen or increased only modestly.

Careful modelling will be required to analyse the impact of a change to the core funding system and to determine the length of the transition period required to avoid severe financial shocks for institutions that stand to receive a reduced share of core funding. The time required will depend to a large extent on the additional resources that can be secured for the core funding envelope and notably if annual budget increases can be secured that go beyond the 2% increase currently planned. Care must be taken in designing transition arrangements to account for the funding needs of institutions that are currently under-funded, as well as those of those institutions needing to adjust their profile and activities to operate with a lower share of state-budget funds.

Portugal currently allocates a below-average proportion of national wealth to higher education institutions, compared to both the OECD and European Union averages. As discussed below, to mobilise additional resources for higher education, the government should consider a more nuanced, graduated approach to tuition-fee regulation than the blanket reductions introduced in recent years, whereby fees are differentiated progressively according to family or student income. However, there is a case for mobilising additional public funds for higher education, if it can be demonstrated that the system is being put on a more efficient and sustainable footing.

Recommendations

8. Introduce the new, formula-centred funding allocation model progressively, with a transition period to allow institutions that, under the model, will receive a lower share of the budget envelope to adapt. The new model could either be applied to a progressively larger share of the budget envelope for core funding each financial year or funding allocations could be adjusted "manually" to rebalance the allocation of funds in line with the model until it is feasible to apply the model in full. To move as swiftly as possible to an equitable funding distribution, the transition period should be as short as possible.
9. Design the introduction of the model and the transition period taking into account a) planned complementary funds for strategic investment and profiling and dedicated funds to support institutions in interior regions and the islands and b) possible adjustments to tuition-fee policy.
10. Seek to mobilise additional public funding for core funding of public higher education institutions on the grounds that this will support clearly defined quality and efficiency objectives and in light of Portugal's comparatively low levels of investment in higher education at present.

References

Claeys-Kulik, A. and T. Estermann (2015), *DEFINE Thematic Report: Performance-based Funding of Universities in Europe*, European University Association, Brussels, https://eua.eu/downloads/publications/define%20thematic%20report%20performance-based%20funding%20of%20universities%20in%20europe.pdf (accessed on 24 October 2020). [28]

de Zwart, S. et al. (2021), *Verkenning naar de optimale verhouding tussen vaste en variabele onderwijsbekostiging in het hoger onderwijs (Exploration of the optimal ratio between variable and fixed funding for instruction in higher education)*, Berenschot B.V., Utrecht, https://www.berenschot.nl/media/i0kk5fgd/berenschot-rapport-vast-variabele-onderwijsfinanciering.pdf (accessed on 6 July 2022). [22]

Deloitte Access Economics (2016), *Cost of delivery of higher education - Final Report*, Australian Government Department of Education and Training, https://docs.education.gov.au/system/files/doc/other/deloitte_access_economics_-_cost_of_delivery_of_higher_education_-_final_report.pdf (accessed on 29 January 2021). [3]

DGEEC (2022), *Estatísticas - Ensino Superior (Statistics - Higher Education)*, Direção-Geral de Estatísticas da Educação e Ciência, https://www.dgeec.mec.pt/np4/18/ (accessed on 8 July 2022). [10]

DGES (2022), *Propinas (Tuition fees)*, Direção-Geral de Ensino Superior (DGES), https://www.dges.gov.pt/pt/pagina/propinas (accessed on 11 May 2022). [9]

DGO (2022), *Orçamentos do Estado (State Budgets)*, Direção-Geral do Orçamento (DGO), https://www.dgo.gov.pt/politicaorcamental/Paginas/OrcamentosEstado.aspx?Ano=2022&TipoOE=Or%C3%A7amento%20Estado%20Aprovado (accessed on 27 July 2022). [20]

Dohmen, D. (2016), "Performance-based funding of universities in Germany: An empirical analysis", *Investigaciones de Economía de la Educación*, Vol. 11, pp. 111-132, https://econpapers.repec.org/bookchap/aecieed11/11-05.htm (accessed on 4 February 2021). [29]

Golden, G., L. Troy and T. Weko (2021), "How are higher education systems resourced? Evidence from an OECD policy survey", *OECD Education Working Papers*, No. 259, OECD Publishing, Paris, https://doi.org/10.1787/0ac1fbad-en. [1]

Government of Portugal (2021), *OE2022 Orçamento do Estado - Nota Explicativa Ciência, Tecnologia e Ensino Superior - PO13 (State Budget 2022 - Explanatory Note Science, Technology and Higher Education - PO13)*, Ministry of Science, Technology and Higher Education, https://www.igefe.mec.pt/Files/DownloadDocument/91?csrt=16066835027607696980 (accessed on 8 June 2022). [7]

Government of Portugal (2020), *Proposta de Orçamento de Estado para 2021 - Ciência, Tecnologia e Ensino Superior (PO13) (State Budget Proposal for 2021 - Science, Technology and Higher Education)*, https://wwwcdn.dges.gov.pt/sites/default/files/relatorio_mctes_2021_po13_comissao_educacao_ciencia_juventude_desporto_v18out2020-min.pdf (accessed on 9 November 2020). [6]

Government of Portugal (2019), *Contrato de Legislatura entre o Governo e as Instituições de Ensino Superior Públicas 2020-2023 (Contract for the Legislative Term between the Government and public higher education institutions 2020-2023)*, https://www.igefe.mec.pt/Files/DownloadDocument/72?csrt=6785169830679341608 (accessed on 28 May 2020). [11]

Government of Portugal (2009), *Decreto-Lei 207/2009 Estatuto da Carreira do Pessoal Docente do Ensino Superior Politécnico (Decree-Law 207/2009 Statute of Polytechnic Staff)*, https://dre.pt/dre/detalhe/decreto-lei/207-2009-488490 (accessed on 22 July 2021). [15]

Government of Portugal (2006), *Portaria n.o 231/2006 2.a série (Ordinance number 231/2006 Second series)*, https://files.dre.pt/2s/2006/01/013000000/0080300807.pdf (accessed on 16 May 2022). [17]

Government of Portugal (1979), *Decreto-Lei n.º 448/79 Estatuto da Carreira Docente Universitária (Decree-Law 448/79 Statute of University Staff)*, https://dre.pt/legislacao-consolidada/-/lc/72930784/201906200128/diploma?rp=indice (accessed on 22 July 2021). [14]

Hemelt, S. et al. (2018), "Why is Math Cheaper than English: Understanding Cost Differences in Higher Education", *Discussion Paper Series*, No. 11968, IZA Institute of Labor Economics, http://ftp.iza.org/dp11968.pdf. [4]

IGeFE (2022), *Data on institutional income and expenditure 2012-2021 (unpublished)*. [8]

IGeFE (2022), *Preparação da Proposta de Lei do Orçamento de Estado para 2022 - Distribuição das Dotações (Preparation of the State Budget Bill for 2022 - Distribution of budget allocations)*, Instituto de Gestão Financeira da Educação (IGEFE), https://www.igefe.mec.pt/Page/Index/55?csrt=18088972186450171227 (accessed on 9 July 2022). [18]

IGeFE (2021), *Índices de custo 2022 por áreas de formação (Cost factors 2022 by field of education)*, Instituto de Gestão Financeira da Educação (IGeFE), Lisbon, https://www.igefe.mec.pt/Page/Index/55?csrt=16906015704621263206 (accessed on 8 June 2022). [25]

MCTES (2015), *Modelo de financiamento do ensino superior: fórmulas e procedimentos (Funding model for higher education: formulas and procedures)*, Ministério da Educação e da Ciência - Secretária de Estado do Ensino Superior, Lisbon, http://id.bnportugal.gov.pt/bib/bibnacional/1915892 (accessed on 6 June 2022). [19]

Nazaré, M. et al. (2020), *Relatório de avaliação da implementação do Programa de Estímulo ao Emprego Científico (Report on the evaluation of the Stimulus Programme for Scientific Employment)*, Comissão de avaliação constituída pelo Despacho n.º 349/2020, publicado em Diário da República, 2.ª série, de 10 de janeiro de 2020, https://www.fct.pt/apoios/contratacaodoutorados/empregocientifico/docs/RelatorioProgramaEstimuloEmpregoCientifico.pdf (accessed on 7 July 2022). [16]

Norwegian Ministry of Education and Research (2022), *Finansiering av universiteter og høyskoler (Funding of universities and university colleges)*, Ministry of Education and Research, Oslo, https://www.regjeringen.no/contentassets/6c4c7be66d5c4a028d86686d701a3a96/f-4475-finansiering-av-universiteter-og-hoyskoler.pdf (accessed on 13 May 2022). [31]

OECD (2022), *OECD Statistics - Education and Training*, OECD.Stat, https://stats.oecd.org/ (accessed on 8 July 2022). [2]

OECD (2022), "Resourcing higher education in Ireland : Funding higher education institutions", *OECD Education Policy Perspectives*, No. 51, OECD Publishing, Paris. [26]

OECD (2021), "Resourcing higher education in Denmark: Thematic policy brief", *OECD Education Policy Perspectives*, No. 49, OECD Publishing, Paris, https://doi.org/10.1787/5cc2d673-en. [21]

OECD (2021), "Resourcing higher education in Denmark: Thematic policy brief", *OECD Education Policy Perspectives*, No. 49, OECD Publishing, Paris. [32]

OECD (2021), *Resourcing Higher Education in the Flemish Community of Belgium*, Higher Education, OECD Publishing, Paris, https://doi.org/10.1787/26169177. [23]

OECD (2019), *OECD Review of Higher Education, Research and Innovation: Portugal*, OECD Publishing, Paris, https://doi.org/10.1787/9789264308138-en. [12]

Ortagus, J. et al. (2020), "Performance-Based Funding in American Higher Education: A Systematic Synthesis of the Intended and Unintended Consequences", *Educational Evaluation and Policy Analysis*, Vol. 42/4, pp. 520-550, https://doi.org/10.3102/0162373720953128. [27]

PwC Strategy& (2021), *Toereikendheid, doelmatigheid en kostentoerekening in het mbo, hbo en wo&o (Accessibility, efficiency and cost allocation in higher vocational education and higher education)*, https://www.rijksoverheid.nl/documenten/rapporten/2021/02/15/bijlage-3-rapport-toereikendheid-doelmatigheid-en-kostentoerekening-in-het-mbo-hbo-en-wo-o (accessed on 6 July 2022). [5]

Reviewcommissie Hoger Onderwijs en Onderzoek (2017), *Prestatieafspraken: het vervolgproces na 2016 - Advies en zelfevaluatie (Performance Agreements: follow up after 2016 - Recommendations and self-evaluation)*, Reviewcommissie Hoger Onderwijs en Onderzoek, Den Haag, https://www.eerstekamer.nl/overig/20170321/rapport_review_commissie_met_het/document (accessed on 1 February 2021). [30]

Universities Australia (2020), *The demand driven system*, Universities Australia, https://www.universitiesaustralia.edu.au/policy-submissions/diversity-equity/the-demand-driven-system/ (accessed on 10 July 2022). [24]

Zahneis, M. (2022), *These Tenured Professors Were Laid Off. Here's How They Got Their Jobs Back.*, The Chronicle of Higher Education, https://www.chronicle.com/article/these-tenured-professors-were-laid-off-heres-how-they-got-their-jobs-back (accessed on 9 July 2022). [13]

Notes

[1] In the European Union multi-annual financing periods 2014-2020 and 2021-2027, all NUTS II regions in Portugal are classified as “less developed regions”, with GDP per capita of less than 75% of the EU-27 average. Higher education institutions in these regions have access to the highest levels of structural funds support. In both periods, the Algarve has been classified as a “transition region” and the Lisbon Metropolitan Area as a more developed region, meaning institutions in these regions are either ineligible for support or have access to lower levels of European cohesion funding.

[2] The six institutions with foundation status are the following five universities: Universidade do Minho; Universidade do Porto; ISCTE – Instituto Universitário de Lisboa; Universidade de Aveiro and Universidade Nova de Lisboa and one polytechnic: Instituto Politécnico do Cávado e do Ave (IPCA).

4 Supporting the future development of the higher education system

This chapter focuses on resourcing and governance policies to support higher education in Portugal respond effectively and efficiently to changing knowledge and skills needs in Portuguese society. In the coming decade, demand for higher education graduates – and their skills - will remain strong. Public universities and polytechnics will need to make even greater contributions to upskilling and reskilling, and to innovation in Portugal's regional economies. However, demographic change will inevitably lead to a fall in local student demand in interior and island regions. The analysis and recommendations in this chapter highlight how carefully calibrated public policies can support HEIs to make strategic choices and adapt their profiles to changing circumstances, while ensuring an accessible, relevant and high-quality public higher education system.

Supporting the future development of the public higher education system

Governments in OECD countries play an important role in steering higher education systems

Over time, governments in OECD countries have adopted differing approaches to the strategic steering of the public and government-dependent higher education institutions falling under their responsibility. From the 1980s onwards, in many OECD countries where the higher education system had been characterised by a high degree of state control, higher education institutions were granted increasing levels of autonomy over their financial affairs, staffing and strategic direction. Influenced by the theories of New Public Management (Broucker, De Wit and Verhoeven, 2017[1]), particularly from the 1990s onwards, public authorities in many OECD jurisdictions started to adopt mechanisms aimed at promoting efficient and effective use of resources in publicly funded higher education institutions, ensure the accountability of these institutions for the public funds they received and provide students with stronger guarantees about the quality of the education they received. These mechanisms have included external accreditation and quality assurance systems, peer-led research evaluation exercises, output-linked institutional funding, indicator-based monitoring and, in more recent years, the conclusion of performance agreements between government and individual institutions.

National contexts and the political convictions of governing parties have influenced the approaches to higher-education steering adopted in different OECD countries, with varying degrees of emphasis on higher education as a marketable service or as a public good. In countries where the concept of higher education as a public good – or public service – has remained prominent in policymaking, governments have often sought to promote and shape the development and enhancement of individual public or government-dependent higher education institutions and, to an arguably more limited extent, the emergence of higher education "systems", which place individual institutions in a coherent whole.

Policies exist to promote the strategic development of individual institutions and of higher education systems as a whole

In the last three decades at least, government intervention to support the development of individual higher education institutions has been conditioned by institutional autonomy, which, in OECD jurisdictions, is nearly always stronger in higher education than at other levels of education and training. Performance-oriented mechanisms – whether performance-linked funding or more recent institutional assessment mechanisms, such as England's Teaching Excellence Framework (Office for Students, 2020[2]) – have generally been presented by policymakers as mechanisms to strengthen higher education institutions, as well as tools for public accountability. In some jurisdictions, including the Netherlands, Finland and Ireland, public policies have placed considerable emphasis on institutional specialisation and profiling, whereby policies seek to encourage institutions, as part of their institutional development strategies, to develop their individual areas of strength and differentiate themselves from their counterparts.

Government efforts to encourage institutional profiling and differentiation by facilitating bottom-up choices by institutional leadership and staff have often been accompanied by top-down policies that – more or less explicitly – seek to structure higher education systems as a whole. The most immediately apparent and widespread example of this is the legal categorisation of higher education providers into different institutional types, most often on binary lines, as in Portugal, the United States, Germany, the Netherlands, Ireland or Finland. The distinction between academically oriented universities and professionally oriented polytechnics, university colleges, community colleges or universities of applied science is not always straightforward, given the presence of many professionally oriented disciplines in universities (medicine, engineering, architecture, etc.) and the increasing role of (some) non-university institutions in practice-oriented research and innovation. Nevertheless, governments in many OECD jurisdictions, particularly in Europe and North America have sought to preserve institutional categorisations and divisions of labour as

part of their higher education strategies. The Dutch Government's latest policy statement, for example, calls for discussion of the development of the binary system in higher education, but does not call the existence of this system fundamentally into question (Government of the Netherlands, 2022[3]).

Some OECD jurisdictions go further than defining distinct legal categories of higher education institution and structure all or parts of their networks of public higher education institutions into clearly defined and deliberately co-ordinated "systems". The State University of New York (SUNY), for example, groups together public universities, colleges and community colleges in New York state under a single governing and co-ordinating structure in one of the most integrated systems in the United States. Many states, including Massachusetts, Ohio and Texas have co-ordinating boards overseeing public universities and community colleges, while others, such as California and Virginia, have state-level governing boards for their networks of public community colleges (OECD, 2020[4]; Hammond, Baser and Cassell, 2020[5]). In all these public networks, the state-level boards set the strategic direction of the system and work to ensure complementarity and transfer pathways between different institutions and sites.

In Europe, no equivalent "systems" of higher education governance exist. However, several governments have used regulation to reorganise the institutional landscape – through mergers in Denmark and Finland or re-organisation of universities and university colleges in the Flemish Community of Belgium, for example – or to steer institutional strategy. Dutch higher education policy in the last decade has sought to create "centres of gravity" (*zwaartepunten*) in the higher education system, whereby universities and universities of applied science focus on specific areas of specialisation and, in some cases at least, reduce or drop others. In Denmark, the current government (2022) is seeking to promote development of regional branch and satellite campuses by existing higher education institutions to promote access to professionally oriented education in regional towns outside the country's four main metropolitan areas (OECD, 2021[6]).

Government intervention seems to be making a return in some more market-driven higher education systems

Even in the United Kingdom, one of the OECD higher education systems where policy in recent decades has most consistently emphasised the role of market forces and light-touch regulation (Carpentier, 2021[7]), policymakers are increasingly advocating a greater steering role for government. For example, the 2019 review of post-18 education and funding in England led by Philip Augar argued:

> *The idea of a market in tertiary education has been a defining characteristic of English policy since 1998. We believe that competition between providers has an important role to play in creating choice for students but that on its own it cannot deliver a full spectrum of social, economic and cultural benefits. With no steer from government, the outcome is likely to be haphazard. (Augar, 2019[8])*

Since the Augar review, the UK Government has announced additional public funding to support provision of high-cost subjects aligned with national skills priorities (an increase in the Strategic Priorities Grant), additional capital funding to support provision in sciences, medicine, and engineering, and changes to the student-financing system to increase its coverage. The changes to student support will provide loans to students in professional Higher Technical Qualifications and, from 2025, establish a "lifelong loan entitlement", which will guarantee four years of student support for post-secondary education for all citizens over their lifetime (i.e. not only directly after completing secondary school). At the time of writing (June 2022), consultations are ongoing about the reintroduction of student-number controls (a form of *numerus clausus*), the use of minimum thresholds for graduate employment outcomes for individual programmes as part of quality assurance and minimum eligibility requirements for students to fulfil in higher education entry examinations to allow them to access student loans. Alongside these regulatory measures, another consultation, also responding to a recommendation from the Augar review, will focus on options for re-introducing student grants, to complement the current loans-based system (Government of the United Kingdom, 2022[9]).

Key priorities for the sustainable development of higher education in Portugal

Portugal's higher education system needs to adapt to widen participation, better align provision with demand and contribute more effectively to regional innovation

The priorities that governments seek to pursue through policy intervention in the higher education sector – and the challenges they seek to address – naturally differ between OECD jurisdictions, despite many commonalities between systems. In the case of Portugal, the analysis presented in Chapter 2, as well as the extensive discussions with representatives of the higher education sector, experts and policymakers in Portugal held during this review, have highlighted three main priorities for future-oriented higher education policy in the country:

1. Ensuring the higher education system provides a **diverse range of high-quality educational offerings** to support a wider section of the population to acquire advanced knowledge and skills and meet growing skills demands. This priority responds to a range of challenges related to access to educational opportunities for currently under-served young people and adults and the relevance of higher education provision to future skills requirements.
2. Reconfiguring the public higher education system so that the scale and nature of **educational provision is better aligned to future student demand** across the national territory. The widening access and skills agendas highlighted in the first priority, along with the potential to attract more international students, provide opportunities to expand provision in certain types of programme and in certain fields, including in interior and island locations. However, the broader demographic picture discussed in Chapter 2 – notably the 14% decline in the number of 20–29-year-olds by 2035 – will inevitably require down-scaling and consolidation in some areas of existing provision.
3. Further strengthening the contribution of higher education institutions to **research excellence, regional innovation and economic development.** This topic has not been a primary focus of this review, but was examined in more depth in the last OECD review of higher education, research and innovation (OECD, 2019[10]) and, in respect of regional innovation, recent work on higher education and smart specialisation in Portugal (Pinto, Nogueira and Edwards, 2021[11]). The discussion in this chapter focuses on the relationship between institutional strengths in research and innovation and the attractiveness and relevance of educational offerings.

Further widening participation in higher education would contribute to social inclusion and help meet Portugal's future skills needs

While a highly skilled population does not guarantee a strong economy and public services, it is an indispensable foundation on which to build them. As noted in Chapter 2, Portugal's economy is currently less skills-intensive than the economies of some of its OECD partners. However, particularly as automation alters the task composition of many professions, demand for advanced skills is likely to increase, to meet the needs of established economic activities and drive the creation of new ones. Despite the impressive increase in higher education attainment rates in the last decade across all regions of the country, Chapter 2 also highlighted two main populations that are under-served by higher education in Portugal: young people following vocational tracks in secondary education and adults wishing to upskill and reskill.

Overall, one-third of upper secondary students in Portugal complete vocational tracks rather than the academically oriented scientific-humanistic track that has been the traditional pathway to higher education. The proportion of upper-secondary students graduating from vocational tracks varies from 27% in the Évora school district to around 40% in Viseu, Castelo Branco, Aveiro, Leiria and Beja (districts distributed between interior and littoral regions).

While, on average, 81% of students graduating from the scientific-humanistic track enter higher education within one year of completing secondary education, this proportion is only 24% for students completing the

vocational track. As shown in Table 4.1, while 41% of vocational graduates from 2019/20 in the Bragança school district entered higher education, this proportion was only 16% in Évora and just over 20% in Lisbon and Porto. In absolute terms, the largest numbers of vocational-secondary completers not progressing to higher education (40% of all such completers in Portugal) were located in Lisbon and Porto. Among all students completing the scientific-humanistic track in 2019/20 in Portugal, 46% of those who did not progress to higher education were also located in the two largest cities (DGEEC, 2022[12]). As discussed in Chapter 2, the proportion of adults in Portugal – with or without an existing higher education qualification – who enter higher education later in life to upskill or reskill is low, in absolute terms and relative to some other OECD jurisdictions. This means there is – in the current configuration of the higher education system – little likelihood of those who do not transition directly to higher education from secondary school of ever doing so.

Table 4.1. Progression from vocational secondary education to higher education

Proportions of students graduating from vocational upper secondary tracks in 2019/20 transitioning to higher education by secondary school district.

Secondary school of origin		Situation after one year		
District	Number of students completing vocational upper-secondary education in 2019/20	Degree-conferring programmes (e.g., bachelor's programme)	TeSP (short-cycle programmes)	Not enrolled in higher education
Évora	336	8%	8%	84%
Porto	5 133	11%	10%	79%
Vila Real	433	8%	14%	78%
Lisboa	5 143	14%	8%	78%
Viseu	1 149	11%	10%	78%
Braga	3 000	8%	15%	77%
Aveiro	2 379	13%	10%	77%
Portalegre	259	7%	17%	76%
Faro	1 039	13%	11%	76%
Coimbra	1 114	15%	9%	76%
Beja	427	7%	18%	76%
Continental Portugal	27 205	12%	12%	76%
Setúbal	1 840	10%	15%	75%
Viana do Castelo	789	12%	16%	72%
Santarém	1 363	12%	19%	69%
Castelo Branco	569	17%	15%	68%
Guarda	397	19%	14%	67%
Leiria	1 554	17%	21%	62%
Bragança	281	16%	25%	59%

Note: Based on data from DGEEC data sheet "Transição entre o ensino secundário (2019/2020) e o ensino superior (2020/2021)" (Transition between secondary education (2019/20) and higher education (2020/21)).
Source: DGEEC (2022[12]) *Estatísticas - Ensino Superior (Statistics - Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (accessed on 8 July 2022).

Increasing participation in higher education among young people and adults who do not currently enter higher education to further social equity and help address skills gaps in technical and ICT-related fields, will require a combination of measures. On the supply side, appropriate access routes and programmes tailored to the specific needs of populations that are less well prepared for higher education and may need to study part-time will be required. Portugal's access routes for those over 23 and the new competitions for secondary-vocational graduates provide a good starting point. As shown in Table 4.1, a significant

share of secondary-vocational graduates are already entering short-cycle TeSP programmes, particularly in Bragança and Leiria. Further development of the offer of TeSP places in fields closely aligned with national skills needs could be a promising way to expand higher education participation to under-served parts of the youth population and fill skills gaps. As demonstrated in discussions with higher education stakeholders in this review, if adapted to be sufficiently flexible for adult learners, TeSP provision can also form part of an attractive package of options for advanced upskilling and reskilling. As discussed in Chapter 5, these supply-side developments may need to be accompanied by further measures to inform and financially support students. In all cases, a strong professional orientation, good links with employers and careful monitoring of student completion and graduate employment outcomes will be needed to inform fine-tuning of institutional and national strategies.

Efforts are required to align higher education provision to future student demand across Portugal's national territory

Widening access to currently under-served population groups will require changes in higher education institutions, particularly in the polytechnic sector that is best equipped to serve students transitioning from vocational pathways and, in many cases, adult learners looking to improve their career prospects. Across the country, there is scope to expand relevant provision closely aligned to the labour market, initially at TeSP level and in carefully selected, professionally oriented bachelor's programmes. There is scope for the whole public polytechnic sector to learn from the experience of leading institutions, such as the IP Bragança and IP Leiria. The greatest needs to expand opportunities for secondary-vocational graduates are in the Lisbon and Porto metropolitan areas, where transition rates are currently particularly low and potential student numbers the greatest (see Table 4.1).

Public higher education institutions across Portugal will also need to respond to the falling numbers of young students transitioning from the scientific-humanistic tracks of upper-secondary education. In the short term, the need for change will be greatest in institutions and programmes in interior and island regions that have already seen enrolment decline and struggle to recruit students through the National Access Competition (see Chapters 2 and 3). Consolidation of programmes that are primarily tailored to the needs of graduates from the scientific-humanistic track will be required in many cases. This might occur through merging programmes within a single institution or creating joint programmes shared across institutions, allowing academic staff to co-operate and, where appropriate, teach in multiple campus locations. The increased acceptance of online learning for certain types of higher-education instruction, such as lectures, will facilitate some of these transitions.

From the perspective of the higher education system as a whole – and to ensure the best interests of students are protected – priority in reshaping of provision will need to be given to quality and relevance. Higher education institutions will need to develop evidence-based strategies that identify their key areas of strength, the types of programmes they can offer at high levels of quality and where sufficient student demand exists or could exist in future under reasonable assumptions. As discussed below, existing centres of excellence in research, innovation support or other forms of co-operation between HEIs and external partners, which, in turn, interact with and strengthen educational offerings, are an obvious basis for solid institutional strategies. A degree of specialisation and institutional profiling will be needed, with, to borrow from the Dutch policy vocabulary highlighted above, the identification and strengthening of "centres of gravity" (*zwaartepunten*) in different locations. While there is a strong case and need to maintain provision of certain programmes – in many TeSP fields and sectors such as nursing, teacher education or ICT – in a wide range of locations, there are more specialised and advanced programmes where provision in multiple locations will become harder to justify. This was also the conclusion of the Ministry of Science, Technology and Higher Education working group on access to higher education (MCTES Working Group, 2019[13]).

Such changes will naturally have significant implications for the academic workforce (teaching staff) across Portugal. While staff who are able to develop and deliver flexible, professionally oriented programmes in fields closely linked to regional economies and skills needs will remain in high demand, the consolidation and closure of programmes will inevitably displace other academics. There are no easy solutions to this problem. Some staff members will find themselves in high-demand fields or easily adapt to new configurations. However, as subject specialists, academic staff are not easily fungible units of labour, and other staff members will face more difficulties as institutional profiles evolve. Co-operation between institutions in programme delivery is a possible solution, while Portugal's networked system of research units already provides a useful framework for inter-institutional collaboration. In some respects, the ageing of the academic workforce noted in Chapter 2, may facilitate change at institutional level, as posts are renewed to align with evolving institutional strategies.

Two further issues arise frequently in Portugal in discussions about re-aligning provision to student demand. The first is the use of the *numerus clausus* system to allocate additional study places (*vagas*) to institutions in regions with limited local study demand and restrict the expansion of institutions in metropolitan areas. In the academic year 2018/19, Portugal's government reduced study places (outside certain protected fields) in public institutions in Lisbon and Porto by 5% in an effort to encourage more students to move to institutions in interior regions to study. The policy was not effective, as students were largely unwilling to change their study location and, in many cases, entered private HEIs in Lisbon and Porto (Edulog, 2019[14]; Biscaia, Sá and Teixeira, 2021[15]). Moreover, the general presumption against study-place increases in Lisbon and Porto further reduces the accessibility of higher education for secondary students from these metropolitan areas, who tend to study locally and – as discussed above – include a large proportion the young people in Portugal who do not currently enter higher education.

The second issue is the potential for international students to compensate for declining enrolment by domestic students. As noted in Chapter 2, in 2019/20, international students account for 15.2% of total enrolment in public universities and 10.9% in public polytechnics. Across public HEIs, the largest international student cohorts came from four Portuguese-speaking countries: Brazil, Cape Verde, Guinea-Bissau and Angola (DGEEC, 2022[12]). The key question is whether there is alignment between the programmes international students seek and the established offering in public institutions that face enrolment decline. Leaving aside the question of whether programmes should be offered in English to attract a more diverse set of international students, the attractiveness of programmes for international students is likely to be determined by the same basic factors as for domestic students – the quality of the offering and the reputation of the institution in teaching, research and relevant innovation activities. Here again, strong institutional profiles come into play.

Strong profiles in research and innovation can support differentiated educational offerings and economic development

Research and innovation activities are intricately inter-linked with teaching in high-quality higher education. Research-informed teaching is important across fields and programme types. Opportunities to engage in practice-oriented research, alongside practical work-based learning, can greatly strengthen education in professional fields. And direct engagement in research and experimentation are at the core of advanced higher education programmes. In a context where public higher education institutions in Portugal will need to refine their institutional profiles, as they adjust to demographic change, strengths in research and innovation will have a central place in institutional strategies.

Portugal's network of publicly supported research units brings together researchers from different institutions in a unique and flexible model of co-operation. A managing organisation exists for each research unit, the majority of which are HEIs. Units that wish to receive funding from the Foundation for Science and Technology (FCT) are subjected to periodic evaluation by external peer-review panels, with the results influencing eligibility for – and the level of – FCT core grants. The peer-review process, which

includes thematic, as well as discipline-specific, panels, is designed to assess applied and practice-oriented, as well as academic, research and thus be capable of rewarding research activity in the polytechnic sector. All units classified as "good" or above in the periodic evaluations (the most recent of which at the time of writing was in 2017/18) receive FCT funding (FCT, 2017[16]). At the time of writing, only universities are entitled to award doctoral degrees, although the first joint doctoral programmes involving polytechnics have been established (Politécnico de Leiria, 2020[17]). As a result, research units co-ordinated by polytechnics have a smaller role in doctoral training than units co-ordinated by universities (FCT, 2021[18]).

As shown in Table 4.2, even within the public university sector, there is considerable variation in the intensity of doctoral training, with over 70% of doctoral degrees awarded by just five universities.

Table 4.2. Doctoral graduates by public university in 2020/21

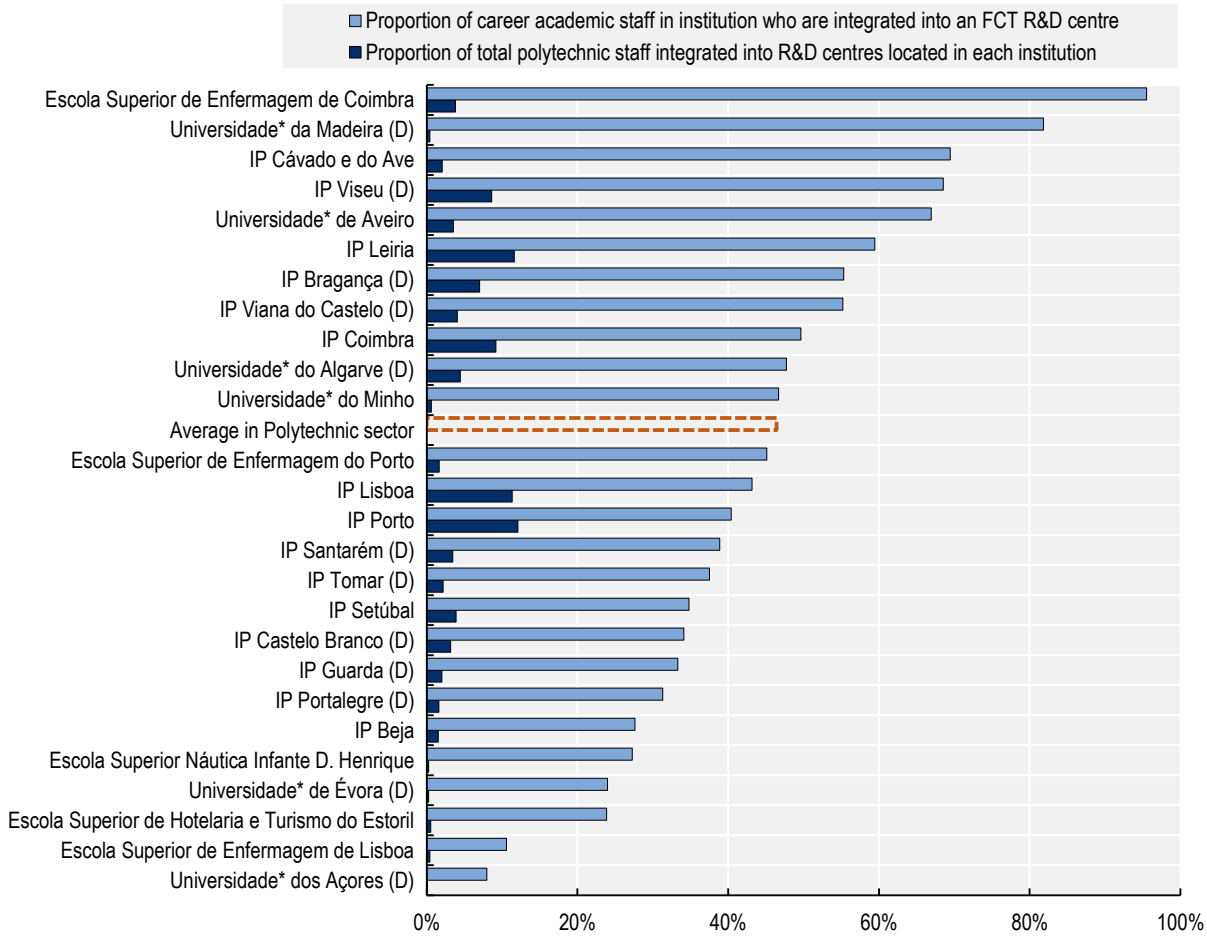
	Number of doctoral graduates in 2020/21	Share of all doctoral graduates in Portugal in 2020/21	Total graduates in 2020/21	Doctoral graduates as a share of total graduates
Universidade Nova de Lisboa	245	12.6%	4 757	5.2%
Universidade do Porto	384	19.8%	7 557	5.1%
Universidade de Aveiro	132	6.8%	2 670	4.9%
Universidade de Évora	63	3.2%	1 335	4.7%
Universidade Aberta	27	1.4%	597	4.5%
Universidade do Minho	207	10.7%	4 639	4.5%
ISCTE - Instituto Universitário de Lisboa	98	5.1%	2 311	4.2%
Universidade de Coimbra	215	11.1%	5 624	3.8%
Universidade de Lisboa	432	22.3%	11 557	3.7%
Universidade da Beira Interior	56	2.9%	1 812	3.1%
Universidade da Madeira	15	0.8%	570	2.6%
Universidade do Algarve	24	1.2%	938	2.6%
Universidade de Trás-os-Montes e Alto Douro	36	1.9%	1 452	2.5%
Universidade dos Açores	6	0.3%	538	1.1%

Note: Universities are listed in descending order of the share of doctoral graduates in total graduate numbers in 2020/21.
Source: DGEEC (2022[12]) *Estatísticas - Ensino Superior (Statistics - Higher Education)*, https://www.dgeec.mec.pt/np4/18/ (Accessed on 8 July 2022).

In the public polytechnic sector, it is possible to gain a partial picture of the research intensity of institutions by considering the engagement of their academic staff with formal research units. Figure 4.1, which includes organic units with polytechnic status that are integrated into public universities, shows the proportion of academic staff that were associated with (integrated in) an FCT-supported research unit in 2018. While around 70% of academic staff at the Instituto Politécnico do Cávado e do Ave (IPCA) were integrated into a research unit, this was the case for less than 35% of staff in the Polytechnic Institutes of Guarda, Portalegre and Beja – all comparatively small institutions in Portugal's interior.

Figure 4.1. Research capacity in polytechnics

Proportion of career academic staff in each public polytechnic integrated into an FCT-recognised R&D unit and distribution of these academic staff between public polytechnics, 2018.



Note: Data are based on academic staff reported by polytechnic units in the categories of "Principal Coordinating Professor", "Coordinating Professor" or "Assistant Professor". * In universities with organic units with polytechnic status, these data include only staff employed in the organic units with polytechnic status. D: institutions in regions experiencing demographic decline.
Source: DGEEC (2019[19]) Docentes do ensino superior integrados em unidades de I&D financiadas pela FCT (Academic staff integrated in R&D units funded by the FCT), https://www.dgeec.mec.pt/np4/381/ (accessed on 12 July 2022)

StatLink https://stat.link/dujptz

Another indicator of research capacity is the number and quality rating of research units co-ordinated by institutions. In the 2017/18 research evaluation exercise, 312 of the 348 units entering the evaluation were rated as “good”, “very good” or “excellent”, and thus received FCT funding. As summarised in Table 4.3, large public polytechnic institutions in Porto, Leiria and Bragança co-ordinate the largest numbers of research units, with Bragança the only one of these institutions in an interior region. There are also high-quality research units co-ordinated by IPCA, IP Tomar, IP Viana do Castelo, IP Viseu and IP Portalegre. In contrast, IP Beja, IP Castelo Branco and IP Guarda co-ordinate no research units. It is possible that the IP Lisboa and IP Setúbal (the latter also having no FCT-funded research units) suffer from their location in the Lisbon Metropolitan Area, home to a high concentration of research-intensive institutions.

Table 4.3. FCT-funded R&D units co-ordinated by public polytechnic institutes

Ratings received by R&D units co-ordinated by public polytechnic institutes (IP) in the 2017/18 FCT evaluation exercise and number of units (rated "good" and above) in receipt of FCT funding for the period 2020-23

Institution	Enrolment index 2020/21*	Insufficient	Weak	Good	Very good	Excellent	Total submitted	Total FCT funded
IP Porto **	100%		3	6		2	11**	**8**
IP Leiria	59%				5	1	6	**6**
IP Bragança (D)	44%			2		2	4	**4**
IP Cávado e do Ave (IPCA)	28%				2		2	**2**
IP Tomar (D)	12%			1	1		2	**2**
IP Viana do Castelo (D)	24%		1	2			3	**2**
IP Viseu (D)	29%			2			2	**2**
IP Coimbra	55%				1		1	**1**
IP Portalegre (D)	11%				1		1	**1**
IP Lisboa	69%			1			1	**1**
IP Santarém (D)	20%			1			1	**1**
IP Beja (D)	16%						0	**0**
IP Castelo Branco (D)	22%	1	3				4	**0**
IP Guarda (D)	17%						0	**0**
IP Setúbal	35%	1	1				2	**0**
Total for public polytechnic institutes		**2**	**8**	**18**	**5**	**5**	**40**	**30**

Note: * Total enrolment in 2020/21 as a proportion of total enrolment at IP Porto. Public polytechnic institutes are presented in descending order of the number of R&D units receiving FCT funding and the rating received in the 2017/18 evaluation exercise. D: institutions in regions experiencing demographic decline. ** The data for the IP Porto include five R&D centres in the Instituto Superior de Engenharia do Porto (ISEP), which is an integral part of the IP Porto.
Source: FCT (2021[18]) *Financiamento Plurianual de Unidades de I&D para o periodo 2020-2023 (Multi-annual funding for R&D units for the period 2020-2023)*, https://www.fct.pt/apoios/unidades/unidadesid.phtml.pt (accessed on 12 July 2022).

Box 4.1 illustrates the diversity of research centres rated as "excellent" or "very good" in the most recent FCT research evaluation exercise that are co-ordinated by public higher education institutions located in Portugal's interior and island regions. These centres of excellence could provide part of the basis for strengthened institutional profiles, with strong links to educational activities.

Nevertheless, polytechnics, in particular, face challenges in defining and realising research strategies. One of the most fundamental is the risk of academic drift in institutions for which the primary missions are to provide professionally oriented education, co-operate with the private and public sectors in developing professional practice and to deliver practice-oriented and applied research to support regional innovation. Research policy in Portugal has tended to favour academically oriented research and researchers are not always equipped to engage in co-operative research and innovation activities with business and the public sector (Nazaré et al., 2020[20]). Moreover, recent analysis of the contribution of the higher education system to regional innovation and "smart specialisation" has highlighted a "disconnect" between higher education institutions and regional economic and innovation systems, despite multiple examples of promising practice (Pinto, Nogueira and Edwards, 2021[11]).

Successful profiling in regional higher education institutions will require efforts to guide research and innovation activity into areas that can support local businesses and public-sector organisations and help develop regional economies, while maintaining and expanding centres of excellence of national significance, which can also help to attract domestic and international students.

Box 4.1. Leading FCT-funding R&D units hosted by HEIs in interior and island regions

Units hosted by public universities rated as "excellent" by FCT panels

- Universidade de Évora: Mediterranean Institute for Agriculture, Environment and Development. (MED) and HERCULES Lab devoted to the study and valorisation of cultural heritage, focusing on the integration of physical and material sciences methodologies and tools in interdisciplinary approaches.
- Universidade dos Açores: Okeanos Marine research group and Institute for Research in Volcanology and Risk Assessment (IVAR).
- Universidade da Madeira: Madeira Chemistry Research Centre (CQM).
- Universidade do Algarve: Interdisciplinary Centre for Archaeology and Evolution of Human Behaviour (IHC).
- Universidade de Trás-os-Montes e Alto Douro (UTAD): Centre for the Research and Technology of Agro-Environmental and Biological Sciences (CITAB) and Veterinary and Animal Research Centre (CECAV).

Units hosted by public polytechnics rated as "very good" or "excellent" by FCT panels

- IP Bragança: Mountain Research Centre (CIMO) and Research Centre in Digitalisation and Intelligent Robotics (CeDRI), both rated as excellent.
- IP Portalegre: the VALORIZA research group, focusing on energy and waste valorisation, sustainable production and maximising the potential of sparsely populated territories, rated as very good.
- IP Tomar: Centre for Technology, Restoration and Art Enhancement (TECH&ART), rated as very good.

Note: Highest ranked research centres classified by the FCT evaluation panels as excellent (for universities) or excellent and very good (polytechnics).
Source: Based on FCT (2021[18]) Financiamento Plurianual de Unidades de I&D para o periodo 2020-2023 (Multi-annual funding for R&D units for the period 2020-2023) https://www.fct.pt/apoios/unidades/unidadesid.phtml.pt (accessed on 12 July 2022).

Policy tools to support institutional profiling, performance and "systemness"

If key priorities for Portugal's public higher education system are the provision of a diverse range of high-quality educational offerings responding to wider range of learning needs and a differentiated institutional network better aligned to future student demand, the question is how government can support achievement of these objectives. The introduction to this chapter highlighted how governments across the OECD seek to steer the development of higher education systems, through a combination of incentives, accountability mechanisms and regulation. This section briefly examines recent attempts to shape the development of the public higher education system in Portugal before discussing in more depth some of the approaches to governance, steering and strategic funding used in other OECD jurisdictions that may be instructive for future policy in Portugal.

In recent years, Portugal has increased the strategic steering of the public higher education system, through sector-level "contracts"

Since the return of democracy in 1974, Portugal has periodically implemented bold reforms in its higher education system. These have included establishing new universities, creating a polytechnic sector largely from scratch, giving institutions greater operational autonomy, reforming the legal regime that governs them, introducing a robust external quality assurance system and promoting the development of a network of publicly supported R&D units across the country. While structural reforms in the last decade have arguably been more limited – notwithstanding the major expansion of short-cycle programmes in polytechnics – recent governments have still sought to influence the direction of the established network of institutions.

As noted earlier in this report, in 2015, Portugal's government started taking steps to restore public investment in higher education following the cuts made in the wake of the post-2008 financial and economic crisis. The government concluded separate "contracts for the legislative term" (*Contratos de Legislatura*) with public universities and public polytechnics for the period 2016-19, providing additional core funding in return for commitments from the respective sectors. This approach was repeated for 2020-23, but with a single agreement between government and the entire public higher education sector (see Box 4.2).

Box 4.2. The Contrato de Legislatura 2020-23 – a system-level "performance agreement"?

In the "Contract for the Legislative Term" for the period 2020-23, Portugal's government committed to:

- Increase the core budget envelope by 5% in 2020 (compared to 2019) and subsequently by at least 2% annually in 2021, 2022 and 2023. Part of the increase was intended to provide full replacement of income lost through a reduction in maximum tuition fees for undergraduate programmes from 2019 onwards (a 35% reduction between 2019/20 and 2021/22).
- Not subject the budgets of public higher education institutions to annual clawbacks (*cativações*) or other reductions from public funding sources.
- Increase appropriations from the State Budget for social support to students and Foundation for Science and Technology (FCT) funding for R&D in support of research targets.
- Make available European Union Structural Funds through competitive calls to support R&D and innovation, infrastructure and Professional Higher Technical Programmes (TeSP).

In return, public higher education institutions committed to:

- Increase revenue from alternative sources, through co-operation with private and public-sector bodies and increased success in obtaining competitive EU research funding.
- Increase participation in post-graduate programmes and adult learning.
- Make the most efficient use of existing human and physical resources, notably though co-operation between institutions.
- Reduce student drop-out by the end of the legislative period and promote and monitor the employability of graduates.

Source: Government of Portugal (2019[21]), Contrato de Legislatura entre o Governo e as Instituições de Ensino Superior Públicas, 2020-2023 (Contract for the Legislative Term between the Government and Public Higher Education Institutions, 2020-2023), https://www.igefe.mec.pt/Files/DownloadDocument/72?csrt=6785169830679341608 (Accessed on 17 May 2022).

Portugal's Court of Auditors criticised the first generation of system-level contracts (for 2016-19) for failing to respect the legally enshrined principle that core operating funding should be allocated to institutions

based on a rational formula and omitting to establish objective performance measures to allow the monitoring of progress and assessment of results (Tribunal de Contas, 2020[22]). While, as discussed in Chapter 3, the subsequent Contract for the Legislative Term, for 2020-23 did not address the question of the allocation formula (allocating pro-rata funding increases to all institutions), it did include more precise targets and related monitoring indicators.

The six goals of the 2020-23 agreement include targets to widen participation in higher education, with 55% of 20-year-olds participating in higher education by 2023 and 60% by 2030, and an attainment rate among 30–34-year-olds of 40% by 2023 (already met in 2021), rising to 50% by 2030. The *Contrato* also seeks to increase the diversity of programmes on offer, with additional non-degree programmes (such as post-graduate diplomas) and encourage institutional specialisation and co-operation between higher education institutions and between HEIs and the productive sector. Goals four and five of the agreement focus on improving academic careers and creating additional researcher posts, while the final main area of focus (goal six) seeks to increase internationalisation in education and research (in the latter case, notably, through greater participation in European Union research programmes). The goals are monitored annually and reiterated in annual State Budget laws (Government of Portugal, 2021[23]).

Another criticism of 2016-19 *contratos*, made by the Court of Auditors in 2020 and not resolved through the subsequent iteration of the agreement for 2020-23, was that they contained a single set of objectives for whole sub-sectors of the public higher education system, without taking into account the differing operating contexts and specific strengths and weakness of individual institutions (Tribunal de Contas, 2020[22]).

Like other OECD jurisdictions, Portugal also uses targeted funding to support national goals

Alongside the core funding provided from the State Budget, Portugal's government also intervenes in the higher education sector by providing targeted, earmarked funding to support specific nationally established priorities. Portugal has been able to draw heavily on European Union Structural and Investment Funds as a source of targeted investment in higher education, including to support the expansion of short-cycle TeSP programmes and, as discussed in Chapter 5, to fund the national student grants programme. More recently, the European Union Recovery and Resilience Facility, launched to support member states to rebuild their economies after the COVID-19 pandemic, has provided another source of European funding for targeted initiatives in higher education. Under the Facility, Portugal has received EUR 16.6 billion of European financial support, with EUR 13.9 billion in grants and EUR 2.7 billion in loans, which must be invested in the period 2021 to 2026.

Portugal's national plan for using Recovery and Resilience funding (the *Plano de Recuperação e Resiliência* – PRR), identifies investments in the areas of "resilience", climate transition and digital transition. Under the "resilience" strand, the national plan identified priorities for strengthening core areas of the economy and public services and identifies improvements to vocational education, adult skills and higher education as investment priorities in the area of qualifications and skills (Government of Portugal, 2022[24]). As summarised in Box 4.3, the plan provides EUR 252 million to support consortia of higher education institutions to develop short courses for adults and improve undergraduate education in science, technology, engineering, arts and maths (STEAM), working in co-operation with employers.

Box 4.3. Higher education in Portugal's Recovery and Resilience Plan

Portugal's Recovery and Resilience Plan (PRR) for 2021-26 includes an initiative to support the development of the educational programmes higher education sector with two strands, one focused on adults, the other on younger students. A total of 33 projects, most co-ordinated by public HEIs, were selected through a call for proposals, completed in January 2022:

- The *Impulso Adultos* ("Impetus [for] adults") strand has provided EUR 130 million in competitive grant funding for networks of institutions working in co-operation with employers to develop short higher education programmes (for entry to post-graduate level) aimed at adults wishing to update and enhance existing skills (upskill) or acquire skills in a new area (reskill).
- The *Impulso Jovens STEAM* ("Impetus [for] young people in STEAM") strand follows the same co-operative approach, but focuses on developing new, inter-disciplinary and innovative programmes at TeSP and bachelor's levels to increase the number of graduates in the areas of science, technology, engineering, arts and maths (STEAM). The budget awarded was EUR 122 million.

In addition, Portugal's PRR will contribute and initial sum of EUR 375 million for the construction and renovation of student accommodation in the period up to 2026, as part of the National Plan for Housing in Higher Education (PNAES) – see Chapter 5.

Source: DGES (2021[25]) Programas "Impulso Jovens STEAM" e "Impulso Adultos" (Impetus programme for young people in STEAM and Impetus programme for adults), https://www.dges.gov.pt/pt/pagina/candidatura_IMPULSO (accessed on 18 July 2022).

System-level contracts and targeted funding have promoted co-operation between HEIs, but created weak incentives for institutional profiling and restructuring

The Contract for the Legislative Term of 2020-23 and targeted funding to higher education institutions have been strongly focused on increasing, enhancing and diversifying the educational offering in the higher education system to serve new student populations. The focus on widening access and provision for adults is clearly aligned with the first priority identified earlier in this chapter, related to meeting future skills needs. Moreover, accompanying investments in doctoral training and R&D will undoubtedly strengthen aspects of Portugal's research base and innovation capacity. The system-level contract and targeted funding have also encouraged co-operation between higher education institutions, as in the case of the consortia supported by the Impulso Adultos and Impulso Jovens STEAM initiatives.

However, although the third goal of the Contract for the Legislative Term explicitly aims to "guarantee institutional specialisation and diversification" (Government of Portugal, 2019[21]), it is not clear how the related objectives and activities – or indeed other system-level policies – will lead to this. Objectives and actions support increased diversity of activities in the system as a whole (e.g. more non-degree post-graduate diplomas), but do not provide strong incentives for individual institutions to develop clear profiles, make strategic choices and prioritise certain areas of activity over others. The lack of institutional profiling was already highlighted in the 2019 OECD review of higher education, research and innovation as a weakness of Portugal's higher education system. That review noted a tendency for institutions to seek to cover as wide a range of disciplines as possible and expand into new areas – through the creation of new doctoral programmes in universities, for example – without necessarily having the underlying critical mass and institutional strengths to deliver these activities at high quality. In line with the points made earlier in this chapter, the 2019 review argued that a clearer division of labour across the higher education network would improve efficiency and effectiveness (OECD, 2019[10]).

The requirement for academic staff in polytechnics to hold PhDs, introduced as part of earlier efforts in Portugal to strengthen the polytechnic sector, has increased the capacity of these professionally oriented institutions to deliver high-quality education and innovation-related activities. However, as doctoral training and the bulk of academic research in Portugal occur in universities, there is a risk that this requirement – which is not replicated in policy governing non-university institutions in other European binary systems – has driven polytechnics, and a proportion of their academic staff, to emulate, and converge towards, universities, rather than systematically focusing on the specific strengths and missions of polytechnic institutions. As discussed above, polytechnics have an important role to play in practice-oriented and applied research in close co-operation with professions and sectors, and centres of applied research excellence already exist in Portugal's public polytechnics. However, the results of FCT research evaluations (see above) clearly illustrate the limits of academic research capacity in the polytechnic sector in comparison to universities.

Portugal's system of peer-review in research evaluation creates greater freedom to acknowledge and reward the kinds of practice-oriented research that are at the heart of polytechnics' mission than systems where funding is driven primarily by bibliometric measures of published research output and citations. Given the objective of institutional diversification, it is important that public research evaluation funding instruments adequately differentiate between different types of research activity and value a variety of types of research output and impact. This is a challenge faced in public research funding systems in other OECD jurisdictions. In the Netherlands, for example, a recent report noted the structural underfunding of practice-oriented research for Dutch universities of applied science (PwC Strategy&, 2021[26]), while a recent OECD review of resourcing higher education in the Flemish Community of Belgium reached a similar conclusion for university colleges in that system (OECD, 2021[27]).

While research policies may have created pressures for polytechnics to emulate universities, the expansion – and apparent success – of short-cycle TeSP programmes, offering forms of education highly adapted to the needs of currently under-served populations, has allowed polytechnics to develop a distinctive value proposition in an area with growing demand. As discussed above, in a context where overall demand for higher education among traditional student populations is declining, TeSP programmes, along with short courses packaged as micro-credentials, have the potential to attract increasing numbers of students from vocational pathways and the working-age population.

Beyond the binary distinction, greater institutional specialisation and diversification in higher education implies that institutions within each sector make clearer and distinctive choices about where to focus their efforts. While, as noted, multiple (or all) institutions in a given sub-sector will need to provide certain entry-level programmes to ensure accessibility of these programmes across the national territory, in other fields and at more advanced levels of education, there is a clear rational for a division of labour between institutions, particularly in a small and consolidating higher education system such as Portugal's. Focusing efforts to create real centres of excellence linked to regional contexts or established research capacity (or both, as in IP Bragança's Mountain Research Centre) is particularly important for HEIs located in interior and island regions, where mainstream student demand is declining. Only through creating such distinctive centres of excellence in education, regional engagement and specialised research and exploit their locations can institutions hope to attract students from other regions and internationally.

OECD jurisdictions are increasingly using institutional agreements to promote institutional profiling and increase accountability

In a growing number of OECD jurisdictions, efforts to promote institutional profiling and differentiated approaches to the definition and assessment of institutional performance have led to the introduction of institution-specific agreements between government and individual HEIs. These agreements typically set institutions' specific profile and missions and establish objectives and targets. In many cases, public funding is provided to support delivery of the objectives set out in the agreements, which may or may not

be partially conditional on achievement of the objectives in question. Despite the links to funding in many cases, the level of funding directly linked to institutional agreements is nearly always modest in comparison to total core funding for HEIs. Institutional performance agreements, performance compacts or quality agreements are thus better viewed as steering, governance and accountability mechanisms, rather than funding instruments as such.

In Europe, Denmark was one of the first higher education institutions to introduce performance agreements as a profiling and steering tool and retains "strategic framework contracts", with achievement of goals linked to a small proportion of total funding, in its current governance and funding model (OECD, 2021[6]). Its Nordic neighbour, Norway, has experimented with institutional agreements, but now looks likely to make "development agreements" (*utviklingsavtalene*) the primary steering and performance-related component in its future funding model for the period after 2023 (Norwegian Ministry of Education and Research, 2022[28]). As discussed in Chapter 3, a Norwegian expert commission concluded that development agreements would allow a more differentiated approach to goal-setting and performance measures than including performance indicators in the core-funding formula, while emphasising the role of the motivation and responsibility of individual institutions and staff in delivering system objectives.

The institutional-agreement systems in Finland, Ireland and the Netherlands are particularly noteworthy as they are among the longest-established in Europe and have undergone multiple iterations, with revisions over time. As illustrated in Table 4.4, the institutional agreements in place in 2022 in all three of these systems require a self-assessment of institutional strengths and the formulation of a clear profile, goals and measurable targets. The Dutch "quality agreements" in place until 2024, in contrast to the country's previous system of "performance agreements", focus exclusively on actions to improve the quality of education and thus have a more targeted scope than agreements in Finland and Ireland.

Table 4.4. Key design features of institutional-agreement systems

	Finland	Ireland	The Netherlands
Name	"Performance Agreements"	Mission-based performance compacts	"Quality agreements"
Duration of agreements	4 years 2021-24	3 years September 2018 to September 2021*	6 years 2019-24
Coverage of institutional activities	All missions	All missions	Specific to the education mission (6 education quality themes)
Self-assessment, profile and specialisation	Yes	Yes	Yes
Targets and indicators	Institution-specific - Agreed in negotiation with government	Institution-specific – Validated when compact initially approved	Institution-specific – Validated when agreement initially approved
Initial evaluation and approval of agreements	By Ministry of Education and Culture	By Higher Education Authority with input from international experts	By the Accreditation Organisation of the Netherlands and Flanders (NVAO)
Annual monitoring?	Yes – report and dialogue with Ministry of Education and Culture	Yes – report and dialogue with Higher Education Authority	Annual reports submitted by institutions to Ministry
Evaluation of final results	Through institutional reports and dialogue with Ministry of Education and Culture	Through institutional reports, performance case studies and evaluation by Higher Education Authority and international experts	By the Accreditation Organisation of the Netherlands and Flanders (NVAO)
Link to funding	Funding allocations from formula and specific allocations are included in the agreement, but there are no direct financial consequences of non-achievement of goals in the agreements	Between 3% and 5% of institutional core funding can theoretically be withheld in cases of (very) poor performance Modest additional payments for good performance case studies	An additional EUR 2.37 billion for the six financial years 2019-24 for the university and university of applied science sectors (= around 3% of HE education budget). Possibility for Minister to withhold payment if progress considered (very) unsatisfactory

Note: * The implementation period has been extended owing to the COVID-19 pandemic.

The relationship between the institutional agreements and funding also varies between Finland, Ireland and the Netherlands. In Finland, performance agreements accompany the allocation of core funding to higher education institutions using a formula model, with distinct components for education and research and slightly different formula parameters for universities and universities of applied science. In addition, the Finnish government allocates strategic funding to institutions, part of which is awarded directly to institutions as part of their core grant. Projected funding allocations are recorded in performance agreements, but this funding is not conditional on achieving goals in the agreements, which serve primarily to increase transparency and accountability.

In both Ireland and the Netherlands, a proportion of public funding allocated to institutions is theoretically at risk if institutions do not meet goals in their institutional agreements. In Ireland this is up to 5% of core funding (allocated through a voucher-like fee subsidy and a formula), while in the Netherlands the minister may withhold a proportion of the additional quality funding linked to the quality agreements at the end of the six-year implementation period, if the national accreditation body considers progress towards goals has been insufficient. In Ireland, funding has never been withheld under the agreement system, although remediation plans have been agreed in a limited number of cases. Moreover, the Irish Higher Education Authority has more recently introduced additional "bonus" payments (i.e. additional funds, rather than core funding) which are awarded on a competitive basis to institutions that demonstrate, through case studies, that they have made particularly good progress in an area covered by their mission-based performance compact (HEA, 2019[29]).

Evidence from different higher education systems suggests that institutional agreements are an effective policy tool

In contrast to research into the effects of output-based formula funding systems, which has tended to find only limited positive impact on outputs and risks of intended consequences, studies of institutional performance agreements are generally positive in their assessment of these instruments. Dohmen (2016[30]) found that "target agreements" (*Zielvereinbarungen*) implemented in certain German federal states were associated with more positive effects. Although it was not possible to establish causality, the study found anecdotal evidence of positive impacts on graduation rates and research funding, while, perhaps more significantly, also noted the development of more strategic, evidence-based decision-making in higher education institutions. This is consistent with analysis of the introduction of performance agreements in Finland, which is reported to have increased understanding and management of costs and the focus on performance within universities. A similar pattern was found in Ireland, in relation to the institutional compacts, which appear to have improved institutional strategy and dialogue between the institutions and public authorities (O Shea and O Hara, 2020[31]).

A systematic evaluation of the first generation of Dutch performance agreements concluded that the process of developing, negotiating and monitoring the agreements had helped higher education institutions to refine their institutional strategies, tailor their educational offerings and, in universities, sharpen their research profiles. The evaluation also noted that pass rates and on-time completion rates in universities increased during the implementation period for the performance agreements, but that on-time completion rates in bachelor's programmes in universities of applied science actually decreased (from 70% to 67% overall), particularly in the large institutions in the Randstad. The review team acknowledged that the inherently challenging (or impossible) task of establishing causal relationships (either positive or negative) between the performance agreement system and outputs (such as pass rates) was made even harder by an accumulation of other policy changes that were implemented in parallel. The Dutch review – much like the more recent expert panel in Norway – concluded that the use of a single set of education-related output and performance indicators for all institutions was inappropriate, as the indicators did not capture all elements of performance and failed to account sufficiently for contextual factors, such as the socio-economic profile of the student population served (Reviewcommissie Hoger Onderwijs en Onderzoek, 2017[32]).

The balance of evidence internationally suggests that specifying a single set of indicators for all HEIs to use in their institutional agreements is ineffective. Rather, more recent experience suggests it is more appropriate to allow institutions to propose a limited number of verifiable objectives, aligned with national strategy and which can be assessed through a combination of quantitative and quality methods on a periodic basis by an external review panel. Experience from other OECD jurisdictions also suggests that attaching a compatively modest amount of money to institutional agreements – or using agreements primarily as a accountability tool – can be sufficient to incentivise institutions to take the agreements and the process seriously, while avoiding perverse effects that might arise from a process with higher stakes in financial terms (de Boer et al., 2015[33]; Reviewcommissie Hoger Onderwijs en Onderzoek, 2017[32]). As with most public policies, introducing systems of performance agreements is best implemented with the addition of at least some new funds to the overall funding envelope for higher education institutions, rather than purely through the reallocation of existing funds.

System-level approaches, such as sector plans, can also facilitate co-operation and division of labour in higher education systems

As noted earlier, the Netherlands is one of the OECD jurisdictions that has placed greatest emphasis on institutional profiling and specialisation in its higher education system. A perceived need to increase the degree of institutional specialisation has been a strong theme in policy since at least 2010. In 2019, the country's advisory council for science, technology and innovation (AWTI) argued that higher education

institutions had, in reality, tended to become more similar over time and there was a need to focus more systematically on creating distinctive profiles with greater co-ordination at system level (AWTI, 2019[34]).

In 2018, the institution-specific performance discussed above were complemented by "sector plans" in the field of research. Sector plans seek to increase co-ordination within the Dutch university research system, encourage institutions to define clear and complementary profiles in research at disciplinary level and to promote the emergence of strong centres of excellence with the critical mass to compete internationally (UNL, 2018[35]). The Dutch Ministry of Education, Culture and Science initially budgeted EUR 60 million for the period 2018-2025 for the development and implementation of sector plans in the fields of science ("bèta") and technology and a further EUR 10 million for the social sciences and humanities plan.

The ministry required the universities – through their sector association – to designate co-ordinators for the three broad fields and to review the existing strengths and weakness of the research landscape in the country's universities, as a basis for future profiling activities. The sector overviews (*sectorbeelden*) produced were reviewed by sector committees and approved by the minister. After this, the 11 participating universities developed profiling plans, with priorities for their institutions, linked to the national picture and with a clear indication of how their profiles were complementary to those of other universities. The objective of the profiling plans is to make clear choices about the division of labour between different universities and identify specific investment needs (notably in terms of additional research posts) that were needed to strengthen research in their chosen areas of focus. On the basis of the profiling plans, the sector committees advised the minister on an appropriation allocation of the funds available in each field (Commission for Science and Technology Sector Plan, 2022[36]). In all, 80% of available funds were allocated directly to universities to fund new posts or relevant investments, while the remaining 20% will be awarded through calls by the Dutch Research Council (NWO).

This combination of top-down and bottom-up profiling in a national university research system appears to be specific to the Dutch higher education system. However, irrespective of differences in context, the experience gained will almost certainly hold lessons for other OECD higher education systems seeking to boost research performance and promote a rational division of efforts in the national research system.

Programme and study-place regulation can also play a role in strategic steering of the system

Many OECD jurisdictions – notably in Europe and the United States – require public higher education institutions to gain approval for the establishment of new study programmes, often taking into account the potential demand for graduates in the disciplinary field concerned (OECD, 2020[4]). Such programme approval is typically in addition to external accreditation and quality assurance requirements, which may also involve programme-level review, as in the case of the Agency for Evaluation and Accreditation of Higher Education (A3ES) in Portugal.

A similarly large number of OECD governments impose caps (*numerus clausus*) on the number of students that may be enrolled in certain costly study fields in regulated professions, such as medicine and dentistry, either to control costs in higher education or to avoid an over-supply of professionals in the fields in question. In systems such as Australia, Finland or Scotland (United Kingdom), governments effectively impose limits on the number of domestic students in all fields of study by establishing enrolment caps or targets related to the overall pot of public money available to fund study places. Other systems, such as those in Belgium or the Netherlands, impose no limits, while central and eastern European systems often allow public institutions to enrol additional students – beyond the number of state-funded places – if these students cover their own costs through fees.

Portugal is one of relatively few OECD systems to implement a national system of *numerus clausus* covering all fields of study at bachelor's level. The number of study places available in each programme at bachelor's level in public HEIs is determined initially by the limits set when the programme is accredited

by A3ES, with these limits taking into account factors such as available teaching staff and physical infrastructure. HEIs then propose the number of study places (*vagas*) available each year for new students entering higher education, with the final numbers agreed by the Directorate-General for Higher Education (DGES) and published annually in an official circular (*despacho orientador de fixação de vagas*), by which public HEIs must abide. Through establishing criteria for the final allocation of study places, the government can use the allocation of study places to steer the development of the system.

In the official circular for 2022, the government maintain its general policy of restricting increases in study places in Lisbon and Porto, but allowed expansion in areas of national strategic importance, including digital skills, data science and advanced information systems, space technologies and aerospace engineering. Equally, the 2022 circular permitted increased provision for teacher education and allowed increases in study places for programmes linked to the *Impulso Joven STEAM* programme highlighted above and for "excellence programmes", where the number of candidates applying through the first phase of the National Access Competition with an entry examination (high-school leaving) grade of 17/20 or more has historically exceeded the number of places available (Government of Portugal, 2022[37]).

While the policy of permitting expansion of study places in strategically important and excellence programmes promotes alignment of the higher education system to skills needs to some extent, it is notable that Portugal's government uses the *numerus clausus* to restrict the autonomy of institutions in Porto and Lisbon to increase study places, but not to encourage – or impose – restructuring or reorientation on HEIs in interior and island regions.

Although interventionist study-place regulation outside regulated professions such as medicine is uncommon in OECD higher education systems, a noteworthy exception is Denmark. Like authorities in other OECD jurisdictions, Denmark's government imposes limits on study places in programmes that train students for the professions of doctor, dentist, veterinarian and chiropractor. More recently, restrictions have been introduced for architecture programmes. Since 2014, however, the government has imposed national limits on student recruitment in study fields where graduates experience significant and systematic unemployment – see Box 4.4.

Box 4.4. Adjusting study places in light of employment outcomes in Denmark

Denmark's policy of "unemployment-based dimensioning" (*Ledighedsbaseret dimensionering*) involves imposing recruitment ceilings for study programmes in higher education with "significant and systematic" graduate unemployment. The first recruitment ceilings were introduced in 2015/16. The unemployment rate of graduates is calculated every year for study fields or groups of programmes - not at level of individual programmes. "Significant" unemployment means that a graduate cohort has an average unemployment rate at least two percentage points higher than the average for higher education graduates as a whole. "Systematic" unemployment means that at least 70% of the last (up to) 10 graduate cohorts have significant unemployment.

For study fields with significant and systematic unemployment, a ceiling on admission is calculated based on the historical admission levels. The ceiling is calculated based on the average admissions over the past five years, with average intake reduced by 10%, 20% or 30% depending on how high the unemployment rate has been in the last five years. Institutions can, in dialogue with the Ministry of Higher Education and Research, decide how the reduction of enrolment is distributed between affected programmes. With approval from the ministry, institutions can also move up to 15% of the total reduction in study place to programmes that have not been selected for "dimensioning", if this can be justified on the basis of the labour market needs.

Source: UFM (2022[38]) *Dimensionering af de videregående uddannelser (Sizing of higher education)*, https://ufm.dk/uddannelse/videregaende-uddannelse/dimensionering (accessed on 21 July 2022).

Frameworks governing human resources in higher education need to facilitate differentiation in institutional missions and profiles

A final, and more indirect, policy area with an impact on higher education institutions' ability to define their own strategies and profiles is the regulation of employment of academic staff. In many OECD jurisdictions, higher education legislation establishes only very general – if any – rules regarding employment of academic staff. In many jurisdictions, while fundamental employment law (covering aspects ranging from maximum working hours and minimum wages and paid leave allowances to health and safety and anti-discrimination rules) applies to academic staff, like other workers, specific conditions affecting the terms and conditions of their employment are set either in sector agreements or at the level of individual institutions. This is the case in English-speaking higher education systems, the Nordic countries and the Netherlands, for example. In some systems, like the higher education systems of French and Dutch-speaking Belgium, academic staff are employed on broadly the same rules as other public-service employees, with tenure linked to the public-servant status of academics as opposed to sector-specific rules.

The situation in Portugal is different in that the employment of academic staff in public higher education institutions without foundation is subject to public-service employment rules (as in Belgium), but additionally to a set of sector-specific rules enshrined in separate legal regimes for academic staff in universities and polytechnics (see Box 3.2 in Chapter 3). While many of the aspects of these legal statutes are unremarkable by international standards – except, perhaps, that they are enshrined in law – they do include minimum weekly teaching requirements for academic staff. Although the principle of combining teaching and research is fundamental in higher education, the imposition of standard minimum teaching loads restricts institutions in their ability to offer academic staff differentiated careers (e.g. with greater research or regional engagement or with greater teaching orientations). Ireland is currently seeking to reform the workload model for staff in its former Institute of Technology sector to allow greater flexibility as

staff contribute to new "universities of technology". Finland, as shown in Box 4.5, has already adopted a comparatively flexible sector-wide model for academic employment in universities (established in the national collective agreement for universities), which allows differentiated workload models for staff and differentiated criteria for performance evaluation.

Box 4.5. Job profiles and performance evaluation in Finnish universities

Salaries for academic staff in Finnish universities comprise a job-related element that reflects the level of the tasks and responsibilities involved and a personal salary element based on personal performance. The requirement level for each post is assessed by an internal assessment group composed of human resources staff and staff representatives, based on a taxonomy of job responsibilities and skills requirements for 11 levels that is established in the General Collective Agreement. Separate job requirement taxonomies exist for academic staff in artistic fields and for non-academic university staff (i.e. those in support and professional roles). Salary scales fixed in the General Collective Agreement for Universities specify (in 2021) a base salary for each of the 11 levels (currently from EUR 1 869.13 to EUR 7 108.72 a month).

The personal salary element is determined based on performance as a percentage of the basic salary (between 6% and 50%). The minimum and maximum percentages for each of four performance categories (where staff in category I require improvement and those in IV exceed expectations) are established in the General Collective Agreement. The personal salary on appointment to a given academic post is initially fixed by the employer (typically in the category corresponding to successful performance). Staff performance is assessed through a personal staff appraisal, which, since 2019, must occur at least every five years. Employees have the right to request an appraisal every two years or after six months in a new post. Academic staff are appraised in relation to their job requirements and specific objectives, under three main criteria specified in the General Collective Agreement: "pedagogical merit"; "research merit" and "university community and social merit". Teaching-only or research only staff are evaluated according to the relevant criteria.

If the appraisal identifies a decline in personal performance that would lead to a reduction in an academic's performance category and related personal salary element, measures for improvement in work performance must be mutually agreed and a new appraisal must be undertaken with 12 months. If the new appraisal indicates that the previous performance level has not been restored, then the personal salary element is revised to correspond to the new performance category.

Source: Sivista (2021[39]) *Yliopistojen yleinen työehtosopimus (General Collective Agreement for Universities)* https://www.sivista.fi/tyosuhdeasiat/tyoehtosopimukset-ja-palkkataulukot/yliopistot-ja-harjoittelukoulut/yliopistojen-yleinen-tyoehtosopimus/ (accessed on 21 July 2021); Tieteentekijät (2021[40]) *Salaries*, https://tieteentekijat.fi/en/support-of-working-life/salaries/ (accessed on 21 July 2021).

Policy issues and recommendations to Portugal

Taking into account the analysis above and the findings from the interviews conducted with representatives of higher education institutions and public authorities, this section identifies the main policy issues for reforming the way Portugal steers and funds the strategic development of its public higher education system. Drawing on the international experience discussed above, the analysis also proposes recommendations for the future configuration of strategic steering and funding policies.

Update the country's vision for the higher education system, recognising more explicitly the need for restructuring

With the *Contrato de Legislatura* for 2020-23, Portugal established a series of clear targets for the future development of the public higher education system. The strategy seeks to widen access to higher education, diversify and enhance the educational offering, including through provision of more flexible programmes for adults, and strengthen the country's research base through the creation of additional researcher posts. This strategy has been helpful in informing institutional strategies and in guiding the direction of the system and targeted funding that has been allocated to initiatives such as Impulso Adultos and Impulso Joven STEAM. However, the strategy embodied in the *Contrato de Legislatura* and the approach taken to accompanying policies, such as the regulation of study places, fail to address in an effective and sustainable manner the fundamental challenges brought by demographic change.

Attempts to "protect" public higher education institutions in interior and island regions by allocating them additional study places and not adjusting core funding to real student numbers are doomed to fail in the medium term. There is no reason to believe the demographic decline of interior regions can be fully stopped – let alone reversed – even with successful economic policies. The number of local students in traditional cohorts will inevitably decrease further. Students from other parts of Portugal or abroad can be attracted to institutions if these institutions are able to offer programmes and a learning experience that is sufficiently distinct and of sufficiently high quality. It is unlikely such student flows can fully compensate for a decline in local students in a country where such a large proportion of students go to nearby institutions to attend higher education.

Equally, new student populations, from vocational secondary tracks and the adult population, can be attracted to well-designed, high-quality programmes, such as TeSPs or other types of short course. But developing new offerings and building quality in specialised areas linked to strong institutional profiles requires significant changes to institutional structures and staffing profiles. In the area of innovation, the only chance HEIs have of supporting the development of their regional economies – and this potential must not be over-stated – is by ensuring high-quality staff and applied and practice-oriented research linked to regional needs. The need for adaptation and restructuring must be acknowledged explicitly in national higher education strategy and supported appropriately with targeted resources.

Not only are past and current policies to protect interior and island institutions likely to be ineffective, but, as noted earlier, they harm institutions and students elsewhere in Portugal, which receive fewer resources than they should. There is an urgent need to create additional, relevant capacity in higher education to cater to currently under-served populations in vocational-secondary tracks and the workforce in the metropolitan areas of Lisbon and Porto.

More generally, there is a need to build on existing efforts to encourage and support institutions to make clear strategic choices about the areas in which they wish to focus and those that are best left to other institutions. In a small country such as Portugal, it is particularly important for institutions to situate their own strategies in relation to those of other institutions, so that they contribute to building a coherent and efficient higher education system. This requires a guiding framework at national level, in the form of a national strategy, which identifies priorities and provides mechanisms for institutions to profile and co-ordinate themselves.

Recommendations

1. In preparation for the period after 2023, when the current *Contrato de Legislatura* ends, prepare and adopt a new national strategy for the sustainable development of the public higher education system, which identifies clear priorities for the future development of the system.
2. Alongside existing targets for widening access, diversifying provision and priority fields in education and research, include a greater focus on the need for individual HEIs to develop distinct profiles and centres of excellence. There might be scope for the higher education sector to map potential centres of excellence and specialist areas in different HEIs as a complement to the strategy itself and thus provide another reference point for the institutional profiling plans suggested below. The Dutch experience with sector plans (see Chapter 4) might be instructive in this regard.
3. Ensure that the strategy adopts an explicit and realistic approach to adapting the public higher education system to demographic change and acknowledges the need for consolidation in parts of the system and expansion in others, in the best interests of students. As part of this, ensure that the distinct and specific missions of universities and polytechnics are maintained and sharpened, as the binary structure will support institutional profiling.

Require HEIs to develop clear profiles and realistic development strategies in institutional agreements

The diversity of local and regional contexts in which public higher education institutions operate, as well as their specific subject mixes and strengths and weaknesses, are already reason enough to favour a differentiated, institution-by-institution approach to allocating strategic funding and assessing institutional performance. Increasing institutional specialisation and profiling will further strengthen the case for such an approach.

The experience of other OECD jurisdictions suggests that a system of institutional strategic development agreements would be an appropriate policy tool to adopt in Portugal, to support increased profiling, help target strategic investment and monitor institutional performance. Institutional agreements should link to the national strategy and policy framework described in the previous recommendation and include a self-assessment of the challenges and opportunities faced by the institution, definition of a profile based on strategic choices and priorities, definition of specific goals and specification of measures needed to reach these goals. To ensure institutional profiles and strategies contribute to a coherent system, careful co-ordination at sector level and between institutions will be required. As part of their profile development, institutions should identify their contribution to skills development and innovation at national and regional level and, as appropriate, their contribution to the economic development and attractiveness of their home regions or of Portugal as a player in European and global networks.

The principle of institutional agreements is that institutions commit to efforts to sharpen and develop their profiles, strategies and activities in pursuit of clear objectives and that, in return, public authorities – in this case the Government of Portugal – commit to providing strategic funding to support change, in addition to the core operating funding discussed in Chapter 3. The scale of this funding, discussed in the next recommendation, will naturally influence the ambition of institutional development plans, although it is likely to represent a relatively modest proportion of total public funding to each institution.

It is crucial that higher education institutions undertake a realistic assessment of future student demand. Assessments should identify existing programmes – or new programmes – that will be able to attract new student groups in currently under-served local populations and high-quality specialist programmes linked

to institutional profiles that will be capable of attracting students from elsewhere in Portugal and abroad. In light of Portugal's low numbers of graduates in ICT fields (see above), there is certainly scope for institutions to explore how the offer of ICT-related programmes can be increased. Equally, the assessments must identify programmes that will see student numbers decline and identify options for consolidating these within the institution, through co-operation with other institutions or simply through programme closure. As part of this, a clear staffing policy will be required, identifying where new staff posts are required and identifying options for staff displaced by programme restructuring. Although such restructuring is likely to be challenging, options might include transfer to other programmes, sharing of posts in co-operative programmes between institutions or, for suitably qualified staff, specialisation in research, innovation or service activities, rather than teaching.

For public authorities – in this case the Directorate-General for Higher Education (DGES) – institutional-agreement systems require sufficient internal capacity to prepare the process and organise the evaluation, approval and monitoring of the institutional agreements themselves. At least one additional full-time-equivalent post is likely to be required to form the core of a secretariat for the institutional agreements system in the DGES. The process for approval, monitoring and final evaluation of the institutional agreements will require careful specification. Experience from other OECD systems, notably Ireland, suggests the involvement of international experts as peers in the review and evaluation of institutional plans can be very productive and greatly increase the credibility of the process.

Recommendations

4. Introduce a system of institutional agreements for public higher education institutions, with an agreement concluded between government and each public HEI, indicatively for a four-year period. The agreements should contain: a) a self-assessment of challenges and opportunities for the institution, including a realistic assessment of future student demand; b) an institutional profile based on strategic choices; c) a set of clearly formulated development objectives, including the future programmatic offer; d) planned activities to achieve the objectives, using available strategic funds and own resources; and e) well-defined (quantitative or qualitative) indicators of success. Institutions will require an indication of the level of available additional funding to inform the formulation of planned activities.
5. Take necessary steps to strengthen human resources in the public administration to allow a small secretariat to be formed to organise the institutional-agreement system and monitor progress on an annual basis.
6. Involve international experts as peer reviewers in the initial assessment of institutional plans, prior to government approval, and in the final assessment of implementation after the four-year period. Ireland's experience in this regard may be particularly instructive for Portugal.
7. Conduct light-touch monitoring on an annual basis, using existing data collection processes, wherever possible – and recognising some goals can only be monitored through qualitative assessment and will not be assessed on an annual basis. The Directorate-General for Education and Science Statistics (DGEEC) has particularly strong expertise in the development, collection and processing of higher education indicators and will be a significant asset to Portugal in implementing an agreement system.
8. At the end of the (indicatively) four-year implementation period, conduct a thorough review of process, involving the same international peers, if possible. Consider asking institutions to provide case studies of particularly successful initiatives as the basis for awarding modest competitive bonus payments to institutions. In cases of significant under-performance by institutions, require institutions to prepare remediation plans, but avoid budget reductions, which risk being counterproductive.

Allocate strategic funding to all public HEIs and provide adjustment funds to institutions with the greatest need to adapt

The achievement of the objectives in institutional strategic development agreements will require investments, which, in turn, will require some additional public funding. Given that the reform of the system of core funding discussed above will also require some additional public funding throughout the transition phase, the level of funds available for the strategic development agreements is likely to be limited. Nevertheless, particularly in light of the role of skills in shaping Portugal's future development trajectory, investing in activities that improve the effectiveness and efficiency of the public higher education system represents a sound policy choice.

Experience from other OECD jurisdictions suggests that investments of 3% to 5% of core institutional funding can be effective in supporting change in higher education institutions. However, as investment needs for upgrading and restructuring higher education in Portugal are considerable, a budget envelope equivalent to at least 5% of total core funding would be appropriate. In addition, institutions in interior and island locations, which have greater adaptation needs and stand to lose out from a more rational core-funding allocation system will ultimately require a greater level of assistance, at least during the

restructuring phases. These institutions could be allocated additional "adjustment funding", potentially from European Union Structural and Investment Funds.

The scope to use EU funds for adjustment funding for HEIs in eligible regions will need to be explored further. Of the three regions in continental Portugal that are classified as less developed under EU cohesion policy, the North Region has the highest number of HEIs, meaning there is generally competition for Structural Funds, while Alentejo has only one university and two polytechnics, leading to reported difficulties in absorbing funds (Pinto, Nogueira and Edwards, 2021[11]). The Central Region, like the North Region, has large and attractive HEIs, but also a range of institutions in interior locations that face greater challenges. Even if EU funds can be mobilised to support adjustment funding, these disparities between the number of HEIs to support and regional funds available mean that additional national funding is likely to be required to ensure equitable treatment of institutions with greater adjustment needs.

Once funding allocations are calculated in a transparent way – indicatively a percentage of core funding for all institutions and with an additional percentage allocation for HEIs requiring adjustment – funds can be allocated to institutions as a lump sum payment, over which they have discretion for internal allocation. This would allow flexibility and avoid additional administrative burden. Accountability for the funds would be ensured by the strategic development agreements and accompanying monitoring processes. It may be appropriate to hold back a proportion of the budget envelope available for strategic development funds and allocate it to institutions on a competitive basis through targeted calls for proposals. Allocation of contributions for large infrastructure projects could be a candidate for such an approach. In all cases, the benefits, in terms of targeting, of a call for proposals should be weighed against the administrative burden for institutions and the central administration.

Recommendations

9. Provide multi-annual allocations of strategic development funding to all public higher education institutions to support achievement of the goals in their strategic development agreements. As funds permit, the level of funding could initially be around 5% of the total state-budget funding envelope for public higher education institutions.
10. Allocate the majority of strategic development funding to institutions as a lump sum payment on a pro-rata basis, as a proportion of their core funding allocation (in the first year of allocation, with subsequent years in the indicatively four-year period maintained at this level, even if core funding falls as a result of declining enrolment). Accountability can be ensured through the strategic development agreement. Where appropriate, a minority of the available budget envelope could be awarded through competitive calls for proposals.
11. In addition to the strategic development funds, provide adjustment funding to institutions with greatest restructuring needs. These are the institutions that face the greatest level of enrolment decline and which will lose out most from a formula-based core-funding allocation model. Explore the feasibility of using European Structural and Investment Funds for this purpose, but ensure additional national funding is available to permit equitable allocations to all institutions in similar circumstances, irrespective of their region.

Ensure other policy tools support institutional profiling and system coherence

Many institutions in interior and island regions already have difficulty filling their allocation of study places (*vagas*) through the National Access Competition (and certainly through the first phase of the competition, when students select their first choice of study location). This problem will only become worse, as the youth cohort declines further. Attempts to persuade students to relocate to interior regions through restricting

study places in Lisbon and Porto have failed because many students simply do not wish to move to these regions, including because of the additional costs they would incur. Limiting study-place in certain fields in the country's two largest cities also restricts access to higher education for the large populations of under-served young people in these metropolitan areas.

There is thus a clear rationale for revisiting current criteria used in the *numerus clausus* system to ensure they allow greater expansion of study places designed to serve currently under-served student populations in metropolitan areas, while encouraging reduction of study places in locations where student numbers are declining and there is little hope of attracting students from elsewhere in Portugal based on the uniqueness and quality of the educational offering. The *numerus clausus* system can also be used as a tool to incentivise expansion of the educational offering in ICT-related fields, where Portugal is likely to face growing skills shortages. Consideration should also be given to introducing caps on study places for programmes that have significant and persistently poor graduate employment outcomes.

In contrast, where institutions in interior and island regions do offer programmes with strong potential to become excellence programmes – those linked to strong research centres or local industries, for example – there is a case to support the development of these programmes by restricting expansion of study places (or even cutting existing study places) in other locations that offer the programmes in question at equivalent or lower quality. Ideally, such intervention should be avoided by encouraging HEIs to co-ordinate their profiles and avoid direct competition in strategic fields for institutions in interior and island regions.

Another complementary measure, already recommended in the 2019 OECD review of higher education, research and innovation in Portugal is to remove the minimum teaching-load requirements from the legislation governing academic careers, to allow staff and institutions greater flexibility to define variable workload models. Two further policy areas, not directly covered by this review, could support the profiling and strategic development of the public higher education network discussed above. First, institutional evaluations by the Agency for Assessment and Accreditation of Higher Education (A3ES) could explicitly consider the institutional profile as part of their quality assessment. Second, FCT funding should clearly support the profiling process in a complementary manner. An evaluation of the FCT and its funding instruments would be welcome.

Recommendations

12. Revisit the criteria used to allocate study places through the *numerus clausus* system, removing the wide-ranging presumption against increasing study places in Lisbon and Porto and introducing restrictions on study places for programmes that stand little chance of attracting additional students or which have persistently poor graduate employment outcomes. In parallel, use the *numerus clausus* system strategically to restrict study places in programmes of equivalent or lower quality to excellent programmes located in interior and island regions.
13. Amend the decree-laws governing employment of academic staff to remove restrictive requirements regarding teaching load and facilitate more flexible workload models.
14. Ensure complementarity with institutional profiles and strategic development agreements is part of the evaluation criteria used by A3ES for institutional evaluations.
15. Ensure FCT research funding allocation criteria are supportive of the broader profiling and restructuring agenda, while analysing the need for a stronger focus on applied and practice-oriented research in polytechnics. Commission an external evaluation of FCT funding to ensure a critical reflection is held on the orientation of the investments made by this strategic agency and its complementarity with overall system goals.

References

Augar, P. (2019), *Independent panel report to the review of post-18 education and funding (“Augar review”)*, https://www.gov.uk/government/publications/post-18-review-of-education-and-funding-independent-panel-report (accessed on 14 July 2022). [8]

AWTI (2019), *Het stelsel op scherp gezet - Naar toekomstbestendig hoger onderwijs en onderzoeek (A sharpened system - towards futureproof higher education and research)*, Adviesraad voor wetenschap, technologie en innovatie, https://www.awti.nl/documenten/adviezen/2019/06/12/advies-het-stelsel-op-scherp-gezet (accessed on 9 July 2022). [34]

Biscaia, R., C. Sá and P. Teixeira (2021), “The (In)effectiveness of regulatory policies in higher education—The case of access policy in Portugal”, *Economic Analysis and Policy*, Vol. 72, pp. 176-185, https://doi.org/10.1016/j.eap.2021.08.006. [15]

Broucker, B., K. De Wit and J. Verhoeven (2017), “Higher education for public value: taking the debate beyond New Public Management”, *Higher Education Research & Development*, Vol. 37/2, pp. 227-240, https://doi.org/10.1080/07294360.2017.1370441. [1]

Carpentier, V. (2021), “Three stories of institutional differentiation: resource, mission and social inequalities in higher education”, *Policy Reviews in Higher Education*, Vol. 5/2, pp. 197-241, https://doi.org/10.1080/23322969.2021.1896376. [7]

Commission for Science and Technology Sector Plan (2022), *Tussenevaluatie Sectorplancommissie Bèta en Techniek inzake Implementatie sectorplan Bèta en Techniek (Interim evaluation by the sector plan commission of the sector plan for science and technology)*, Sectorplancommissie Bèta en Techniek, https://www.sectorplan-betatechniek.nl/ (accessed on 9 July 2022). [36]

de Boer, H. et al. (2015), *Performance-based Funding and Performance Agreements in Fourteen Higher Education Systems: Report for the Ministry of Education, Culture and Science*, Center for Higher Education Policy Studies (CHEPS), Enschede, https://research.utwente.nl/en/publications/performance-based-funding-and-performance-agreements-in-fourteen- (accessed on 4 January 2021). [33]

DGEEC (2022), *Estatísticas - Ensino Superior (Statistics - Higher Education)*, Direção-Geral de Estatísticas da Educação e Ciência, https://www.dgeec.mec.pt/np4/18/ (accessed on 8 July 2022). [12]

DGEEC (2019), *Docentes do ensino superior integrados em unidades de I&D financiadas pela FCT (Academic staff integrated in research units funded by the FCT)*, Direção-Geral de Estatísticas da Educação e Ciência, https://www.dgeec.mec.pt/np4/381/ (accessed on 12 July 2022). [19]

DGES (2021), *Programas “Impulso Jovens STEAM” e “Impulso Adultos” (Impetus programme for young people in STEAM and Impetus programme for adults)*, Direção-Geral do Ensino Superior (DGES), https://www.dges.gov.pt/pt/pagina/candidatura_IMPULSO (accessed on 18 July 2022). [25]

Dohmen, D. (2016), "Performance-based funding of universities in Germany: An empirical analysis", *Investigaciones de Economía de la Educación*, Vol. 11, pp. 111-132, https://econpapers.repec.org/bookchap/aecieed11/11-05.htm (accessed on 4 February 2021). [30]

Edulog (2019), *O impacto da redução de vagas em instituições de ensino superior na mobilidade dos alunos (The impact of the reduction in study places in HEIs on student mobility)*, EDULOG - Fundação Belmiro de Azevedo, https://www.edulog.pt/estudos?categoriaChoosed=todos (accessed on 19 July 2022). [14]

FCT (2021), *Financiamento Plurianual de Unidades de I&D para o periodo 2020-2023 (Multi-annual funding for R&D units for the period 2020-2023)*, Foundation for Science and Technology, https://www.fct.pt/apoios/unidades/unidadesid.phtml.pt (accessed on 12 July 2022). [18]

FCT (2017), *Regulamento de avaliação e financiamento plurianual de unidades de I&D (Regulation on evaluation and multi-annual funding of R&D units)*, FCT - Fundação para a Ciência e a Tecnologia, Lisbon, https://www.fct.pt/apoios/unidades/avaliacoes/2017/docs/RegulamentoAvaliacaoUID20172018.pdf (accessed on 8 June 2022). [16]

Government of Portugal (2022), *Despacho n.º 8022-A/2022 (Circular n.º 8022-A/2022)*, Ministry of Science, Technology and Higher Education (MCTES), https://dre.pt/dre/detalhe/doc/8022-a-2022-185452440 (accessed on 21 July 2022). [37]

Government of Portugal (2022), *Plano de Recuperação e Resiliência (Recovery and Resilience Plan)*, Recuperar Portugal, https://recuperarportugal.gov.pt/ (accessed on 24 July 2022). [24]

Government of Portugal (2021), *OE2022 Orçamento do Estado - Nota Explicativa Ciência, Tecnologia e Ensino Superior - PO13 (State Budget 2022 - Explanatory Note Science, Technology and Higher Education - PO13)*, Ministry of Science, Technology and Higher Education, https://www.igefe.mec.pt/Files/DownloadDocument/91?csrt=16066835027607696980 (accessed on 8 June 2022). [23]

Government of Portugal (2019), *Contrato de Legislatura entre o Governo e as Instituições de Ensino Superior Públicas 2020-2023 (Contract for the Legislative Term between the Government and Public Higher Education Institutions 2020-2023)*, https://www.igefe.mec.pt/Files/DownloadDocument/72?csrt=6785169830679341608 (accessed on 28 May 2020). [21]

Government of the Netherlands (2022), *Beleidsbrief Hoger Onderwijs en Wetenschap – Tweede Kamer (Policy letter on higher education and science to the House of Representatives)*, https://www.rijksoverheid.nl/documenten/kamerstukken/2022/06/17/aan-de-tweede-kamer-beleidsbrief-hoger-onderwijs-en-wetenschap (accessed on 9 July 2022). [3]

Government of the United Kingdom (2022), *Higher education policy statement and reform consultation*, Department for Education, London, https://www.gov.uk/government/consultations/higher-education-policy-statement-and-reform (accessed on 14 July 2022). [9]

Hammond, L., S. Baser and A. Cassell (2020), "The Relationships Between State Community College Governance Centralization and Local Appropriations", *Higher Education Politics and Economics*, Vol. 6/1, pp. 20-38, https://doi.org/10.32674/HEPE.V6I1.1734. [5]

HEA (2019), *Performance Funding Allocations 2019*, Higher Education Authority, https://hea.ie/assets/uploads/2017/04/Performance-Funding-Allocations-2019.pdf (accessed on 9 August 2021). [29]

MCTES Working Group (2019), *Relatório sobre o acesso ao ensino superior (Report on access to higher education)*, Ministro da Ciência, Tecnologia e Ensino Superior (MCTES), https://www.dges.gov.pt/pt/noticia/relatorio-sobre-o-acesso-ao-ensino-superior (accessed on 12 June 2022). [13]

Nazaré, M. et al. (2020), *Relatório de avaliação da implementação do Programa de Estímulo ao Emprego Científico (Report on the evaluation of the Stimulus Programme for Scientific Employment)*, Comissão de avaliação constituída pelo Despacho n.º 349/2020, publicado em Diário da República, 2.ª série, de 10 de janeiro de 2020, https://www.fct.pt/apoios/contratacaodoutorados/empregocientifico/docs/RelatorioProgramaEstimuloEmpregoCientifico.pdf (accessed on 7 July 2022). [20]

Norwegian Ministry of Education and Research (2022), *Finansiering av universiteter og høyskoler (Funding of universities and university colleges)*, Ministry of Education and Research, Oslo, https://www.regjeringen.no/contentassets/6c4c7be66d5c4a028d86686d701a3a96/f-4475-finansiering-av-universiteter-og-hoyskoler.pdf (accessed on 13 May 2022). [28]

O Shea, S. and J. O Hara (2020), "The impact of Ireland's new higher education system performance framework on institutional planning towards the related policy objectives", *Higher Education*, Vol. 80/2, pp. 335-351, https://doi.org/10.1007/s10734-019-00482-5. [31]

OECD (2021), "Resourcing higher education in Denmark: Thematic policy brief", *OECD Education Policy Perspectives*, No. 49, OECD Publishing, Paris, https://doi.org/10.1787/5cc2d673-en. [6]

OECD (2021), *Resourcing Higher Education in the Flemish Community of Belgium*, Higher Education, OECD Publishing, Paris, https://doi.org/10.1787/3f0248ad-en. [27]

OECD (2020), *Labour Market Relevance and Outcomes of Higher Education in Four US States: Ohio, Texas, Virginia and Washington*, Higher Education, OECD Publishing, Paris, https://doi.org/10.1787/38361454-en. [4]

OECD (2019), *OECD Review of Higher Education, Research and Innovation: Portugal*, OECD Publishing, Paris, https://doi.org/10.1787/9789264308138-en. [10]

Office for Students (2020), *About the TEF*, Office for Students (OfS), https://www.officeforstudents.org.uk/advice-and-guidance/teaching/about-the-tef/ (accessed on 7 June 2021). [2]

Pinto, H., C. Nogueira and J. Edwards (2021), *Higher Education and Smart Specialisation in Portugal*, Publications Office of the European Union, Luexmbourg, https://doi.org/10.2760/21040. [11]

Politécnico de Leiria (2020), *Primeiro Doutoramento do Politécnico de Leiria arranca em 2020/2021 (First PhD at the Polytechnic of Leiria starts in 2020/2021)*, https://www.ipleiria.pt/arquivo/primeiro-doutoramento-do-politecnico-de-leiria-arranca-em-2020-2021/ (accessed on 14 February 2022). [17]

PwC Strategy& (2021), *Toereikendheid, doelmatigheid en kostentoerekening in het mbo, hbo en wo&o (Accessibility, efficiency and cost allocation in higher vocational education and higher education)*, https://www.rijksoverheid.nl/documenten/rapporten/2021/02/15/bijlage-3-rapport-toereikendheid-doelmatigheid-en-kostentoerekening-in-het-mbo-hbo-en-wo-o (accessed on 6 July 2022). [26]

Reviewcommissie Hoger Onderwijs en Onderzoek (2017), *Prestatieafspraken: het vervolgproces na 2016 - Advies en zelfevaluatie (Performance Agreements: follow up after 2016 - Recommendations and self-evaluation)*, Reviewcommissie Hoger Onderwijs en Onderzoek, Den Haag, https://www.eerstekamer.nl/overig/20170321/rapport_review_commissie_met_het/document (accessed on 1 February 2021). [32]

Sivista - Finnish Education Employers (FEE) (2021), *Yliopistojen yleinen työehtosopimus (General Collective Agreement for Universities)*, Sivista - Finnish Education Employers (FEE), https://www.sivista.fi/tyosuhdeasiat/tyoehtosopimukset-ja-palkkataulukot/yliopistot-ja-harjoittelukoulut/yliopistojen-yleinen-tyoehtosopimus/ (accessed on 21 July 2021). [39]

Tieteentekijät (2021), *Salaries*, Tieteentekijät (Finnish Union of University Researchers and Teachers - FUURT), https://tieteentekijat.fi/en/support-of-working-life/salaries/ (accessed on 21 July 2021). [40]

Tribunal de Contas (2020), *Auditoria ao Modelo de Financiamento do Ensino Superior: Contratos de Legislatura 2016-2019 (Audit of the funding models for higher education: Contracts for the legislative period 2016-2019)*, Tribunal de Contas, Lisbon, https://www.tcontas.pt/pt-pt/ProdutosTC/Relatorios/RelatoriosAuditoria/Documents/2020/rel06-2020-2s.pdf (accessed on 6 June 2022). [22]

UFM (2022), *Dimensionering af de videregående uddannelser (Sizing of higher education)*, Ministry of Higher Education and Research, https://ufm.dk/uddannelse/videregaende-uddannelse/dimensionering (accessed on 21 July 2022). [38]

UNL (2018), *Sectorplannen (Sector Plans)*, Universiteiten van Nederland (UNL), https://www.universiteitenvannederland.nl/sectorplannen.html (accessed on 21 July 2022). [35]

5 Resourcing accessible higher education

This chapter examines the policies that Portugal has implemented to widen access to higher education. As discussed in Chapter 2, Portugal has succeeded in raising higher education attainment rates among young adults to a level that now exceeds the average of European Union countries. The government has committed to increasing participation in post-secondary education among young people following vocational pathways and adults in search of upskilling and reskilling opportunities. This chapter analyses the effectiveness of efforts to create an accessible network of higher education campuses across the Portuguese territory, the national financial support system for students and policies on student services and housing.

Policies to promote access to higher education

In the last decade, Portugal has succeeded in greatly increasing the proportion of the population acquiring higher education qualifications. In 2021, 44% of people in Portugal aged 30-34 – the age range used for European Union benchmarks – held a tertiary-education qualification, compared to only 28% a decade earlier and an average of 42% in the European Union as a whole (Eurostat, 2022[1]). Historically, Portugal's efforts to widen access involved expanding the network of higher education institutions across the country, with the creation of new public universities and a new network of polytechnics, greatly increasing capacity in the system. More recently, efforts have focused on diversifying the educational offering delivered in this network of institutions and creating access routes for less-traditional student populations, including graduates from secondary-vocational tracks and adult learners, with a view to further widening access to higher education and increasing attainment.

The "Contract for the Legislative Term" (*Contrato de Legislatura*) for the period 2020-23 establishes ambitious goals to expand participation in higher education further, notably setting a target that 60% of 20-year-olds should be enrolled in higher education and 50% of 30-34 year-olds hold a tertiary qualification in 2030 (Government of Portugal, 2019[2]). The *Contrato de Legislatura* also establishes targets are also established for the proportion of adults in the student population, for increasing participation in distance education provided by the Universidade Aberta and for increasing the supply of post-graduate programmes oriented towards adult learners. To achieve these overall goals, the *Contrato de Legislatura* identifies specific goals and targets, as summarised in Table 5.1. Alongside the diversification of educational supply and access routes, these goals also seek to improve the broader support framework for students, namely direct financial aid and student housing.

Table 5.1. Targets for widening access in the *Contrato de Legislatura* 2020-23

	Goal	Indicator	Situation in 2021	Target for 2023	Target for 2030
1.1	Increasing direct financial support for students (*ação social direta*)	Number of student grants per year	85 385	90 000	100 000
1.2	Increasing mobility of students (+Superior programme)	Number of new +Superior grants per year	2 230	2 000	5 000
1.3	Increasing supply of student accommodation at regulated prices	Number of beds	17 734	26 900	30 000
1.4	Increasing provision of short-cycle TeSP programmes in polytechnics	Number of new students	9 685	12 000	15 000
1.5	Stimulating knowledge exchange with society	Ciência Viva "Farms" (*Quintas*) (community engagement centres)	6	7	10
1.6	Guarantee access to higher education for secondary-vocational students	Number of enrolled students	6 938	10 000	15 000

Source: MCTES (2021[3]) *Acompanhamento do "Contrato de Legislatura" assinado entre o Governo e as Instituições de Ensino Públicas para 2020-2023 (Monitoring of the Contract for the Legislative Term concluded between the government and public HEIS for 2020-2023)*, https://www.igefe.mec.pt/Page/Index/51 (accessed on 20 July 2022).

This chapter examines Portugal's policies to widen access in three areas. First, it considers the legacy of the historical expansion of the public higher education network in Portugal, the effects this has had on participation in higher education across the national territory and the implications for future policy. Second, the chapter examines the system for financial support for students and the inter-relation of this system with regulated tuition fees in public HEIs. Finally, the chapter considers public support for investments in student services in HEIs, including student housing.

Creating an accessible higher education network

Proximity – or physical accessibility – affects participation in higher education, although it is less relevant than for other public services

In analysis of public-service provision, the proximity of services to the population served – or physical accessibility – is a particularly important factor in areas such as primary healthcare and basic education. In the case of higher education, the concept of physical accessibility is often considered to be less relevant. In contrast to primary healthcare, where citizens need to be able to call on the service throughout their lives or basic education, where "users" are children, the main "users" of higher education (students) access the service (higher education institutions) for a limited number of years as adults. Students often relocate from their place of residency, as provision is often concentrated in a small number of municipalities within countries. Moreover, the variety of programmes on offer, different admission requirements and variation in quality between HEIs mean that students may not always be able or willing to attend the higher education provider that is closest to their home.

Nevertheless, proximity is not an entirely irrelevant consideration in higher education. International evidence shows that, controlling for other factors, proximity to a higher education institution is related to a higher likelihood of entering and completing post-secondary education, (Sá, Florax and Rietveld, 2006[4]; Spiess and Wrohlich, 2010[5]), as well as the type of education chosen (Walsh, Flannery and Cullinan, 2015[6]). Moving location to attend higher education has significant financial and transaction costs and requires motivation and confidence. Studies in the United States have found that students living "out of commuting distance" are far less likely to attend university than students living "within commuting distance", with students from lower-income families are particularly disadvantaged by distance (Frenette, 2006[7]). The presence of an HEI in a locality may also generate peer effects and information exchange between students, academic staff and the local community, positively influencing decisions to attend higher education (Do, 2004[8]). It is thus likely that, on average, significant distance from a higher education provider – physical inaccessibility – compounds the negative effects of low socio-economic background on higher education attendance.

The proximity of higher education institutions to localities and regions also brings advantages that are not directly related to participation rates. HEIs are major employers and thus bring skilled populations of academic staff and students to the places where they are located – or retain the skilled populations if they are local. As discussed in Chapter 4, the extent to which institutions can attract students and staff – or indeed retain students and staff from their locality – depends significantly on the profile and quality of the institution. Equally, staff from HEIs can become important players in regional innovation ecosystems, contributing through their presence to the economic development of the localities and regions where the HEIs are located (Arbo and Benneworth, 2007[9]).

Measures of the concentration and accessibility of higher education institutions can give an indication of the capacity of higher education systems to serve the populations and regions of their country effectively. A high spatial concentration of HEIs may accentuate problems such as brain drain from provincial regions and population and price pressures in core urban areas and, ultimately lead to lower rates of participation in higher education owing to the cost and societal barriers highlighted above.

The population within a 30-minute travel time to a campus is one indicator of the physical accessibility of the higher education network

Portugal's network of higher education institutions is the result of waves of expansion in previous decades resulting from the need to satisfy growing demand for higher education and diversify and modernise the range of study options on offer (Arbo and Benneworth, 2007[9]). As in other European countries, a substantial part of the territorial expansion of higher education in Portugal happened in the last 40 years,

in Portugal's case with the creation of new universities and the polytechnic sector (Bonaccorsi and Lepori, 2019[10]). The objective of bringing higher education to interior regions and the islands – away from the historical universities in the large cities and littoral regions – has been a constant feature of higher education policy in Portugal in recent decades.

Given this focus, it is legitimate to ask how the territorial coverage and physical accessibility of higher education in Portugal compares with that in other OECD countries. Measuring coverage and physical accessibility requires careful consideration of the geographic scales and territories taken into account. For example, a rough measure of physical accessibility is the number of higher education institutions in a given (administrative) region (Bonaccorsi and Lepori, 2019[10]). However, as students routinely access higher education institutions outside the administrative region where they live, measures of accessibility should not be limited by administrative boundaries, but rather reflect the real-world accessibility of higher education campuses taking into account the transport networks in place. To do this, it is possible to use two main measures of accessibility: 1) the population within a certain travel time of a higher education campus; and 2) the number of cumulative study opportunities (study places) available to the population in a given territorial area.

Accessibility measures that use facilities, such as higher education campuses, as the point of reference indicate the share of a given population that has access to a facility within a certain driving time (see Box 5.1). An example of such a measure would be the share of the national population residing within 30 minutes' travel time of a higher education campus. If such measures are compared across regions or countries, observed differences in accessibility are likely due to factors such as the number and distribution of facilities in each area of study, the level of user (population) concentration in each territory or the state of the transport network.

Higher education campuses in Portugal are more evenly distributed across the country's territory than is the case in most OECD countries

Data on the geographical location of higher education campuses from the OECD's Analytical Database of Higher Education Providers (ADHEP) can be used to calculate share of national populations within 30 minutes and 45 minutes driving time of a campus. Driving time is used as relevant data are available for all countries and locations. However, many – in reality, most – students do not drive to campus, but rely on public transport or other means and, in rural areas, a 30-minute drive on clear roads may equate to a one to two-hour trip on public transport. As such driving-time indicators provide only a rough proxy for the real accessibility of campuses for students on the ground. On the other hand, data for some countries are only available for main locations, rather than all campuses, potentially leading to an over-estimation of driving time (and under-estimation of accessibility) in these cases.

As illustrated in Figure 5.2, the results of this international comparative analysis show that about 80% of the population of Portugal has access to a higher education campus within a 30-minute drive of their place of residency. This proportion is above the average of 73% across 31 OECD countries with available data. Predictability, the proportions of national populations within a 45-minute driving time of a campus are higher. However, the 30-minute threshold is probably a more valuable indicator for policy, given the probably longer travel times associated with other modes of transport.

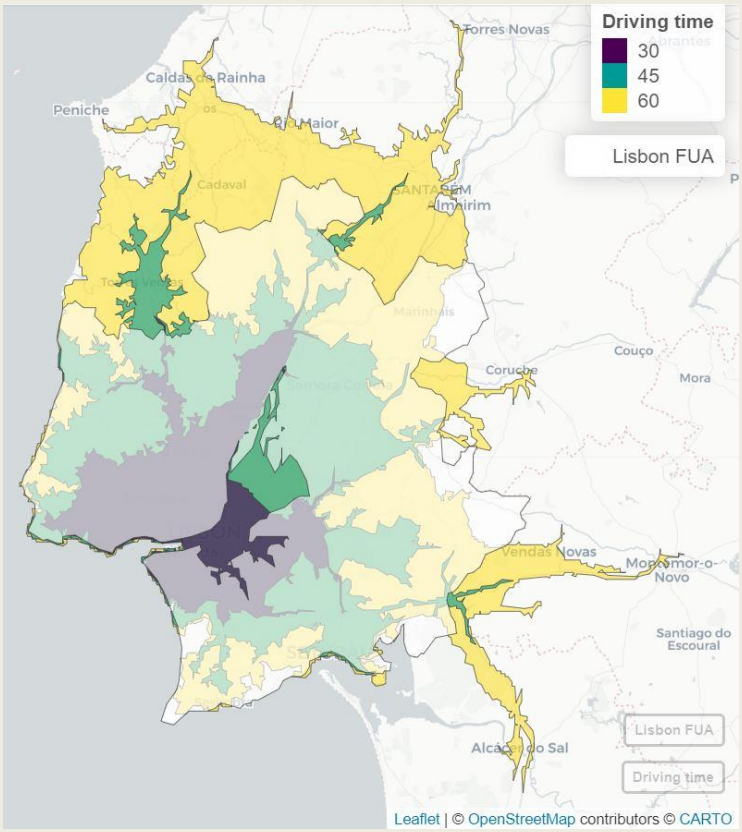
Box 5.1. Measuring accessibility using facilities as the point of reference

Accessibility measures that take facilities as the point of reference calculate points representing the maximum distance that can be travelled in every direction from each facility within a certain travel time, usually using a pre-defined mode of travel[1]. The lines connecting these points are referred to as "isochrones" (from the Greek *ʌɪsə*/iso – same, *krɒn*/chronos: times). To obtain an accessibility measure, the next step is to identify the number of potential users located within isochrones – for instance the population or population within a certain age range – and then to express this number as a proportion of total potential users (for example, the share of the total population of a country or region within 30 minutes travel time of the facility).

Figure 5.1 shows an example of isochrones around the main campus of the Universidade de Lisboa for 30, 45 and 60 minutes driving time, together with the boundaries of the Lisbon functional urban area for reference. Travel times obtained through routing algorithms that rely on public road network data usually under-estimate user-experienced travel times because they do not take into account congestion (i.e. they assume travel happens at the maximum speed allowed by type of road). In most cases, travel times by car also under-estimate travel times by other modes, including public transport.

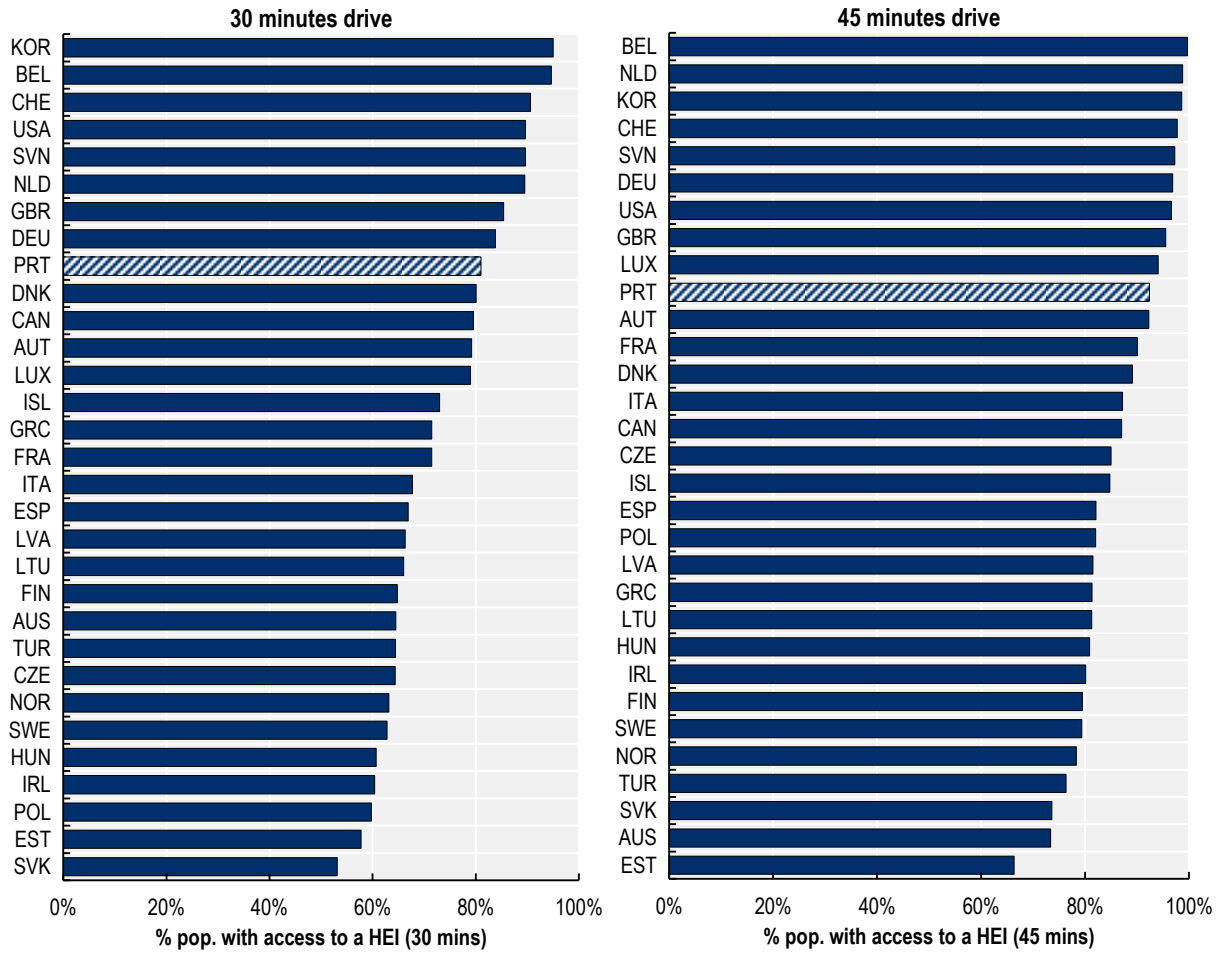
Figure 5.1. Isochrones for different driving times compared to FUA borders

Example isochrones using the Universidade de Lisboa main campus as the point of reference



Note: Map uses Mapbox for the isochrones, (accessed using the Mapbox Application Programming Interface) and OECD functional urban areas (FUAs) for the Lisbon FUA borders.

Figure 5.2. Share of population with access to a higher education campus



Note: Data for main campuses only for Canada, Denmark, Korea and Turkey. Population from Florczyk and al. (2019[11]) GHSL Data Package 2019, https://doi.org/10.2760/290498.
Source: OECD (2022[12]) ADHEP database (unpublished) and Mapbox (2022[13]) Navigation (accessed using the Mapbox API), https://docs.mapbox.com/api/navigation/ (accessed 26 July 2022).

StatL https://stat.link/7r5kny

The results shown in Figure 5.2 support previous evidence that has shown that higher education campuses a comparatively well dispersed across the national territory in Portugal. A study using ETER 2016 data for European countries showed that the share of population in regions with no HEI in Portugal was below 10%.[2] The study also showed that the regions of Porto and the Lisbon Metropolitan Area concentrate a lower proportion of national higher education providers than cities such as London, Paris or Riga (Bonaccorsi and Lepori, 2019[10]).

The spatial concentration of higher education can be the result of urbanisation rates, as old higher education institutions expand and new ones are created to satisfy the needs of an increasing urban population. In countries with high rates of urbanisation, a higher proportion of the population tends to live within easy reach of a higher education institution. As illustrated in Figure 5.3, data show that Portugal achieves comparatively high levels of physical accessibility to higher education, despite having a comparatively low rate of urbanisation. About 80% of the population has access to a higher education

campus within a 30-minute drive, but only 56% live in functional urban areas (FUAs). This pattern is similar to the situation in Denmark, but contrasts with the situation in Spain, which has higher rates of urbanisation (70% of the population lives in FUAs), but lower levels of physical accessibility to higher education campuses (only 67% of the population has access to a campus within a 30 minute-drive).

Figure 5.3. Accessibility of higher education and degree of urbanisation

Share of population with access within a 30-minute drive of a higher education campus and share of population living in functional urban areas (FUAs)

Note: Data for main campuses only for Canada, Denmark, Korea and Turkey. Population from Florczyk and al. (2019[11]) GHSL Data Package 2019, https://doi.org/10.2760/290498.
Source: OECD (2022[12]) ADHEP database (unpublished) and Mapbox (2022[13]) Navigation (accessed using the Mapbox API), https://docs.mapbox.com/api/navigation/ (accessed 26 July 2022).

StatLink https://stat.link/cd13at

Measures of accessibility to higher education should also take into account competition for study places

Accessibility measures that take areas as the unit of reference – such as the cumulative number of study opportunities (study places) available to the population in a given territorial area – can be used to measure the access to educational opportunities within countries in a way that accounts for both the number of opportunities in facilities and the level of competition in access. A commonly used measure of accessibility using areas as the unit of reference is the "cumulative opportunities index". This counts the number of opportunities (e.g. available higher education study places) that are reachable to users living in a given area. The "competitive accessibility index" extends this measure to account for the level of competition for access to the same facility by "discounting" the number of opportunities accessible from each area by the number of potential users with access to the same opportunities (see Box 5.2).

The analysis conducted for this review uses data on the number of study places made available through the National Access Competition (*vagas*) in each municipality in Portugal. The "cumulative opportunities index" value for each municipality indicates the number of study places a potential higher education student can access within a 30 or 45 minute drive from that municipality. The "competitive accessibility index" uses the number of secondary-school students graduating from the scientific-humanistic track in each municipality as measure for the potential demand for study places, taking into account that students graduating from the professional track are currently far less likely to enter higher education (see Chapter 4).

Box 5.2. Opportunity and accessibility index definitions

Cumulative opportunities index

The cumulative opportunity index can be defined as:

$$CO_i = \sum_{j=1}^{n} O_j f(C_{ij}),\ f(C_{ij}) = \begin{cases} 1\ if\ C_{ij} \leq t \\ 0\ if\ C_{ij} > t \end{cases}$$

Where O_i is the number of "opportunities" (e.g. higher education study places) available for users travelling from area *i* within a certain travel time threshold *t* by a pre-defined mode of transport. C_{ij} is the travel time between area *i* and area *j*, and $f(C_{ij})$ is a weight function that takes the value of one if the travel time is equal or less than a pre-defined threshold *t*, and zero in other cases. The indicator can have values from 0 (no opportunities) to M (the maximum total number of opportunities in the study area).

Competitive accessibility index

The competitive accessibility index can be defined as:

$$CA_i = \sum_{j=1}^{n} \frac{O_j f(C_{ij})}{\sum_{j=1}^{n} T_j f(C_{ij})}$$

With $f(C_{ij})$ defined as above. In this measure, the numerator counts how many opportunities can be reached from a given area i, and the denominator counts how many potential users can reach the same area. A value between 0 and 1 indicates that there is more potential demand than supply of opportunities (under-provision), and a value larger than 1 indicates that there is more supply than demand (over-provision).

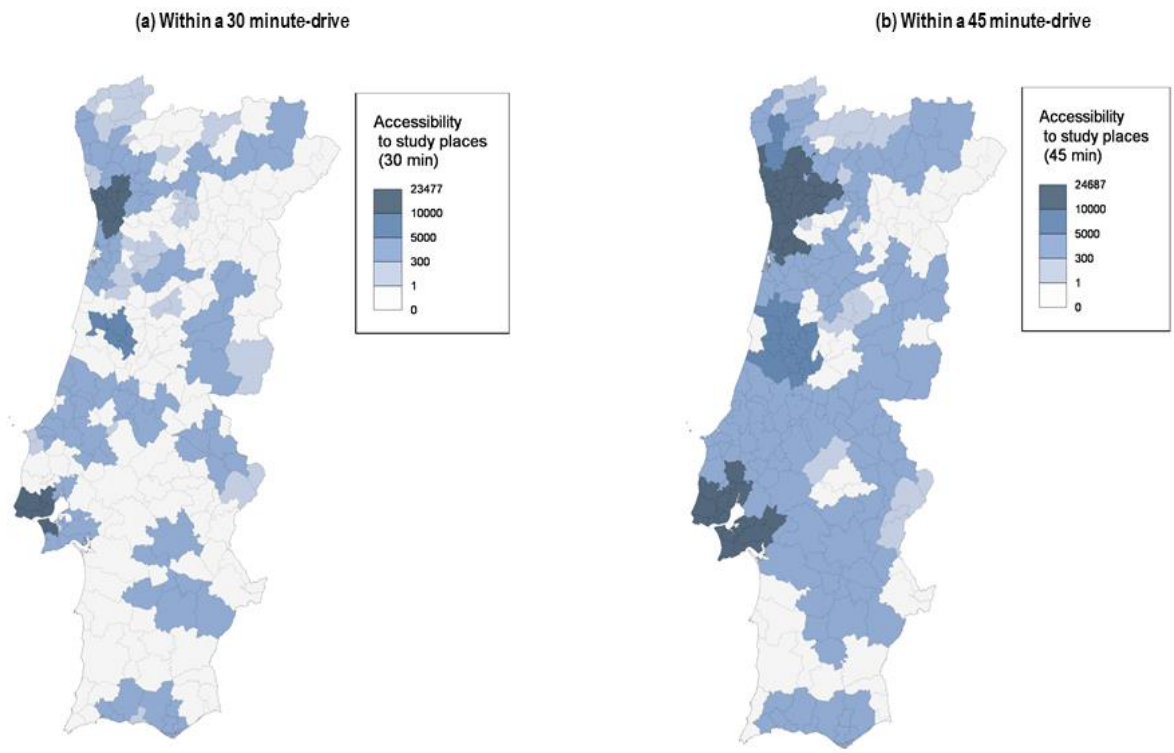
Choice of area of reference

A methodological challenge of using area-based accessibility indicators is defining a reference point, that is, a single set of co-ordinates from which travel times can be calculated. The bias introduced by choosing a single point within an area will be larger for bigger and less evenly distributed regions.[3] On the other hand, picking a very small area (e.g. a 1km^2 grid cell) implies an exponential increase in the number of pairs of distances that need to be calculated across the whole area of study. This review uses nationally available data at the campus level in mainland Portugal. The analysis is undertaken at the municipality level, an intermediate spatial unit with 308 areas between the parish and the TL3 divisions. The 1km^2 cell with highest (2015) population within the municipality was selected as the reference point for the measurement of accessibility per municipality. In practice, this means that the accessibility measure does not take into account the time it takes a person to travel from anywhere in the municipality to the main population centre within that municipality.

In the academic year 2019/20, accessibility study places (*vagas*) within a 30-minute or 45-minute drive ranges from zero to over 20 000 in the areas with largest access around Lisbon and Porto. Out of a total

of 308 municipalities in the analysis, 150 municipalities, home to 17% of the total population in 2021, do not have access to any study places at bachelor's level in public HEIs within a 30-minute drive. Expanding this range to a 45-minute drive lowers these figures to 70 municipalities and 5% of the total population of Portugal. As shown in Figure 5.4, the municipalities without access to higher education campuses within the 45-minute time threshold include clusters of low-density municipalities in lower and central Alentejo, interior areas in Centro, coastal and border areas in Algarve and interior regions close to the North-East border with Spain.

Figure 5.4. Cumulative access to study places in mainland Portugal



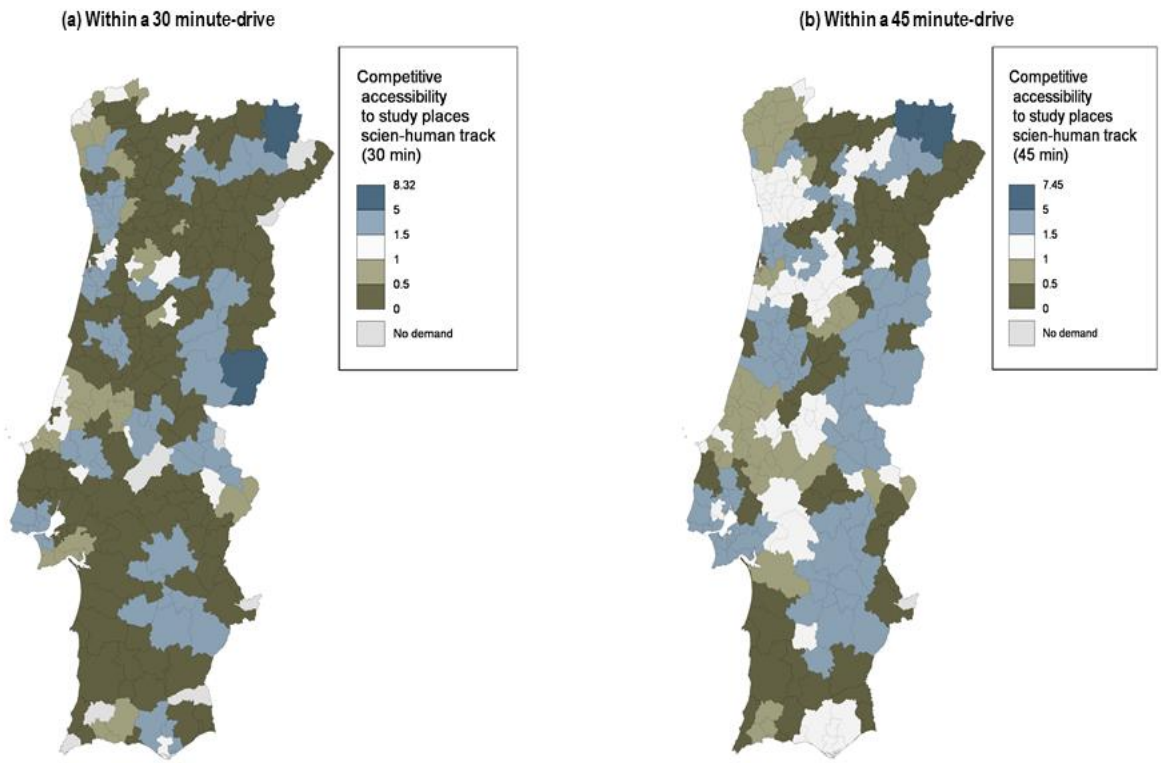
Note: 2019/20 study places data. Study places offered in the National Access Competition.
Source: DGEEC (2022[14]) *Vagas e Inscritos (inclui inscritos em mobilidade internacional) (Study places and enrolments (including enrolments involving international mobility)* https://www.dgeec.mec.pt/np4/EstatVagasInsc/ and Mapbox (2022[13]) *Navigation* (accessed using the Mapbox API), https://docs.mapbox.com/api/navigation/ (both accessed on 12 January 2022).

The "competitive accessibility index", which takes into account competition for places from surrounding areas (see Box 5.2), reveals a different picture. As illustrated in Figure 5.5, in 2019/20, 23% of Portugal's population lived in the 60 municipalities where the number of upper secondary graduates from the scientific-humanistic track was greater than the number of study places available within a 30 minute drive (i.e. they have competitive index values larger than zero and lower than 1) and 57% lived in municipalities where the offer of study places was larger than the local demand (i.e. they have competitive index values larger than 1). 64 municipalities, representing 4% of the total population, did not have any secondary students graduating from the scientific-humanistic track in 2019/20.

The competitive accessibility analysis reveals that the relatively high supply of higher education study places in and around Porto noted in Figure 5.4 aligns closely with the local demand within a 45-minute drive of local campuses. This contrasts with municipalities such as Bragança, where the offer of study

places within a 45-minute drive is six times larger than the local demand within the same time range. IP Bragança must (and does) therefore attract students from elsewhere in Portugal and internationally to fill the study places available.

Figure 5.5. Competitive accessibility to study places in mainland Portugal

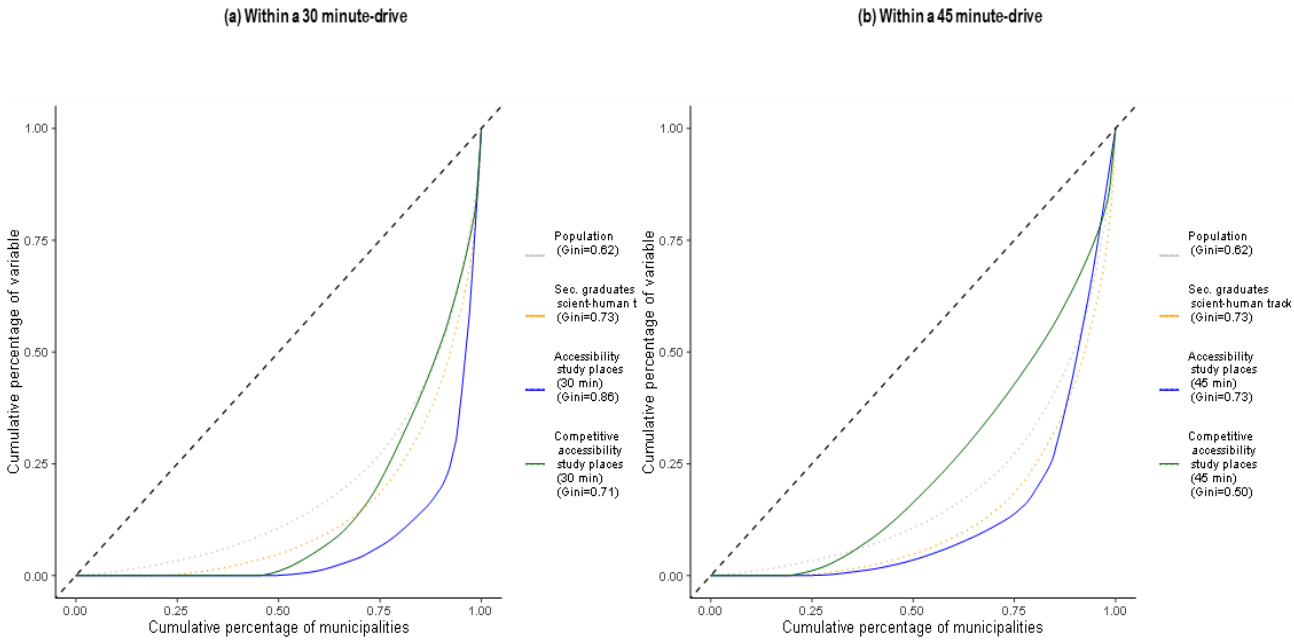


Note: 2019/20 data for study places and secondary student graduates (scientific-humanistic track only). Study places offered in the National Access Competition.
Source: DGEEC (2022[14]) *Vagas e Inscritos (inclui inscritos em mobilidade internacional) (Study places and enrolments (including enrolments involving international mobility)* https://www.dgeec.mec.pt/np4/EstatVagasInsc/ and Mapbox (2022[13]) *Navigation* (accessed using the Mapbox API), https://docs.mapbox.com/api/navigation/ (both accessed on 12 January 2022).

The distribution of physical access to higher education can be represented using common indicators of inequality

Area-based accessibility indices – such as the "competitive accessibility index" – can be used to show the level of territorial inequality in access to services using Lorenz curves to provide a graphical representation of the distribution of accessibility and the Gini coefficient to summarise the level of inequality in access into a single – and comparable – indicator. An unequal territorial distribution of higher education opportunities across the territory compared to student demand would be evidenced by a greater concentration of the distribution study places, which would be shown by a lower Gini coefficient or a more inward-bending Lorenz curve. Figure 5.6 shows that the spatial distribution of opportunities in Portugal, using the 30-minute driving-time threshold, is more concentrated (a Gini coefficient of 0.86) than the distribution of potential students (a Gini coefficient of 0.73). There is no evidence of a larger concentration of supply compared to demand when using a 45-minute threshold or the competitive index.

Figure 5.6. Inequality in access to higher education across municipalities in Portugal



Note: 2019/20 data for study places and secondary student graduates (scientific-humanistic track only). Study places offered in the National Access Competition.
Source: DGEEC (2022[14]) *Vagas e Inscritos (inclui inscritos em mobilidade internacional) (Study places and enrolments (including enrolments involving international mobility)* https://www.dgeec.mec.pt/np4/EstatVagasInsc/ and Mapbox (2022[13]) *Navigation* (accessed using the Mapbox API), https://docs.mapbox.com/api/navigation/ (both accessed on 12 January 2022).

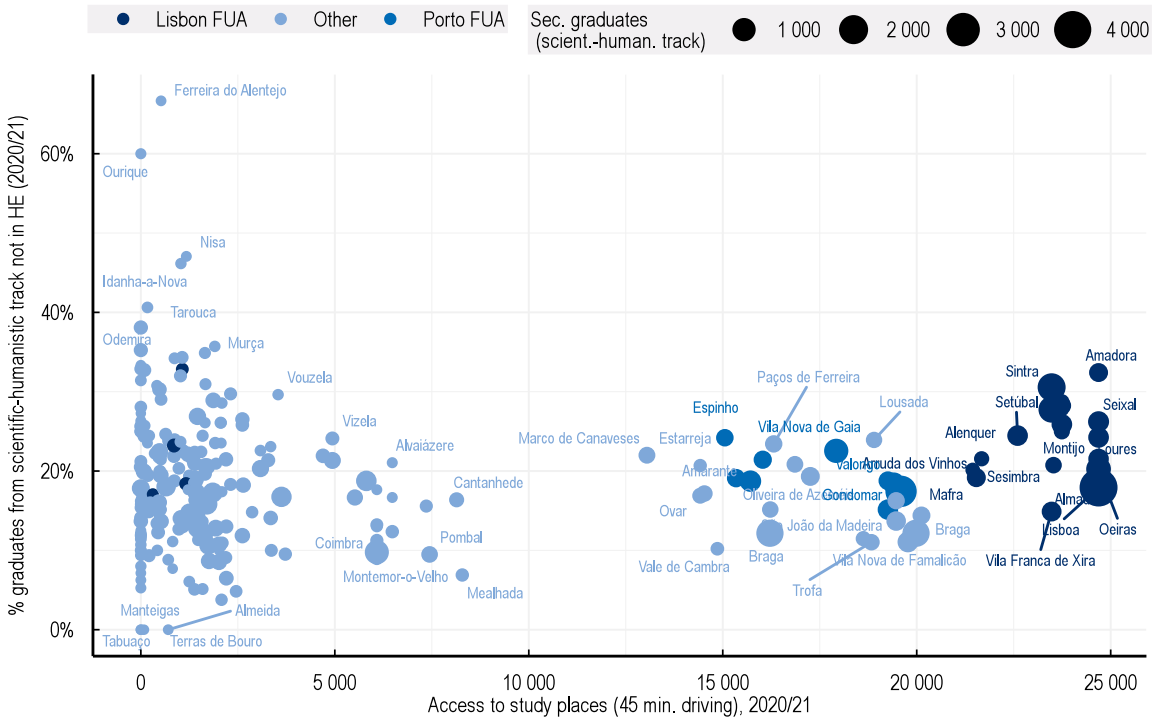
In Portugal's relatively dispersed higher education system, physical proximity to an HEI has comparatively limited influence on higher education attendance

As noted earlier in this chapter, international evidence has shown a correlation between proximity of a higher education institution and the chances of local people attending higher education. In Portugal, where the majority of the population lives relatively close to at least one higher education campus, the correlation between the physical accessibility of higher education institutions and participation rates in higher education is low. As shown in Figure 5.7, entry rates to higher education among secondary-school graduates from municipalities located relatively far from higher education institutions show a high dispersion. Many municipalities with notionally low accessibility to higher education study places have above-average shares of secondary graduates entering higher education, while other, similarly "remote", municipalities show much lower entry rates.

Similarly, physical proximity to higher education provision does not necessarily translate into higher entry rates to higher education. Some municipalities – including many of those located in the functional urban areas of Lisbon and Porto – have comparatively low entry rates, despite the large number of study places available. These findings reflect the fact that a wide range of factors influence participation in higher education. For example, Portugal's two largest cities concentrate a disproportionate share of the population from lower socio-economic backgrounds, who are less likely to achieve the school-leaving results necessary to access these cities comparatively selective higher education institutions.

Figure 5.7. Accessibility of study places and participation rates in higher education

The number of study places accessible within a 45-minute drive compared to the proportion of graduates from the scientific-humanistic track of secondary education entering higher education within one year of graduating.



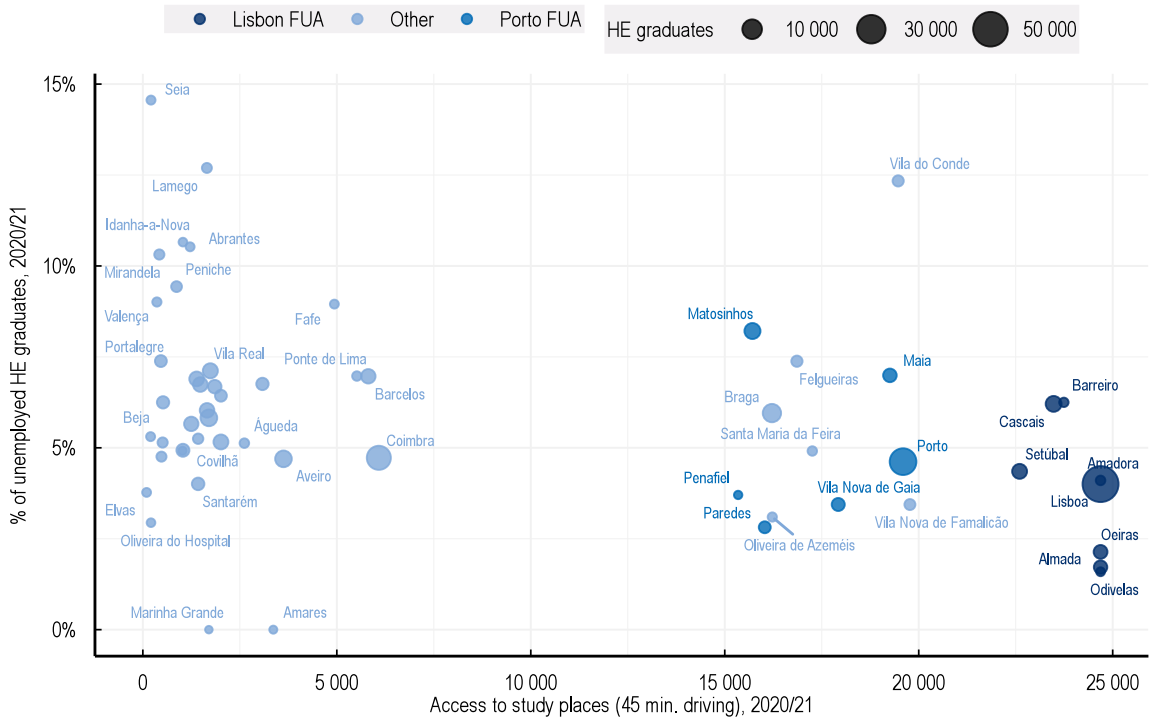
Note: 2019/20 data for study places and secondary student graduates (scientific-humanistic track only). Study places offered in the National Access Competition.
Source: DGEEC (2022[14]) *Vagas e Inscritos (inclui inscritos em mobilidade internacional) (Study places and enrolments (including enrolments involving international mobility)* https://www.dgeec.mec.pt/np4/EstatVagasInsc/ and Mapbox (2022[13]) *Navigation* (accessed using the Mapbox API), https://docs.mapbox.com/api/navigation/ (both accessed on 12 January 2022).

However, those who graduate in places that concentrate large amounts of higher education provision have better employment outcomes

Students who attend higher education in locations with high concentrations of higher education (many study places) do appear to have better employment outcomes. The share of recent higher education graduates (from the academic years 2016/17 to 2019/20) that that were registered as unemployed in the second half of 2020 was lower for programmes located in municipalities with high accessibility to higher education study place, particularly in the Lisbon Metropolitan Area (Figure 5.8). The picture locations which concentrate fewer study places was highly variable, with graduates from HEIs in Santarém having comparatively low unemployment rates (as the same levels as municipalities in the Lisbon FUA), while graduates from HEIs in other locations, such as Idanha-a-Nova and Mirandela, had unemployment rates around twice those of institutions in the Lisbon FUA. Higher rates of unemployment could be related to a range of factors, including the quality of the programmes offered and the availability of suitable employment opportunities for graduates who chose to remain in the locality or region where they study.

Figure 5.8. Accessibility to study places and unemployed graduates

The number of study places accessible within a 45-minute drive compared to the proportion of recent graduates from programmes located in the municipalities who were unemployed in the second half of 2020.



Source: DGEEC (2022[14]) *Vagas e Inscritos (inclui inscritos em mobilidade internacional) (Study places and enrolments (including enrolments involving international mobility))* https://www.dgeec.mec.pt/np4/EstatVagasInsc/ (accessed on 12 January 2022)., DGEEC (2021[15]) Dados e Estatísticas de Cursos Superiores (Data and statistics on higher education programmes), https://infocursos.medu.pt/bds.asp (accessed on 10 July 2022) and Mapbox (2022[13]) *Navigation* (accessed using the Mapbox API), https://docs.mapbox.com/api/navigation/, (accessed on 12 January 2022).

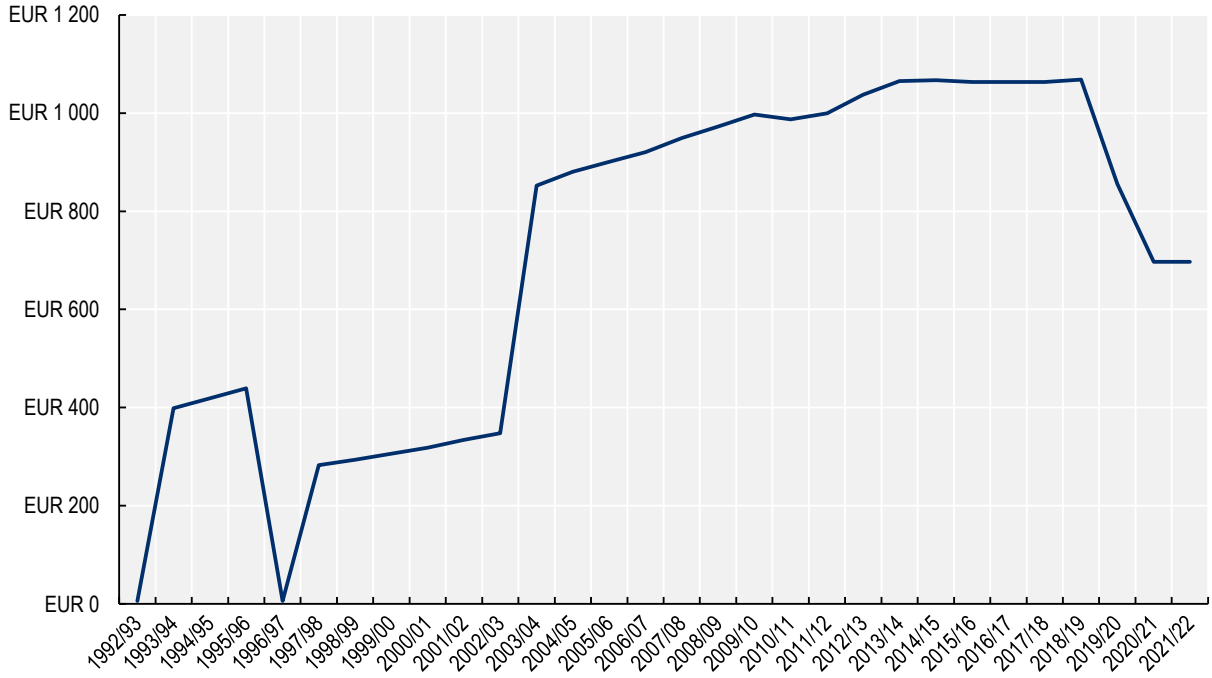
Tuition fees and student financial aid in Portugal

Portugal has reduced regulated tuition fees in public institutions in recent years

Public higher education institutions in Portugal charge tuition fees to all students. The level of fees in short-cycle programmes, bachelor's programmes and master's programmes is regulated by law, with maximum annual fees set at EUR 697 in the academic year 2021/22 (see Box 3.1 in Chapter 3). Tuition fees were originally introduced in 1941 at a level of 1 200 escudos (around 6 euros in nominal terms). As shown in Figure 5.9, tuition fees were first raised substantially from this low level in the early 1990s and then raised significantly in the academic year 2003/04 and thereafter increased gradually, reaching EUR 1 063.47 a year in 2018/19. Portugal's government then made a commitment to reduce regulated fees – ostensibly as part of its agenda for widening access to higher education. Regulated fees were initially cut by 20% for the year 2019/20 and again by 20% for 2020/21. As noted in the discussion of institutional funding in Chapter 3, public higher education institutions received additional funds from the state budget designed to compensate for the loss of tuition-fee income.

Figure 5.9. Tuition fees in Portugal over time

Nominal value of maximum annual tuition fees in public HEIs in Portugal in euros, 1992/93 to 2021/22



Source: Historical data from Morgado (2018[16]) *Sobre o valor das propinas (About the value of tuition fees)*, https://www.dn.pt/opiniao/opiniao-dn/convidados/sobre-o-valor-das-propinas-10012407.html (accessed on 22 July 2022).

StatLink https://stat.link/2kh3tj

In comparison to average tuition fees in public higher education institutions in other OECD jurisdictions where fees exist, the tuition fees charged in Portugal were comparatively modest, even before the recent cuts. Comparative data collected on average tuition fees for bachelor's programmes in public HEIs in OECD jurisdictions for the academic year 2017/18 showed that the average level of fees in the 21 jurisdictions where fees were changed was USD 3 620, after adjusting for purchasing parity. This compared to purchasing-power-adjusted fees in Portugal for the same year of USD 1 529 (EUR 1 063 converted to dollars and purchasing power parity), equivalent to 42% of the average of OECD systems (OECD, 2020[17]). With the recent fee reductions, average tuition fees in Portugal are likely to have decreased to around 25% of the average of OECD systems. Nevertheless, public HEIs in some other OECD jurisdictions – notably the Nordic countries and Germany – do not charge any tuition fees to domestic undergraduate students.

The public student financial aid system in Portugal supports a comparatively small proportion of the student population

Alongside its policy of tuition-fee moderation, Portugal has a well-established system for providing means-tested student grants, administered by the Directorate-General for Higher Education (DGES) and 60% of which is funded with European Structural and Investment Funds. In 2022, students enrolled for at least 30 credits in their first short-cycle, bachelor's or master's programme were eligible for grants if the per-capita annual income in their household was less than EUR 8 962 (equating to a monthly income of EUR 640 in Portugal's 14-month system of remuneration). This corresponds to a monthly income level for one person

below the annual minimum wage in Portugal in 2022 (EUR 705 per month) and less than half the level of the EUR 1 361 average monthly wage in Portugal in 2021 (Statistics Portugal, 2022[18]). The threshold levels mean that grants are clearly targeted at students from low-income families. In 2021/22, only around one-quarter of all students in public higher education (in short-cycle to master's level programmes) received a grant (DGES, 2022[19]).

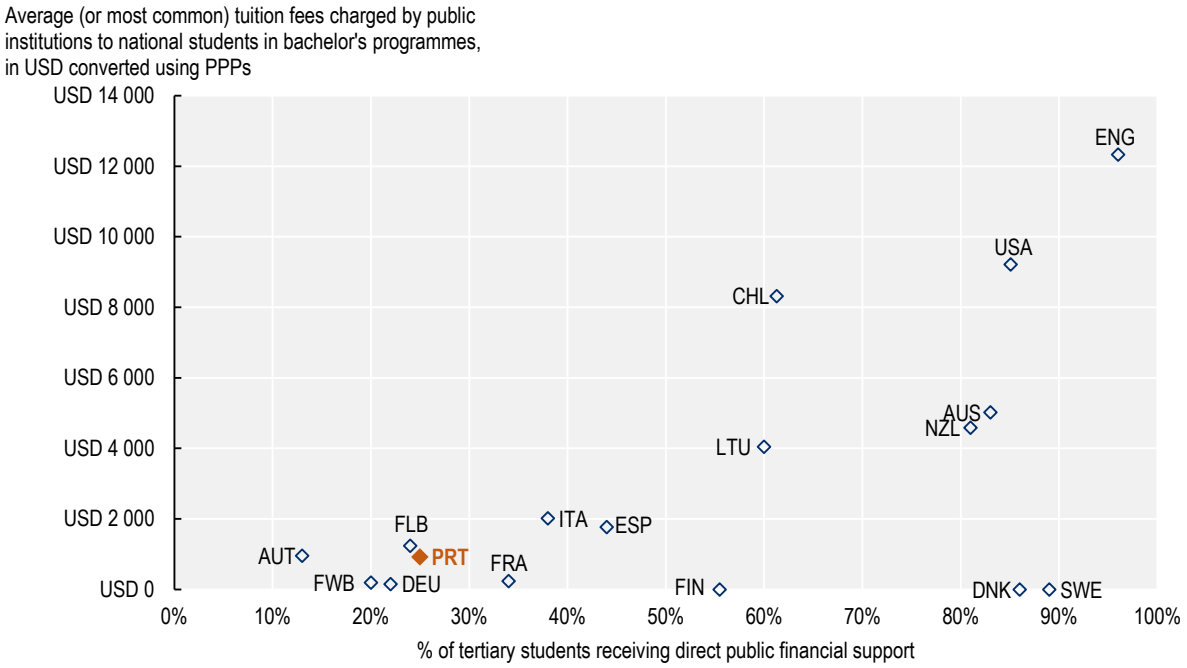
In 2021/22, the minimum annual grant, which all students meeting the household-income and other basic criteria receive, was EUR 871. The theoretical maximum annual grant for full-time students is fixed at 11 times the national Social Support Index reference value (*Indexante dos Apoios Sociais* – IAS) plus the value of the maximum regulated annual tuition fee (In 2022: 11 x EUR 443.20 + EUR 697 = EUR 5 572). Students studying part-time (at least 30 credits) receive roughly half the grant of full-time students. To calculate the actual level of the grant, the authorities take into account the actual level of tuition fees paid by the student and deduct the average per-capita income of the student's household from this reference maximum grant, taking into account that the minimum grant level is EUR 871. The result of this calculation method is that a large proportion of eligible students receive the minimum grant.

In addition to the basic grant, students in receipt of a grant that live away from home are entitled to a housing supplement, which can be significantly higher than the grant itself. In 2022, the level of this supplement was EUR 77 per month for students in an official (subsidised) student residence and EUR 219 per month for students living away from home outside a student residence. The value of the supplement for students living away from home but not in a student residence is increased to EUR 285 for students in Lisbon and EUR 263 for students in Porto, to take account of high housing prices in the large cities.

From an international perspective, Portugal has a public higher education system with moderate fees, but also a student-aid system with comparatively limited coverage and moderate grant levels. Figure 5.10 plots OECD jurisdictions based on the level of the average or most common tuition fees charged for bachelor's programmes in public HEIs in 2019/20 (vertical axis) and the proportion of national students that receive direct public financial support (horizontal axis).

Figure 5.10. Tuition fees and financial support for students in OECD jurisdictions

Average annual tuition fees charged by public institutions to national students enrolled in bachelor's programmes and share of national tertiary students benefiting from direct public financial support (academic year 2019/20)



Note: Values for Portugal have been calculated using national sources and added to the original chart taken from Education at a Glance 2020. FWB: Fédération Wallonie-Bruxelles (French-speaking Community of Belgium). FLB: Flemish Community of Belgium. ENG: England, United Kingdom. "Direct public financial support" includes both non-repayable grants (as in Portugal) and repayable loans (as in England and Australia).
Source: OECD (2021[20]) *Education at a Glance 2021: OECD Indicators*, https://doi.org/10.1787/19991487.

StatLink https://stat.link/7luz1w

Three main groups of system can be distinguished. First, those, like Portugal, but also Belgium, Germany, Austria and, to some extent, France, with comparatively low (or inexistent in the case of Germany) tuition fees and a direct student-support system that reaches a minority of the student population. Second, the systems in Denmark and Sweden where there are no tuition fees for domestic students in public HEIs, but where student support is accessed by nearly all students. In these countries, students are considered to be independent of their parents after the age of 18, so family income is not a factor in allocation of student support. Finally, systems in English-speaking countries with high tuition fees, but student-support systems that reach a high proportion of the student population. In England and Australia, the student-support systems as based on income-contingent, subsidised public loan systems, while a large proportion of students in the United States are eligible for federal (Pell) and state-level student grants.

No recent, comparable international data are available on the average level of student financial aid paid to individual students. Complex eligibility criteria also make it difficult to compare financial support systems across countries. Nevertheless, available information suggests that grant levels in Portugal are broadly comparable to those in France and the Flemish Community of Belgium, but lower than student grants in Italy and Germany. These are all systems, which, like Portugal, have low or no fees and where a minority of the student population receives student aid.

In 2022, the annual value of student grants in the Flemish Community of Belgium ranged from EUR 281.36 (the minimum level) to a maximum of EUR 2 613 for students living at home and up to EUR 4 354 for

students living away from home (Flemish Government, 2022[21]). In France, the annual value of student grants in 2022 was between EUR 1 042 and EUR 5 736, depending on household income (Government of France, 2022[22]), while in Italy, minimum grant levels for students living at home were EUR 1 982, for students commuting to study EUR 2 899 and for students living away from home EUR 5 258 (Government of Italy, 2021[23]). The maximum student grant in Germany (referred to as "BAföG", after the legislation establishing the system, the Bundesausbildungsförderungsgesetz) in 2022 for those living at home was EUR 592 per month (EUR 7 104 annually) and for students living away from home EUR 861 (EUR 10 332 annually). The average student grant paid in Germany is 2020 was EUR 574 per month (Destatis, 2021[24]). As shown in Figure 5.10, just over one-fifth of enrolled students receive student grants in Germany.

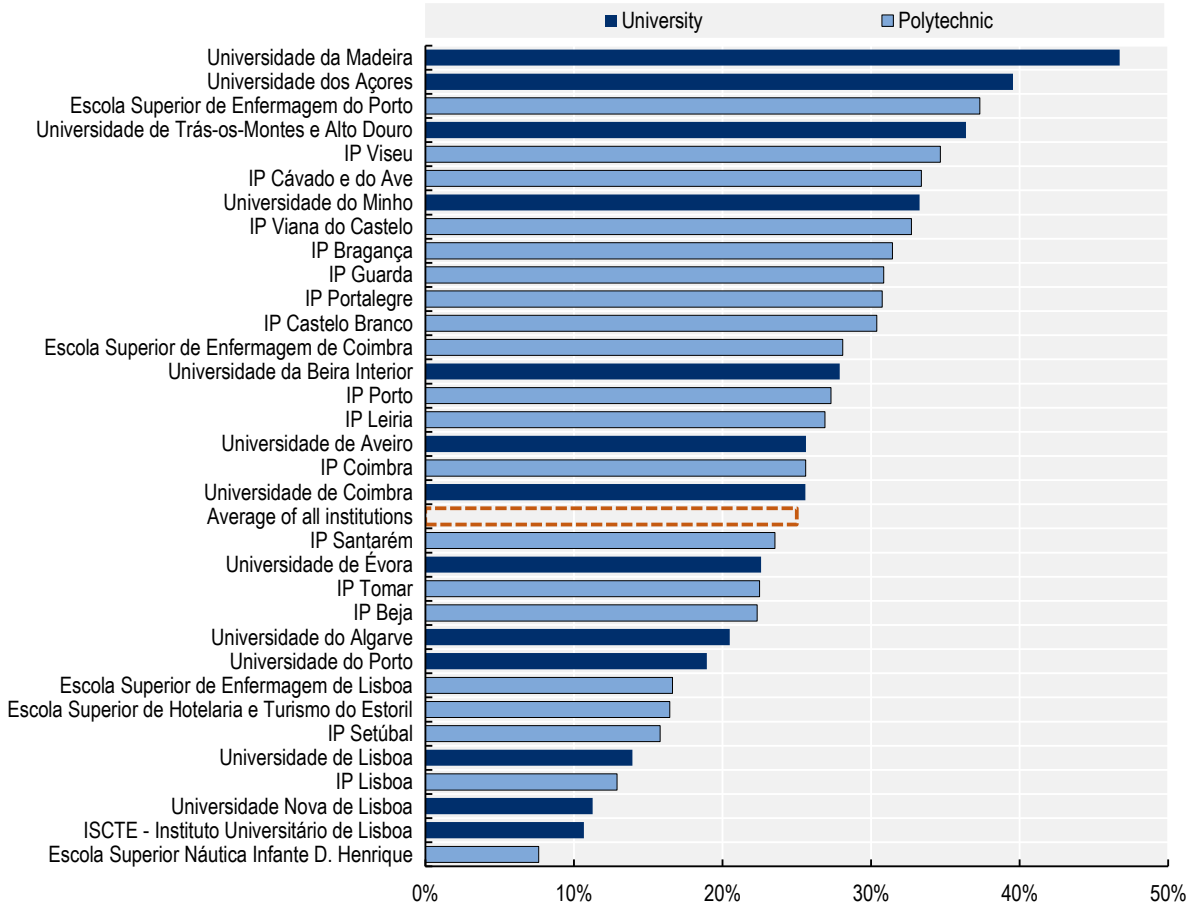
The proportion of students receiving grants varies considerably between public HEIs in Portugal, reflecting differences in the socio-economic profile of students

As shown in Figure 5.11, the proportion of enrolled students that receive a student grant varies considerably between public higher education institutions in Portugal. Whereas in the autonomous island regions of the Açores and Madeira, upwards of around 40% of students in eligible study levels receive a grant, this proportion is less than 20% in HEIs in the Lisbon Metropolitan Area and the Universidade do Porto. Three further universities outside metropolitan and littoral regions (Universidade de Trás-os-Montes e Alto Douro – UTAD, Universidade do Minho and Universidade da Beira Interior) have an above-average (>25%) proportion of grant beneficiaries, as do Porto's school of nursing (ESEP) and polytechnic institutes in interior regions.

The patterns illustrated in Figure 5.11 reflect a combination of factors. As around two-thirds of students in public higher education institutions in Portugal attend a "local" HEI, variation in eligibility for grants is partly explained by differences in average income between regions. Households in Lisbon, for example, have, on average, higher incomes than households in Açores, Madeira or most interior regions, while household income thresholds for grant eligibility are set nationally. A second factor is the selectivity of institutions. As performance in secondary school is correlated with socio-economic status and entry to high-demand, prestigious institutions is substantially dependent on students' grades school-leaving exams (which serve for the National Access Competition), it follows that a smaller proportion of students in comparatively selective institutions (such as those in Lisbon or the Universidade do Porto) is eligible for a grant than in institutions with lower demand for places. Finally, the mix of subjects offered by institutions also influences the socio-economic profile of students, although to a lesser extent that the first two factors. Thus, polytechnics and polytechnic schools serve, on average, a higher proportion of students from low socio-economic backgrounds than universities.

Figure 5.11. Proportion of students receiving a student grant by public HEI

Students in receipt of a student grant as a proportion of total number of students enrolled in TeSP, bachelor's programmes and master's programmes in 2021/22.



Note: The total number of enrolled students in TeSP, bachelor's programmes and master's programmes includes international students that are not eligible for a student grant. This means that values shown under-estimate the proportion of domestic students in receipt of a student grants, particularly in institutions with a large share of international students. The indicator used nevertheless provides an indication of the socio-economic profile of the student body in each institution. IP = Instituto Politécnico (Polytechnic Institute).
Source: DGES (2022[19]) *Informação Estatística - Bolsas de Estudo para Estudantes do Ensino Superior (Statistical information - Student Grants)* https://www.dges.gov.pt/pt/pagina/informacao-estatistica-bolsas-de-estudo-para-estudantes-do-ensino-superior?plid=373 (accessed on 23 July 2022).

StatLink https://stat.link/nxt3ay

The +Superior Programme provides additional mobility grants for low-income students to study in interior and island regions

Since the academic year 2014/15, Portugal has also used resources from the European Social Fund (one of the strands of European Union Structural and Investment Funds) to finance a complementary student-grant programme to support students to study in higher education institutions with decreasing study demand. Since the academic year 2016/17, the grants have been targeted to students from low-income backgrounds. The +Superior (*Mais Superior*) programme has the explicit aim of contributing to territorial cohesion by encouraging students to move to regions that are affected by population decline and where HEIs may otherwise have difficulty in attracting students from other regions of Portugal. In the

autonomous island regions of Açores and Madeira, Algarve and Alentejo all public HEIs are eligible for the programme. In the more diverse regions of Centro and Norte, which are home to highly prestigious and attractive HEIs, as well as institutions in more challenging situations, eligible students can only receive +Superior grants if they attend certain institutions in more remote parts of the regional territory.

To be eligible for a +Superior grant, students must have secured a place at an eligible HEI, have their habitual residence in a different NUTS III region from the HEI in question (i.e., they need to move locality to be eligible for a grant) and have been awarded a mainstream student grant (i.e., they must come from a low-income background). The standard value of the grant is (in 2021/22) EUR 1 700 per year, with a maximum number of grants fixed for each region, as shown in Table 5.2. The value of the grant is increased by 15% for students who enrol in short-cycle TeSP programmes, as well as students entering higher education through special entrance procedures for those over 23. Until 2022/23, candidates for +Superior grants were prioritised for the grant in ascending order of the per-capita income of their household (DGES, 2021[25]), but from 2022/23, the system was amended to make all students from low-income backgrounds eligible, without prioritisation.

Table 5.2. Grants awarded through the +Superior programme in 2020/21

Region where host HEIs are located	Grants available for the region	Number of candidates	Number of grants awarded	Proportion of total grants	Number of grant renewals
Alentejo	450	1 021	459	20.4%	711
Algarve	110	348	116	5.2%	147
Centro *	800	2 343	800	35.6%	1 295
Norte **	800	2 640	851	37.8%	892
Região Autónoma da Madeira	35	86	4	0.2%	5
Região Autónoma dos Açores	35	122	19	0.8%	14
Total	2 230	556	2 249	100%	1 769
Non-eligible regions	0	1 590	0	-	0

Note: * Eligible HEIs in Centro: IP Castelo Branco, IP Guarda, Universidade da Beira Interior, IP Tomar, Escola Superior de Tecnologia e Gestão de Oliveira do Hospital do IP Coimbra, IP Viseu. ** Eligible HEIs in Norte: IP Viana do Castelo, Universidade de Trás -os -Montes e Alto Douro (UTAD) and IP Bragança.
Source: DGES (2022[26]) *Estatísticas – Programa +Superior (Statistics – +Superior Programme)* https://www.dges.gov.pt/pt/pagina/estatisticas-programa-superior?plid=373, (accessed on 23 July 2022).

Portugal's government has increased the number of +Superior grants funded in recent years and presents the programme as part of its wider efforts to promote widened access to higher education and promote territorial cohesion (MCTES, 2021[3]). To date, no external evaluation of the programme has been conducted to obtain a clear understanding of the impact of the programme on participation in higher education and students' study choices.

Student services and housing

Responsibility for funding student services, including dedicated student housing, falls primarily to individual higher education institutions

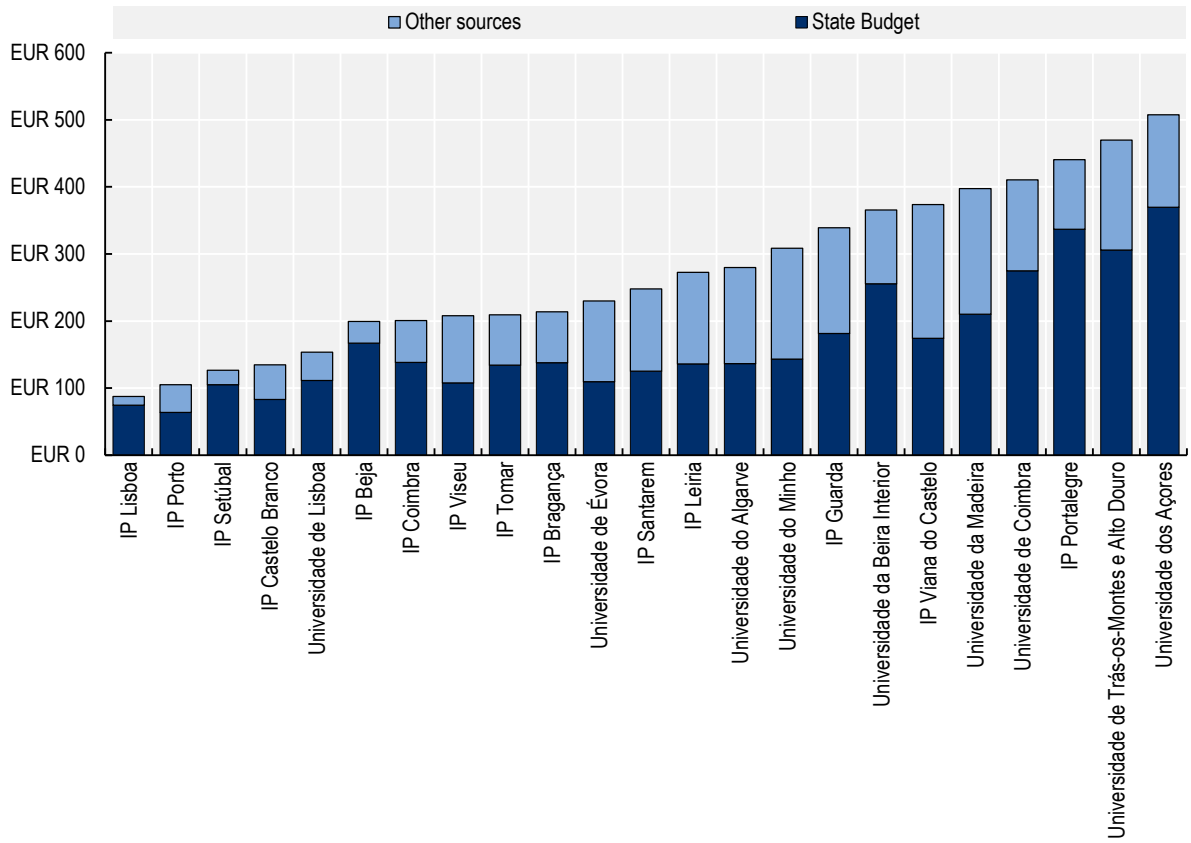
In some OECD countries, non-academic services for students, such as student residences, catering and administration of student financial support, are administered by distinct entities, outside the organisational structures of individual HEIs. This is notably the case in France, where the *Centres régionaux des œuvres universitaires et scolaires* (Crous) provide these services, with a separate body for each educational district (*académie*), operating within a national network. Under this approach, students in localities with multiple

HEIs can access a common set of services, independently of the specific institution in which they are enrolled. More commonly, however, student services and housing are the responsibility of individual HEIs, funded out of general revenue, with, in some systems, earmarked funds provided to institutions by government for provision of the services.

In Portugal, HEIs are responsible for funding and organising student services. Historically, institutions received an earmarked budget to fund their "Social Action Services" (SAS), responsible for student housing, catering and as a point of contact for financial support. In recent years, however, this budget has been mainstreamed into the main operating grant from the state budget (see Chapter 3), with institutions deciding on the internal allocation of funds to their Social Action Services and reporting this to the authorities. As illustrated in Figure 5.12, the level of resources per enrolled student allocated to the SAS varies considerably between public HEIs. While the SAS budget in the Universidade dos Açores in 2021 was the equivalent of over EUR 500 per enrolled student, the equivalent figure for several institutions, include polytechnic institutions in Lisbon, Porto and Setúbal was under EUR 200 per enrolled student.

Figure 5.12. Income of institutional "Social Action Services" (SAS)

Income of "Social Action Services" per FTE student from the State Budget and other sources in 2021 for public universities and public polytechnic institutes in euros.



Note: Income is for the financial year 2021, FTE students are for the academic year 2020/21. Disaggregated data on the budgets allocated to Social Action Services are not available for public institutions with foundation status (one public polytechnic institute (IPCA) and four public universities (Aveiro, ISCTE, Nova and Porto)).
Source: IGeFE (2022[27]) Data on institutional income and expenditure 2012-2021 (unpublished – supplied directly to the OECD).

StatLink https://stat.link/5c7134

While the level of investment required in the Social Action Services in individual HEIs will depend to some extent on the socio-economic profile of the student population (see Figure 5.12) and the proportion of students living away from home (and requiring housing), it is notable that certain polytechnic institutes – which would typically be expected to attract students from lower-income backgrounds – have the lowest rates of investment in their Social Action Services.

During discussions held for this review, some representatives of higher education institutions raised concerns that the end of earmarked funding for student-support services had reduced institutions' willingness to share their student facilities with students from other HEIs located in the same city. This is primarily an issue in Lisbon, Porto and Coimbra which are home to multiple public HEIs. In such locations, it appears that is a case for greater pooling of student services between institutions.

Increasing the supply of student housing is a specific priority of Portugal's government

Since 2018, Portugal's government has mobilised additional resources to invest in student housing, one of the services co-ordinated and – in the case of dedicated student residences, operated – by institutions' Social Actions Services. The National Plan for Housing in Higher Education (*Plano Nacional para o Alojamento no Ensino Superior* – PNAES) has provided funds to increase capacity to house students who move location to study (MCTES, 2022[28]). The main target audience for the increase in housing capacity is students aged 25 or less who attend an HEI more than 50km from their family home, officially referred to as *estudantes deslocados* (displaced students). The PNAES aims to increase the offer of student rooms in dedicated student residences, in accommodation provided by other public or private organisations and, in some cases, hotels and guesthouses.

As shown in Table 5.3, "displaced students" accounted for around one-third of students attending public higher education institutions in 2020/21 – more than double the proportion in the private higher-education sector. Among these "displaced students", around 40% were defined as in financial need (in that they receive a student grant), representing a total of almost 43 000 students, or roughly 13% of total enrolment in public higher education institutions. As shown in Table 5.1, under 18 000 beds in subsidised student accommodation were available across Portugal in 2021, meaning there is significant unmet demand.

Table 5.3. Students living away from home in higher education in Portugal

Enrolment (headcount) of students living away from home and in financial need in 2020/21.

Sector of higher education	Total enrolment (headcount)	Students living away from home (*deslocados*)	Students living away from home as % all students	Students living away from home and in financial need	Students in financial need as % of those living away from home	Students living away and in financial need as % all students
Total	411 995	119 887	29%	44 752	37%	11%
Public	335 139	108 406	32%	42 915	40%	13%
Private	76 856	11 481	15%	1 837	16%	2%

Source: MCTES (2022[28]) *Plano Nacional para o Alojamento no Ensino Superio (National Plan for Housing in Higher Education)* https://pnaes.pt/ (accessed on 24.July 2022).

Analysis conducted in the preparation of the PNAES illustrated that greatest mismatch between the number of displaced students (overall) and available student rooms were in Lisbon, Porto and Coimbra, as well as at the Instituto Politécnico do Cávado e Ave (IPCA) (MCTES, 2022[28]). Under the *Contrato de Legislatura* for 2020-23, the government established the target of raising the number of student rooms available at regulated prices to 30 000 by 2030. As part of the "Resilience" strand of the EU-funded Recovery and Resilience Plan, a loan of EUR 375 million has been agreed to invest in student housing in the period up to 2026 (Government of Portugal, 2022[29]), with the objective of reaching the 30 000 target.

Policy issues and recommendations to Portugal

Taking into account the analysis above and the findings from the interviews conducted with representatives of higher education institutions and public authorities, this section identifies the main policy issues for related to creating an accessible network of higher education campuses across the Portuguese territory, the national financial support system for students and policies on student services and housing and provides recommendations.

Maintain a commitment to ensuring territorial coverage of higher education, but ensure a strong focus on quality and relevance in regional locations

In recent decades, Portugal has successfully – and substantially – increased the reach of its higher education system, initially expanding the network of public higher education institutions across the country and subsequently expanding participation through an increasingly diverse set of programme offerings. Compared to OECD countries of similar size, Portugal has a dense network of institutions that contributes to the accessibility its higher education system. Particularly for individuals from low-income backgrounds, for whom moving to attend higher education would be financially challenging, and those who lack the capacities and preparation needed to study successfully online, having a higher education campus in their home locality or region is likely to increase their chances of entering and completing higher education.

It is, therefore, appropriate for Portugal to maintain a commitment to the "physical accessibility" of higher education across the territory of the country. This is particularly the case for the offer of initial higher education programmes, such as short-cycle qualifications or professionally oriented bachelor's programmes that attract large student numbers and that may be particularly well aligned with the needs of populations less able or willing to move further afield to study. Having high-quality opportunities to study in short-cycle TeSP and professionally oriented bachelor's programmes in core subjects, such information technology, teacher education and certain areas of social care that are distributed across population centres and regions is particularly important, for example. As programmes become more advanced and more specialised, the case for concentration of offerings in a limited number of locations becomes stronger. Student demand for such programmes is more limited and specialist academic staff would ideally be concentrated in a small(er) number of centres, allowing sufficient critical mass and peer effects to deliver the quality of education and the learning environments that students require.

As discussed in Chapter 4, there is scope in Portugal for higher education institutions to sharpen their institutional profiles and to strengthen or create distinct centres of excellence providing specialised and advanced programmes, based on existing strengths in the areas of research and regional engagement. Equally, some existing provision, particularly at bachelor's level and higher, may become surplus to requirements, as demographic trends evolve, and student demand falls further. This is likely to lead to institutional restructuring in some cases and may ultimately require some smaller institutions to work together as campuses within a single institutional structure. As shown by the development of branch campuses in higher education systems as diverse as Denmark and France, maintaining the territorial coverage of the higher education system does not imply higher education institutions need to be built or maintained in conventional forms. In some cases, there will be a trade-off to be made between maintaining "local" provision of higher education and ensuring sufficient critical mass, quality and relevance, including in terms of the employment opportunities offered to graduates in the region. In such cases, a careful evaluation of how students can best be served will be required.

Recommendations

1. Maintain physical accessibility of campuses as a criterion for planning the future of the higher education system, focusing on ensuring territorial coverage for entry-level tertiary programmes such as TeSP and other undergraduate programmes with strong student demand and high relevance to local and regional economies.
2. Recognise, in line with the recommendations above, that maintaining the territorial coverage of the higher education network does not imply maintaining the existing configuration of institutions. As part of strategic planning for the system it will be important to assess the role, in the medium term, of networked higher education campuses, exploiting the benefits of in-person and digital learning.

Consider linking tuition-fee levels to socio-economic criteria, while increasing the value of financial support to the students most in need, as public finances allow

Portugal has made considerable efforts in recent years to support low-income students to enter and complete higher education, through reducing study costs (with tuition-fee reductions) and increasing the reach of the student-grant system. From an international perspective Portugal is situated clearly in a cluster of European countries, which include Austria, Belgium, France and Italy, with comparatively low tuition fees in the public higher education sector and student financial aid systems focused exclusively on the lowest-income students. In light of the financial constraints facing Portugal's government – like other OECD governments – in the coming years, it will be challenging to increase greatly the level of investment in existing student-grant mechanisms, which already depend for a majority of their resources on European funds.

The decision to cut regulated tuition fees in public HEIs for all students and compensate institutions for the lost revenue has absorbed significant public resources to pay for what is effectively an untargeted subsidy that benefits not only students from lower-income backgrounds, but also those from middle and high-income backgrounds. A more nuanced approach would involve a progressive system of tuition fees, with the lowest fees for students in receipt of a grant, mid-range fees for students that do not qualify for a grant but come close to the eligibility requirements and higher fees for other students from more affluent backgrounds. The Flemish Community of Belgium operates such a model. In 2021/22, grant recipients (*beursstudenten*) in the Flemish system paid annual tuition fees of EUR 113.20 to attend publicly funded HEIs full-time, those who nearly qualify for a grant (*bijna-beursstudenten*) paid EUR 505.90, while other students paid EUR 961.90 (Flemish Government, 2022[30]).

Portugal's system of student grants already provides financial support for students in short-cycle TeSP programmes and provides for grants that are reduced pro-rata from students studying part-time, as long as they are enrolled for at least 30 credits per year. As the government and higher education institutions proceed with efforts to expand programme provision for adults seeking upskilling and reskilling opportunities, it would be appropriate to investigate whether the current grant system is sufficiently flexible to support a more diverse student population and whether it is most appropriate to support adult learners through the grant system or other mechanisms.

The +Superior programme continues to provide grants to low-income students studying in designated public higher education institutions in interior and island regions. To the knowledge of the OECD review team, since the inception of this programme in 2014, there has not been an independent evaluation of its effectiveness and efficiency. In order to plan for the future of this policy instrument, such an evaluation is required, in order to understand better which students take up +Superior grants and why, what they study, how successful they are in their studies and how they fare after obtaining qualifications. It is important that

any future programme ensures the interests of students take absolute priority and that they are directed to study opportunities that are appropriate to their needs and offer them strong employment prospects. Low-income individuals should only be encouraged to move to study if these conditions are met.

Recommendations

3. Introduce a differentiated system of tuition fees, similar to the system used in the Flemish Community of Belgium, with the lowest fees for grant recipients, a medium fee level of lower-income students that do not qualify for grants and a return to higher fees for other students. Use resources freed up by such a policy to increase the eligibility threshold and level of student grants.
4. Conduct a review of the current eligibility criteria for student grants (such as the 30 credit enrolment requirement) to evaluate, in greater depth than was possible for this review, if the system is sufficiently flexible to support the increasingly diverse student population that the government aspires to achieve, whether changes are required or whether other policy instruments should be used to support adult learners.
5. Commission an independent evaluation of the +Superior programme to gain a better understanding of the profile of students supported, their rationale for their study choices and their study and employment outcomes. Use the findings from the evaluation to inform the future direction of this policy, ensuring the interests and outcomes of students take precedence over other considerations.

Explore methods to ensure more equitable investment in student services across the territory

Although it is difficult to compare investment levels in student services across HEIs that operate in different contexts and serve different student populations, the current variation in per-student investment in Social Actions Services does not appear to have a clear justification. More systematic analysis would be required to establish the causes and justification for the differences observed between institutions. While a return to earmarked funding of student services used previously in Portugal is likely to create administrative burden, reduce the flexibility of institutions and lead to inefficiencies, minimum national standards or guidelines may be required to ensure more uniform levels of student-service provision across the country. Moreover, in cities and towns where multiple HEIs are located, there is a strong case for pooling student services between the institutions to ensure accessibility and efficient use of resources. This could be guaranteed by co-operation agreements between institutions or, potentially, the creation of legally separate, jointly owned student service operations.

The National Plan for Housing in Higher Education (PNAES) appears to respond to a real need for additional student accommodation in Portugal, particularly in larger cities where rental prices are increasingly unaffordable for students who move location to study. The allocation criteria for PNAES funding have sought to ensure investments are targeted in locations with greatest unmet need for subsidised student accommodation. Any future public investment in student housing should also ensure appropriate targeting on the localities with greatest unmet student need to avoid inefficient deployment of limited resources.

Recommendation

6. Analyse the factors that explain the current variation in the per-student levels of investment in student services between public HEIs in Portugal and the effects of this variation in selected locations. On this basis, evaluate the case for minimum national standards or guidelines – such as a minimum level of services that should be provided – for institutional Social Action Services, which could, in turn, be assessed through institutional audits.
7. In locations with multiple public HEIs, require HEIs to develop solutions that allow student services to be shared between institutions, where there is a rational justification for this, to increase access and improve efficiency.
8. Ensure that future investments in publicly funded student housing are targeted in locations with greatest unmet need for housing from students and are planned with future enrolment levels clearly in focus.

References

Arbo, P. and P. Benneworth (2007), "Understanding the Regional Contribution of Higher Education Institutions: A Literature Review", *OECD Education Working Papers*, No. 9, OECD Publishing, Paris, https://doi.org/10.1787/161208155312. [9]

Bonaccorsi, A. and B. Lepori (2019), *The regional structure of European Higher Education*, https://doi.org/10.5281/zenodo.5082998. [10]

Destatis (2021), *BAföG-Statistik: 6,0 % weniger Geförderte im Jahr 2020 (Student grant statistics: 6% fewer students support in 2020)*, Statistisches Bundesamt, https://www.destatis.de/DE/Presse/Pressemitteilungen/2021/08/PD21_369_214.html (accessed on 24 July 2022). [24]

DGEEC (2022), "Vagas e Inscritos (inclui inscritos em mobilidade internacional) (Study places and enrolments (including enrolments involving international mobility)", *Direção-Geral de Estatísticas da Educação e Ciência (DGEEC)*, https://www.dgeec.mec.pt/np4/EstatVagasInsc/ (accessed on 12 January 2022). [14]

DGEEC (2021), *Dados e Estatísticas de Cursos Superiores (Data and statistics on higher education programmes)*, Infocursos, https://infocursos.medu.pt/bds.asp (accessed on 10 July 2022). [15]

DGES (2022), *Estatísticas - Programa +Superior (Statistics - +Superior Programme)*, Direção-Geral do Ensino Superior, https://www.dges.gov.pt/pt/pagina/estatisticas-programa-superior?plid=373 (accessed on 23 July 2022). [26]

DGES (2022), *Informação Estatística - Bolsas de Estudo para Estudantes do Ensino Superior (Statistical information - Student Grants)*, Direção-Geral do Ensino Superior, https://www.dges.gov.pt/pt/pagina/informacao-estatistica-bolsas-de-estudo-para-estudantes-do-ensino-superior?plid=373 (accessed on 23 July 2022). [19]

DGES (2021), *Despacho nº 11740-A/2021, de 26 de novembro Aprova o Regulamento do Programa +Superior para o Ano Letivo de 2021-2022 (Order approving the regulations for the +Superior programme for the academic year 2021/22)*, Direção-Geral do Ensino Superior, https://www.dges.gov.pt/pt/pagina/informacoes-1 (accessed on 12 July 2022). [25]

Do, C. (2004), "The effects of local colleges on the quality of college attended", *Economics of Education Review*, Vol. 23/3, pp. 249-257, https://doi.org/10.1016/j.econedurev.2003.05.001. [8]

Eurostat (2022), *Indicators*, https://ec.europa.eu/eurostat/databrowser/ (accessed on 20 January 2022). [1]

Flemish Government (2022), *Bedragen studietoelagen 2022-2023 (Value of student grants in 2022-23)*, https://www.studietoelagen.be/bedragen-studietoelagen-2021-2022 (accessed on 24 July 2022). [21]

Flemish Government (2022), *Studiegelden (Tuition fees)*, https://onderwijs.vlaanderen.be/nl/studenten/kosten-toelagen-en-werken/studiegelden (accessed on 26 July 2022). [30]

Florczyk, A. et al. (2019), *GHSL Data Package 2019*, Publications Office of the European Union, https://doi.org/10.2760/290498. [11]

Frenette, M. (2006), "Too Far to Go On? Distance to School and University Participation", *Education Economics*, Vol. 14/1, pp. 31-58, https://doi.org/10.1080/09645290500481865. [7]

Government of France (2022), *Étudiant : bourse sur critères sociaux (Student: grant based on social criteria)*, Service Public - Le site officiel de l'administration française, https://www.service-public.fr/particuliers/vosdroits/F12214 (accessed on 24 July 2022). [22]

Government of Italy (2021), *Decreto Ministeriale n. 157 del 12-02-2021 (Ministerial Decree 157 of 12-02-21)1*, Ministero dell'Università e della Ricerca, https://www.mur.gov.it/it/atti-e-normativa/decreto-ministeriale-n-157-del-12-02-2021 (accessed on 24 July 2022). [23]

Government of Portugal (2022), *Plano de Recuperação e Resiliência (Recovery and Resilience Plan)*, Recuperar Portugal, https://recuperarportugal.gov.pt/ (accessed on 24 July 2022). [29]

Government of Portugal (2019), *Contrato de Legislatura entre o Governo e as Instituições de Ensino Superior Públicas 2020-2023 (Contract for the Legislative Period between the Government and public higher education institutions 2020-2023)*, https://www.igefe.mec.pt/Files/DownloadDocument/72?csrt=6785169830679341608 (accessed on 28 May 2020). [2]

IGeFE (2022), *Data on institutional income and expenditure 2012-2021 (unpublished)*. [27]

Mapbox (2022), *Navigation*, https://docs.mapbox.com/api/navigation/ (accessed on 12 January 2022). [13]

MCTES (2022), *Plano Nacional para o Alojamento no Ensino Superio (National Plan for Housing in Higher Education)*, Ministry of Science, Technology and Higher Education (MCTES), https://pnaes.pt/ (accessed on 24 July 2022). [28]

MCTES (2021), *Acompanhamento do "Contrato de Legislatura" assinado entre o Governo e as Instituições de Ensino Públicas para 2020-2023 (Monitoring of the Contract for the Legislative Term concluded between the government and public HEIS for 2020-2023)*, Ministry of Science, Technology and Higher Education, https://www.igefe.mec.pt/Page/Index/51 (accessed on 20 July 2022). [3]

Morgado, R. (2018), "Sobre o valor das propinas (About the value of tuition fees)", *Diário de Noticias*, https://www.dn.pt/opiniao/opiniao-dn/convidados/sobre-o-valor-das-propinas-10012407.html (accessed on 22 July 2022). [16]

OECD (2022), *ADHEP database*. [12]

OECD (2021), *Education at a Glance 2021: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/19991487. [20]

OECD (2020), *Education at a Glance 2020: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/69096873-en. [17]

Sá, C., R. Florax and P. Rietveld (2006), "Does Accessibility to Higher Education Matter? Choice Behaviour of High School Graduates in the Netherlands", *Spatial Economic Analysis*, Vol. 1/2, pp. 155-174, https://doi.org/10.1080/17421770601009791. [4]

Spiess, C. and K. Wrohlich (2010), "Does distance determine who attends a university in Germany?", *Economics of Education Review*, Vol. 29/3, pp. 470-479, https://doi.org/10.1016/j.econedurev.2009.10.009. [5]

Statistics Portugal (2022), *Remuneração bruta mensal média por trabalhador - 4.º trimestre de 2021 (Gross monthly pay per worker - 4th Quarter 2021)*, Estatísticas do Emprego (Employment statistics), https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=526268225&DESTAQUESmodo=2 (accessed on 24 July 2022). [18]

Walsh, S., D. Flannery and J. Cullinan (2015), "Geographic accessibility to higher education on the island of Ireland", *Irish Educational Studies*, Vol. 34/1, pp. 5-23, https://doi.org/10.1080/03323315.2015.1010302. [6]

Notes

[1] Accessibility analyses usually focus on a single travel mode or compare different travel modes, as summarising all modes into a single time measure in a meaningful way is methodologically challenging.

[2] Importantly, this study considers the presence of a HEI in a region but not the levels of accessibility to it, thus implicitly assuming people have access only to HEIs in their own TL3 region.

[3] For instance, for a region stretching over thousands of kilometres with a single urban centre and a sparsely populated country side, a single point cannot possibly represent the level of access experience by both urban and rural inhabitants in the region.

Higher Education

Resourcing Higher Education in Portugal

The report on *Resourcing Higher Education in Portugal* is part of a series of publications produced by the OECD's Resourcing Higher Education Project. This project has sought to develop a shared knowledge base for OECD member and partner countries on effective policies for higher education resourcing through system-specific and comparative policy analysis. The review of resourcing in Portugal focuses on options for reform of the core public funding model for higher education institutions in Portugal, the strategic steering and funding of the future development of the public higher education system and the resourcing of policies to support widened access to higher education. Based on analysis and comparison of the current approach to higher education resourcing, the review provides recommendations to support future refinement of policies.

Co-funded by
the European Union

PRINT ISBN 978-92-64-73465-4
PDF ISBN 978-92-64-75189-7

9 789264 734654