Education at a Glance 2019

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Foreword

Governments are increasingly looking to international comparisons of education opportunities and outcomes as they develop policies to enhance individuals' social and economic prospects, provide incentives for greater efficiency in schooling, and help to mobilise resources to meet rising demands. The OECD Directorate for Education and Skills contributes to these efforts by developing and analysing the quantitative, internationally comparable indicators that it publishes annually in Education at a Glance. Together with OECD country policy reviews, these indicators can be used to assist governments in building more effective and equitable education systems.

Education at a Glance addresses the needs of a range of users, from governments seeking to learn policy lessons to academics requiring data for further analysis to the general public wanting to monitor how their countries' schools are progressing in producing world-class students. The publication examines the quality of learning outcomes, the policy levers and contextual factors that shape these outcomes, and the broader private and social returns that accrue to investments in education.

Education at a Glance is the product of a long-standing, collaborative effort between OECD governments, the experts and institutions working within the framework of the OECD Indicators of Education Systems (INES) programme, and the OECD Secretariat. The publication was prepared by the staff of the Innovation and Measuring Progress Division of the OECD Directorate for Education and Skills, under the responsibility of Deborah Roseveare and Marie-Hélène Doumet, and in co-operation with Étienne Albiser, Majda Benzidia, Andrea Borlizzi, Éric Charbonnier, Manon Costinot, Gillian Golden, Bruce Golding, Fatine Guedira, Corinne Heckmann, Karinne Logez, Camila de Moraes, Simon Normandeau, Gara Rojas González, Daniel Sánchez Serra, Markus Schwabe, Giovanni Maria Semeraro, and Choyi Whang. Administrative support was provided by Valérie Forges, and additional advice and analytical support were provided by Vanessa Denis, Majda Eddaifi, Yanjun Guo, Julia Himstedt and Hajar Sabrina Yassine. Marilyn Achiron, Cassandra Davis and Sophie Limoges provided valuable support in the editorial and production process. The development of the publication was steered by member countries through the INES Working Party and facilitated by the INES Networks. The members of the various bodies as well as the individual experts who have contributed to this publication and to OECD INES more generally are listed at the end of the book.

While much progress has been made in recent years, member countries and the OECD continue to strive to strengthen the link between policy needs and the best available internationally comparable data. This presents various challenges and trade-offs. First, the indicators need to respond to education issues that are high on national policy agendas, and where the international comparative perspective can offer added value to what can be accomplished through national analysis and evaluation. Second, while the indicators should be as comparable as possible, they also need to be as country-specific as is necessary to allow for historical, systemic and cultural differences between countries. Third, the indicators need to be presented in as straightforward a manner as possible, while remaining sufficiently complex to reflect multi-faceted realities. Fourth, there is a general desire to keep the indicator set as small as possible, but it needs to be large enough to be useful to policy makers across countries that face different challenges in education.

The OECD will continue not only to address these challenges vigorously and develop indicators in areas where it is feasible and promising to develop data, but also to advance in areas where a considerable investment still

needs to be made in conceptual work. The OECD Programme for International Student Assessment (PISA) and its extension through the OECD Programme for the International Assessment of Adult Competencies (Survey of Adult Skills [PIAAC]), as well as the OECD Teaching and Learning International Survey (TALIS), are major efforts to this end.

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Editorial

As countries struggle to respond to economic, environmental and social transformations – including technological advances, climate change and migration – intellectual capital has become the most valuable asset of our time. The core of intellectual capital is knowledge, and the development and transfer of knowledge is the primary mission of higher education. Tertiary education thus plays a central role in helping people and societies confront and cope with these profound changes.

The demand for higher-order skills and competencies is both economic and social. The employment rate of adults with a tertiary degree is about 9 percentage points higher than for those with upper secondary education only, and they earn on average 57% more. Tertiary-educated adults are also more likely to be in good health, take care of the environment, or participate in public life.

Yet with these great strides comes greater uncertainty. Although the rise of artificial intelligence is expected to result in increased productivity in a number of sectors, it is also fundamentally changing the way some jobs are carried out. While widespread access to information has made it easier to learn than ever before, it has also accelerated the pace of change, leaving many wondering how to adapt and struggling to keep up. Globalisation, while providing many opportunities, has also triggered fierce competition for skills.

Countries have responded to these challenges by expanding access to education and learning. Financial support mechanisms have alleviated some of the burden of pursuing additional studies, promising high returns and flexible reimbursement options. The traditional linear progression through education, from primary through tertiary, is being gradually replaced by a more holistic vision of lifelong learning. As market demand for skills evolves quicker than some educational institutions may anticipate, many of these institutions are promoting flexible pathways into tertiary education and seeking partnerships with other players, including employers, industry and training institutions. While these policies help promote tertiary education to a growing share of adults, educational institutions must balance larger enrolments with the need to contain costs, and maintain the relevance and quality of their programmes.

Meeting the demand for higher-order skills

Recognising these challenges, this year's edition of *Education at a Glance* focuses on tertiary education. It shows that the demand for tertiary skills in the labour market remains strong in spite of the increasing supply of graduates, and that the earnings advantage of tertiary-educated adults grows with age and professional experience. Bachelor's programmes remain the most common route of entry into tertiary education: the share of young adults attaining a bachelor's degree - 24% - is larger than it has ever been.

Ensuring the right supply of skills in a rapidly changing world is challenging. Adult participation in education and training is on average 40 percentage points lower among low-educated adults – those that need it most- – than it is for highly educated ones. Still less than 15% of new entrants to bachelor's programmes study engineering, manufacturing and construction and less than 5% study information and communication technologies – even though these fields are most commonly associated with technological progress and yield the best labour-market outcomes.

The share of the population attaining a master's or doctoral degree has remained constant across generations. These degrees continue to be in high demand and offer attractive returns on the initial investment. While the average annual cost is similar to that of a bachelor's degree programme in more than half of OECD countries, graduates of these programmes earn 32% more, on average.

Tertiary education admissions systems are pivotal in ensuring that upper secondary students make a smooth transition to tertiary education. More than half of countries and economies have open admissions into public tertiary education systems, whereas other countries use selective criteria, such as academic performance, examinations and, in some cases, upper secondary programme orientation. Selective systems may seem more effective in ensuring that students actually complete a degree by enabling only those students with the required skills to enter. However, completion patterns can be similar across countries with very different admissions systems. Only 39% of bachelor's degree students graduate within the theoretical duration of their programme; another 28% do so during the following three years, on average across countries with data.

This all comes at a cost. Between 2005 and 2016, spending on tertiary institutions increased at more than double the rate of student enrolments to about USD 15 600 per student on average across OECD countries. Across the majority of OECD countries, private sources have been called on to contribute more as countries introduce or raise tuition fees. Most of this increase in spending has been devoted to core education services; the number of academic staff at the tertiary level increased on average by about 1% over this period, almost on par with the number of students enrolled.

Refining – and redefining – education pathways

While education helps individuals acquire the skills needed to contribute to society, the expansion of tertiary education will only be sustainable if it balances the supply of graduates with labour market needs. Easy access to funding and open admissions risks promoting tertiary education at the expense of other, much-needed vocational and professional qualifications, which are often perceived as less attractive pathways.

The Sustainable Development Goal on education (SDG 4) reminds us of the importance of equal access to quality education and lifelong learning opportunities, whatever those may be. The Goal recognises the many alternative paths young people and adults can take to acquire the necessary skills to ease their transition into the labour market and live better lives. In particular, SDG 4.3 aims to "by 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university". The SDG 4 agenda provides a range of indicators to measure participation in education and the skills acquired throughout a lifetime, encompassing levels in and outside of compulsory education, and considering a wide range of programmes that include both formal and non-formal education.

This edition's chapter on the Sustainable Development Goals describes the pathways that young people take throughout their journey: the transition from secondary to higher levels of education and from education into the labour market. It finds that, on average across OECD countries, about one in six 15-24 year-olds are enrolled in vocational programmes. The attainment gap among young tertiary-educated adults and those with upper secondary has narrowed. In 2018, the share of young adults with an upper secondary or post-secondary non-tertiary qualification, 41%, is almost equal to the share attaining tertiary education, 44%.

Everyone hopes to be able to choose from among solid, well-paying career opportunities, enjoy a smooth progression through that career, and find a sense of purpose in life. As education leaders, it is our responsibility to help students sort through the breadth of opportunities and make informed decisions about their future. It is also our responsibility to make a broad range of pathways attractive to students and equip them with the skills to navigate through an unpredictable and changing world. To achieve this, we must expand opportunities, broaden the options of programmes and qualifications, and build stronger bridges with the labour market. This also means investing in student orientation and guidance so that each student finds his or her place in society and can contribute to his or her full potential. Only then will students be able to acquire the knowledge that can carry them forward, the kind of knowledge that can change their lives.



Angel Gurría
OECD Secretary-General

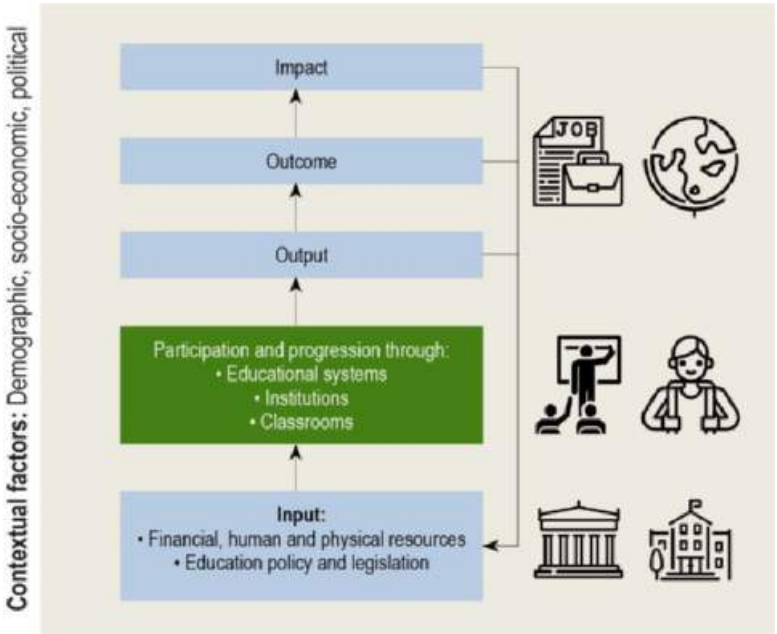
Introduction: The indicators and their framework

The organising framework

Education at a Glance 2019: OECD Indicators offers a rich, comparable and up-to-date array of indicators that reflect a consensus among professionals on how to measure the current state of education internationally. The indicators provide information on the human and financial resources invested in education, how education and learning systems operate and evolve, and the returns to investments in education. They are organised thematically, each accompanied by information on the policy context and interpretation of the data.

The indicators are organised within a framework that distinguishes between the actors in education systems, groups them according to the types of issues they address, and examines contextual factors that influence policy (Figure A). In addition to these dimensions, the time perspective makes it possible to visualise dynamic aspects of the development of education systems.

Figure A. Organising framework of indicators in *Education at a Glance*



Actors in education systems

The OECD Indicators of Education Systems (INES) programme seeks to gauge the performance of national education systems as a whole, rather than to compare individual institutional or other subnational entities. However, there is increasing recognition that many important features of the development, functioning and impact

of education systems can only be assessed through an understanding of learning outcomes and their relationships to inputs and processes at the level of individuals and institutions.

To account for this, the first dimension of the organising framework distinguishes the three levels of actors in education systems:

- education systems as a whole
- providers of educational services (institutions, schools), as well as the instructional setting within those institutions (classrooms, teachers)
- individual participants in education and learning, the students. These can be either children or young adults undergoing initial schooling and training or adults pursuing lifelong learning programmes.

Indicator groups

The second dimension of the organising framework further groups the indicators into three categories:

- *Indicators on the output, outcomes and impact of education systems*: Output indicators analyse the characteristics of those exiting the system, such as their educational attainment. Outcome indicators examine the direct effect of the output of education systems, such as the employment and earning benefits of pursuing higher education. Impact indicators analyse the long-term indirect effect of the outcomes, such as knowledge and skills acquired, contributions to economic growth and societal well-being, and social cohesion and equity.
- *Indicators on the participation and progression within education entities*: These indicators assess the likelihood of students accessing, enrolling in and completing different levels of education, as well as the various pathways followed between types of programmes and across education levels.
- *Indicators on the input into education systems or the learning environment*: These indicators provide information on the policy levers that shape the participation, progression, outputs and outcomes at each level. Such policy levers relate to the resources invested in education, including financial, human (such as teachers and other school staff), or physical resources (such as buildings and infrastructure). They also relate to policy choices regarding the instructional setting of classrooms, pedagogical content and delivery of the curriculum. Finally, they analyse the organisation of schools and education systems, including governance, autonomy and specific policies to regulate participation of students in certain programmes.

Contextual factors that influence policy

Policy levers typically have antecedents, external factors that define or constrain policy but are not directly connected to the policy topic at hand. Demographic, socio-economic and political factors are all important national characteristics to take into account when interpreting indicators. The recent financial crisis, for example, had a significant impact on public funds available to education.

The characteristics of the students themselves, such as their gender, age, socio-economic status or cultural background, are also important contextual factors that influence the outcomes of education policy.

Indicator analysis using the framework

This versatile framework can be used to understand the operation and functioning of any educational entity, from an education system as a whole to a specific level of education or programme, or even a smaller entity, such as a classroom.

This versatility is important because many features of education systems have varying impacts at different levels of the system. For example, at the level of students within a classroom, the relationship between student

achievement and class size may be negative, if students in small classes benefit from improved interactions with teachers. At the class or school level, however, weaker or disadvantaged students are often intentionally grouped and placed in smaller classes so that they receive more individual attention. At the school level, therefore, the observed relationship between class size and student achievement is often positive, suggesting that students in larger classes perform better than students in smaller classes. At higher levels of aggregation, the relationship between student achievement and class size is further confounded by the socio-economic intake of individual schools or by factors relating to the learning culture in different countries. Therefore, to interpret the indicators, it is important to fully understand the relationships between them.

Analysis of each element of the framework and the interplay between them contribute to understanding a variety of policy perspectives:

- quality of education outcomes and education opportunities
- equality of education outcomes and equity in education opportunities
- adequacy, effectiveness and efficiency of resources invested in education
- relevance of education policy measures to improve education outcomes.

The structure of chapters and indicators in *Education at a Glance*

The indicators published in *Education at a Glance 2019* have been developed within this framework. The chapters are structured through the lens of the education system as a whole, although the indicators themselves are disaggregated and analysed across different levels of education and education settings, and may therefore speak to more than one element of the framework.

Chapter A, *The output of educational institutions and the impact of learning*, contains indicators on the output, outcomes and impact of education in the form of the overall attainment of the population, as well as the learning, economic and social outcomes (Figure A). Through this analysis, the indicators in this chapter provide context to shape policies on lifelong learning. They also provide insights into the policy levers needed to address areas where outcomes and impact may not be aligned with national strategic objectives.

Chapter B, *Access to education, participation and progression*, considers the full education system from early childhood to tertiary education and provides indicators on the enrolment, progression and completion of students at each level and programme (Figure A). These indicators can be considered a mixture of output and outcome, to the extent that the output of each education level serves as input to the next and that progression is the result of policies and practices at classroom, institution and system levels. But they can also provide context to identify areas where policy intervention is necessary to address issues of inequity, for example, or to encourage international mobility.

Chapters C and D relate to the input into educational systems (Figure A):

- **Chapter C**, *Financial resources invested in education*, provides indicators on investment in education and educational institutions and how that investment is shared between public and private sources. These indicators are mainly policy levers, but they also help to explain specific learning outcomes. For example, expenditure on educational institutions per student is a key policy measure that most directly affects individual learners, but it also acts as a constraint on the learning environment in schools and learning conditions in the classroom.
- **Chapter D**, *Teachers, the learning environment and organisation of schools*, provides indicators on instruction time, teachers' working time, and teachers' and school heads' salaries. These indicators not only represent policy levers that can be manipulated, but also provide contexts for the quality of instruction and for the outcomes of individual learners. This chapter also presents data on the profile of teachers, and on admission systems to tertiary education.

In addition to the regular indicators and core statistics published, *Education at a Glance* also contains analytical work in textboxes. This work usually provides research elements that contribute to the understanding of the indicator, or additional analysis of a smaller number of countries that complement the findings presented.

The Sustainable Development Goal 4

In September 2015, world leaders gathered to set ambitious goals for the future of the global community. Goal 4 of the Sustainable Development Goals (SDGs) seeks to ensure "inclusive and equitable quality education and promote lifelong learning opportunities for all". Each target of the SDG 4 framework has at least one global indicator and a number of related thematic indicators designed to complement the analysis and the measurement of the target.

UNESCO oversees the education SDG agenda in the context of the United Nations-led SDG framework. As the custodian agency for most of the SDG 4 indicators, the UNESCO Institute of Statistics (UIS) is co-ordinating global efforts to develop the indicator framework to monitor progress towards SDG 4 targets. In addition to collecting data, UIS works with partners to develop new indicators, statistical approaches and monitoring tools to better assess progress across the education-related SDG targets.

In this context, the OECD's education programmes have a key role to play in the achievement of – and measuring progress towards – SDG 4 and its targets. There is a high level of complementarity between the SDG 4 agenda and the OECD's education policy tools, instruments, evidence and dialogue platforms. The OECD is working with UIS, the SDG 4 Steering Committee and the technical working groups that have been put in place to help build a comprehensive data system for global reporting, agree on the data sources and formulae used for reporting on the SDG 4 global indicators and on selected thematic indicators for OECD member countries and partner countries.

As part of this global effort to advance the dialogue and progress of the SDG monitoring, *Education at a Glance* continues to devote a chapter to this universal education agenda. The chapter aims to provide an assessment of where OECD and partner countries stand on their way to meeting the SDG targets. Depending on the focus of each edition, the selected global and thematic SDG indicators presented may differ from year to year. Thus, the SDG presentation draws on the general framework of *Education at a Glance*.

Tertiary education in *Education at a Glance 2019*

As the selected theme for this year's publication, tertiary education is at the forefront of *Education at a Glance 2019*. Tertiary education has seen unprecedented growth in the past decade and is presented as one of the paths through which young people can succeed in life. There is increasing policy interest in providing comparative analysis of the progression of students, the outcomes of graduates and the resources invested. Therefore, a large number of indicators in this year's edition analyse students' participation and progression through tertiary education, as well as the economic, labour market and social outcomes of tertiary-educated adults. The analysis also includes indicators on the resources invested in tertiary education, both financial and human. This year, three new indicators complement the set of indicators, offering additional analysis on tertiary completion rates, doctoral graduates and their labour-market outcomes, and tertiary admission systems.

In line with this general focus of the publication, the SDG chapter in this year's edition focuses on youth learning pathways and helps inform the debate on youth prospects and youth employment in OECD and partner countries, in the light of the Sustainable Development Agenda. Building not only on SDG 4 (quality education) but also on SDG 8 (decent work and economic growth), the chapter describes the pathways that youth can take throughout their journey: the transition from secondary to higher levels of education, and their progression through higher levels of education, and from education into the labour market.

Table A below summarises the indicators and chapters that contribute to the analysis of tertiary education in this year's edition.

Table A. Indicators including an analysis of tertiary education in *Education at a Glance 2019*

Chapter	Indicator number	Indicator	Tertiary education content
Chapter A: The output of educational institutions and the impact of learning	A1	To what level have adults studied?	X
	A2	Transition from education to work: Where are today's youth?	X
	A3	How does educational attainment affect participation in the labour market?	X
	A4	What are the earnings advantages from education?	X
	A5	What are the financial incentives to invest in education?	X
	A6	How are social outcomes related to education?	X
	A7	To what extent do adults participate equally in education and learning?	X
Chapter B: Access to education, participation and progression	B1	Who participates in education?	X
	B2	How do early childhood education systems differ around the world?	
	B3	Who is expected to graduate from upper secondary education?	
	B4	Who is expected to enter tertiary education?	X
	B5	Who is expected to complete tertiary education?	X
	B6	What is the profile of internationally mobile students?	X
	B7	What are the characteristics and outcomes of doctoral graduates?	X
Chapter C: Financial resources invested in education	C1	How much is spent per student on educational institutions?	X
	C2	What proportion of national wealth is spent on educational institutions?	X
	C3	How much public and private investment in educational institutions is there?	X
	C4	What is the total public spending on education?	X
	C5	How much do tertiary students pay and what public support do they receive?	X
	C6	On what resources and services is education funding spent?	X
	C7	Which factors influence teachers' salary cost?	
Chapter D: Teachers, the learning environment and the organisation of schools	D1	How much time do students spend in the classroom?	
	D2	What is the student-teacher ratio and how big are classes?	X
	D3	How much are teachers and school heads paid?	X
	D4	How much time do teachers spend teaching?	
	D5	Who are the teachers?	X
	D6	What are the admission systems for tertiary education?	X

Reader's guide

Coverage of the statistics

Although a lack of data still limits the scope of the indicators in many countries, the coverage extends, in principle, to the entire national education system (within the national territory), regardless of who owns or sponsors the institutions concerned and regardless of how education is delivered. With one exception (described below), all types of students and all age groups are included: children (including students with special needs), adults, nationals, foreigners and students in open-distance learning, in special education programmes or in education programmes organised by ministries other than the ministry of education, provided that the main aim of the programme is to broaden or deepen an individual's knowledge. Vocational and technical training in the workplace, with the exception of combined school- and work-based programmes that are explicitly deemed to be part of the education system, is not included in the basic education expenditure and enrolment data.

Educational activities classified as "adult" or "non-regular" are covered, provided that the activities involve the same or similar content as "regular" education studies, or that the programmes of which they are a part lead to qualifications similar to those awarded in regular education programmes.

Courses for adults that are primarily for general interest, personal enrichment, leisure or recreation are excluded.

More information on the coverage of the indicators presented in *Education at a Glance* can be found in the *OECD Handbook for Internationally Comparable Statistics on Education 2018* (OECD, 2018[1]).

Comparability over time

The indicators in *Education at a Glance* are the result of a continuous process of methodological improvement aimed at improving the robustness and international comparability of the indicators. As a result, when analysing indicators over time, it is strongly advised to do so within the most recent edition only, rather than comparing data across different editions. All comparisons over time presented in this report are based on annual revisions of historical data and the methodological improvements which have been implemented in this edition.

Country coverage

This publication features data on education from all OECD countries;[1] two partner countries that participate in the OECD Indicators of Education Systems programme (INES), namely Brazil and the Russian Federation; and other partner G20 and OECD accession countries that are not INES members (Argentina, the People's Republic of China, Costa Rica, India, Indonesia, Saudi Arabia and South Africa). Data sources for the non-INES participating countries can come from the regular INES data collections, from the UNESCO Institute of Statistics or from Eurostat.

In some instances, and where relevant, a country may be represented through its subnational entities or specific regions.

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.

Note on subnational regions

When interpreting the results on subnational entities, readers should take into account their population as well as their geographical size. For example, in Canada, the population of Nunavut was 37 996 in 2017 and the territory covers 1.9 million square kilometres, while the population of the province of Ontario is 14.2 million and the territory covers 909 000 square kilometres (OECD, 2019[2]). Also, regional disparities tend to be higher when more subnational entities are used in the analysis, especially in big countries like Canada, the Russian Federation or the United States.

Names used for territorial entities

For consistency, national and subnational entities are referred to as "countries" and "economies", respectively, in the whole publication. Territorial and subnational entities are referred to throughout the publication by their subnational name and country, e.g. England (United Kingdom). For consistency with other indicators from *Education at a Glance*, the subnational entity "Flanders (Belgium)" used in the OECD Programme for the International Assessment of Adults (Survey of Adult Skills [PIAAC]) and the Teaching and Learning International Survey (TALIS) will be referred to by the name "Flemish Community of Belgium" throughout the publication. The Flemish Community of Belgium and French Community of Belgium are abbreviated in the tables and figures as "Flemish Comm. (Belgium)" and "French Comm. (Belgium)".

Calculation of international means

The main purpose of *Education at a Glance* is to provide an authoritative compilation of key international comparisons of education statistics. While overall values are given for countries in these comparisons, readers should not assume that countries themselves are homogeneous. The country averages include significant variations among subnational jurisdictions, much as the OECD average encompasses a variety of national experiences.

For many indicators, an OECD average is presented; for some, an OECD total is shown. The **OECD average** is calculated as the unweighted mean of the data values of all OECD countries[2] for which data are available or can be estimated. The OECD average therefore refers to an average of data values at the level of the national systems and can be used to answer the question of how an indicator value for a given country compares with the value for a typical or average country. It does not take into account the absolute size of the education system in each country.

The **OECD total** is calculated as the weighted mean of the data values of all OECD countries[3] for which data are available or can be estimated. It reflects the value for a given indicator when the OECD area is considered as a whole. This approach is taken for the purpose of comparing, for example, expenditure charts for individual countries with those of the entire OECD area for which valid data are available, with this area considered as a single entity.

For tables using trend series, an additional average is calculated for countries providing data for all reference years used. This allows for a comparison of the OECD average over time with no distortion due to the exclusion of certain countries in the different years.

For many indicators, an **EU23 average** is also presented. It is calculated as the unweighted mean of the data values of the 23 countries that are members of both the European Union and the OECD for which data are available or can be estimated. These 23 countries are Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom. For some indicators, a **G20 average** is presented. The G20 average is calculated as the unweighted mean of the data values of all G20 countries for which data are available or can be estimated (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, the Russian Federation, Saudi Arabia, South Africa, Turkey, the United Kingdom and the United States; the European Union is the 20th member of the

G20 but is not included in the calculation). The G20 average is not computed if data for both China and India are not available.

OECD, EU23 and G20 averages and totals can be significantly affected by missing data. In the case of some countries, data may not be available for specific indicators, or specific categories may not apply. Therefore, readers should keep in mind that the term "OECD/EU23/G20 average" refers to the OECD, EU23 or G20 countries included in the respective comparisons. Averages are not calculated if more than 40% of countries have missing information or have information included in other columns.

For some indicators, an **average** is presented. The average corresponds to the arithmetic mean of the estimates included in the table or figure.

Classification of levels of education

The classification of levels of education is based on the International Standard Classification of Education (ISCED). ISCED is an instrument for compiling statistics on education internationally. ISCED-97 was recently revised, and the new International Standard Classification of Education (ISCED 2011) was formally adopted in November 2011 and is now the basis of the levels presented in this publication, with the exception of tables showing data from the Survey of Adult Skills (PIAAC), which uses the previous ISCED-97 Classification.

Table B. Education levels under the ISCED-2011 Classification

Terms used in this publication	ISCED classification
Early childhood education Refers to early childhood programmes that have an intentional education component and aim to develop cognitive, physical and socio-emotional skills necessary for participation in school and society. Programmes at this level are often differentiated by age.	ISCED 0 (sub-categories: 01 for early childhood educational development and 02 for pre-primary education)
Primary education Designed to provide a sound basic education in reading, writing and mathematics and a basic understanding of some other subjects. Entry age: between 5 and 7. Typical duration: 6 years.	ISCED 1
Lower secondary education Completes provision of basic education, usually in a more subject-oriented way with more specialist teachers. Programmes may differ by orientation, general or vocational, though this is less common than at upper secondary level. Entry follows completion of primary education and typical duration is 3 years. In some countries, the end of this level marks the end of compulsory education.	ISCED 2
Upper secondary education Stronger specialisation than at lower secondary level. Programmes offered are differentiated by orientation: general or vocational. Typical duration is 3 years.	ISCED 3
Post-secondary non-tertiary education Serves to broaden rather than deepen the knowledge, skills and competencies gained in upper secondary level. Programmes may be designed to increase options for participants in the labour market, for further studies at tertiary level, or both. Usually, programmes at this level are vocationally oriented.	ISCED 4
Short-cycle tertiary education Often designed to provide participants with professional knowledge, skills and competencies. Typically, they are practically based, occupation-specific and prepare students to enter the labour market directly. They may also provide a pathway to other tertiary education programmes (ISCED levels 6 or 7). The minimum duration is 2 years.	ISCED 5
Bachelor's or equivalent level Designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. Typical duration: 3-4 years full-time study.	ISCED 6
Master's or equivalent level Stronger specialisation and more complex content than bachelor's level. Designed to provide participants with advanced academic and/or professional knowledge. May have a substantial research component. Programmes of at least five years' duration preparing for a long first degree/qualification are included at this level if they are equivalent to a master's level programmes in terms of their complexity and content.	ISCED 7
Doctoral or equivalent level Designed to lead to an advanced research qualification. Programmes at this level are devoted to advanced study and original research, and exist in both academic and professional fields.	ISCED 8

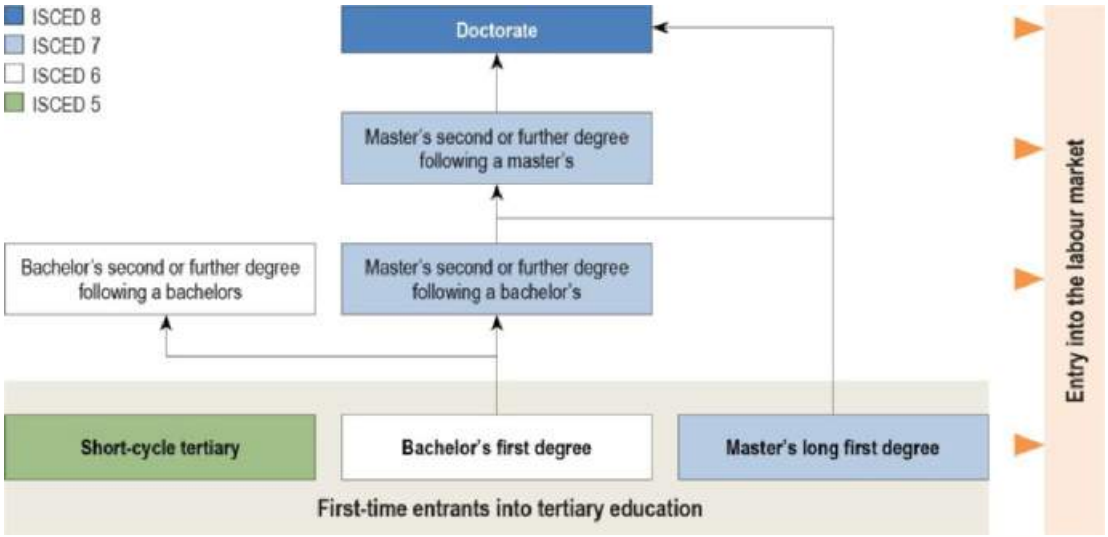
In some indicators, intermediate programmes are also used. These correspond to recognised qualifications from an ISCED 2011 level programme, which is not considered as sufficient for ISCED 2011 completion and is classified at a lower ISCED 2011 level.

Table B lists the ISCED 2011 levels used in the publication (OECD/Eurostat/UNESCO Institute for Statistics, 2015[3]). Tertiary education, the focus of this year's publication, builds on secondary education and provides learning activities in specialised fields of study. Tertiary education includes what is commonly understood as academic education, but also includes advanced vocational or professional education. It comprises ISCED levels 5 (short-cycle tertiary programmes), 6 (bachelor's), 7 (master's) and 8 (doctoral). Successful completion of an upper secondary programme is a requirement to enter tertiary education, and students can enter through short-cycle tertiary programmes, bachelor's, or master's long first degrees (Figure B). Access may also be possible from ISCED level 4 (post-secondary non-tertiary).

Fields of education and training

Within ISCED, programmes and related qualifications can be classified by fields of education and training as well as by levels. Following the adoption of ISCED 2011, a separate review and global consultation process took place on the ISCED fields of education. The ISCED fields were revised, and the UNESCO General Conference adopted the ISCED 2013 Fields of Education and Training classification (ISCED-F 2013) (UNESCO-UIS, 2014[4]) in November 2013 at its 37th session. The broad ISCED-F fields considered in this publication are education; arts and humanities; social sciences, journalism and information; business, administration and law; natural sciences, mathematics and statistics; information and communication technologies (ICT); engineering, manufacturing and construction; and health and welfare. Throughout this publication, the term "field of study" is used to refer to the different fields of this classification.

Figure B. Tertiary education pathways



Source: OECD/Eurostat/UNESCO Institute for Statistics (2015[3]), *ISCED 2011 Operational Manual: Guidelines for Classifying National Education Programmes and Related Qualifications*, https://dx.doi.org/10.1787/9789264228368-en.

Standard error (S.E.)

The statistical estimates presented in this report are based on samples of adults, rather than values that could be calculated if every person in the target population in every country had answered every question. Therefore, each estimate has a degree of uncertainty associated with sampling and measurement error, which can be

expressed as a standard error. The use of confidence intervals is a way to make inferences about the population means and proportions in a manner that reflects the uncertainty associated with the sample estimates. In this report, confidence intervals are stated at a 95% level. In other words, the result for the corresponding population would lie within the confidence interval in 95 out of 100 replications of the measurement on different samples drawn from the same population.

In tables showing standard errors, the column with the heading "%" indicates the average percentage, and the column with the heading "S.E." indicates the standard error. Given the survey method, there is a sampling uncertainty in the percentages (%) of twice the standard error (S.E.). For example, for the values % = 10 and S.E. = 2.6, 10% has an uncertainty zone of twice (1.96) the standard error of 2.6, assuming an error risk of 5%. Thus, the true percentage would probably (error risk of 5%) be somewhere between 5% and 15% ("confidence interval"). The confidence interval is calculated as: % +/– 1.96 * S.E., i.e. for the previous example, 5% = 10% – 1.96 * 2.6 and 15% = 10% + 1.96 * 2.6.

Symbols for missing data and abbreviations

These symbols and abbreviations are used in the tables and figures:

a Data are not applicable because the category does not apply.

b There is a break in the series (for example when data for the latest year refer to ISCED 2011 and data for previous years refer to ISCED-97).

c There are too few observations to provide reliable estimates.

d Includes data from another category.

m Data are not available – either missing or the indicator could not be computed due to low respondent numbers.

r Values are below a certain reliability threshold and should be interpreted with caution.

q Data have been withdrawn at the request of the country concerned.

x Data included in another category or column of the table (e.g. x(2) means that data are included in Column 2 of the table).

Further resources

The website www.oecd.org/education/education-at-a-glance-19991487.htm provides information on the methods used to calculate the indicators, on the interpretation of the indicators in the respective national contexts, and on the data sources involved. The website also provides access to the data underlying the indicators and to a comprehensive glossary for technical terms used in this publication.

All post-production changes to this publication are listed at www.oecd.org/publishing/corrigenda (corrections) and http://dx.doi.org/10.1787/eag-data-en (updates).

Education at a Glance uses the OECD's *StatLinks* service. Below each table and figure in *Education at Glance 2019* is a URL that leads to a corresponding Excel file containing the underlying data for the indicator. These URLs are stable and will not change. In addition, readers of the *Education at a Glance* e-book will be able to click directly on these links and the workbook will open in a separate window.

The Education at a Glance Database on OECD.stat (http://stats.oecd.org/) houses the raw data and indicators presented in *Education at a Glance*, as well as the metadata that provides context and explanations for countries' data. The Education at a Glance Database allows users to break down data in more ways than is possible in this publication in order to conduct their own analyses of education systems in participating countries. The Education at a Glance Database can be accessed from the OECD.stat site under the heading "Education and Training".

Layout of tables

In all tables, the numbers in parentheses at the top of the columns are simply used for reference. When a consecutive number does not appear, that column is available on line only.

Abbreviations used in this report

ICT	Information and communication technologies
ISCED	International Standard Classification of Education
PIAAC	Programme for the International Assessment of Adult Competencies
PPP	Purchasing power parity
S.E.	Standard error
STEM	Science, technology, engineering and mathematics
UIS	UNESCO Institute of Statistics
UOE	Refers to the data collection managed by the three organisations, UNESCO, OECD, Eurostat

References

OECD (2019), *OECD Regional Statistics Database*, http://stats.oecd.org/Index.aspx?DataSetCode=REGION_DEMOGR. [2]

OECD (2018), *OECD Handbook for Internationally Comparative Education Statistics: Concepts, Standards, Definitions and Classifications*, OECD Publishing, Paris, https://doi.org/10.1787/9789264304444-en. [1]

OECD/Eurostat/UNESCO Institute for Statistics (2015), *ISCED 2011 Operational Manual: Guidelines for Classifying National Education Programmes and Related Qualifications*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264228368-en. [3]

UNESCO-UIS (2014), *ISCED Fields of Education and Training 2013 (ISCED-F 2013): Manual to Accompany the International Standard Classification of Education 2011; 2014*, UNESCO Institute for Statistics, Montreal, http://dx.doi.org/10.15220/978-92-9189-150-4-en (accessed on 18 April 2018). [4]

Notes

[1] On 25 May 2018, the OECD Council invited Colombia to become a Member. While Colombia is included in the OECD averages reported in this publication, at the time of its preparation, Colombia was in the process of completing its domestic procedures for ratification and the deposit of Colombia's instrument of accession to the OECD Convention was pending.

[2] See Note 1.

[3] See Note 1.

Executive summary

Demand for tertiary education is still strong despite a larger supply of graduates

In 2018, 44% of 25-34 year-olds held a tertiary degree, compared to 35% in 2008, on average across OECD countries. The expansion of the population of adults with a bachelor's degree has contributed the most to this growth. The employment advantage of young tertiary-educated adults over those with upper secondary education has remained fairly constant over the past decade. Tertiary-educated adults are more resilient against long-term unemployment and, in 2018, their employment rate was 9 percentage points higher than that of adults with upper secondary education. Tertiary-educated adults also reap higher earnings, although this varies by field of study. Their advantage increases with age too: 25-34 year-olds with tertiary education earn 38% more than their peers with upper secondary education while 45-54 year-olds earn 70% more.

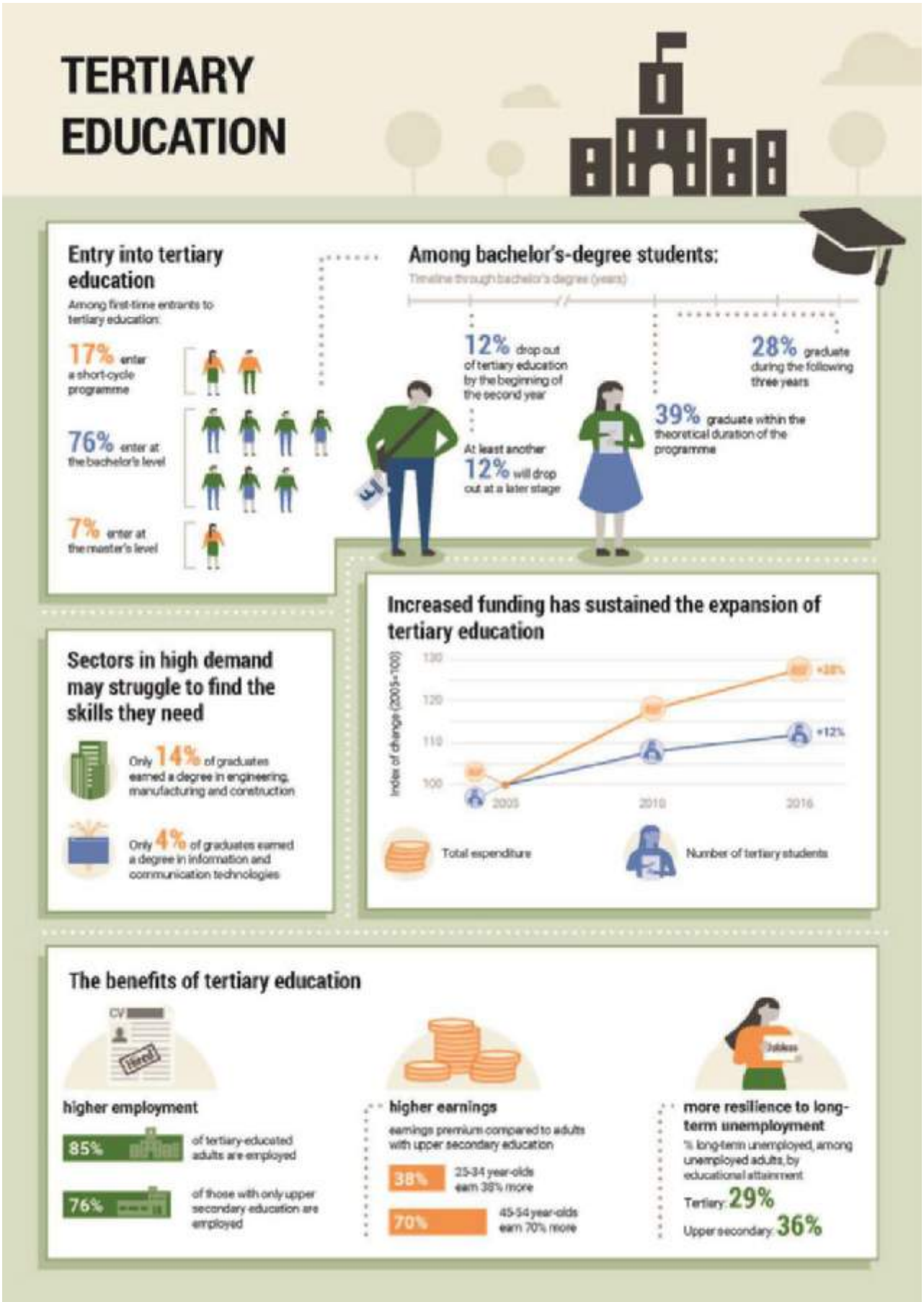
Education systems have facilitated access to tertiary education yet some gaps remain

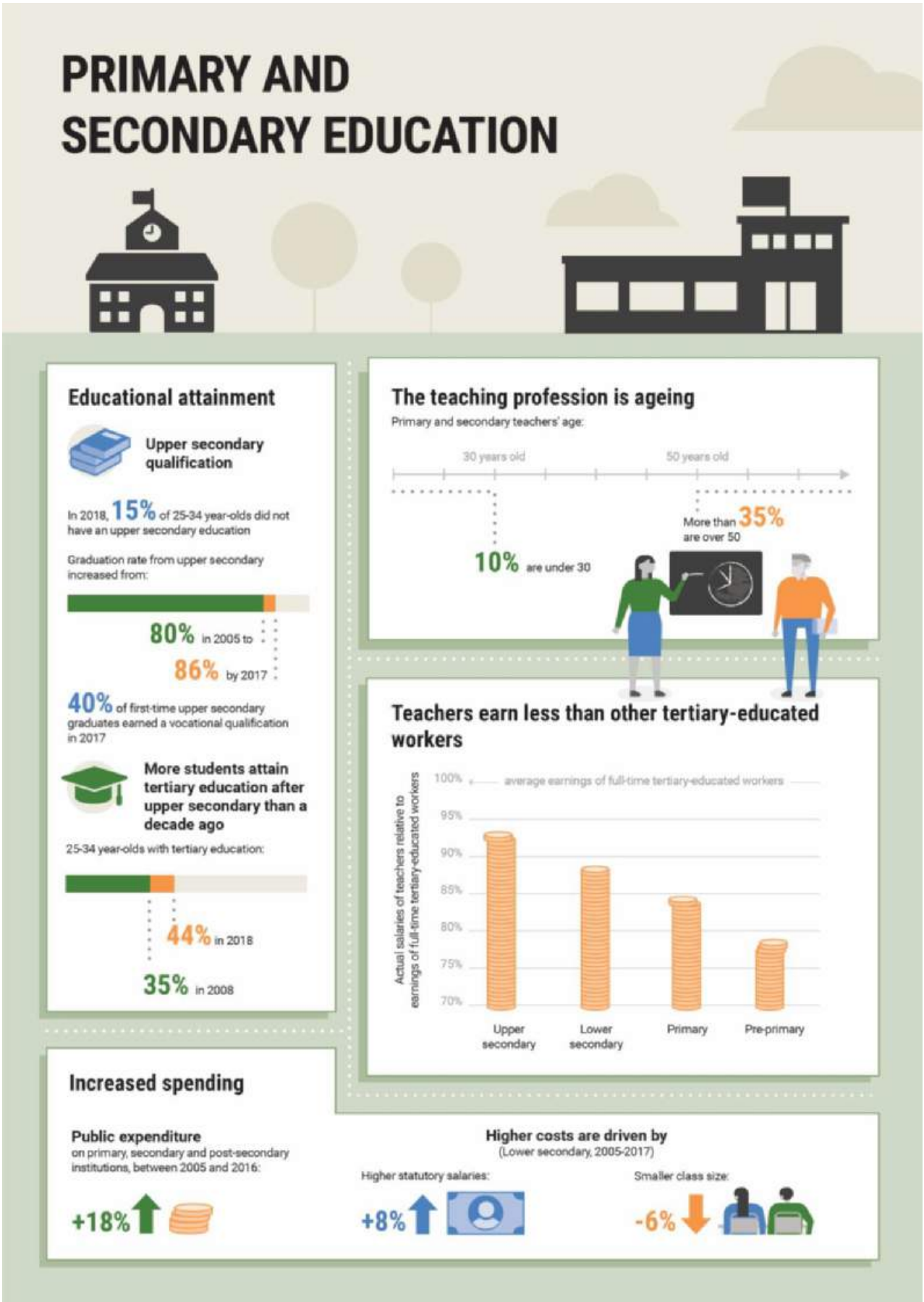
Providing financial support mechanisms has helped make tertiary education more accessible to more people. In countries with the highest tuition fees, more than 70% of students benefit from grants or loans. Progression to master's or doctoral level has remained constant across generations despite attractive returns on the initial investment. The annual cost of these programmes is similar to that of a bachelor's degree in more than half of OECD countries with data, while earnings are 32% higher, on average.

Some sectors still struggle to find the skilled workers they need. While engineering, manufacturing and construction, and information and communication technologies are two fields most commonly associated with the best labour market outcomes, only 14% of graduates earned a degree in the former and 4% earned a degree in the latter in 2017. Women are particularly under-represented: less than 25% of entrants into these fields are women, on average across OECD countries.

Transitions from upper secondary education and tertiary admissions systems influence progression through education

More than 40% of 19-20 year-olds in nearly half of OECD countries are enrolled in tertiary programmes and the average age at entry into a bachelor's programme ranges from 18 in Japan to 25 in Switzerland. Countries where a larger share of students enrol in general upper secondary programmes are more likely to show larger enrolment in tertiary education at younger ages. Entry into tertiary education is open in more than half of countries and economies, whereas other countries use selective criteria, such as academic performance, examinations and, in some cases, upper secondary programme orientation. On average across OECD countries, 17% of first-time entrants into tertiary education enter a short-cycle programme compared to 76% who enter at the bachelor's level and 7% at the master's level. However, by the beginning of the second year of study, an average of 12% of bachelor's degree students have left the tertiary education system. Only 39% of those who enter a bachelor's programme graduate within the theoretical duration of the programme; another 28% graduate during the following three years. Male students and those from a vocational upper secondary programme are generally less likely to enter and complete a tertiary degree. Tertiary education plays an important role in lifelong learning: more than three in four 30-39 year-olds in education attend a tertiary programme, on average across OECD countries.


TERTIARY EDUCATION
Entry into tertiary education
Among first-time entrants to tertiary education:
17% enter a short-cycle programme
76% enter at the bachelor's level
7% enter at the master's level
Among bachelor's-degree students:
Timeline through bachelor's degree (years)
12% drop out of tertiary education by the beginning of the second year
At least another 12% will drop out at a later stage
28% graduate during the following three years
39% graduate within the theoretical duration of the programme
Increased funding has sustained the expansion of tertiary education
Index of change (2005=100)
130
120
110
100
2005
2010
2016
+18%
+12%
Total expenditure
Number of tertiary students
Sectors in high demand may struggle to find the skills they need
Only 14% of graduates earned a degree in engineering, manufacturing and construction
Only 4% of graduates earned a degree in information and communication technologies
The benefits of tertiary education
CV
Hired
higher employment
85% of tertiary-educated adults are employed
76% of those with only upper secondary education are employed
higher earnings
earnings premium compared to adults with upper secondary education
38% 25-34 year-olds earn 38% more
70% 45-54 year-olds earn 70% more
more resilience to long-term unemployment
% long-term unemployed, among unemployed adults, by educational attainment
Tertiary: 29%
Upper secondary: 36%


PRIMARY AND SECONDARY EDUCATION
Educational attainment
Upper secondary qualification
In 2018, 15% of 25-34 year-olds did not have an upper secondary education
Graduation rate from upper secondary increased from:
80% in 2005 to
86% by 2017
40% of first-time upper secondary graduates earned a vocational qualification in 2017
More students attain tertiary education after upper secondary than a decade ago
25-34 year-olds with tertiary education:
44% in 2018
35% in 2008
The teaching profession is ageing
Primary and secondary teachers' age:
30 years old
50 years old
10% are under 30
More than 35% are over 50
Teachers earn less than other tertiary-educated workers
Actual salaries of teachers relative to earnings of full-time tertiary-educated workers
100%
average earnings of full-time tertiary-educated workers
95%
90%
85%
80%
75%
70%
Upper secondary
Lower secondary
Primary
Pre-primary
Increased spending
Public expenditure
on primary, secondary and post-secondary institutions, between 2005 and 2016:
+18%
Higher costs are driven by
(Lower secondary, 2005-2017)
Higher statutory salaries:
+8%
Smaller class size:
-6%

Increased funding has sustained the expansion of tertiary education

Between 2005 and 2016, spending on tertiary institutions increased by 28%, on average across OECD countries, more than double the rate of student enrolments (12%). However, both the number of students and total spending have increased at a slower pace since 2010. In 2016, expenditure per tertiary student amounted to USD 15 556, approximately one-third of which was devoted to research and development. While private sources financed more than 30% of the expenditure, on average, tuition fees for bachelor programmes increased by more than 20% between 2007 and 2017 in half of the countries with data. Human resources in tertiary education have also expanded in most countries. Between 2005 and 2017, the number of academic staff at the tertiary level across OECD countries increased at an average rate of 1% per year, a rate similar to that of tertiary enrolments.

Graduation rates from upper secondary education have increased over the past decade

Although graduation from upper secondary education increased by 6 percentage points between 2005 and 2017, 15% of 25-34 year-olds did not attain upper secondary education in 2018, on average across OECD countries. In some countries, vocational programmes are prominent at the upper secondary level. On average across OECD countries, 40% of first-time upper secondary graduates earned a vocational qualification in 2017; in Austria, the Czech Republic, the Slovak Republic and Slovenia, more than 66% of this population did. OECD countries spent an average of 3.5% of GDP on primary, secondary and post-secondary non-tertiary institutions in 2016, and public expenditure at this level increased by 18% since 2005. Smaller classes and higher teachers' salaries contributed to this increase. At the lower secondary level, the average class shrank by 6% while teachers' salaries increased by 8% between 2005 and 2017, on average across OECD countries.

The teaching profession still struggles to attract new recruits

In most OECD countries, the share of primary and secondary teachers among 50-59 year-olds is larger than the share among 25-34 year-olds, which raises concerns about future teacher shortages. About 10% of primary and secondary teachers are under the age of 30, on average across OECD countries. Salaries tend to increase with the level of education taught, but teachers' earnings remain between 78% and 93% of the earnings of other tertiary-educated adults. By contrast, school heads earn at least 25% more than their tertiary-educated peers. The number of teaching hours per year decreases as the level of education increases, on average across OECD countries, and this has remained largely unchanged between 2000 and 2018 in most countries with data.

Other findings

In 2017, more than one in three children under the age of three were enrolled in early childhood education and care services, on average across OECD countries – an increase of 7 percentage points compared to 2010.

On average across OECD countries, 14% of 18-24 year-olds are neither employed nor in education or training (NEET). In Brazil, Colombia, Costa Rica, Italy, South Africa and Turkey, over 25% of 18-24 year-olds are NEETs.

Adults with higher educational attainment tend to participate more in cultural or sporting activities: more than 90% of tertiary-educated adults do compared to less than 60% of those who had not attained upper secondary education.

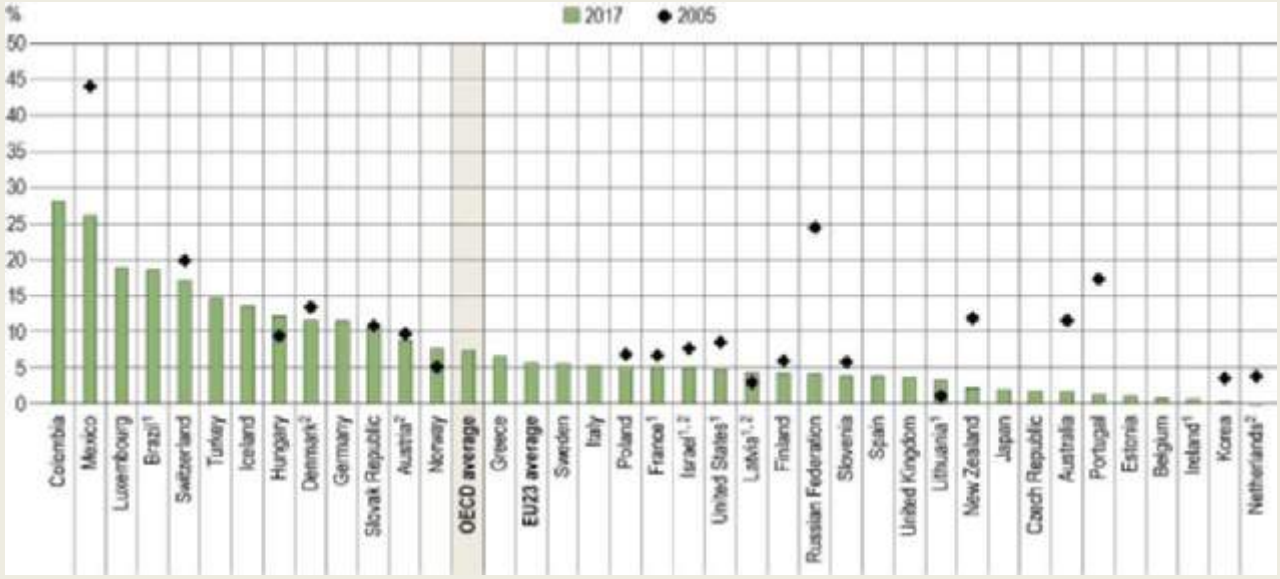
Youth in the Education Sustainable Development Goal

Highlights

- The fourth Sustainable Development Goal on Education (SDG 4) adopts a lifelong learning approach to education and introduces vocational and tertiary education into the global agenda. Combined with the eighth Sustainable Development Goal on decent work and economic growth (SDG 8), the two goals include sufficient indicators to track youth throughout their journey from education to employment.
- Out-of-school youth (SDG 4.1.5) still represent more than 10% of the population in the official age range for upper secondary education in over one-quarter of OECD and partner countries. Nonetheless, some countries have succeeded in significantly reducing the proportion of out-of-school youth. For instance, in Mexico and the Russian Federation, this proportion has decreased by at least 18 percentage points since 2005.
- On average across OECD countries, 18% of 15-24 year-olds participate in vocational programmes (ISCED levels 2 to 5; SDG Indicator 4.3.3). Most of them are enrolled at secondary level.

Figure 1. Upper secondary out-of-school rate (2005, 2017)

SDG Indicator 4.1.5



Note: The out-of-school rate is calculated as the number of students of the official age for upper secondary education enrolled in primary, secondary or higher levels of education subtracted from the total population of the same age (numerator), over the total population of the same age (denominator).
1. The source for population data is the UOE data collection for demographic data (Eurostat/DEM) instead of the United Nations Population Division (UNPD).
2. Year of reference 2010 instead of 2005.
Countries are ranked in descending order of upper secondary out-of-school rate in 2017.
Source: OECD (2019). The official data sources for this indicator are the UOE data collection for enrolment data and the United Nations Population Division (UNPD) for population data. Results may differ from national statistics. See *Source* section for more information (https://doi.org/10.1787/f8d7880d-en).

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Context

Unlike the previous Millennium Development Goals (MDGs 2000-2015) that were set for low- and middle-income countries, the 2030 Agenda for Sustainable Development is universal. Building on 17 ambitious and far-reaching goals, it commits every single country in the world to eradicate poverty and foster prosperous and sustainable development by 2030.

The fourth Sustainable Development Goal on Education (SDG 4) aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. SDG 4 is to be achieved through the accomplishment of ten targets, which represent the most comprehensive and ambitious global education agenda ever attempted. Departing from the MDGs' focus on universal primary education, SDG 4 defines learning as a process that starts at birth and continues throughout all stages of life. In doing so, the SDG 4 agenda considers the various and flexible pathways to education throughout an individual's journey. Tertiary education, the theme of this year's *Education at a Glance* publication, also plays a role in this framework, and is presented as one of the paths through which young people can succeed in life (Box 1).

This chapter will focus on youth learning pathways and help inform the debate on youth prospects and employment in OECD and partner countries, in the light of the Sustainable Development Agenda. Building not only on SDG 4 (Quality education) but also on SDG 8 (Decent work and economic growth), this chapter will describe the paths that youth can take throughout their journey: from secondary into higher levels of education (including tertiary), throughout higher levels of education, and from education into the labour market.

Other findings

- Young people are at greater risk of precarious employment than adults in older age groups. On average across OECD countries, the unemployment rate is 2 percentage points higher among 25-34 year-olds (7%) than among 35-44 year-olds (5%) (see Indicator A3, used as a proxy for SDG Indicator 8.5.2).
- On average across OECD countries, 11% of 15-24 year-olds are neither employed, nor in education or training (NEET) (see Indicator A2, used as a proxy for SDG Indicator 8.6.2).

Note

In the SDG 4 monitoring framework, each target has at least one global indicator and a number of related thematic indicators designed to complement the analysis and measurement of the target. In total, there are 11 global indicators and 32 thematic indicators included in the SDG 4 monitoring framework. A list of all the indicators and their methodologies is available at http://SDG4monitoring.uis.unesco.org.

The figures in this chapter present some of the agreed indicators for each target, selected based on their relevance for OECD and partner countries and on data availability. Some of the SDG 4 indicators correspond to indicators already published in other chapters of *Education at a Glance*. In those cases, reference is made to the corresponding indicator.

Data presented in this chapter do not track a single cohort across time. Rather, the chapter describes and analyses youth pathways through education and employment at a single point in time, across different age groups.

Analysis

Box 1. Learning pathways in the SDG Framework

Several of the 17 Sustainable Development Goals and their targets explicitly mention young women and men. SDG 4 on equal access to quality education and SDG 8 on decent work are the ones that are the most related to youth. Other goals that are of particular relevance include SDG 10 (inequality) and SDG 16 (peace and justice).

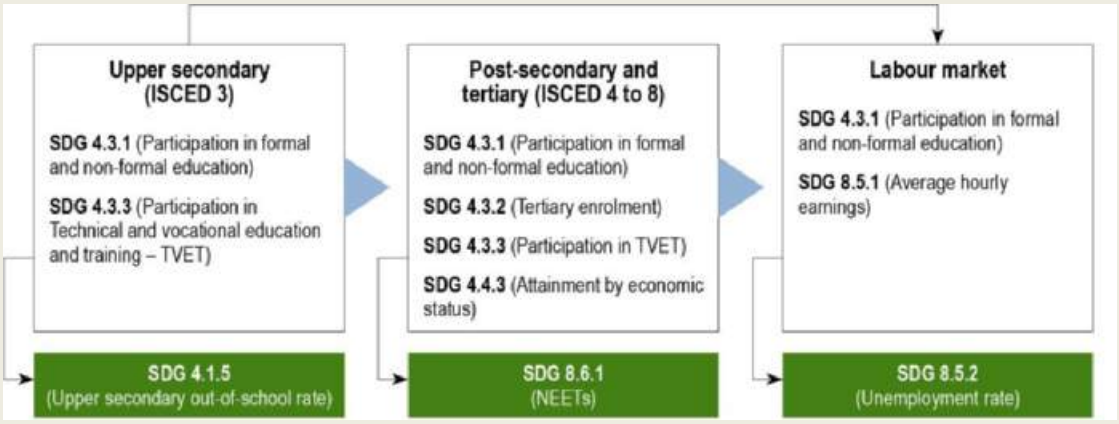
The Sustainable Development Goal on Education (SDG 4) insists on the importance of equal access to quality education and lifelong learning opportunities for all. To track the continuous education process, the SDG 4 agenda provides a range of indicators to measure the participation and skills of individuals throughout their lives, encompassing levels in and outside compulsory education and considering a wide range of programmes (including formal and non-formal education).

Among SDG 4 targets, SDG 4.1 and SDG 4.2 emphasise the importance of both education participation and education quality at pre-primary (SDG 4.2), and primary and secondary levels (SDG 4.1), while SDG 4.3 focuses on participation at higher levels. SDG 4.3 aims to "by 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university". This target is closely linked to SDG 4.4 and 4.6, which both measure essential skills that youth and adults can acquire through vocational, tertiary or adult education, including literacy and numeracy, digital literacy, and information and communication technologies (ICT) skills. It is also closely linked to SDG 4.7, which aims to ensure that learners acquire the knowledge and skills needed to promote sustainable development.

SDG 4.3 contains one global indicator on the participation rate of youth and adults in formal and non-formal education and training, and two thematic indicators on the gross enrolment ratio for tertiary education and the participation rate in vocational education. The phrasing of the target, as well as the indicators it contains, recognises the many alternative paths through which young people and adults can acquire the necessary skills to ease their transition to the labour market and live better lives.

Figure 2 describes how the SDG 4 and SDG 8 indicators track the progression of youth from secondary education to employment, by evaluating their participation (blue arrows) and assessing the proportion of those who leave education and/or the labour market (red rectangles).

Figure 2. Youth pathways from education to employment



SDG 4 and its associated targets set an ambitious agenda that encompasses quality learning and equity in education alongside the more traditional indicators of access and participation, at all levels of education. In doing so, it challenges every country in the world to improve its education system and marks a significant departure from previous global education goals and targets, such as the Millennium Development Goals, which were not as far-reaching and focused more on access and participation at primary level. The analysis below takes into account this lifelong learning approach and reports on youth pathways throughout their journey from education to the labour market.

Completing upper secondary education

Completing upper secondary education is an important step for youth to ensure a better entry into the labour market. Individuals without upper secondary education are more likely to be unemployed (see Indicator A3) and to have lower earnings (see Indicator A4) than those who complete this or a higher level of education.

As the SDG agenda confirms, education is also key in ensuring that youth become engaged citizens and participate in society. In this context, SDG Target 4.7 aims at "ensuring that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development". While the data needed to properly monitor this target are still limited, SDG Target 4.7 acknowledges the many functions of education, including training better citizens.

Graduation from secondary education does not necessarily lead to further training as the pathways into education after secondary level vary substantially across countries. For example, in some countries, young people who want to pursue a tertiary degree may first need to pass a central entrance exam (see Indicator D6). In other countries, young people with a secondary qualification might have fair chances if they join the labour market directly. Therefore, the proportion of youth graduating from secondary education does not always reflect the proportion going on to pursue further education after secondary school. However, across countries, the youth who do not complete upper secondary education are less likely to pursue further education and more likely to be unemployed or inactive.

SDG Indicator 4.1.5 measures the upper secondary out-of-school rate, which corresponds to the proportion of young people in the official age range for upper secondary education who are not enrolled in primary, secondary or higher levels of education. On average across OECD countries, almost 7% of youth of upper secondary school age were out of school in 2017, but they represent 5% or less of that age group in over half of countries with available data (Figure 1).In other words, while the majority of countries have managed to limit the proportion of out-of-school youth (less than 5%), about one-quarter of OECD and partner countries still have a large proportion of out-of-school youth (over 10%). Colombia and Mexico have the highest rate of out-of-school youth among all OECD and partner countries, with over 25% of upper secondary school-aged youth not enrolled. They are followed by Luxembourg (19%), Brazil (19%) and Switzerland (17%). In Luxembourg, the high rate of repeaters in primary and secondary levels may contribute to a higher dropout rate (OECD, 2016[1]).

Some countries have made significant progress in reducing the numbers of out-of-school youth in the past decade. Figure 1 highlights a decrease of 20 percentage points in the out-of-school rate in the Russian Federation, 18 percentage points in Mexico, 16 percentage points in Portugal and 10 percentage points in Australia and New Zealand between 2005 and 2017. Such large reductions reflect continuous policy efforts to retain students of upper secondary education age in school.

Upper secondary out-of-school rates remain roughly similar between genders in most countries. The difference between young women and men in out-of-school rates remain at or below 4 percentage points in almost all countries, except in Luxembourg, where the out-of-school rate is 5 percentage points higher among young men, and Sweden, where it is 11 percentage points higher among young women.

Advancing from secondary to higher levels of education

Education following upper secondary can take a variety of forms. Upon graduation from secondary level, depending on the country, youth could opt for post-secondary non-tertiary education, short-cycle tertiary, or a bachelor's or long first degree.

SDG Target 4.3 is to "by 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university". It recognises the many alternative paths through which young people and adults can acquire the necessary skills to ease their transition to the labour market, become engaged citizens and live better lives. Although Target 4.3 focuses only on participation, it is closely linked to Targets 4.4 and 4.6, which measure some of the skills that can be acquired through participation in vocational and tertiary levels of education and training.

Target 4.3 also reveals a strong equity focus, by referring to "equal access for all women and men". There may be different paths available to young people, but what is most important is that everyone has equal opportunities to access them. Moreover, tracking the different pathways sheds light on the education system's permeability, which is also related to equity: learners should be able to move easily between levels and types of programmes (e.g. from vocational to general education). Finally, Target 4.3 highlights the importance of both the quality and affordability of vocational and tertiary education, yet no indicator has been proposed to capture any of these two concepts (UNESCO, 2016[2]).

Vocational education and training

Vocational education and training can play a crucial role in tackling youth unemployment. During economic downturns, such as the 2008 recession, they have proved to be a powerful tool in addressing youth unemployment in countries such as Austria, Germany and Switzerland. All three have efficiently used vocational training programmes, particularly targeted at potential school dropouts (Dolado, 2015[3]).

The SDG Thematic Indicator 4.3.3 measures the participation rate in technical and vocational programmes among 15-24 year-olds, either in formal education, work-based or other settings. The indicator focuses on this broad age group and a wide range of education levels (secondary, post-secondary non-tertiary and short-cycle tertiary), and seeks to measure participation in work-related training designed to lead to a job (UNESCO, 2017[4]). On average across OECD countries, in 2017, 18% of 15-24 year-olds were enrolled in vocational education (at the secondary, post-secondary non-tertiary and short-cycle tertiary levels combined), ranging from 3% in Brazil to 35% in Slovenia (Figure 4). Levels of enrolment remain higher for young men than for young women in almost all countries with available data (Figure 3). On average across OECD countries, while 16% of young women (aged 15-24) are enrolled in vocational education and training, this proportion goes up to 19% for men.

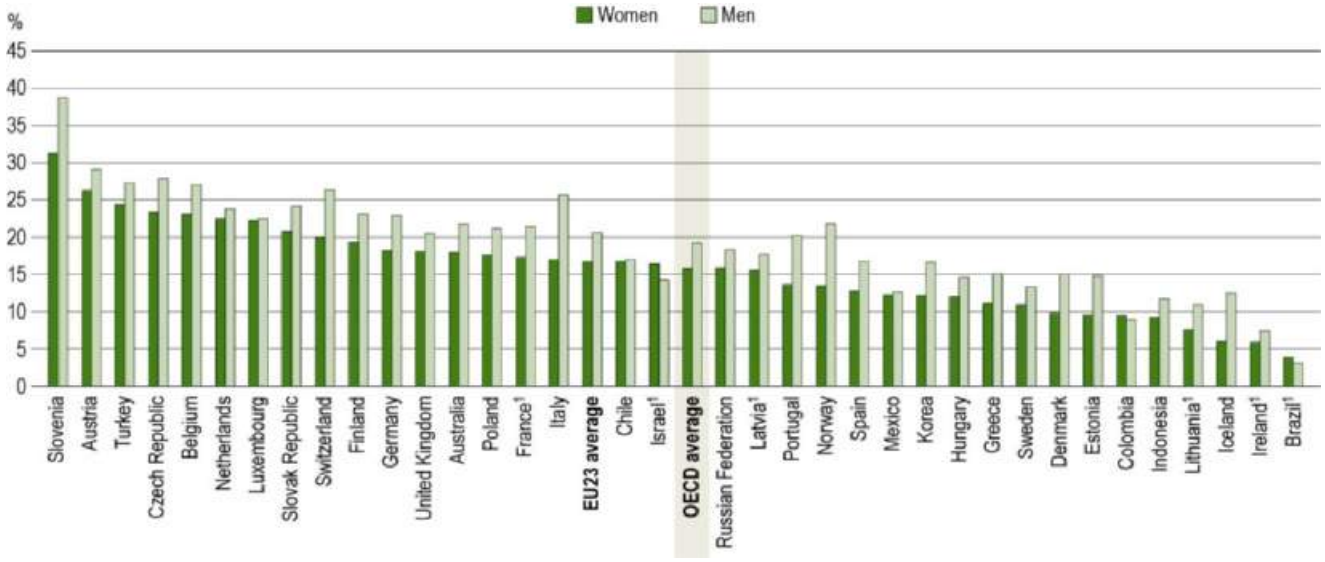
Breaking down SDG 4.3.3 by level of education reveals that in almost all countries, most 15-24 year-olds in vocational programmes are enrolled at secondary level (Figure 4). In other words, the large majority of students who participate in vocational programmes will do so at the ages corresponding to upper secondary education, i.e. 15-19 year-olds (see Indicator B1). Thus, the extended 15-24 age range in SDG 4.3.3 may underestimate participation rates in these programmes in OECD countries.

Work experience remains a key feature of successful vocational education and training (OECD, 2014[5]). Yet available data do not allow to report on the variety of vocational programmes that exist across countries. In particular, monitoring existing "dual systems" (formal vocational schooling combined with on-the-job training) would help to more thoroughly inform the role of vocational education and training in limiting school dropout rates and offering alternative options to disengaged youth (see Box A5.1 in (OECD, 2017[6])).

Vocational education and training can also be a pathway to tertiary education. For example, countries such as Finland and the Netherlands have developed education permeability and established "bridges" from vocational training to tertiary education.

Figure 3. Enrolment rate of 15-24 year-olds in vocational education and training, by gender (2017)

SDG Indicator 4.3.3



1. The source for population data is the UOE data collection for demographic data (Eurostat/DEM) instead of the United Nations Population Division (UNPD).

Countries are ranked in descending order of enrolment rate of 15-24 year-olds women in vocational education and training in 2017.

Source: OECD (2019). The official data sources for this indicator are the UOE data collection for enrolment data and the United Nations Population Division (UNPD) for population data. See *Source* section for more information https://doi.org/10.1787/f8d7880d-en).

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Tertiary education

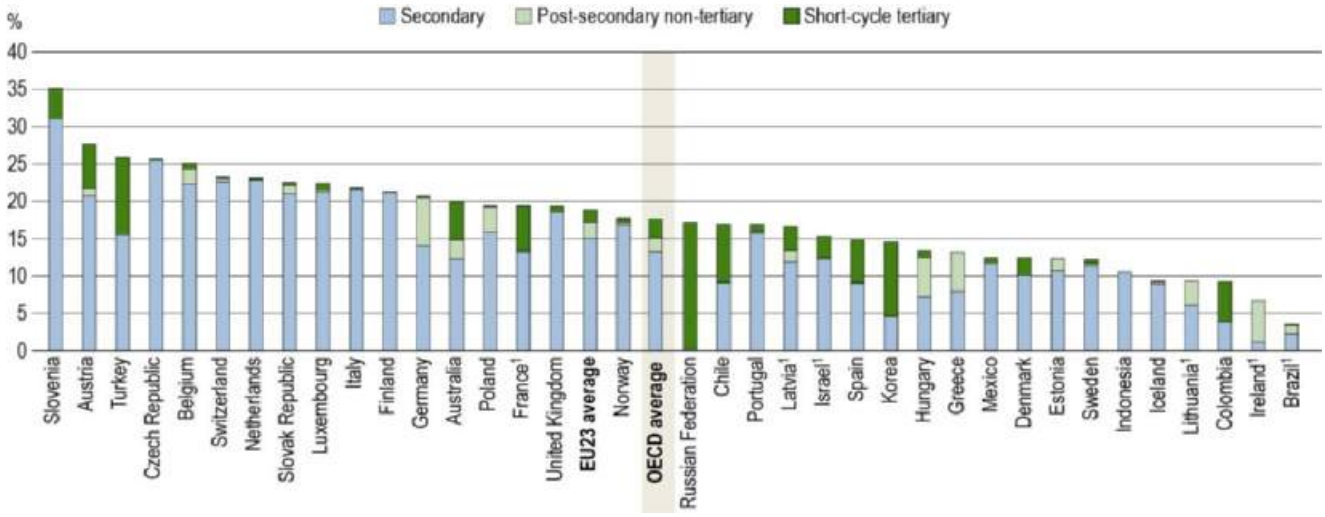
The number of students pursing tertiary education globally has grown continuously over the past two decades and is expected to continue growing through to 2030 (OECD, 2018[7]). The share of tertiary-educated young adults (aged 25-34) in OECD increased from 35% in 2008 to 44% in 2018 (see Indicator A1). This increase could reflect a rise in demand for skilled labour, a greater demand for tertiary education, increasing wealth and the growing number of financial support policies to promote access to tertiary education (OECD, 2018[7]; Owens, 2017[8]).

The SDG agenda acknowledges the increased importance of tertiary education globally and includes an indicator dedicated to this level. SDG Indicator 4.3.2 measures the gross enrolment rate in tertiary education as the total number of students enrolled in tertiary education regardless of age expressed as a percentage of the population in the five-year age group immediately following upper secondary education (typically 18-22 year-olds). However, this definition may underestimate enrolment rates in countries where students mainly enrol in programmes of short duration compared to countries where students enrol in programmes of longer durations. Other confounding factors occur in OECD countries where long periods of part-time enrolment are customary.

As mentioned above, SDG Target 4.3 is closely linked to SDG Targets 4.4, 4.6 and 4.7, which aim to increase the number of youth and adults with the necessary skills to thrive in the labour market and engage in society more generally. To this end, SDG Indicator 4.4.3 measures the "youth educational attainment rates by age group, economic activity status and programme orientation". On average across OECD countries, 41% of young adults (aged 25-34) have an upper secondary or post-secondary non-tertiary qualification as their highest level of education and 44% have attained tertiary education (see Indicator A1). SDG Indicator 4.4.3 also recognises the importance of tracking the link between educational attainment and economic activity status, which will be the focus of the next section.

Figure 4. Enrolment rate of 15-24 year-olds in vocational education and training, by level of education (2017)

SDG Indicator 4.3.3



1. The source for population data is the UOE data collection for demographic data (Eurostat/DEM) instead of the United Nations Population Division (UNPD).

Countries are ranked in descending order of enrolment rate of 15-24 year-olds in vocational education and training in 2017.

Source: OECD (2019). The official data sources for this indicator are the UOE data collection for enrolment data and the United Nations Population Division (UNPD) for population data. See *Source* section for more information (https://doi.org/10.1787/f8d7880d-en).

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Entering the labour market

The transition from education to work can be a difficult period for many young people. The risk of unemployment, job insecurity due to low-paid or temporary contracts, and the uncertainties associated with starting to live independently can make this a challenging phase in young people's lives (OECD, 2018[9]).

Across OECD countries, youth remain at higher risks of unemployment and precarious employment compared to adults (see Indicator A3). Young people are usually less specialised and more likely to be dismissed when firms are in distress; they may also find themselves in an "experience trap", where employers favour experienced workers and young people therefore cannot increase their own experience (Dolado, 2015[3]). On the labour supply side, there is higher worker turnover among youth than among adults, as their initial jobs may not correspond to their skills and preferences (Blanchflower and Bell, 2011[10]).

The eighth Sustainable Development Goal (SDG 8) aims to "promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all". In this sense, it overlaps with Target 4.4, which highlights the need for skills needed for "employment and decent work". SDG 8 also recognises the relative vulnerability of youth in the labour market and dedicates two targets specifically to them. Target 8.6 aims by 2020 to substantially reduce the proportion of youth not in employment, education or training and Target 8.B to develop and operationalise a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization. Target 8.5 on productive employment and decent work for all women and men also confirms the relative vulnerability of youth, and specifically mentions young people as a likely disadvantaged group.

SDG Indicator 8.5.2 measures the unemployment rate by gender, age and disability status. Indicator A3 of this publication allows unemployment rates for young people and adults in older age groups to be compared. On

average across OECD countries, the unemployment rate is 2 percentage points higher among 25-34 year-olds (7%) than among 35-44 year-olds (5%). Indicator A3 also highlights a clear link between educational attainment and young people's activity status. On average across OECD countries, the unemployment rate is almost twice as high for young adults (aged 25-34) who have not completed upper secondary education (14%), compared to those with upper secondary or post-secondary non-tertiary attainment (7%) and those with a tertiary degree (6%) (see Indicator A3).

To monitor countries' progress towards productive employment and decent work, Target 8.5 also includes a measure of the average hourly earnings by occupation, gender, age and disability status (SDG Indicator 8.5.1). Although Indicator A4 of this publication evaluates average relative *yearly* earnings, it could still shed light on young people's earnings across OECD countries. It shows that, just as with activity status, earnings are also strongly associated with educational attainment: on average across OECD countries, 25-34 year-olds with a tertiary degree earn 38% more than those with upper secondary attainment (see Indicator A4). The lack of data by disability status means this dimension of Indicators 8.5.1 and 8.5.2 cannot be monitored yet.

The proportion of youth neither employed nor in education or training (NEET) remains a more relevant measure of youth participation in the labour market than the unemployment rate, since a large proportion of individuals in the age group considered will still be in education, and the indicator captures not just those who are unemployed but also those who are inactive (Dolado, 2015[3]). It is a key indicator of youth labour market performance as this is a group at high risk of marginalisation and social exclusion. SDG Indicator 8.6.1 measures the proportion of youth (aged 15-24 years) who do not participate in any form of education, whether it is formal or non-formal, nor any employment or training. Taking Indicator A2 of this publication as a proxy (as it only considers youth in formal education), on average across OECD countries, 11% of 15-24 year-olds were NEET in 2017.

Definitions

Inactive individuals are those who, during the survey reference week, were neither employed nor unemployed (i.e. individuals who are not looking for a job).

Technical and vocational education and training (TVET) is a comprehensive term commonly used by the UNESCO Institute for Statistics to refer to education, training and skills development in a wide range of occupational fields, production, services and livelihoods. Vocational education may have work-based components (e.g. apprenticeships, dual-system education programmes). Successful completion of such programmes leads to labour market-relevant, vocational qualifications acknowledged as occupationally oriented by the relevant national authorities and/or the labour market.

SDG Indicator	Definition
4.1.5	Upper secondary out-of-school rate
4.3.2	Gross enrolment ratio for tertiary education, by sex
4.3.3	Participation rate in technical and vocational programmes (15- to 24-year-olds), by sex
4.4.3	Youth educational attainment rates by age group, economic activity status, level of education and programme orientation
8.5.1	Average hourly earnings of female and male employees, by occupation, age and persons with disabilities
8.5.2	Unemployment rate, by sex, age and persons with disabilities
8.6.1	Proportion of youth (aged 15-24 years) not in education, employment or training

Methodology

The parity indices are calculated using the more likely disadvantaged group as the numerator and the more likely advantaged group in the denominator. The gender parity index is calculated as the indicator value for women divided by the indicator value for men.

All indicators presented in this chapter follow the agreed SDG methodology, including for recommended data sources, and may differ in some cases from other indicators presented in *Education at a Glance.*

Please see Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Indicator	Source
4.1.5	UOE 2018 data collection and UNPD (unless otherwise specified)
4.3.3	UOE 2018 data collection and UNPD (unless otherwise specified)

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Chapter A. The output of educational institutions and the impact of learning



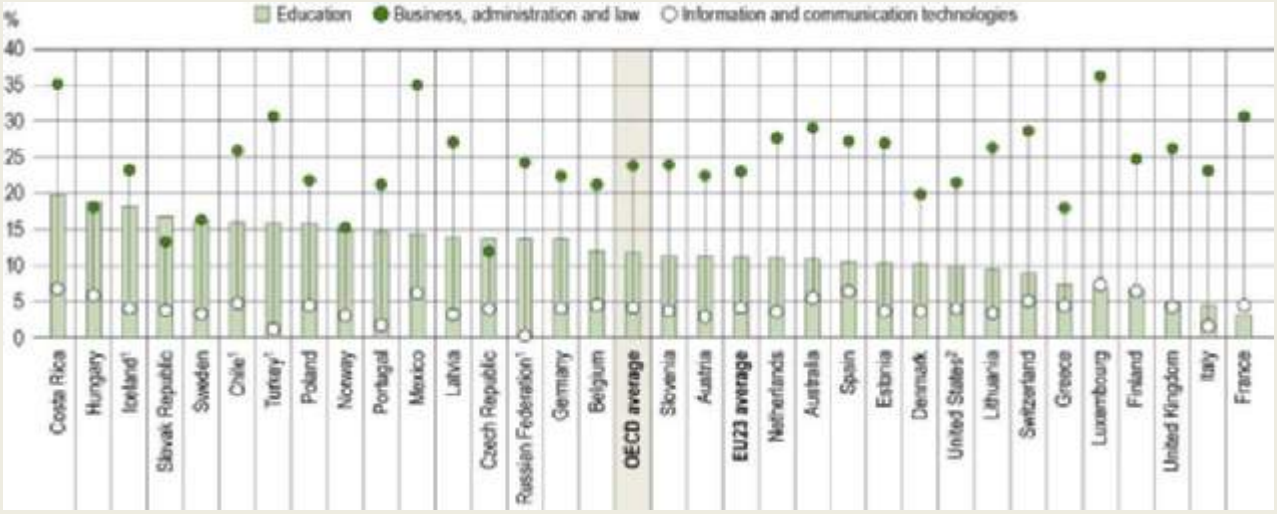
Indicator A1 To what level have adults studied?
Statlink: https://doi.org/10.1787/888933980792
Indicator A2 Transition from education to work: Where are today's youth?
Statlink: https://doi.org/10.1787/888933980811
Indicator A3 How does educational attainment affect participation in the labour market?
Statlink: https://doi.org/10.1787/888933980830
Indicator A4 What are the earnings advantages from education?
Statlink: https://doi.org/10.1787/888933980849
Indicator A5 What are the financial incentives to invest in education?
Statlink: https://doi.org/10.1787/888933980868
Indicator A6 How are social outcomes related to education?
Statlink: https://doi.org/10.1787/888933980887
Indicator A7 To what extent do adults participate equally in education and learning?
Statlink: https://doi.org/10.1787/888933980906

Indicator A1. To what level have adults studied?

Highlights

- On average across OECD countries, about 25% of tertiary-educated 25-64 year-olds have qualifications in business administration or law, while 5% or less had studied information and communication technologies (ICT), natural sciences, mathematics or statistics.
- The proportion of tertiary-educated 25-34 year-olds increased by 9 percentage points on average across OECD countries between 2008 and 2018, while the share of adults with less than upper secondary education fell from 19% to 15%.
- Across all age groups, but particularly among young adults, the proportion of tertiary-educated women is now higher than the proportion of tertiary-educated men in almost all OECD countries. In some countries, the gender imbalance is reversed between the older and younger generations.

Figure A1.1. Fields of study among tertiary-educated 25-64 year-olds (2018)



1. Year of reference differs from 2018. Refer to the source table for more details.
2. Data refer to bachelor's degree field, even for those with additional tertiary degrees.
Countries are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who studied in the field of education.
Source: OECD (2019), Table A1.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Giving everyone a fair chance to obtain a high-quality education is a fundamental part of the social contract. To improve social mobility and socio-economic outcomes, it is critically important to eliminate inequalities in educational opportunities. A population that is highly qualified across diverse fields of study promotes inclusive growth by broadening the pool of candidates for highly skilled jobs.

Educational attainment is measured as the percentage of the population that has reached a certain level of education and holds a formal qualification at that level. It is frequently used as a proxy measure of human

capital and a signal of the level of an individual's skills (i.e. a measure of the skills associated with a given level of education and available in the population and the labour force).

Higher levels of educational attainment are associated with several positive economic and social outcomes for individuals (see Indicators A2, A3, A4, A5 and A6). Highly educated individuals tend to be more socially engaged and have higher employment rates and larger relative earnings. Greater proficiency in literacy and numeracy is also strongly associated with higher levels of formal education (OECD, 2016[1]).

Individuals thus have incentives to pursue more education, and governments have incentives to provide appropriate infrastructure and policies to support higher levels of educational attainment across the population. Over past decades, almost all OECD countries have seen significant increases in educational attainment, especially among the young and among women.

For employers, qualifications certify and offer information about the type of knowledge and skills that potential employees have acquired in formal education. This helps them to make hiring decisions, or even to decide where to locate their business in order to access the best-qualified talent. A qualification from a particular field of study is also required to gain entry to some professions and industries. Analysing qualifications by fields of study can therefore also provide an insight into supply and demand issues for different classes of occupation in OECD countries.

Other findings

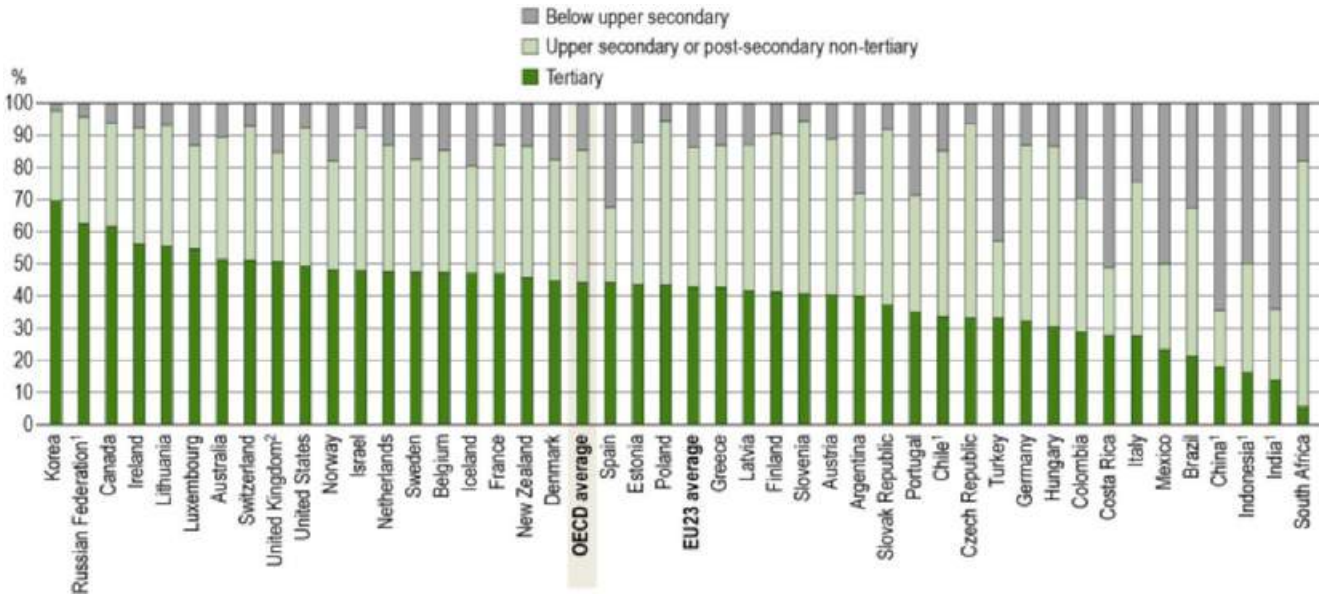
- Between 2008 and 2018, the proportion of young adults with tertiary education increased in all OECD and partner countries while the proportions of young adults with upper secondary education or post-secondary non-tertiary education increased in Brazil, Costa Rica, Indonesia, Mexico, Portugal and South Africa.
- While tertiary attainment has risen for both younger men and younger women between 2008 and 2018 across OECD countries, the gender gap in favour of women has widened from 9 percentage points in 2008 to 12 percentage points in 2018.
- There are marked differences in the share of adults with a tertiary qualification in the field of education, ranging from about 20% in Costa Rica, Hungary and Iceland, to 5% or less in France, Italy and the United Kingdom.
- On average across the OECD, 14% of adults hold a master's or doctoral level qualification. In Estonia, Luxembourg, Poland, the Russian Federation, the Slovak Republic and Switzerland, the share is over 20%, while it is only around 2% in Argentina, Brazil, China, Chile, Costa Rica, Indonesia, Mexico, Saudi Arabia, South Africa and Turkey.

Analysis

Below upper secondary education

The attainment of upper secondary education has become the minimum requirement for navigating the modern economy and society. As a result, young people today who leave school before completing upper secondary education not only face difficulties in the labour market, but are also twice as likely to have low numeracy skills as those with an upper secondary education (OECD, 2015[2]). In most OECD countries, the large majority of younger adults (25-34 year-olds) had at least an upper secondary qualification in 2018, while the average proportion of young adults without an upper secondary qualification was 15% (Figure A1.2).

Figure A1.2. Educational attainment of 25-34 year-olds (2018)



1. Year of reference differs from 2018. Refer to Table A1.1 for more details.
2. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (13% of adults aged 25-64 are in this group).
Countries are ranked in descending order of the percentage of tertiary-educated 25-34 year-olds.
Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Substantial variations remain in the share of young adults without upper secondary education across the OECD and partner countries. While the share is below 10% among 25-34 year-olds in 13 countries (Canada, the Czech Republic, Finland, Ireland, Israel, Korea, Lithuania, Poland, the Russian Federation, the Slovak Republic, Slovenia, Switzerland and the United States), it is 50% or more in the People's Republic of China, Costa Rica, India and Indonesia. In Korea, only 2% of men and women aged 25-34 have not completed upper secondary education, the lowest share across OECD and partner countries for both genders, while in China and India the proportion of young adults with at most lower secondary education is 64% (Figure A1.2 and Table A1.2).

On average across OECD countries, the share of younger adults with below upper secondary education fell from 19% in 2008 to 15% in 2018, indicating overall progress in increasing the levels of educational attainment in the OECD. Some countries have reduced the share of young adults not completing upper secondary education

by a much larger amount. Across OECD countries with comparable data between 2008 and 2018, Portugal experienced the largest decrease in young adults lacking an upper secondary or post-secondary non-tertiary education, with a drop of 25 percentage points during this period. Mexico also reduced the share of young adults without upper secondary education by at least 15 percentage points between 2008 and 2018. In both countries, the decrease in the share of young adults without upper secondary education was combined with increased attainment of both upper secondary or post-secondary non-tertiary education and tertiary education (Table A1.2).

On the other hand, in Austria, Finland and Hungary the share of adults without upper secondary education changed by 1 percentage point or less between 2008 and 2018. Norway is the only country with comparable data for 2008 and 2018 where the proportion of young adults with below upper secondary education increased (Table A1.2).

In most countries, young men are more likely than young women to lack an upper secondary qualification, with an OECD average of 17% for men and 14% for women. The gender gap is 5 percentage points or more in about one-quarter of OECD and partner countries: Argentina, Brazil, Colombia, Costa Rica, Denmark, Estonia, Iceland, India, Italy, Latvia, Norway, Portugal, South Africa, Spain and Turkey. In Iceland, India, Portugal and Spain, the gap is 10 percentage points or more. In India and Turkey, the gender gap is in favour of young men whereas in all other countries the gap is in favour of young women. Countries with similar shares of young men and women without upper secondary education include Austria, the Czech Republic, Hungary, Korea, Luxembourg and the Slovak Republic (Table A1.2).

Upper secondary and post-secondary non-tertiary education

On average in the OECD, 42% of 25-64 year-olds have upper secondary or post-secondary non-tertiary education as the highest level of education: 37% having only an upper secondary education and 6% a post-secondary non-tertiary qualification. The proportion of adults with a post-secondary non-tertiary qualification is particularly high in Canada, Germany, Greece, Ireland, Latvia, Lithuania, New Zealand and the Russian Federation, where 10% or more of the adult population hold qualifications at this level (Table A1.1).

Across OECD and partner countries, the share of young adults (aged 25-34) who have upper secondary or post-secondary non-tertiary education as the highest level achieved ranges from as low as 18% in China to as high as 77% in South Africa (Figure A1.3).

The percentage of young adults with an upper secondary or post-secondary non-tertiary education as the highest level of attainment has fallen from 46% in 2008 to 41% in 2018 on average across OECD countries. This change has occurred in the context of a falling share of younger adults without an upper secondary education (from 19% in 2008 to 15% in 2018), and a rising share of young adults with tertiary education (from 35% to 44%) (Table A1.2).

Not all countries have followed a similar pattern. For example, among OECD countries, in Mexico the share of young adults with an upper secondary or post-secondary non-tertiary education increased by 8 percentage points and in Portugal it increased by 13 percentage points from 2008 to 2018. Most other OECD countries have reduced the share of the young population with upper secondary or post-secondary non-tertiary education as the highest level achieved, while increasing the share of young adults with tertiary education. For example, in Austria, the share of young adults with tertiary education increased by 7 percentage points (from 33% to 40%) while the share with upper secondary or post-secondary non-tertiary fell by the same extent from 55% to 48% (Table A1.2).

Tertiary education

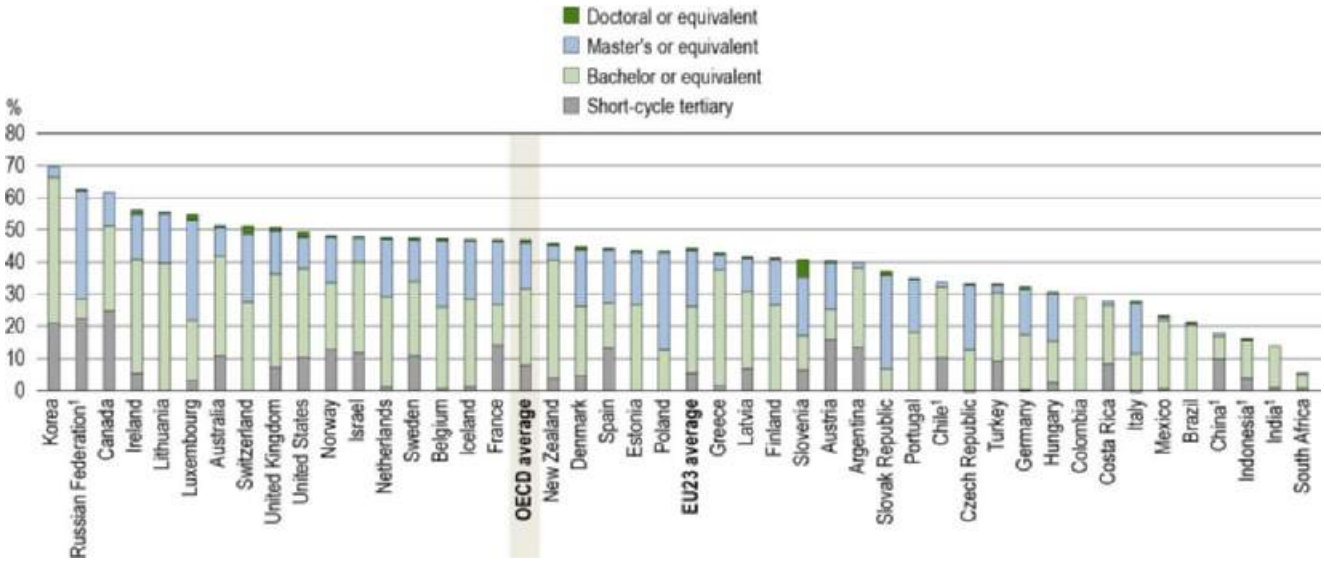
On average across OECD countries, 39% of adults aged 25-64 had achieved a tertiary qualification in 2018. Tertiary education has expanded significantly over recent decades across the OECD. On average, a larger proportion of 25-34 year-olds in the OECD have attained tertiary education in 2018 than have upper secondary education as the highest level of attainment. The share of younger adults with tertiary education is 44% on average across OECD countries, much higher than the share among 55-64 year-olds (27%), reflecting increasing

access to tertiary education in the OECD in more recent decades. In all OECD countries, the share of younger adults with tertiary education has increased between 2008 and 2018 (Table A1.2 and OECD (2019[3])).

The proportion of 25-34 year-olds with tertiary education is 60% or more in Canada, Japan, Korea and the Russian Federation. In Canada, Korea and the Russian Federation this high share of tertiary-educated adults comes with a correspondingly lower share (less than 7%) of adults with below upper secondary education. The countries with the lowest share of tertiary-educated young adults in OECD and partner countries (16% or below) are India, Indonesia and South Africa. In India and Indonesia, the commonest level of attainment among 25-34 year-olds is below upper secondary education, while in South Africa, the commonest level of attainment is upper secondary or post-secondary non-tertiary education (Table A1.2).

In most OECD and partner countries, those with a bachelor's or equivalent degree account for the largest share of tertiary-educated 25-34 year-olds, although some countries also have large numbers of adults with short-cycle tertiary education. For example, in Canada, Korea and the Russian Federation, more than one-fifth of young adults hold short-cycle tertiary qualifications, and in Austria and China, those with a short-cycle tertiary degree represent the largest share of tertiary-educated 25-34 year-olds. Conversely, over 15 countries have almost no young adults with short-cycle tertiary education (Figure A1.3).

Figure A1.3. Distribution of 25-34 year-olds with tertiary education, by level of tertiary education (2018)



1. Year of reference differs from 2018. Refer to Table A1.1 for more details.
Note: Some categories might be included in other categories. Please refer to Education at a Glance Database, http://stats.oecd.org for details.
Countries are ranked in descending order of the total percentage of tertiary-educated 25-34 year-olds.
Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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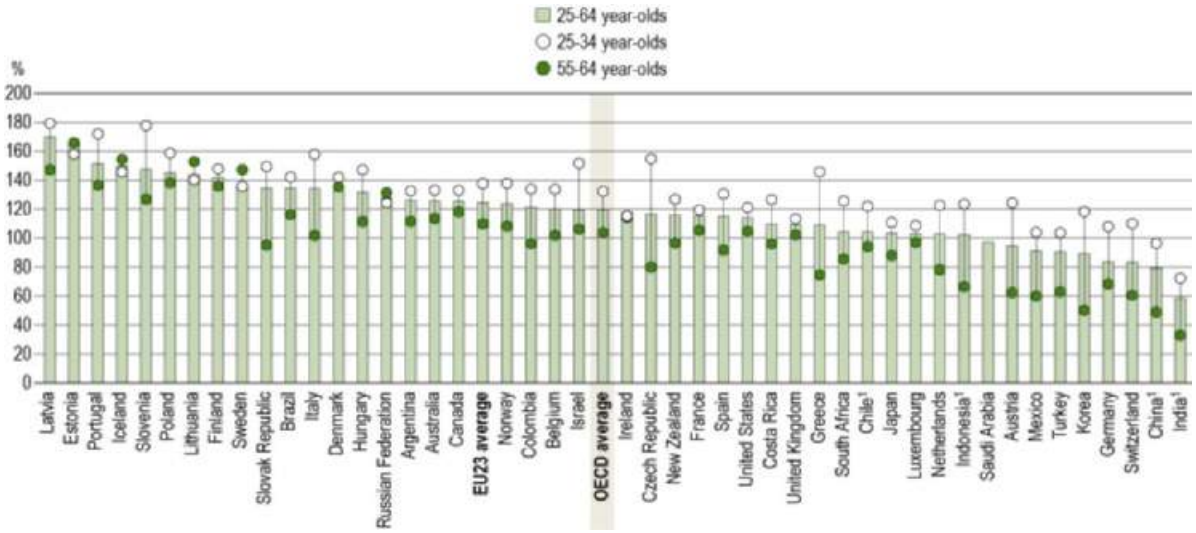
In the Czech Republic, France, Hungary, Italy, Luxembourg, Poland, Portugal, the Russian Federation, the Slovak Republic, Slovenia and Spain, those with a master's or equivalent degree account for the largest share of adults with tertiary education. This might reflect different patterns of organisation of tertiary education across countries, with some countries having a stronger tradition of long first degree programmes that lead directly to a master's qualification. On average across OECD countries, about 1% of younger adults have a doctoral or equivalent qualification, although in Luxembourg, Switzerland and the United States the proportion is around 2%. Slovenia has the largest share of adults with a doctoral or equivalent qualification, where the share of adults holding a qualification at this level is about 5% (Figure A1.3).

Gender differences in tertiary education

Across the OECD, the gender gap in tertiary attainment among young adults has increased from 9 percentage points in 2008 to 12 percentage points in 2018. In almost all OECD countries, the proportion of tertiary-educated women among 25-64 year-olds is higher than the proportion of tertiary-educated men. In Estonia, Iceland, Latvia and Portugal the proportion of tertiary-educated women is at least 50% higher than the proportion of tertiary-educated men, while just 9 countries have a higher proportion of tertiary-educated men. In India, the proportion of tertiary-educated women is less than 60% of the proportion of tertiary-educated men (Figure A1.4 and Table A1.2).

Figure A1.4. Share of tertiary-educated women as a percentage of the share of tertiary-educated men, by age group (2018)

25-34 year-olds, 55-64 year-olds and 25-64 year-olds



1. Year of reference differs from 2018. Refer to Table A1.1 for more details.
Countries are ranked in descending order of the percentage point difference for the age group 25-64.
Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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The gender gap in tertiary attainment is generally larger for younger adults than for older adults, except in Estonia, Iceland, Lithuania, the Russian Federation and Sweden. Some countries have experienced a reversal of the gender gap between younger and older adults. In Korea, for example, the share of 55-64 year-old women with tertiary attainment is at 50% of the share of tertiary-educated men, but among 25-34 year-olds the proportion of women with tertiary attainment is 18% higher (Figure A1.4).

Fields of study among tertiary-educated adults

Certain fields of study are more prevalent among tertiary-educated adults. On average across OECD countries with available data, 24% of tertiary-educated 25-64 year-olds have a degree in business, administration and law, which is the most common field of study. The share ranges from 12% in the Czech Republic to over 30% in Costa Rica, France, Luxembourg, Mexico and Turkey. For most countries with disaggregated data on this field of study, a larger share of adults obtained their degree in business and administration than in law (Figure A1.1 and Table A1.3).

In Belgium, the Czech Republic, Greece, Hungary, Iceland, Italy, Poland and the United States, the most popular broad fields of study are arts and humanities, social sciences, journalism and information. In Austria, Germany, the Russian Federation and the Slovak Republic, the largest share of tertiary-educated adults hold a degree in engineering, manufacturing or construction, while the most widespread field of study in Denmark, Norway and Sweden is health and welfare (Table A1.3).

Despite strong labour-market outcomes for graduates with qualifications in information and communication technologies (ICT) (see Indicators A3 and A4), the share of adults electing to study these subjects is relatively low across the OECD. On average, only 4% of tertiary-educated adults hold a qualification in this field, and the proportion across countries varies much less than for many other fields of study. Among OECD and partner countries, the share reaches about 6% in Finland, Hungary, Mexico and Spain, while Costa Rica and Luxembourg has the highest proportion overall of adults with ICT qualification, at 7%. Conversely, just 1% or less of adults with a tertiary qualification in the Russian Federation and Turkey studied ICT (Table A1.3).

The proportions of adults who have studied subjects related to the provision of social services (for example, education, health and welfare) can indicate the potential supply of staff to carry out these vital services in the population. For example, many countries have experienced shortages of teachers and health workers in recent years, and have implemented active policies to increase staff to these areas and make these professions more attractive.

On average across OECD countries, the field of education accounts for 12% of tertiary qualifications among 25-64 year-olds, but there is great variation across countries. In France, Italy and the United Kingdom, the share of tertiary-educated adults whose field of study was education is 5% or below, whereas it is 18% or more in Costa Rica, Hungary and Iceland. Patterns of qualification in health and welfare show a similar broad variation in countries with available data. For example, in Denmark, 27% of tertiary-educated adults hold a qualification in this field, while in Turkey it is only 6% (Table A1.3).

Box A1.1. Evolving preferences in fields of study over time

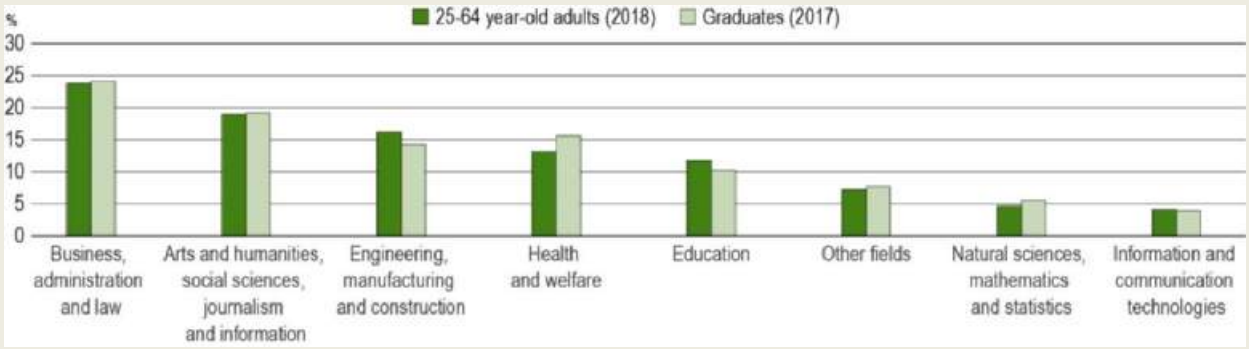
The concept of attainment measures the overall level of qualifications in the population, while graduates are defined as the section of the population graduating in a given year (in this case, 2017). Nevertheless, comparing the distribution of fields of study between the overall population and recent graduates can provide insights into the evolution of preferences over time.

The broad fields of business, administration and law, and of arts and humanities, social sciences, journalism and information are the most common fields of study both for recent graduates and for the tertiary-educated population overall, although recent graduates appear to have a slightly stronger preference for business, administration and law. This preference is particularly pronounced in the Czech Republic, Hungary, Luxembourg and the Slovak Republic where the shares of recent graduates who studied in this field are all at least 6 percentage points more than among tertiary-educated adults overall (Figure A1.a).

The difference is more pronounced in the field of health and welfare. In 2017, 16% of tertiary graduates obtained a degree in this field, 3 percentage points more than the share of tertiary-educated adults in the population overall. In Belgium, Latvia, Lithuania and the United States, the difference was more than 7 percentage points. These differences could be attributed to changing preferences, but could also be related to increased requirements for qualifications in order to work in this field (Figure A1.a and Table A1.3).

Figure A1.a Distribution of recent tertiary graduates by field of study, compared with fields of study of all tertiary-education 25-64 year-olds (2017 and 2018)

On average across OECD countries

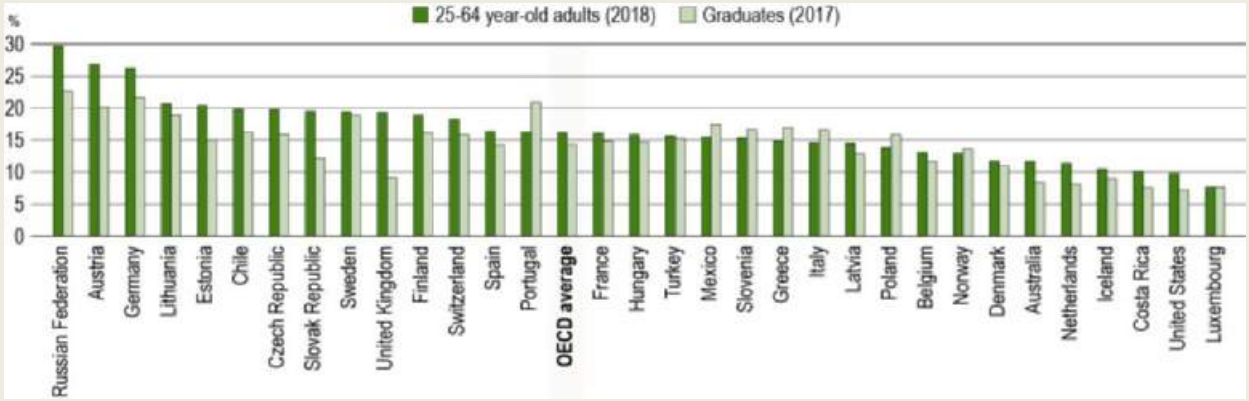


Fields are ranked in descending order of the distribution of all tertiary-educated 25-64 year-olds (2018).
Source: OECD/UIS/Eurostat (2019) and OECD/ILO/UIS (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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In contrast, engineering, manufacturing and construction appears to have become a slightly less attractive option for recent graduates. While 16% of all tertiary-educated 25-64 year-olds in 2017 had studied engineering, manufacturing and construction, only 14% of that year's tertiary graduates had done so (Figure A1.a and Table A1.3).

Figure A1.b. Share of engineering, manufacturing and construction graduates among all tertiary-educated 25-64 year-olds and recent graduates (2017 and 2018)



Countries are ranked in descending order of the share of engineering, manufacturing and construction graduates among all tertiary-educated 25-64 year-olds (2018).
Source: OECD/UIS/Eurostat (2019) and OECD/ILO/UIS (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933976498

Labour-market demand for ICT and engineering qualifications is strong and is likely to remain strong into the future as technology progresses. However, in most countries, preferences for these fields among students

appear to be either stable or decreasing. For example, across OECD countries, the percentage of the tertiary-educated population aged 25-64 with engineering, manufacturing and construction qualifications ranges from less than 10% in the United States to 20% and more in Austria, Estonia, Germany, Lithuania and the Russian Federation. However, among recent graduates, the percentage achieving an engineering, manufacturing and construction qualification is lower in almost all countries except Greece, Italy, Mexico, Norway, Poland, Portugal and Slovenia (Figure A1.b).

In Austria, the Slovak Republic, the Russian Federation and the United Kingdom, there is an significant gap (more than 6 percentage points) between the share of tertiary-educated 25-64 year-olds who studied engineering, manufacturing and construction and the share of recent graduates in that field. In the United Kingdom, the share of recent graduates getting a degree in this field is less than half the share among the tertiary-educated population and the country is facing high skills shortages in this domain (Figure A1.b).

Subnational variations in educational attainment

National level data often hide important regional inequalities. In general, regional inequalities in educational attainment have narrowed in recent years, mainly due to improvements in the regions that had the lowest educational attainment levels (OECD, 2018[4]). However, many countries still have substantial differences in attainment between regions. In Brazil, the Czech Republic, Italy and Turkey, the most recent available data show the regions with the highest percentage of tertiary-educated 25-64 year-olds have at least 3 times as high a rate as the regions with the lowest. Many countries with relatively high tertiary attainment rates also have strong regional inequalities. For example, in the Russian Federation (85 regions), the 2016 tertiary attainment rate at the national level is 53% and ranges between 26% and 75% across regions. Similarly, in Canada, 57% of adults have a tertiary education, but there is a 28 percentage-point gap between the provinces with the lowest and highest rates (OECD (2019[5])).

Conversely, in many other countries, regional attainment levels vary far less. The narrowest gaps tend to occur in countries with fewer defined subnational regions. The smallest ratios between the regions with the highest and lowest tertiary attainment levels (less than 1.5) occur in Belgium, Finland, Hungary, Ireland, Poland, Slovenia and Switzerland, countries that mostly have few large subnational regions. In Belgium, for example, the tertiary attainment rates of all three regions are within10 percentage points of each other. In Hungary, which has eight regions, the region with the largest share of tertiary-educated adults is has a rate that is less than 4 percentage points higher than region with the lowest share (OECD, 2019[5]).

Definitions

Age groups: **Adults** refer to 25-64 year-olds; **younger adults** refer to 25-34 year-olds; and **older adults** refer to 55-64 year-olds.

Completion of intermediate programmes for educational attainment (ISCED 2011) corresponds to a recognised qualification from an ISCED 2011 level programme that is not considered sufficient for ISCED 2011 level completion and is classified at a lower ISCED 2011 level. In addition, this recognised qualification does not give direct access to an upper ISCED 2011 level programme.

Educational attainment refers to the highest level of education reached by a person.

Fields of study are categorised according to the ISCED Fields of Education and Training (ISCED-F 2013). See the *Reader's Guide* for a full listing of the ISCED fields used in this report.

Levels of education: See the *Reader's Guide* at the beginning of this publication for a presentation of all ISCED 2011 levels.

Methodology

Educational attainment profiles are based on annual data on the percentage of the adult population (25-64 year-olds) in specific age groups who have successfully completed a specified level of education.

In OECD statistics, recognised qualifications from ISCED 2011 level 3 programmes that are not of sufficient duration for ISCED 2011 level 3 completion are classified at ISCED 2011 level 2 (see the *Reader's Guide*). Where countries have been able to demonstrate equivalencies in the labour-market value of attainment formally classified as the "completion of intermediate upper secondary programmes" (e.g. achieving five good GCSEs or equivalent in the United Kingdom) and "full upper secondary attainment", attainment of these programmes is reported as ISCED 2011 level 3 completion in the tables that show three aggregate levels of educational attainment (UNESCO Institute for Statistics, 2012[6]).

Most OECD countries include people without formal education under the international classification ISCED 2011 level 0. Therefore, averages for the category "less than primary educational attainment" are likely to be influenced by this inclusion.

Please see the *OECD Handbook for Internationally Comparative Education Statistics* (OECD, 2018[7]) for more information and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data on population and educational attainment for most countries are taken from OECD and Eurostat databases, which are compiled from National Labour Force Surveys by the OECD Labour Market, Economic and Social Outcomes of Learning (LSO) Network. Data on educational attainment for Indonesia and Saudi Arabia are taken from the International Labour Organization (ILO) database, and data for China are from the UNESCO Institute of Statistics (UIS) database.

Data on subnational regions for selected indicators are available in the OECD Regional Statistics Database (OECD, 2019[5]).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator A1 Tables

Table A1.1 Educational attainment of 25-64 year-olds (2018)

Table A1.2 Trends in educational attainment of 25-34 year-olds, by gender (2008 and 2018)

Table A1.3 Fields of study among tertiary-educated 25-64 year-olds (2018)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980792

Table A1.1. Educational attainment of 25-64 year-olds (2018)

Percentage of adults with a given level of education as the highest level attained

		Below upper secondary					Upper secondary or post-secondary non-tertiary		Tertiary				All levels of education
		Less than primary	Primary	Completion of intermediate lower secondary programmes	Lower secondary	Completion of intermediate upper secondary programmes	Upper secondary	Post-secondary non-tertiary	Short-cycle tertiary	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	0	4	a	14	a	31	5	12	26	7	1	100
	Austria	x(2)	1 d	a	14	a	50	3	15	4	13	1	100
	Belgium	3	5	a	14	a	36	1	1	23	17	1	100
	Canada	x(2)	2 d	a	6	a	23	10	26	22	10 d	x(10)	100
	Chile[1]	7	5	a	21	a	42	a	9	15	2 d	x(10)	100
	Colombia	x(4)	x(4)	a	40 d	5	32 d	x(6)	x(9)	23 d	x(9)	x(9)	100
	Czech Republic	0	0	a	6	a	70 d	x(6)	0	6	17	1	100
	Denmark	x(2)	3 d	a	16	a	43	0	5	18	13	1	100
	Estonia	0	0	a	10	a	39	9	6	13	21	1	100
	Finland	x(2)	2 d	a	9	a	43	1	11	17	15	1	100
	France	2	5	a	14	a	42	0	14	10	11	1	100
	Germany	x(2)	4 d	a	10	a	45	12	1	15	12	1	100
	Greece	1	13	0	12	0	32	10	2	26	4	1	100
	Hungary	0	1	a	14	a	51	8	1	13	10	1	100
	Iceland	x(2)	0 d	a	22	a	27	7	2	23	18	1	100
	Ireland	0	5	a	12	a	21	15	7	27	12	1	100
	Israel	2	4	a	7	a	36	a	14	23	12	1	100
	Italy	1	5	a	33	a	42	1	0	4	14	1	100
	Japan	x(6)	x(6)	a	x(6)	a	48 d	x(8)	21 d	31 d	x(9)	x(9)	100
	Korea	x(2)	4 d	a	8	a	39	a	14	31	5 d	x(10)	100
	Latvia	0	0	a	9	3	44	10	4	17	13	0	100
	Lithuania	0	0	0	4	2	32	19	a	27	14	1	100
	Luxembourg	c	7	a	16	a	31	2	4	15	22	2	100
	Mexico	12	17	2	27	4	21	a	0	16	2	0	100
	Netherlands	1	5	a	15	a	40	0	2	22	13	1	100
	New Zealand	x(4)	x(4)	a	20 d	a	27	14	4	29	5	1	100
	Norway	m	1	a	17	a	37	2	12	19	11	1	100
	Poland	0	6	a	1	a	58	3	0	7	23	1	100
	Portugal	2	28	a	20	a	24	1	c	6	18	1	100
	Slovak Republic	0	0	0	7	0	65	2	0	3	20	1	100
	Slovenia	0	0	a	11	a	56	a	8	7	14	4	100
	Spain	3	7	a	30	a	23	0	11	10	15	1	100
	Sweden	x(2)	3 d	a	12	2	32	7	10	18	14	2	100
	Switzerland	0	2	a	9	a	45 d	x(6)	x(9, 10, 11)	22 d	19 d	3 d	100
	Turkey	5	39	a	15	a	19	a	6	13	2	0	100
	United Kingdom	0	0	a	20	13	21	a	10	23	12	1	100
	United States	1	3	a	6	a	43 d	x(6)	11	24	11	2	100
	OECD average	2	5	m	14	m	38	6	7	17	13	1	100
	EU23 average	1	4	m	13	m	41	5	5	14	15	1	100
Partners	Argentina	5	17	7	5	3	28	a	14	20 d	1 d	x(10)	100
	Brazil	14	20	a	14	a	35	a	x(9)	17 d	1	0	100
	China[2]	3	25	a	47	a	15 d	x(6)	6	3	0 d	x(10)	100
	Costa Rica	12	29	9	8	2	17	0	5	15	2	0	100
	India[3]	46	14	a	11	a	18	0	1	10 d	x(9)	x(9)	100
	Indonesia[3]	17	27	a	18	a	26	0	3	8	1	0	100
	Russian Federation[1]	x(2)	1 d	a	4	a	19	20	25	2	29	0	100
	Saudi Arabia[4]	12	14	a	18	a	27	6	0	24 d	0	x(10)	100
	South Africa	x(2)	14 d	a	12	a	59	8	1	5	1 d	x(10)	100
	G20 average	9	12	m	16	m	32	m	9	16	7	m	100

Note: In most countries data refer to ISCED 2011. For Indonesia and Saudi Arabia data refer to ISCED-97. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2017.
2. Year of reference 2010.
3. Year of reference 2011.
4. Year of reference 2016.

Source: OECD / ILO / UIS (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933976346

Table A1.2. Trends in educational attainment of 25-34 year-olds, by gender (2008 and 2018)

Percentage of 25-34 year-olds with a given level of education as the highest level attained

		Below upper secondary						Upper secondary or post-secondary non-tertiary						Tertiary					
		Men		Women		Total		Men		Women		Total		Men		Women		Total	
		2008	2018	2008	2018	2008	2018	2008	2018	2008	2018	2008	2018	2008	2018	2008	2018	2008	2018
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Countries																		
	Australia	18 b	12	17 b	9	18 b	11	45 b	44	36 b	32	40 b	38	37 b	44	48 b	59	42 b	51
	Austria	11	12	14	11	12	11	58	52	51	44	55	48	31	36	34	45	33	40
	Belgium	20 b	16	14 b	13	17 b	15	44 b	44	37 b	32	41 b	38	36 b	41	48 b	54	42 b	47
	Canada	10	7	6	5	8	6	42	40	30	25	36	32	48	53	63	70	56	62
	Chile[1]	m	16	m	13	m	15	m	53	m	50	m	51	m	30	m	37	m	34
	Colombia	m	33	m	26	m	30	m	42	m	41	m	42	m	25	m	33	m	29
	Czech Republic	5 b	6	6 b	7	6 b	6	79 b	68	74 b	53	77 b	60	16 b	26	20 b	41	18 b	33
	Denmark	22 b	20	20 b	13	21 b	17	45 b	41	40 b	31	43 b	38	32 b	39	40 b	56	36 b	45
	Estonia	17	15	13	9	15	12	53	51	45	37	49	44	30	34	42	54	36	44
	Finland	12	11	8	8	10	9	59	56	44	42	52	49	29	34	48	50	38	41
	France	18	14	16	12	17	13	45	43	39	37	42	40	36	43	45	51	41	47
	Germany	14 b	14	15 b	12	14 b	13	63 b	55	60 b	54	62 b	55	23 b	31	25 b	34	24 b	32
	Greece	30 b	15	19 b	11	25 b	13	45 b	50	48 b	38	47 b	44	25 b	35	32 b	51	28 b	43
	Hungary	15	13	14	13	14	13	66	62	58	50	62	56	20	25	28	37	24	31
	Iceland	31	24	26	14	28	19	40	37	36	29	38	34	29	39	39	56	33	47
	Ireland	19 b	9	12 b	6	15 b	8	43 b	39	36 b	34	40 b	36	38 b	52	52 b	60	45 b	56
	Israel	15 b	9	10 b	6	13 b	8	49 b	53	41 b	36	45 b	44	36 b	38	49 b	58	42 b	48
	Italy	35 b	27	27 b	21	31 b	24	49 b	51	49 b	45	49 b	48	15 b	22	24 b	34	20 b	28
	Japan[2]	m	m	m	m	m	m	m	m	m	m	m	m	52 b,d	58 d	59 b,d	64 d	55 b,d	61 d
	Korea	3 b	2	2 b	3	2 b	2	41 b	34	38 b	22	40 b	28	56 b	64	60 b	76	58 b	70
	Latvia	24	16	14	9	19	13	55	54	49	37	52	46	21	30	37	54	29	42
	Lithuania	16 b	8	10 b	5	13 b	7	50 b	45	41 b	30	45 b	38	34 b	47	50 b	65	42 b	56
	Luxembourg	22 b	13	20 b	13	21 b	13	44 b	35	38 b	30	41 b	32	35 b	52	43 b	57	39 b	55
	Mexico	65	51	65	49	65	50	19	27	19	27	19	27	17	23	16	24	16	23
	Netherlands	20 b	15	16 b	11	18 b	13	43 b	42	42 b	37	43 b	40	37 b	43	42 b	52	40 b	48
	New Zealand	23	15	19	12	21	13	m	45	m	37	m	41	m	40	m	51	m	46
	Norway	18	20	13	15	16	18	45	39	32	29	38	34	37	41	55	56	46	48
	Poland	8 b	7	6 b	4	7 b	6	66 b	59	55 b	42	61 b	51	26 b	34	39 b	54	32 b	44
	Portugal	60	36	47	22	53	28	23	39	24	34	23	36	17	26	30	44	23	35
	Slovak Republic	5 b	8	6 b	8	6 b	8	79 b	62	73 b	47	76 b	55	16 b	30	21 b	45	18 b	37
	Slovenia	9 b	8	6 b	4	8 b	6	68 b	63	56 b	43	62 b	54	22 b	30	38 b	53	30 b	41
	Spain	39	38	29	27	34	32	26	24	26	23	26	23	35	38	45	50	40	44
	Sweden	10 b	19	8 b	15	9 b	17	55 b	40	46 b	30	50 b	35	35 b	40	46 b	55	41 b	48
	Switzerland	8 b	8	11 b	6	10 b	7	50 b	43	53 b	40	52 b	42	42 b	49	35 b	54	38 b	51
	Turkey	54 b	40	66 b	45	60 b	43	29 b	27	20 b	21	25 b	24	17 b	33	14 b	34	15 b	33
	United Kingdom[3]	19 b	17	20 b	13	20 b	15	38 b	35	35 b	33	37 b	34	42 b	48	44 b	54	43 b	51
	United States	14	9	10	6	12	8	49	47	44	40	47	43	37	45	46	54	42	49
	OECD average	21	17	18	13	19	15	49	46	43	36	46	41	31	38	40	51	35	44
	EU23 average	20	15	16	12	18	14	52	48	46	38	49	44	28	36	38	50	33	43
Partners	Argentina	m	32	m	24	m	28	m	33	m	31	m	32	m	34	m	45	m	40
	Brazil	54 b	37	47 b	28	50 b	33	37 b	45	41 b	47	39 b	46	9 b	18	13 b	25	11 b	21
	China[4]	m	63	m	66	m	64	m	19	m	16	m	18	m	18	m	18	m	18
	Costa Rica	62	54	54	48	58	51	16	21	17	21	16	21	23	25	29	31	26	28
	India[5]	m	58	m	70	m	64	m	26	m	18	m	22	m	16	m	12	m	14
	Indonesia[1]	72 b	48	75 b	51	73 b	50	21 b	37	17 b	31	19 b	34	7 b	14	8 b	18	8 b	16
	Russian Federation[1]	m	5	m	3	m	4	m	39	m	27	m	33	m	56	m	70	m	63
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	28	21	25	15	27	18	68	74	71	79	70	77	3	5	4	6	3	6
	G20 average	m	27	m	25	m	26	m	40	m	34	m	37	m	35	m	41	m	38

Note: In most countries there is a break in the time series, represented by the code "b", as data for 2018 refer to ISCED 2011 while data for 2008 refer to ISCED-97. For Indonesia and Saudi Arabia data refer to ISCED-97. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2017 instead of 2018.
2. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of adults are in this group).
3. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (13% of adults aged 25-64 are in this group).
4. Year of reference 2010 instead of 2018.
5. Year of reference 2011 instead of 2018.

Source: OECD / ILO / UIS (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933976365

Table A1.3. Fields of study among tertiary-educated 25-64 year-olds (2018)

Percentage of adults with tertiary education

		Education	Arts or humanities (except languages), social sciences, journalism and information		Arts and humanities, social sciences, journalism and information	Business and administration or law		Business, administration and law	Natural sciences, mathematics and statistics	Information and communication technologies	Engineering, manufacturing and construction	Health		Health and welfare	Other fields
			Arts	Humanities (except languages), social sciences, journalism and information		Business and administration	Law					Health (medical and dental)	Health (nursing and associate health fields)		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Countries														
	Australia	11	x(4)	x(4)	16	x(7)	x(7)	29	4	5	12	x(13)	x(13)	18	6
	Austria	11	4	7	14	x(7)	x(7)	22	4	3	27	4	4	9	10
	Belgium	12	x(4)	12	22	x(7)	x(7)	21	5	5	13	x(13)	x(13)	17	5
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile[1]	16	3	4	8	23	3	26	1	5	20	3	11	17	8
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	14	3	17	22	9	2	12	5	4	20	4	6	12	11
	Denmark	10	4	12	21	18	x(7)	20	4	4	12	5	9	27	3
	Estonia	10	4	9	16	23	4	27	4	4	20	3	4	9	10
	Finland	7	x(4)	5	15	x(7)	x(7)	25	4	6	19	x(13)	x(13)	18	7
	France	3	x(4)	9	19	x(7)	x(7)	31	5	4	16	x(13)	x(13)	14	7
	Germany	14	4	7	14	8	3	22	5	4	26	4	2	9	6
	Greece	7	x(4)	13	26	x(7)	x(7)	18	5	4	15	x(13)	x(13)	12	12
	Hungary	19	x(4)	16	22	x(7)	x(7)	18	2	6	16	x(13)	x(13)	8	9
	Iceland[2]	18	x(4)	x(4)	23	x(7)	x(7)	23	4	4	10	x(13)	x(13)	13	4
	Ireland	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	4	4	20	29	13	10	23	8	2	15	x(13)	x(13)	15	4
	Japan	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Latvia	14	2	18	23	20	7	27	3	3	14	5	1	7	8
	Lithuania	9	3	14	20	21	x(7)	26	4	3	21	4	4	9	7
	Luxembourg	7	x(4)	14	25	x(7)	x(7)	36	5	7	8	x(13)	x(13)	8	4
	Mexico	14	3	10	13	26	9	35	3	6	15	5	5	9	4
	Netherlands	11	4	12	18	23	5	28	4	4	11	3	7	17	7
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	15	2	14	19	13	3	15	7	3	13	3	13	20	8
	Poland	16	x(4)	17	24	x(7)	x(7)	22	5	4	14	x(13)	x(13)	8	7
	Portugal	15	x(4)	11	20	x(7)	x(7)	21	4	2	16	x(13)	x(13)	15	7
	Slovak Republic	17	1	15	18	10	3	13	5	4	20	3	5	14	10
	Slovenia	11	x(4)	15	21	x(7)	x(7)	24	4	4	15	x(13)	x(13)	9	12
	Spain	10	x(4)	5	14	x(7)	x(7)	27	6	6	16	x(13)	x(13)	13	7
	Sweden	16	3	10	15	13	3	16	5	3	19	4	10	20	5
	Switzerland	9	3	7	12	25	4	29	5	5	18	3	8	14	8
	Turkey[2]	16	x(4)	x(4)	18	x(7)	x(7)	31	5	1	16	x(13)	x(13)	6	7
	United Kingdom	5	x(4)	4	13	x(7)	x(7)	26	3	4	19	x(13)	x(13)	17	12
	United States[1, 3]	10	6	20	30	x(7)	x(7)	21	10	4	10	x(13)	x(13)	9	6
	OECD average	12	m	12	19	m	m	24	5	4	16	m	m	13	7
	EU23 average	11	m	12	20	m	m	23	5	4	17	m	m	13	8
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	20	2	7	10	30	5	35	2	7	10	x(13)	x(13)	11	5
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation[1]	14	x(4)	1	11	x(7)	x(7)	24	3	0	30	x(13)	x(13)	10	8
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Data for aggregated fields may not be equivalent to the sum of the subcategories because of the category unknown.
1. Year of reference 2017.
2. Year of reference 2016.
3. Data refer to bachelor's degree field, even for those with additional tertiary degrees.

Source: OECD / ILO / UIS (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

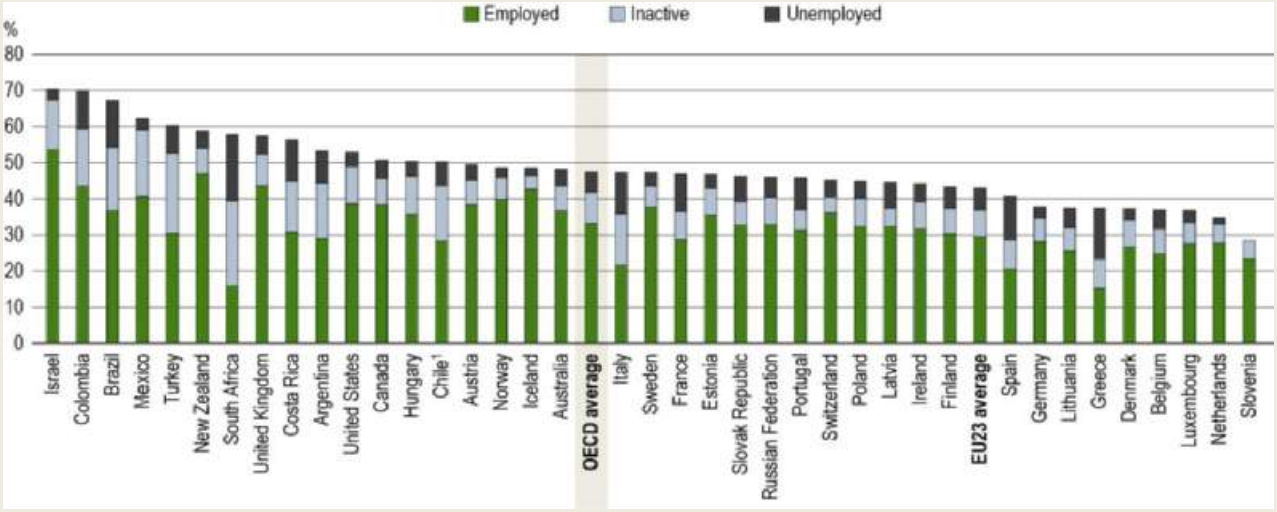
StatLink https://doi.org/10.1787/888933976384

Indicator A2. Transition from education to work: Where are today's youth?

Highlights

- On average across OECD countries, 14.3% of 18-24 year-olds are neither employed nor in education or training (NEET). In Brazil, Colombia, Costa Rica, Italy, South Africa and Turkey, over 25% of 18-24 year-olds are NEET.
- The duration of unemployment NEETs experience varies across countries. On average across OECD countries, 1.5% of 18-24 year-olds are not in education and have been unemployed for more than a year. In Argentina, Brazil, Greece, Italy, Portugal, the Slovak Republic and Spain, 3.0% or more of 18-24 year-olds are in this situation, with Greece having the highest share, at 7.9%.
- The share of young adults who are no longer in education and are looking for work is on average across OECD countries 1.9% for 15-19 year-olds; the share of unemployed NEETs rises considerably among 20-24 year-olds (6.2%) and remains at this level among 25-29 year-olds.

Figure A2.1. Percentage of 18-24 year-olds not in education, by labour market status (2018)



1. Year of reference differs from 2018. Refer to the source table for more details.
Countries are ranked in descending order of the total percentage of 18-24 year-olds not in education.
Source: OECD (2019), Table A2.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

The length and the quality of the schooling that individuals receive have an impact on their transition from education to work, as do labour-market conditions, the economic environment and the cultural context. In some countries, young people traditionally complete education before they look for work, while in other countries education and employment are concurrent. In some countries, there is little difference between how young

women and young men experience the transition from education to work, while in other countries significant proportions of young women go on to raise a family full time after leaving education and do not enter the labour force. When labour-market conditions are unfavourable, young people often tend to stay in education longer, because high unemployment rates drive down the opportunity costs of education, and they can improve their skills for when the situation improves.

To improve the transition from education to work, regardless of the economic climate, education systems should aim to ensure that individuals have the skills the labour market needs. Public investment in education can be a sensible way to counterbalance unemployment and invest in future economic growth, by building the necessary skills. In addition, public investment could be directed towards potential employers, through the creation of incentives to hire young people.

Being left out of employment can have long-lasting consequences, especially when people experience long spells of unemployment and become discouraged. Young people who are NEET are a current policy concern, with significant future consequences for individuals and society if insufficient action is taken to address this issue.

Other findings

- Across all OECD countries, higher educational attainment is associated with lower NEET rates. On average, 40.1% of 25-29 year-olds without upper secondary education are NEET, compared to 16.8% of those with an upper secondary or post-secondary non-tertiary education and 10.8% for those who completed a tertiary degree.
- Between 2008 and 2018, access to higher education among young adults increased. In most countries, this access to additional educational opportunities has been accompanied by a diminishing share of young adults in employment. For example, in Spain the share of employed 20-24 year-olds not in education is 21 percentage points lower than in 2008, while the share of the same age group in education is about 18 percentage points higher.
- The majority of female NEETs are inactive, while the unemployed account for a larger share of male NEETs. On average across OECD countries, 10.8% of women aged 18-24 are inactive and NEET, compared to only 6.5% of men, while 5.0% of women in this age group are unemployed and NEET, compared to 6.4% for men.

Note

This indicator analyses the situation of young people in transition from education to work: those in education, those who are employed, and those who are neither employed nor in education or training (NEET). The latter group includes not only those who have not managed to find a job (unemployed NEETs), but also those who are not actively seeking employment (inactive NEETs). Part of the analysis focuses on 18-24 year-olds, as this age group is no longer in compulsory education but a significant proportion of them will still be continuing their studies.

Analysis

Labour-market outcomes of young adults once they leave education

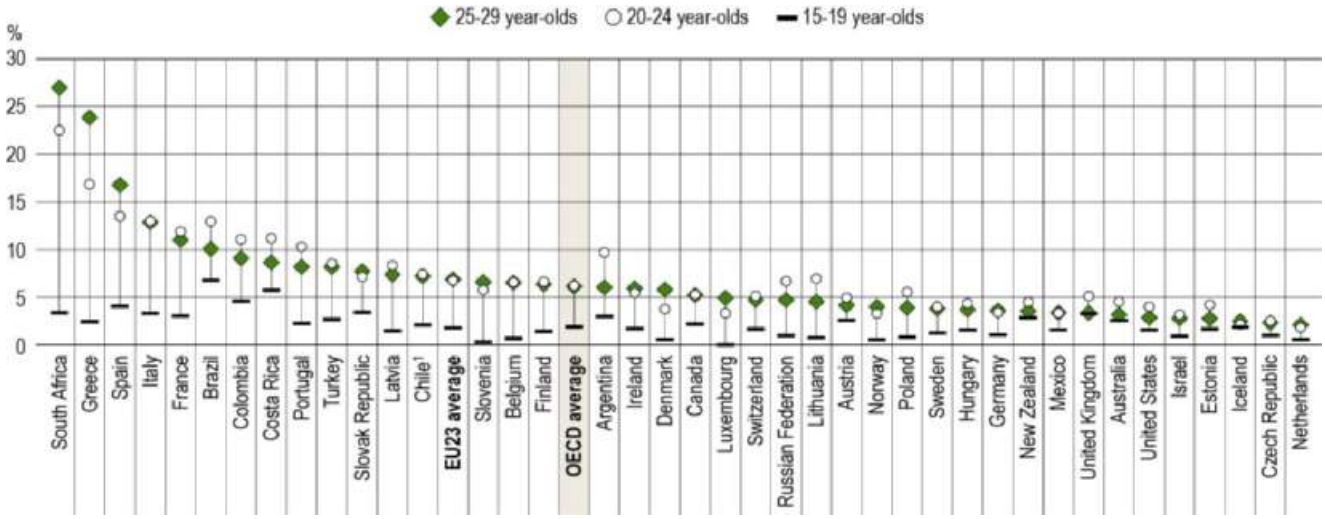
Many young people leave education between the ages of 18 and 24. On average across OECD countries, almost half (47%) of 18-24 year-olds have left the education system. In Colombia, Israel, Mexico and Turkey at least 60% of 18-24 year-olds are not in education, while in Belgium, Denmark, Germany, Greece, Lithuania, Luxembourg, the Netherlands and Slovenia the share is below 40% (Figure A2.1).

Among 25-29 year-olds, on average across OECD countries, only 16% are still in education. However, in Denmark, Finland, Iceland and Israel, over 25% of 25-29 year-olds remain in education (OECD, 2019[1]).

Young adults no longer in education may be employed, unemployed or inactive. On average across OECD countries, 33% of 18-24 year-olds are employed and no longer in education, meaning that most 18-24 year-olds who have left education are in employment. Among all 18-24 year-olds not in education, 80% or more are employed in Iceland, the Netherlands, New Zealand, Norway, Sweden and Switzerland. In other countries, young people have experienced more difficulty entering the labour market when they leave the education system. For instance, in Greece and South Africa, over 30% of 18-24 year-olds who are not in education are unemployed (Figure A2.1).

Young adults who have not found employment upon leaving education are often referred to as NEETs: young people neither employed nor in education or training. On average across OECD countries, 14.3% of 18-24 year-olds are NEET. In Germany, Iceland, Luxembourg, the Netherlands, Norway, Slovenia, Sweden and Switzerland the share of NEETs is below 10%, while it is 20% or more in Argentina, Brazil, Chile, Colombia, Costa Rica, Greece, Italy, Mexico, South Africa, Spain and Turkey. In most countries, inactivity is more common than unemployment: on average across OECD countries, 8.6% of 18-24 year-olds are inactive NEETs and 5.7% are unemployed NEETs. However, in France, Greece, Latvia, Portugal, the Slovak Republic and Spain the share of unemployed NEETs exceeds that of inactive NEETs (Table A2.1).

Figure A2.2. Percentage of young adults not in education and unemployed, by age group (2018)



1. Year of reference differs from 2018. Refer to Table A2.1 for more details.

Countries are ranked in descending order of the percentage of 25-29 year-olds not in education and unemployed.

Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933976593

Unemployed NEETs by age group

The share of young adults who are no longer in education and looking for work increases with age. On average across OECD countries, 1.9% of 15-19 year-olds are in this situation. This low share is partly explained by compulsory education typically ending between the ages of 16 and 18 (see Table X1.3). The rate of unemployed NEETs rises considerably among 20-24 year-olds (6.2%) and remains at this level among 25-29 year-olds (6.1%). The share of unemployed NEETs is the lowest for the younger age group (15-19 year-olds) across all OECD and partner countries with data. The pattern for 20-24 year-olds and 25-29 year-olds is more varied across countries: in Argentina, Brazil, Colombia, Costa Rica, Lithuania, Portugal and the Russian Federation the share of unemployed NEETs is at least 2 percentage points higher for 20-24 year-olds while in Denmark, Greece, South Africa and Spain the share is at least 2 percentage points higher among 25-29 year-olds (Figure A2.2).

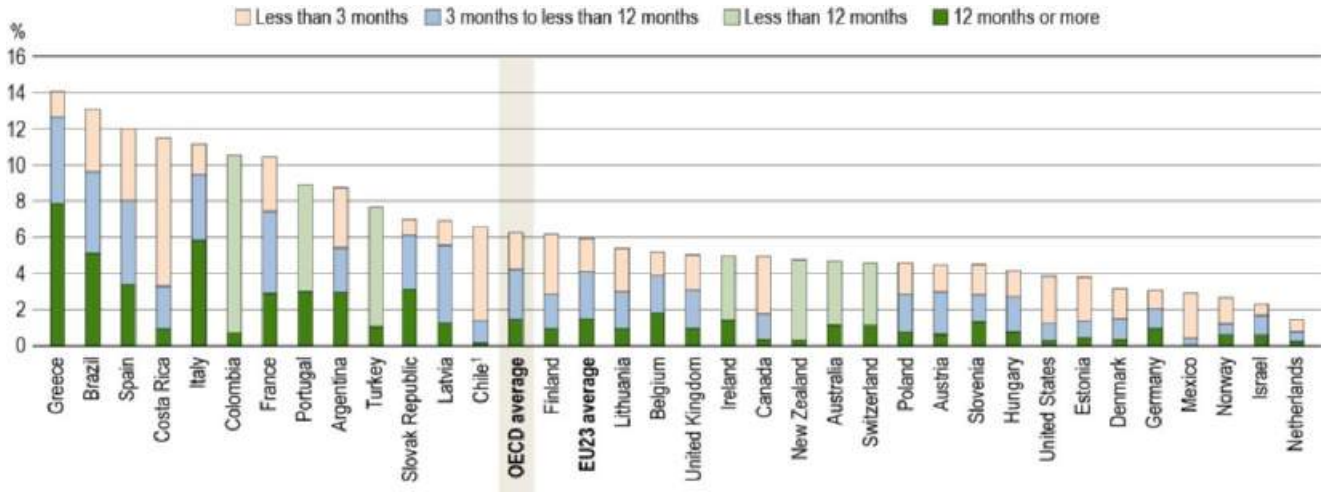
Duration of unemployment for young adults who are unemployed NEETs

Young people who experience unemployment following graduation are more likely to be affected by unemployment later in their careers, and by lower earnings – the so-called "scarring effect" (Eurofound, 2017[2]). The duration of unemployment has a significant impact on their later labour-market outcomes. While the scarring effect is negligible for short-term unemployed youth – those who have been unemployed for under three months – it is increasingly important for the medium-term unemployed (who have been unemployed for at least three months and less than a year), and the long-term unemployed who have been unemployed for a year or more (OECD, 2015[3]).

On average across OECD countries, 2.0% of 18-24 year-olds are NEET and have been unemployed for less than 3 months, 2.8% have been unemployed for between 3 and 12 months, and 1.5% have been unemployed and NEET for 12 months or more. In other words, an important share of unemployment among NEETs is not a temporary situation where people are in the process of moving from one job to another, but a longer-lasting situation (Table A2.3).

Figure A2.3. Percentage of unemployed 18-24 year-olds not in education, by duration of unemployment (2018)

As a percentage of all 18-24 year-olds



Note: The distribution of duration of unemployment may not sum up to the share of unemployed as these data were collected separately.
1. Year of reference differs from 2018. Refer to the source table for more details.
Countries are ranked in descending of the share of unemployed 18-24 year-olds.
Source: OECD (2019), Table A2.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933976612

Greece and Italy have the largest proportion of long-term unemployed NEETs among all unemployed NEETs aged 18-24, where more than one in two unemployed NEETs have been unemployed for a year or more. In contrast, the lowest relative proportion of long-term unemployed can be found in Canada, Chile, Colombia, Costa Rica, Mexico, New Zealand and the United States where less than 10% of unemployed NEETs have been in that situation for a year or more (Figure A2.3).

Gender gap among inactive NEETs

The majority of female NEETs are inactive, while a larger share of male NEETs are unemployed. On average across OECD countries, 10.8% of women aged 18-24 are inactive and no longer in education, compared to only 6.5% of men, while 5.0% of women of this age are unemployed and not in education, compared to 6.4% of men (OECD, 2019[1]).

Various factors contribute to people being inactive and not seeking employment. Among women, the main reasons for inactivity are childcare responsibilities, while health and other factors are more prevalent among men (OECD, 2016[4]). When interpreting the share of NEETs, it should be noted that a small share of inactive NEETs are only temporarily inactive and may soon re-enter employment, education or training. A small share of young adults may also have become discouraged and stopped looking for work because they believe that there are no job opportunities for them (Eurofound, 2016[5]).

The share of inactive NEETs among women increases with age, while it is more or less stable among men. On average across OECD countries, among 15-19 year-olds, 5.5% of women and 4.3% of men are inactive NEETs, a gender gap of less than 2 percentage points. Among 20-24 year-olds the shares increase to 11.6% for women and 6.5% for men, and among 25-29 year-olds to 16.5% for women and 5.6% for men, a gender gap of more than 10 percentage points (OECD, 2019[1]).

In Colombia, Costa Rica, the Czech Republic, Mexico, the Slovak Republic and Turkey, the gender gap in inactivity rates is at least 20 percentage points among 25-29 year-olds. Mexico and Turkey are the only two OECD countries where the gender gap is over 35 percentage points. In these two countries, as in many others, the overall high share of NEETs can mainly be attributed to the high share of inactive female NEETs (OECD, 2019[1]).

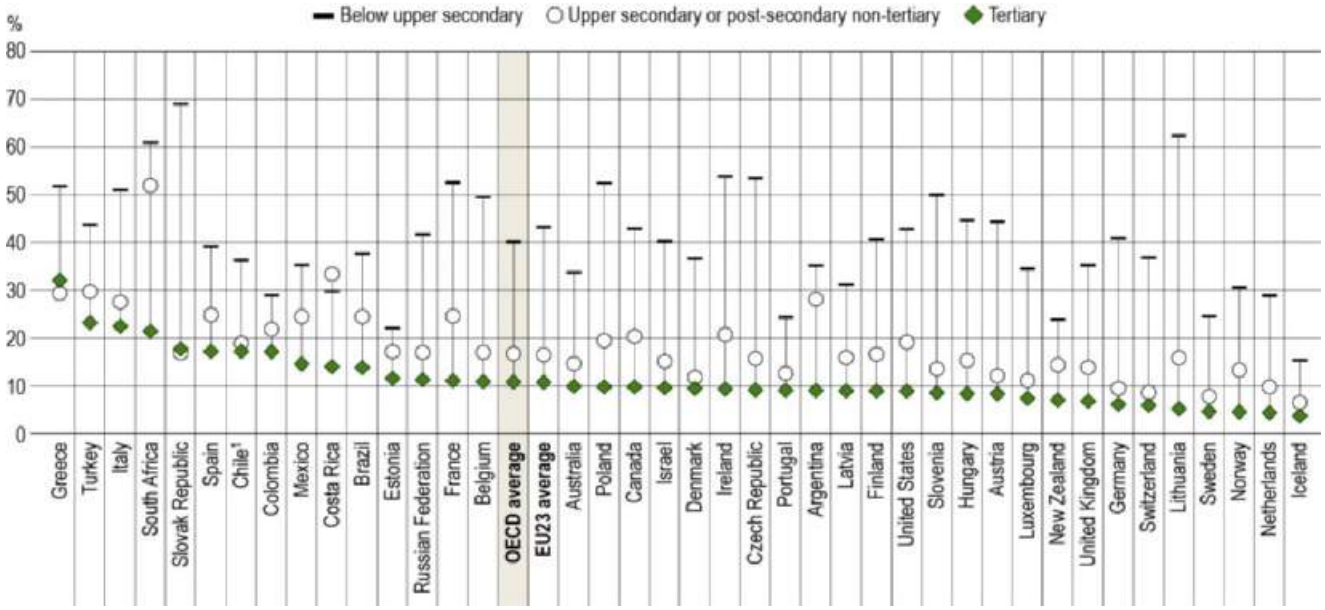
Educational attainment and the risk of becoming NEET

By the age of 25, most of young adults have either left education or are enrolled in education but have already attained a first tertiary degree. The typical graduation age from a bachelor's or equivalent degree ranges from 21 to 24 years (see Table X.1a). Young adults who have left education without a tertiary degree are more likely to become NEET than those who completed one. On average across OECD countries, 10.8% of tertiary-educated 25-29 year-olds are NEET, while the share increases to 16.8% for those with an upper secondary or post-secondary non-tertiary education and to about 40.1% for those without upper secondary education. The situation is especially severe for 25-29 year-olds without an upper secondary education in Lithuania, the Slovak Republic and South Africa, where the share of NEETs among 25-29 year-olds without upper secondary education exceeds 60%. It is also very high in the Czech Republic, France, Greece, Ireland, Italy, Poland and Slovenia where at least half of 25-29 year-olds are NEET (Figure A2.4).

Attaining at least upper secondary education considerably reduces the risk of becoming NEET. The positive impact of further education on the risk of becoming NEET is especially great in Austria, the Czech Republic, Denmark, Germany, Lithuania, Luxembourg, the Slovak Republic, Slovenia, Sweden and Switzerland. In all these countries, the share of NEETs among 25-29 year-olds with an upper secondary or post-secondary non-tertiary education is about one-third the share among those with below upper secondary education (Figure A2.4).

In Greece, Italy, South Africa and Turkey the share of NEETs exceeds one in five young adults aged 25-29 regardless of the level of educational attainment. Nevertheless, even in these countries, education pays off and the risk of becoming NEETs falls significantly with higher educational attainment (Figure A2.4).

Figure A2.4. Percentage of NEETs among 25-29 year-olds, by educational attainment (2018)



Note: NEET refers to young people neither employed nor in education or training.
1. Year of reference differs from 2018. Refer to Table A2.1 for more details.
Countries are ranked in descending order of the percentage of NEETs among tertiary-educated 25-29 year-olds.
Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933976631

Trends in the transition from education to work

In 2008, the year of the outbreak of the financial and economic crisis in many countries, the share of young adults neither in education nor employed was one of the lowest during the first decade of the 21st century. In 2008, on average across OECD countries, 15.3% of 20-24 year-olds were NEET, while in the years following the crisis the share of NEETs was much higher, reaching its peak in 2010/11 in many countries. Between 2010 and 2018, the share of 20-24 year-olds not in education nor employed fell by about 4 percentage points on average across the OECD, from 19.0% in 2010 to 15.3% in 2018, about the same level as a decade earlier (Table A2.2 and OECD (2019[1])).

In most OECD countries, the share of NEETs among 20-24 year-olds is higher in 2018 than in 2008, but several countries have been able to reduce the number of NEETs considerably. Among countries with comparable data for both 2008 and 2018, the relative decrease was the largest in Hungary where the share of NEETs fell from 18.4% to 15.4% (i.e. decrease of 16%). A large change is also observed in the United States where the share of NEETs fell by 14% (Table A2.2).

Over the last decade, the general trend of increased access to higher education among young adults has continued (see Indicator B1). In Spain the share of 20-24 year-olds in education increased by 18 percentage points from 34% in 2008 to 52% in 2018, the largest increase over this period. In Austria, the percentage of young adults still in education increased by almost 10 percentage points between 2008 and 2018 (Table A2.2).

In most of countries, increased access to education has been accompanied by a decreasing share of young adults in employment. Among OECD countries with comparable data between 2008 and 2018, the decrease over this period is at least 10 percentage points in Austria, Norway, Portugal and Spain for 20-24 year-olds. In Spain, the share of employed 20-24 year-olds not in education in 2018 is about 20 percentage points lower than in 2008,

while the share of the same age group in education is 18 percentage points higher. Some countries show the opposite trend: in Hungary and New Zealand, the share of employed adults aged 20-24 not in education has increased between 2008 and 2018 while the share of young adults in education has fallen over the same period (Table A2.2).

Subnational variations in the percentage of young people who are NEET

The proportion of young people who are neither employed nor in education or training shows significant subnational variation as well as national variation across the OECD. Across the regions of the OECD, the share of 18-24 year-old NEETs can range from as low as 2.1% in one region in Japan, to as high as 48.1% in one region in Turkey. The national averages can also mask the regions which have much lower or higher NEET rates, often making them outliers within the country (OECD, 2019[6]).

In 18 OECD and partner countries, the subnational regions with the highest share of 18-24 year-old NEETs have at least twice as high a rate as the regions with the lowest shares. Within countries, the ratio of highest to the lowest share between regions reaches 12 in the Russian Federation, while in Spain there are about three times as many NEETs in the region with the highest share (30.7%) than in the region with the lowest share (9.9%) (OECD, 2019[6]).

In contrast, across the OECD and partner countries, regional differences in NEET rates are smallest in Denmark, Slovenia and Sweden, where the difference between the regions with the highest and lowest shares is below 3 percentage points. Each of these countries has eight or fewer subnational regions. Finland, the Netherlands and Norway also have a relatively narrow range of NEET rates, the difference is less than 4 percentage points in the three countries (OECD, 2019[6]).

Income and job opportunities tend to be more concentrated in cities across the OECD (OECD, 2018[7]). However, distinct trends can be observed in the relative proportions of NEETS in capital cities across OECD countries. In many countries, such as Chile, the Czech Republic, Denmark and Finland the region with the capital city has the lowest share of NEETS, while in Austria, Belgium and Germany, the capital city region has the highest NEET rate in the country (OECD, 2019[6]).

Definitions

Educational attainment refers to the highest level of education attained by a person.

Employed, inactive and unemployed individuals*:* See *Definitions* section in Indicator A3.

Individuals in education are those who had received formal education and/or training in the regular educational system in the four weeks prior to being surveyed.

Levels of education: See the *Reader's Guide* at the beginning of this publication for a presentation of all ISCED 2011 levels.

NEET*:* Neither employed nor in education or training.

Methodology

Data usually refer to the second quarter of studies, as this is the most relevant period for knowing if the young person is really studying or has left education for the labour force. This second quarter corresponds in most countries to the first three months of the calendar year, but in some countries to the spring quarter (i.e. March, April and May).

Education or training corresponds to formal education; therefore, someone not working but following non-formal studies is considered a NEET.

For information on the methodology for subnational regions, see Indicator A1.

Please see the OECD Handbook for Internationally Comparative Education Statistics 2018 (OECD, 2018[8]) for more information and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

For information on the sources, see Indicator A1.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator A2 Tables

Table A2.1 Percentage of 18-24 year-olds in education/not in education, by work status (2018)

Table A2.2 Trends in the percentage of young adults in education/not in education, employed or not, by age group (2008 and 2018)

Table A2.3 Percentage of 18-24 year-olds in education/not in education, by work status and duration of unemployment (2018)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980811

Table A2.1. Percentage of 18-24 year-olds in education/not in education, by work status (2018)

		In education						Not in education					
		Employed			Unemployed	Inactive	Total	Employed	NEET			Total	Total
		Students in work-study programmes	Other employed	Total					Unemployed	Inactive	Total		
		(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6) = (3) + (4) + (5)	(7)	(8)	(9)	(10) = (8) + (9)	(11) = (7) + (10)	(12) = (6) + (11)
OECD	Countries												
	Australia	5	28	33	2.9	16	52	37	4.6	7.0	11.6	48	100
	Austria	7	13	20	1.8	29	50	38	4.5	6.7	11.1	50	100
	Belgium	0	5	6	1.0	56	63	25	5.2	6.9	12.1	37	100
	Canada	x(2)	23 d	23	2.0	25	49	38	5.1	7.4	12.5	51	100
	Chile[1]	x(2)	9 d	9	3.0	38	50	28	6.6	15.3	21.9	50	100
	Colombia	a	10	10	3.0	17	30	43	10.6	15.9	26.5	70	100
	Czech Republic	m	m	m	m	m	m	m	m	m	m	m	m
	Denmark	x(2)	35 d	35	3.2	25	63	27	3.1	7.5	10.7	37	100
	Estonia	c	22	22	2.9	28	53	35	3.8	7.4	11.2	47	100
	Finland	x(2)	20 d	20	6.0	31	57	30	6.0	7.1	13.1	43	100
	France	7	5	12	0.9	41	53	29	10.4	7.8	18.2	47	100
	Germany	16	16	32	1.0	30	62	28	3.1	6.5	9.6	38	100
	Greece	a	5	5	1.7	56	63	15	14.0	8.2	22.3	37	100
	Hungary	a	2	2	c	47	50	36	4.2	10.5	14.6	50	100
	Iceland	a	37	37	2.3	12	51	43	2.2	3.7	5.9	49	100
	Ireland	a	20	20	1.9	34	56	32	5.0	7.6	12.5	44	100
	Israel	x(2)	10 d	10	0.6	19	30	53	2.8	14.0	16.9	70	100
	Italy	a	3	3	0.7	49	53	22	11.5	14.3	25.7	47	100
	Japan	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m	m	m	m	m
	Latvia	a	14	14	c	41	56	32	7.1	5.1	12.2	44	100
	Lithuania	a	14	14	1.0	47	63	26	5.4	6.5	11.9	37	100
	Luxembourg	a	14	15	2.4	46	63	27	3.4	6.0	9.3	37	100
	Mexico	a	10	10	0.8	27	38	41	3.1	18.5	21.6	62	100
	Netherlands	x(2)	41 d	41	2.8	22	65	28	1.6	5.3	6.9	35	100
	New Zealand	a	22	22	1.8	18	41	47	4.9	7.1	11.9	59	100
	Norway	1	20	21	2.5	28	51	40	2.7	6.0	8.8	49	100
	Poland	a	10	10	1.0	44	55	32	4.6	7.9	12.5	45	100
	Portugal	a	6	6	1.4	47	54	31	8.9	5.6	14.5	46	100
	Slovak Republic	c	3	3	c	51	54	33	7.0	6.6	13.6	46	100
	Slovenia	x(2)	22 d	22	1.3	43	67	23	4.5	5.0	9.5	33	100
	Spain	x(2)	8 d	8	3.7	48	59	21	12.0	8.2	20.2	41	100
	Sweden	a	17	17	6.1	30	53	38	3.7	5.9	9.6	47	100
	Switzerland	19	15	34	1.8	19	55	36	4.6	4.4	9.0	45	100
	Turkey	a	14	14	3.3	23	40	30	7.6	22.2	29.8	60	100
	United Kingdom	5	14	18	1.5	23	43	44	5.0	8.8	13.8	57	100
	United States	x(2)	20 d	20	1.3	26	47	39	3.9	10.3	14.2	53	100
	OECD average	m	15	17	2.2	33	53	33	5.7	8.6	14.3	47	100
	EU23 average	m	14	16	2.2	39	57	30	6.1	7.3	13.4	43	100
Partners	Argentina	a	12	12	4.3	31	47	29	8.8	15.3	24.1	53	100
	Brazil	a	14	14	5.2	14	33	37	13.1	17.6	30.6	67	100
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	a	12	12	4.2	27	44	31	11.5	14.1	25.6	56	100
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	6	6	2.0	46	54	33	5.6	7.6	13.2	46	100
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	a	1	1	0.8	41	42	16	18.3	23.6	41.9	58	100
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

Note: NEET refers to young people neither employed nor in education or training. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2017.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933976517

Table A2.2. Trends in the percentage of young adults in education/not in education, employed or not, by age group (2008 and 2018)

		20-24 year-olds						15-29 year-olds					
		2008			2018			2008			2018		
		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education	
			Employed	NEET		Employed	NEET		Employed	NEET		Employed	NEET
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	39 b	50 b	10.7 b	46	42	11.9	44 b	45 b	10.4 b	47	42	10.8
	Austria	33	55	12.0	42	45	12.5	43	46	10.7	46	43	11.1
	Belgium	41 b	44 b	14.1 b	53	33	14.6	46 b	42 b	12.1 b	50	37	12.8
	Canada	39	48	13.3	43	44	13.4	44	44	11.9	43	45	11.9
	Chile[1]	m	m	m	44	34	21.8	m	m	m	46	35	18.4
	Colombia	m	m	m	24	49	26.3	m	m	m	34	44	22.7
	Czech Republic	45 b	45 b	10.6 b	49	42	8.8	47 b	43 b	10.9 b	46	44	10.0
	Denmark	51 b	41 b	8.2 b	57	31	11.9	54 b	39 b	6.9 b	57	33	10.8
	Estonia	47	43	10.7	44	44	12.2	50	39	11.3	44	43	12.7
	Finland	50	38	12.0	50	36	14.2	56	34	9.9	54	34	11.9
	France	42	41	16.6	42	37	20.3	46	40	14.0	48	36	16.1
	Germany	47 b	39 b	14.0 b	55	35	10.4	52 b	36 b	11.6 b	53	38	9.2
	Greece	49 b	34 b	16.7 b	58	19	22.9	45 b	39 b	16.0 b	53	25	21.5
	Hungary	48	33	18.4	40	45	15.4	47	37	16.3	42	44	13.5
	Iceland	48	46	5.2	45	49	6.5	48	46	5.6	47	47	6.1
	Ireland	30 b	55 b	14.6 b	46	41	13.6	36 b	51 b	12.8 b	51	38	11.7
	Israel	29 b	34 b	37.5 b	28	55	17.0	42 b	30 b	27.5 b	43	43	13.4
	Italy	43 b	35 b	22.0 b	44	27	28.4	45 b	36 b	19.2 b	48	28	23.8
	Japan	32 b	57 b	11.1 b	m	m	m	40 b	49 b	11.3 b	m	m	m
	Korea	m	m	m	m	m	m	m	m	m	m	m	m
	Latvia	39	47	14.0	44	42	14.0	47	41	12.0	44	45	11.2
	Lithuania[2]	51 b	33 b	15.9 b	51	34	14.6	56 b	33 b	11.4 b	50	40	10.5
	Luxembourg	56 b	34 b	9.8 b	58	32	10.1	52 b	40 b	8.5 b	53	39	8.4
	Mexico	25	49	25.9	31	46	23.2	33	43	23.4	38	41	20.9
	Netherlands	52 b	42 b	5.6 b	58	34	7.7	54 b	41 b	5.1 b	56	37	7.0
	New Zealand	40	46	14.1	35	52	12.4	46	42	12.1	43	47	10.2
	Norway	39	54	7.0	46	44	10.3	44	49	6.7	47	45	8.7
	Poland	57 b	28 b	15.6 b	43	42	14.5	53 b	34 b	13.7 b	43	44	12.7
	Portugal	37	50	13.5	44	40	16.8	40	48	12.2	49	39	11.6
	Slovak Republic	39 b	44 b	16.6 b	44	41	14.7	43 b	41 b	16.2 b	42	43	15.1
	Slovenia	61 b	29 b	10.3 b	59	29	12.0	57 b	34 b	8.5 b	55	36	9.7
	Spain	34	47	19.0	52	26	22.0	36	48	16.7	51	30	19.1
	Sweden	40 b	48 b	12.9 b	46	44	10.0	51 b	40 b	8.7 b	49	42	8.9
	Switzerland	43 b	48 b	9.1 b	45	45	10.0	46 b	44 b	9.6 b	48	44	8.1
	Turkey	20 b	34 b	46.1 b	35	34	31.2	23 b	35 b	42.0 b	42	31	26.5
	United Kingdom	28 b	53 b	18.3 b	34	51	14.2	38 b	47 b	14.8 b	36	51	12.6
	United States	37	46	17.2	39	47	14.8	45	40	14.7	44	43	12.7
	OECD average	42	43	15.3	45	40	15.3	46	41	13.4	47	40	13.2
	EU23 average	44	42	14.0	48	37	14.6	48	40	12.1	49	39	12.7
Partners	Argentina	m	m	m	41	34	25.0	m	m	m	48	32	20.4
	Brazil	24	54	22.5	28	42	29.8	35	46	19.0	38	37	24.9
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	37	38	24.9	m	m	m	44	33	23.1
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	45	41	14.7	m	m	m	38	50	12.2
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	31	20	48.6	m	m	m	41	22	37.7
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

Note: NEET refers to young people neither employed nor in education or training. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2017 instead of 2018.
2. Year of reference 2005 instead of 2008.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933976536

Table A2.3. Percentage of 18-24 year-olds in education/not in education, by work status and duration of unemployment (2018)

		In education	Not in education	Not in education			
				Unemployed			
					Less than 3 months	3 months to less than 12 months	12 months or more
		(1)	(2)	(3)	(4)	(5)	(6)
OECD	Countries						
	Australia	52	48	4.6	x(5)	3.5[d]	1.1
	Austria	50	50	4.5	1.5	2.3	0.7
	Belgium	63	37	5.2	1.3	2.1	1.8
	Canada	49	51	5.1	3.2	1.4	0.3
	Chile[1]	50	50	6.6	5.2	1.2	0.2
	Colombia	30	70	10.6	x(5)	9.9[d]	0.7
	Czech Republic	m	m	m	m	m	m
	Denmark	63	37	3.1	1.7	1.1	0.4
	Estonia	53	47	3.8	2.5	0.9	0.5
	Finland	57	43	6.0	3.3	1.9	1.0
	France	53	47	10.4	3.0	4.6	2.9
	Germany	62	38	3.1	1.0	1.1	1.0
	Greece	63	37	14.0	1.4	4.8	7.9
	Hungary	50	50	4.2	1.5	1.9	0.8
	Iceland	51	49	2.2	m	m	m
	Ireland	56	44	5.0	x(5)	3.5[d]	1.4
	Israel	30	70	2.8	0.6	1.1	0.6
	Italy	53	47	11.5	1.7	3.6	5.9
	Japan	m	m	m	m	m	m
	Korea	m	m	m	m	m	m
	Latvia	56	44	7.1	1.4	4.3	1.3
	Lithuania	63	37	5.4	2.4	2.1	1.0
	Luxembourg	63	37	3.4	m	m	m
	Mexico	38	62	3.1	2.5	0.4	0.0
	Netherlands	65	35	1.6	0.7	0.5	0.2
	New Zealand	41	59	4.9	x(5)	4.5[d]	0.3
	Norway	51	49	2.7	1.5	0.6	0.6
	Poland	55	45	4.6	1.7	2.1	0.8
	Portugal	54	46	8.9	x(5)	5.9[d]	3.0
	Slovak Republic	54	46	7.0	0.9	3.0	3.1
	Slovenia	67	33	4.5	1.7	1.5	1.3
	Spain	59	41	12.0	4.0	4.6	3.4
	Sweden	53	47	3.7	1.8	1.2	c
	Switzerland	55	45	4.6	x(5)	3.5[d]	1.1
	Turkey	40	60	7.6	x(5)	6.6[d]	1.1
	United Kingdom	43	57	5.0	1.9	2.1	1.0
	United States	47	53	3.9	2.6	1.0	0.3
	OECD average	53	47	5.7	2.0	2.8	1.5
	EU23 average	57	43	6.1	1.9	2.6	1.5
Partners	Argentina	47	53	8.8	3.3	2.5	3.0
	Brazil	33	67	13.1	3.5	4.5	5.1
	China	m	m	m	m	m	m
	Costa Rica	44	56	11.5	8.2	2.4	0.9
	India	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m
	Russian Federation	54	46	5.6	c	c	c
	Saudi Arabia	m	m	m	m	m	m
	South Africa	42	58	18.3	m	m	m
	G20 average	m	m	m	m	m	m

Note: The data on duration of unemployment may not equal total unemployed numbers because of the presence of missing data.
1. Year of reference 2017.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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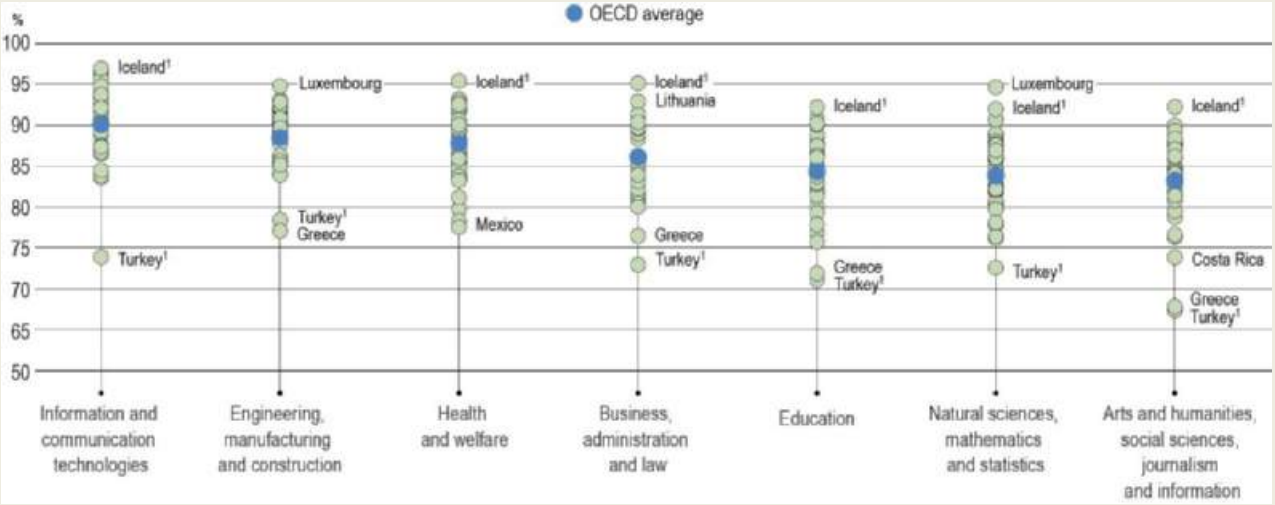
Indicator A3. How does educational attainment affect participation in the labour market?

Highlights

- The average employment rates of tertiary-educated adults in OECD countries can vary by up to 7 percentage points depending on their fields of study, while within fields of study, large variations in employment rates can also be observed across countries.
- Levels of long-term unemployment decrease with higher educational attainment in most OECD countries. In most countries, the proportion of unemployed adults who have been unemployed for 12 months or more is smaller for tertiary-educated adults than for adults with lower levels of educational attainment.
- In the majority of OECD and partner countries, older tertiary-educated adults have higher employment rates than younger tertiary-educated adults. On average across the OECD, the employment rate for 45-54 year-olds is 4 percentage points higher than for 25-34 year-olds, while in some countries the difference is more than 10 percentage points.

Figure A3.1. Employment rates of tertiary-educated adults, by field of study (2018)

Percentage of employed 25-64 year-olds among all 25-64 year-olds



1. Year of reference differs from 2018. Refer to the source table for more details.
Fields of study are ranked in descending order of the employment rates for the OECD average.
Source: OECD (2019), Table A3.4. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

The economies of OECD countries depend upon a supply of highly skilled workers. Expanded education opportunities have increased the pool of skilled people across countries, and those with higher qualifications

are more likely to find employment. On the other hand, while employment opportunities still exist for those with lower qualifications, their labour-market prospects are relatively challenging. People with the lowest educational qualifications have lower earnings (see Indicator A4) and are often working in routine jobs that are at greater risk of being automated, therefore increasing their likelihood of being unemployed (Arntz, Gregory and Zierahn, 2016[1]). These disparities in labour-market outcomes can exacerbate inequalities in society.

Education systems face challenges in responding to changing demands for skills in the labour market. While the general pattern is for those with lower levels of education to have poorer labour-market prospects, in certain industries the high demand for skilled workers can result in narrower differences in employment rates across levels of education, if individuals have acquired the relevant skills. For example, given the technological advances that have been transforming the needs of the global labour market, those with qualifications in information and communication technologies (ICT), and those who are comfortable using ICT for problem solving often have the best employment prospects. In some cases, strong ICT skills can completely compensate for lower levels of educational attainment in the labour market (Lane and Conlon, 2016[2]).

Comparing labour-market indicators across countries can help governments to better understand global trends and anticipate how economies may evolve in the coming years. In turn, these insights can inform the design of education policies, which aim to ensure that the students of today can be well prepared for the labour market of tomorrow.

Other findings

- Employment rates of tertiary-educated adults with master's or equivalent qualifications are higher than those with bachelor's or equivalent qualifications across most countries. Adults with doctoral qualifications generally have the highest employment rates, although there are some exceptions.
- Inactivity rates vary greatly across countries, and below-average employment rates also tend to correlate with above-average inactivity rates across countries.
- Among tertiary-educated adults, those who studied information and communication technologies (ICT) have the highest average employment rate across the OECD, while the lowest rates are found among those who studied arts and humanities, social sciences, journalism and information.
- In almost all OECD countries, the unemployment rate for adults with tertiary education is as low as or lower than the unemployment rate for adults with upper secondary or post-secondary non-tertiary education.

Analysis

Educational attainment and employment

Across the OECD, upper secondary education is generally considered the minimum educational attainment level for successful labour-market integration. Adults of all age groups without at least this level of education are penalised in the labour market. On average across OECD countries, the employment rate of adults (aged 25-64) is 85% for those with a tertiary qualification, 76% for those with an upper secondary or post-secondary non-tertiary qualification, and 59% for those who have not completed upper secondary education (Table A3.1).

In all OECD and partner countries, younger adults (those aged 25-34) are better educated than their older peers (see Indicator A1). Employment rates for young adults are similar to those for 25-64 year-olds; on average across OECD countries, 84% of tertiary-educated younger adults are employed, as are 78% of those with upper secondary or post-secondary non-tertiary education, and 60% of those without upper secondary education (Table A3.2).

Despite being on average more highly educated as a group than young men (see Indicator A1), young women at all levels of educational attainment have lower employment rates. Women aged 25-34 with below upper secondary education have employment rates of 45% on average across the OECD, compared with 72% for men of the same educational attainment and age. Among tertiary-educated young adults, the gap in favour of men narrows to 8 percentage points (Table A3.2).

Across countries, there are substantial variations in employment rates by level of education. The highest employment premiums for tertiary-educated adults over those with upper secondary or post-secondary non-tertiary education are in Lithuania and Poland, where the difference between employment rates is more than 16 percentage points. Conversely, in the Czech Republic, Denmark, Estonia, Iceland, New Zealand, Portugal, Sweden and the United Kingdom, the average employment premium for tertiary-educated adults is 5 percentage points or less over those with upper secondary or post-secondary non-tertiary education (Table A3.1).

Smaller differences in employment rates for different levels of educational attainment may occur in a number of different national contexts, for example in countries with labour-market shortages, or countries with a strong emphasis on vocational education at the upper secondary or post-secondary non-tertiary levels. For example, in Germany and Switzerland, the majority of vocational graduates participate in combined school- and work-based programmes, which can smooth the transition from education to work (OECD, 2019[3]).

Educational attainment and unemployment rates by duration of unemployment

In many OECD and partner countries, unemployment rates are especially high among 25-34 year-olds. On average across OECD countries, the unemployment rate is twice as high for younger adults who have not completed upper secondary education: 14% compared to 7% for those with upper secondary or post-secondary non-tertiary education. The unemployment rate for tertiary-educated younger adults is only 6% (Table A3.3).

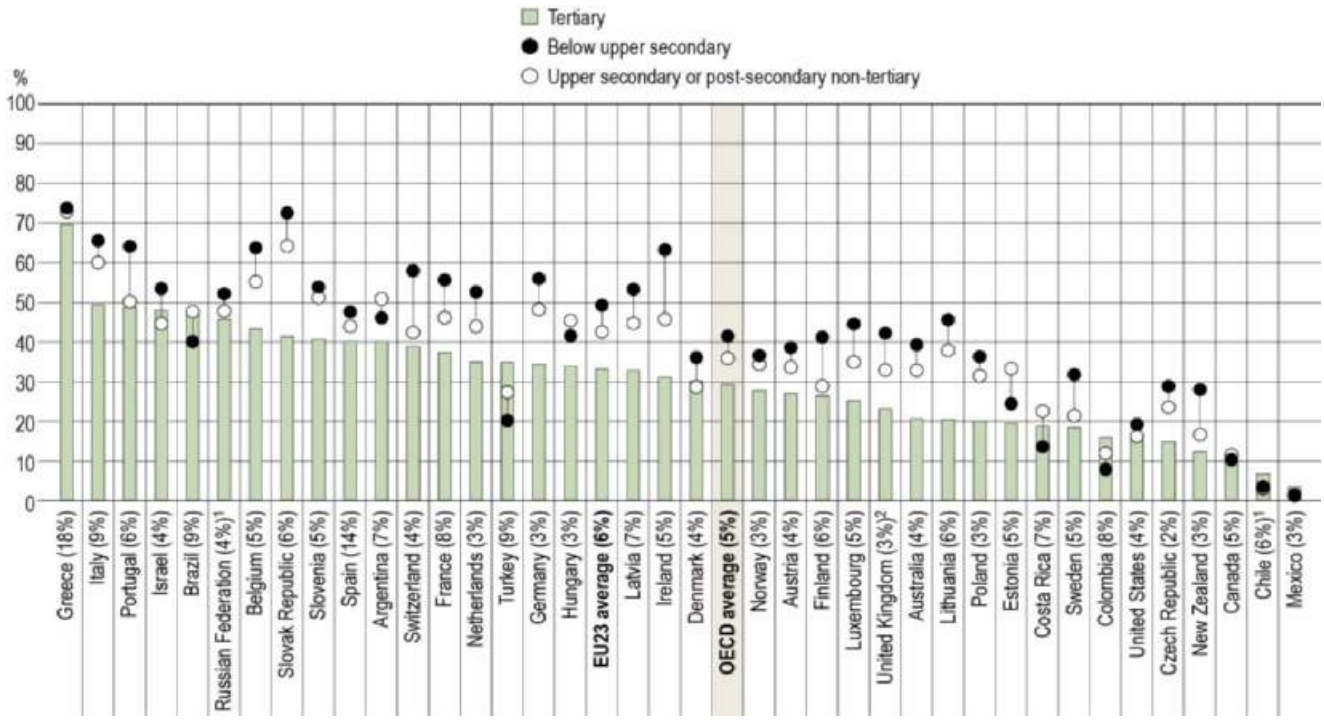
Unemployment rates for younger adults without an upper secondary education are especially high in the Slovak Republic and South Africa, where the unemployment rate in both cases exceeds 35%. It is also very high in France, Greece, Italy and Spain, where about one-quarter of these younger adults are unemployed (Table A3.3).

The positive impact of upper secondary or post-secondary non-tertiary education on the unemployment rate is especially high in Australia, Austria, the Czech Republic, Germany, Hungary, the Slovak Republic and Sweden. In all these countries, the unemployment rate for younger adults with an upper secondary or post-secondary non-tertiary education is one-third or less of the unemployment rate for those with below upper secondary education (Table A3.3).

Duration of unemployment tends to decrease with higher educational attainment. On average across the OECD, 29% of unemployed adults with tertiary education have been unemployed for 12 months or longer, compared to 36% of those with upper secondary or post-secondary non-tertiary education and 41% of those with below upper secondary education. Tertiary-educated adults have a lower incidence of long-term unemployment than adults with lower levels of educational attainment in all OECD and partner countries with data except Brazil, Canada, Chile, Colombia, Costa Rica, Denmark, Israel, Mexico and Turkey (Figure A3.2 and Table A3.5).

Figure A3.2. Percentage of long-term unemployed 25-64 year-olds, by educational attainment (2018)

Adults who have been unemployed for 12 months or more as a percentage of unemployed 25-64 year-olds



Note: The percentage in parentheses represents the overall unemployment rate of 25-64 year-olds.
1. Year of reference differs from 2018. Refer to the source table for more details.
2. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (13% of adults aged 25-64 are in this group).
Countries are ranked in descending order of the percentage of 25-64 year-olds with tertiary education who have been unemployed for 12 months or more.
Source: OECD (2019), Table A3.5. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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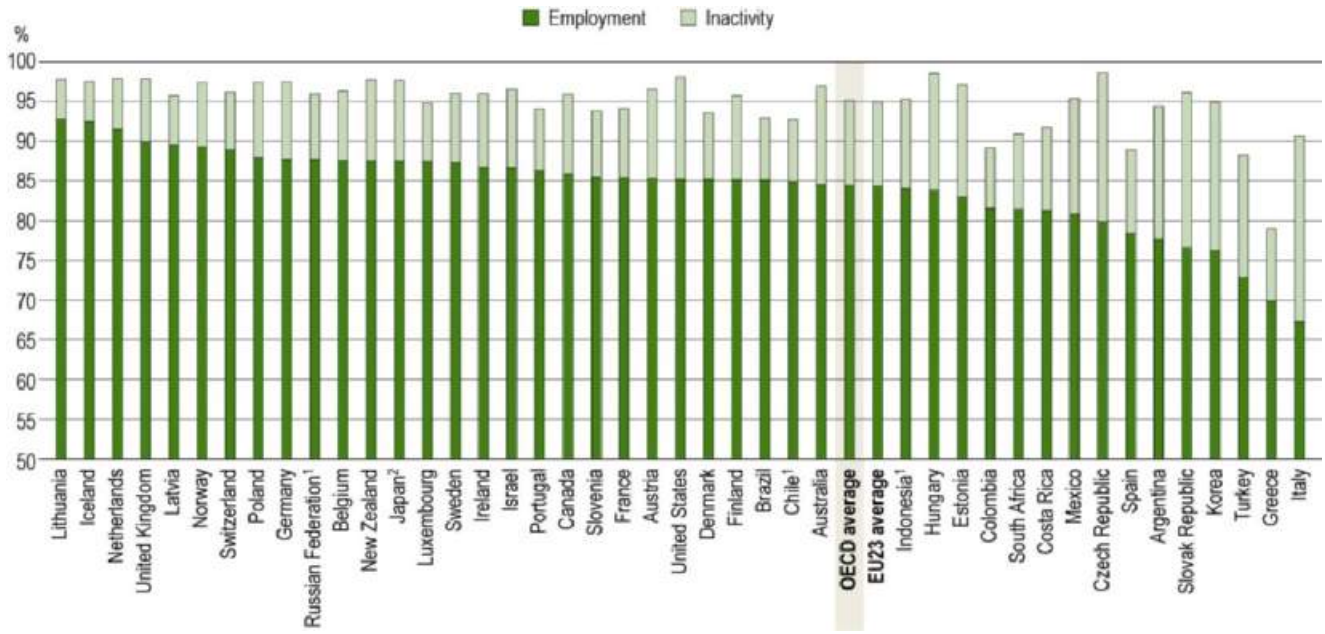
The share of tertiary-educated unemployed adults who have been unemployed for 12 months or more is over 40% in only 9 countries, rising to 18 countries for adults with an upper secondary or post-secondary non-tertiary education, and 22 countries for adults with below upper secondary education. The long-term unemployment rates for adults with below upper secondary education are highest in Belgium, Greece, Ireland, Italy, Portugal and the Slovak Republic, where the rate in each case is at least 60%. However, while in Ireland the long-term unemployment rate among adults with below upper secondary education is more than double the rate for those with tertiary education, in Greece the difference is 5 percentage points lower for tertiary-educated adults (Figure A3.2).

Educational attainment and inactivity

Across OECD countries, the percentage of inactive people (individuals who are not employed and not looking for a job) tends to be higher among those with lower educational attainment levels. On average, 30% of adults aged 25-34 who had not completed upper secondary education were inactive in 2018, compared to 16% of those with upper secondary or post-secondary non-tertiary education and 11% of those with a tertiary degree (Table A3.3).

Inactivity rates for tertiary-educated young adults are particularly high in Italy, where more than one in five are inactive. In contrast, some countries combine the highest employment rates for tertiary-educated adults with the lowest inactivity rates. In Iceland, Lithuania and the Netherlands, employment rates of over 90% for tertiary-educated 25-34 year-olds are combined with inactivity rates of 6% or less for the same group (Figure A3.3).

Figure A3.3. Employment and inactivity rates of tertiary-educated 25-34 year-olds (2018)



1. Year of reference differs from 2018. Refer to the source table for more details.
2. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of adults are in this group).
Countries are ranked in descending order of the employment rate of tertiary-educated 25-34 year-olds.
Source: OECD (2019), Table A3.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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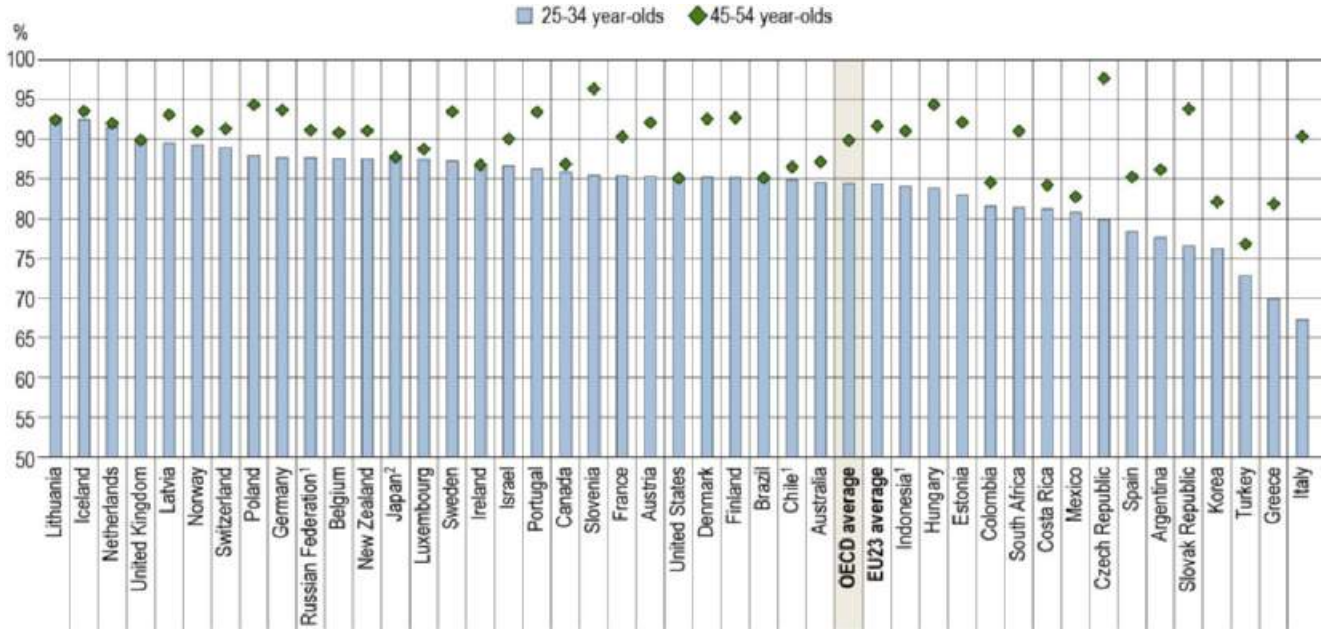
Women have consistently higher inactivity rates than men across all educational attainment levels, but rates are especially high among women who have not completed upper secondary education. On average across OECD countries, almost half (46%) of younger women with below upper secondary education are inactive, compared to less than one-fifth of younger men (18%). The gender gap in inactivity rates is highest in Mexico (56% of younger women compared to 5% of younger men) and Turkey (69% compared to 6%). Portugal is the only country where the gender gap in inactivity rates has been almost completely closed: among less-educated younger adults, the inactivity rates are 17% for women and 9% for men. Portugal's gender gap at higher educational attainment levels is one of the lowest among OECD countries (OECD, 2019[3]).

Employment rates by age group

On average across OECD countries, a tertiary education improves employment rates for younger adults by roughly 25 percentage points compared to their peers with below upper secondary education. However, in the majority of OECD countries, younger adults with tertiary education have lower employment rates than 45-54 year-olds. In some countries, this could indicate that there are fewer opportunities for younger graduates, while in others it could be related to the likelihood of adults in the younger age cohort still being in education (see Indicator A2). The average difference in employment rates in favour of the older age group (45-54 year-olds) is 6 percentage points across OECD countries. However, in the Czech Republic, Greece, Italy, the Slovak Republic and Slovenia, the employment rate for younger adults is more than 10 percentage points lower than the rate for older adults (Figure A3.4 and Table A3.2).

Figure A3.4. Employment rates of younger and older tertiary-educated adults (2018)

25-34 year-olds and 45-54 year-olds



1. Year of reference differs from 2018. Refer to the source table for more details.
2. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of adults are in this group).
Countries are ranked in descending order of the employment rate of tertiary-educated 25-34 year-olds.
Source: OECD (2019), Table A3.3 and Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Employment rates for 25-34 year-olds and 45-54 year-olds are the same or similar (a difference of less than 1 percentage point) in eight countries: Brazil, Canada, Japan, Ireland, Lithuania, the Netherlands, the United Kingdom and the United States. In every other country, the gap in employment rates between the younger and older adults is in favour of the older age group (Figure A3.4).

Employment rates by levels of tertiary education

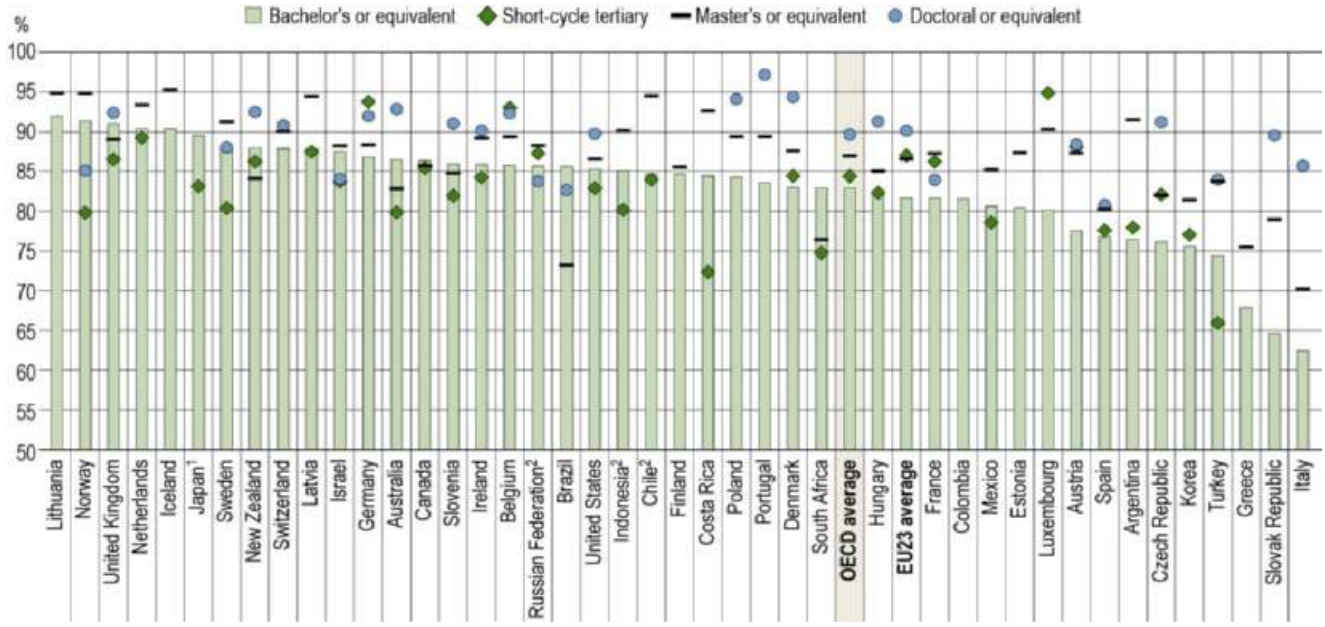
In general, employment rates continue to increase with further levels of tertiary education attainment. On average across OECD countries, the employment rate is 82% for adults with a short-cycle tertiary qualification, rising to

84% for those with a bachelor's or equivalent degree, 88% with a master's or equivalent degree and 92% with a doctoral or equivalent degree (Table A3.1).

In most countries, employment rates for adults with short-cycle tertiary education are lower than those with a bachelor's or equivalent degree. However, there are exceptions, including those countries where short-cycle education is especially prevalent. For example, employment rates are relatively high among short-cycle tertiary degree holders in Austria (87%, compared to 79% for bachelor's or equivalent degree holders), where 15% of 25-34 year-olds have a short-cycle tertiary qualification (see Indicator A1). On the other hand, in Poland, the share of those with short-cycle tertiary education is negligible, and they appear to face difficulties in finding a job compared to younger adults with higher levels of tertiary education and even adults with upper secondary or post-secondary non-tertiary education (Table A3.1).

Figure A3.5. Employment rates of tertiary-educated younger adults, by levels of tertiary education (2018)

25-34 year-olds



1. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of adults are in this group).
2. Year of reference differs from 2018. Refer to Table A3.1 for details.
Countries are ranked in descending order of the employment rate of tertiary-educated younger adults with a bachelor's or equivalent qualification.
Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Young adults with the most advanced qualifications (master's and doctoral or equivalent) generally have the best employment prospects. In most countries with available data, 25-34 year-old adults with a master's or equivalent qualification have employment rates at least as high as those with bachelor's or equivalent. In some countries, the employment advantage for the additional step of earning a master's or equivalent qualification is considerable, reaching at least 10 percentage points in Argentina, Chile, Luxembourg, the Slovak Republic and Turkey. Young doctorate holders also have strong employment outcomes, with employment rates at 90% or higher in 16 of the 26 countries with available data (Figure A3.5).

Doctoral training requires a substantial investment from both individuals and governments, as the key entry point into a career in academic research. Doctoral candidates also tend to specialise more heavily in many of the

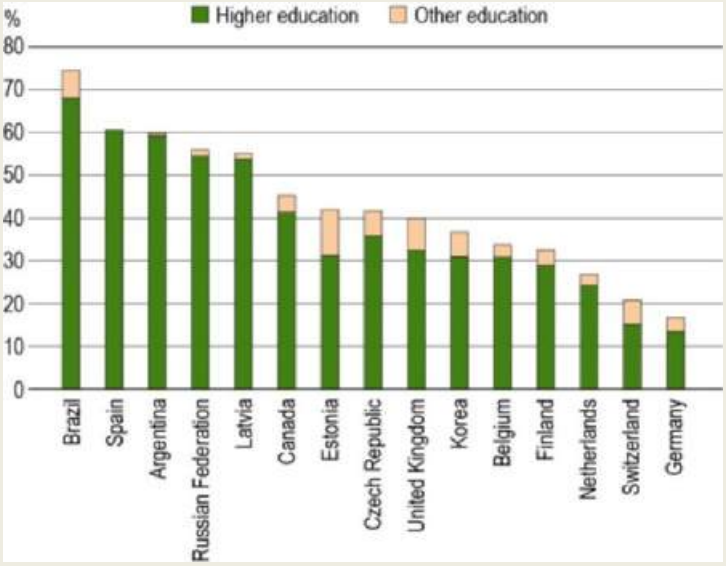
science and technology-related fields of study in high demand in the labour market (see Indicator B7). Therefore, there is growing policy interest in following the outcomes of doctorate holders in the labour market. New sources of data about adults with a doctorate are becoming available, which can provide more detailed insights than employment rates alone (Box A3.1).

Box A3.1. Profile and labour-market activities of doctorate holders

Doctorate holders tend to have diverse labour-market outcomes. As well as pursuing careers in academia, their advanced skills are in demand in industry and other sectors of the economy. The evidence suggests that many recent doctoral graduates are not able to easily find a stable career pathway in academia, and the increasing tendency towards casualisation of teaching and research jobs in higher education may be prompting those with a doctoral degree to seek career opportunities outside of academic research (OECD (2019[4]) and see Indicator B7).

Figure A3.a. Share of doctorate holders employed in the education sector (2016)

As a percentage of all doctorate holders



Source: OECD data collection on Careers of Doctorate Holders (2017), https://www.oecd.org/innovation/inno/careers-of-doctorate-holders.htm.

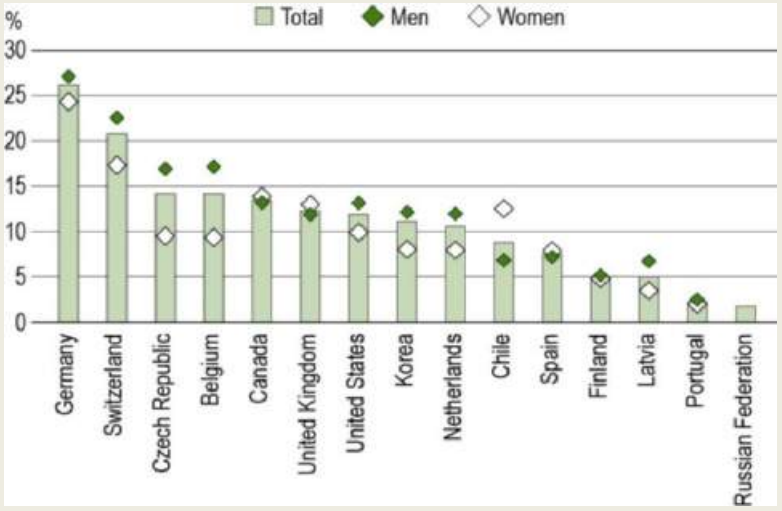
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It can be difficult to compile comparative information on graduates from doctoral level programmes due to the small numbers surveyed; doctorate holders make up only about 1% of the population on average across the OECD (see Indicator A1). However, as the number of doctorate holders in the population expands, it is becoming increasingly possible to identify and analyse the profile and outcomes of doctorate holders as a separate group. The OECD data collection on the Careers of Doctorate Holders (CDH) was initiated in 2011 in order to improve the information available about the profile and career patterns of doctorate holders in the population. The survey is conducted every two years in OECD member and partner countries. Returns are made based on a range of national data collections, including specific surveys of doctorate holders, labour-force surveys and population registers (OECD, 2017[5]).

The results of the 2017 CDH collection demonstrate some of the differences in the profile and labour-market status of doctorate holders across the 15 OECD and partner countries for which comparable data are available. Figure A3.a shows the extent to which doctorate holders are employed in the education sector across OECD countries. In Germany and Switzerland, only around 15% of doctorate holders work in the higher education sector. This could indicate a lack of available opportunities for those with doctorates in academia, or more attractive working conditions outside academia. In contrast, in Brazil close to 70% work in the higher education sector.

The share of self-employed doctorate holders also varies importantly across OECD and partner countries with data. The proportion is low in countries such as Portugal and the Russian Federation, where less than 5% of doctorate holders are self-employed. On the other hand, in Germany the proportion of self-employed doctorate holders is more than 25% (Figure A3.b).

Figure A3.b. Share of self-employed doctorate holders in the population, by gender (2016)



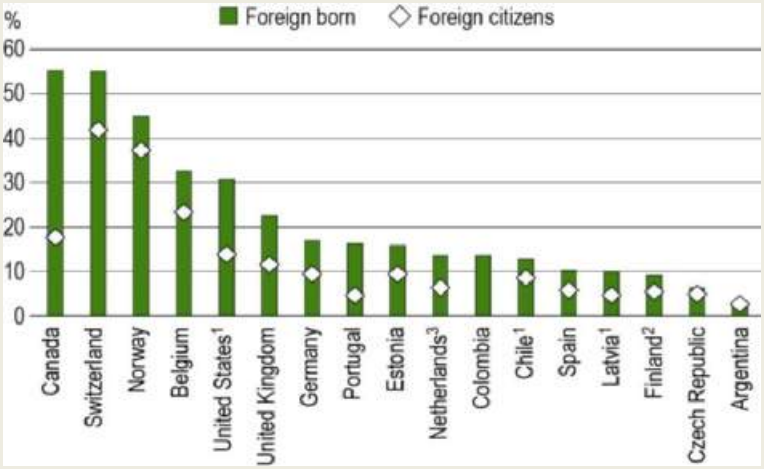
Source: OECD data collection on Careers of Doctorate Holders (2017), https://www.oecd.org/innovation/inno/careers-of-doctorate-holders.htm.

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In most countries, male doctorate holders have higher rates of self-employment than female ones, although the proportions are close to equal in Canada, Finland, Portugal, Spain and the United Kingdom, while in Chile a greater proportion of women are self-employed (Figure A3.b).

Many countries also appear to be able to create conditions that attract doctorate holders from abroad, or successfully retain foreign doctoral candidates in the country after they have completed their programme. This means that doctorate holders as a group tend to be more mobile and willing to move across borders to take up both study opportunities and opportunities in the labour market. In Norway and Switzerland, for example, around 40% of doctorate holders in the population are foreign citizens, while in Argentina, the Czech Republic, Finland, Latvia and Portugal, the share is 5% or less (Figure A3.c and see Indicator B7).

Figure A3.c. Share of foreign-born and foreign citizen doctorate holders in the population (2016)



1: Data refer to 2015.
2: Data refer to 2014.
3: Data refer to 2013.
Source: OECD data collection on Careers of Doctorate Holders (2017), https://www.oecd.org/innovation/inno/careers-of-doctorate-holders.htm.

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Employment rates at tertiary level by field of study

While employment rates are higher for tertiary-educated adults across OECD countries, they can vary considerably by field of study. On average across OECD countries, the overall employment rate of tertiary-educated adults (25-64 year-olds) ranges from 83% for those with a qualification in arts and humanities, social sciences, journalism and information to 90% for those with an ICT qualification (Figure A3.1 and Table A3.4).

Within individual countries, the largest differences between employment rates across fields of study are in Costa Rica, Estonia, Greece, Italy, the Russian Federation and the Slovak Republic, where employment rates among tertiary-educated adults vary by at least 15 percentage points, depending on the fields they studied. Other countries have much smaller differences between fields. For example in Australia, Iceland and the Netherlands, which have relatively high employment rates in general, the differences in employment rates between different fields of study do not exceed 5 percentage points (Table A3.4).

Employment rates for adults with tertiary qualifications in the education, health and welfare fields of study also vary substantially across countries. Labour-market prospects, expected salaries and the general perception of the role of teachers in society are a few of the factors that might influence young people's choice of education as field of study (see Indicator B4). In Denmark, Iceland, Latvia, Lithuania and Sweden, employment rates are 90% or above for those with a tertiary qualification in the field of education. Employment prospects are also strong for those with a medical or dental qualification in many countries. This field has the highest employment rates of all fields in Chile, Denmark, and Lithuania (Table A3.4).

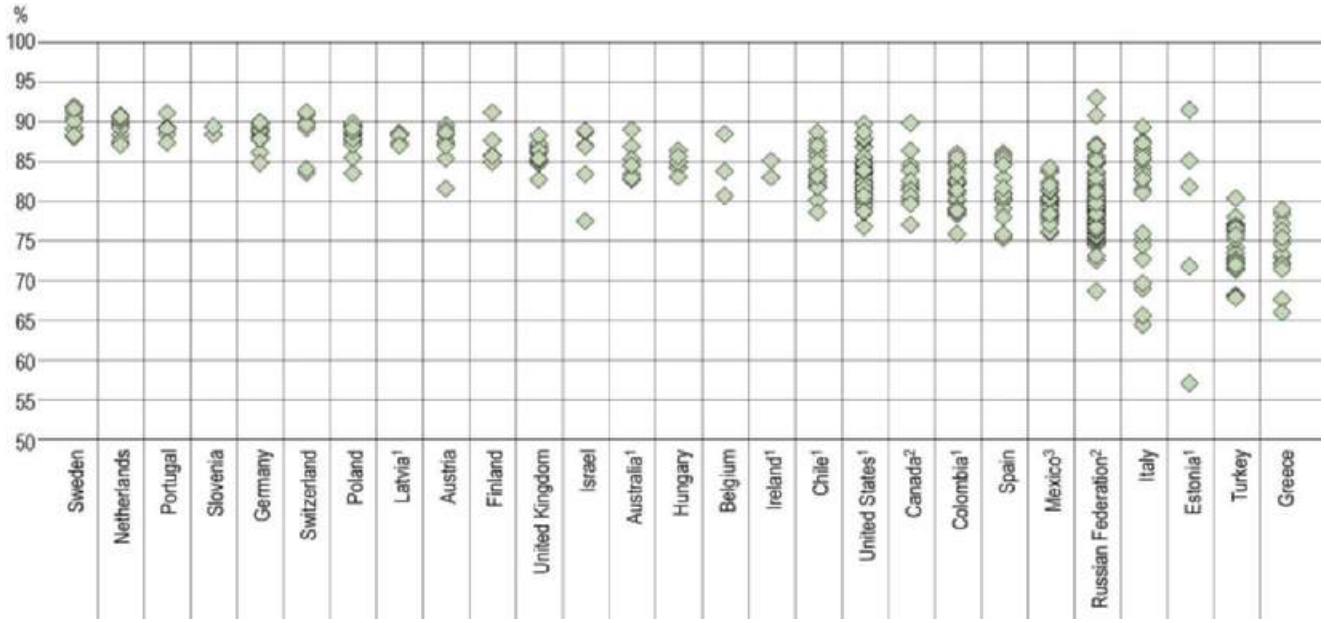
Subnational variations in labour-market outcomes by educational attainment level

On average, across OECD and partner countries with subnational data on labour-force status, there is more regional variation in employment rates among those with lower levels of education. For example, in the United States, the employment rates in different states for adults with below upper secondary education range

from 30% to 70%, while among adults with tertiary education they range from 77% to 90%. Similarly, in Italy, employment rates for adults who have not completed upper secondary education can more than double across regions, ranging from 35% to 74%, while the range across regions for adults with tertiary education is around 25 percentage points, from 64% to 89% (OECD, 2019[6]).

Figure A3.6. Employment rates of tertiary-educated adults, by subnational regions (2018)

Percentage of employed 25-64 year-olds among all 25-64 year-olds



1. Year of reference 2017.
2. Year of reference 2016.
3. Year of reference 2015.

Countries are ranked in descending order of the national employment rates for tertiary-educated adults (unweighted average of regions).

Source: OECD INES/CFE Subnational Data Collection. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933976840

In many countries, there is very little regional variation in employment rates among adults with tertiary education. In Hungary, Ireland, Latvia, the Netherlands, Portugal, Slovenia and Sweden, there is less than a 5% difference in employment rates between different regions of the country. Other countries have a broader range of employment rates among regions. The widest disparity can be observed in Estonia, where employment rates for tertiary-educated adults can vary by almost 35 percentage points (from 57% to 92%). The other countries with large regional differences in employment rates for tertiary-educated adults are Canada, Chile, Colombia, Greece, Israel, Italy, the Russian Federation, Spain, Turkey and the United States. In each of these countries the difference between the regions with the highest and lowest employment rates is at least 10 percentage points (Figure A3.6 and (OECD, 2019[6])).

Capital city regions tend to have employment rates for tertiary-educated adults that are above the country average. In Colombia, for example, 86% of tertiary-educated adults in the capital region are employed, compared to the country average of 83%. In some other countries, the employment rate for the region including the capital is at a similar level to the national average. However, across OECD countries, the capital city region is often not the region with the highest employment rates for tertiary-educated adults. In Chile, for example, the capital city

region has an employment rate above the national average, but only the third highest employment rate overall (Figure A3.6 and OECD (2019[6])).

Definitions

Active population (labour force) is the total number of employed and unemployed persons, in accordance with the definition in the Labour Force Survey.

Age groups: **Adults** refer to 25-64 year-olds; **younger adults** refer to 25-34 year-olds; and **older adults** refer to 55-64 year-olds.

Educational attainment refers to the highest level of education attained by a person.

Employed individuals are those who, during the survey reference week, were either working for pay or profit for at least one hour or had a job but were temporarily not at work. The employment rate refers to the number of persons in employment as a percentage of the working-age population.

Fields of study are categorised according to the ISCED Fields of Education and Training (ISCED-F 2013). See the *Reader's Guide* for a full listing of the ISCED fields used in this report.

Inactive individuals are those who, during the survey reference week, were neither employed nor unemployed (i.e. individuals who are not looking for a job). The inactivity rate refers to inactive persons as a percentage of the population (i.e. the number of inactive people is divided by the number of all working-age people).

Levels of education: See the *Reader's Guide* at the beginning of this publication for a presentation of all ISCED 2011 levels.

Unemployed individuals are those who, during the survey reference week, were without work, actively seeking employment, and currently available to start work. The **unemployment rate** refers to unemployed persons as a percentage of the labour force (i.e. the number of unemployed people is divided by the sum of employed and unemployed people).

The **working-age population** is the total population aged 25-64.

Methodology

For information on methodology, see Indicator A1.

Please see the *OECD Handbook for Internationally Comparative Education Statistics* (OECD, 2018[7]) for more information and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

For information on sources, see Indicator A1.

Data on subnational regions for selected indicators are available in the OECD Regional Statistics Database (OECD, 2019[8]).

Note regarding data from Israel

The statistical data for Israel are supplied by and are under the responsibility of the relevant Israeli authorities. The use of 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.

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Indicator A3 Tables

Table A3.1 Employment rates of 25-64 year-olds, by educational attainment (2018)

Table A3.2 Trends in employment rates of 25-34 year-olds, by educational attainment and gender (2008 and 2018)

Table A3.3 Employment, unemployment and inactivity rates of 25-34 year-olds, by educational attainment (2018)

Table A3.4 Employment rates of tertiary-educated adults, by field of study (2018)

Table A3.5 Unemployment rates of 25-64 year-olds, by duration of unemployment and educational attainment (2018)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980830

Table A3.1. Employment rates of 25-64 year-olds, by educational attainment (2018)

Percentage of employed 25-64 year-olds among all 25-64 year-olds

		Below upper secondary	Upper secondary or post-secondary non-tertiary			Tertiary					All levels of education
			Upper secondary	Post-secondary non-tertiary	Total	Short-cycle tertiary	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent	Total	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Countries										
	Australia	60	77	81	77	81	85	86	89	84	77
	Austria	55	77	83	78	87	79	88	90	86	77
	Belgium	46	74	86	74	84	85	87	90	86	73
	Canada	56	72	80	74	81	84	85 d	x(7)	83	78
	Chile[1]	62	72	a	72	81	85	93 d	x(7)	84	72
	Colombia	71	75 d	x(2)	75	x(6)	82 d	x(6)	x(6)	82	75
	Czech Republic	52	84 d	x(2)	84	89	83	88	93	87	83
	Denmark	65	83	93	83	87	86	90	96	88	82
	Estonia	65	80	79	80	80	84	87	91	85	80
	Finland	55	75	97	76	84	86	88	97	87	78
	France	53	74	64	73	83	83	88	91	85	73
	Germany	61	81	87	82	90	89	89	93	89	81
	Greece	50	60	63	61	67	73	82	90	74	62
	Hungary	57	77	84	78	83	84	87	96	86	77
	Iceland	77	86	93	87	89	90	95	96	92	87
	Ireland	52	71	77	74	80	85	88	91	85	75
	Israel	52	74	a	74	84	87	90	93	87	78
	Italy	53	71	75	71	c	73	83	93	81	66
	Japan[2]	x(2)	81 d	x(5)	m	81 d	88 d	x(6)	x(6)	85	83
	Korea	65	72	a	72	77	77	85 d	x(7)	78	74
	Latvia	62	75	76	75	90	88	90	95	89	78
	Lithuania	55	74	77	75	a	90	92	99	91	80
	Luxembourg	62	75	75	75	80	81	89	92	86	77
	Mexico	65	71	a	71	72	79	84	91	80	69
	Netherlands	63	81	88	81	88	89	91	96	90	81
	New Zealand	72	82	87	83	88	88	88	92	88	83
	Norway	61	80	88	81	82	91	94	91	89	81
	Poland	43	70	73	70	67	86	90	96	89	74
	Portugal	70	84	86	84	c	82	90	94	88	78
	Slovak Republic	38	77	83	77	81	76	83	86	83	75
	Slovenia	51	76	a	76	84	90	89	93	89	77
	Spain	57	71	81	71	80	80	84	89	82	70
	Sweden	67	87	84	87	85	91	92	93	90	85
	Switzerland	69	82 d	x(2)	82	x(6, 7, 8)	88 d	88 d	92 d	89	83
	Turkey	52	63	a	63	66	76	85	92	74	59
	United Kingdom[3]	66	83	a	81	83	87	87	90	86	80
	United States	57	70 d	x(2)	70	78	82	85	88	82	75
	OECD average	59	76	82	76	82	84	88	92	85	77
	EU23 average	56	76	80	77	82	84	88	93	86	77
Partners	Argentina	64	74	a	74	79	82 d	94	x(6)	81	73
	Brazil	59	72	a	72	x(6)	82 d	84	91	83	68
	China	m	m	m	m	m	m	m	m	m	m
	Costa Rica	65	70	c	70	73	83	86	c	81	70
	India	m	m	m	m	m	m	m	m	m	m
	Indonesia[1]	73	74 d	x(2)	74	78	87	94	98	85	75
	Russian Federation[1]	54	68	77	73	78	88	86	89	83	77
	Saudi Arabia[4]	62	61	82	65	c	74 d	c	c	74	66
	South Africa	44	55	75	57	80	85	88 d	x(6)	85	56
	G20 average	m	m	m	m	m	m	m	m	m	m

Note: In most countries, data refer to ISCED 2011. For Indonesia and Saudi Arabia data refer to ISCED-97. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2017.
2. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of adults are in this group).
3. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (13% of adults aged 25-64 are in this group).
4. Year of reference 2016.

Source: OECD / ILO (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A3.2. Trends in employment rates of 25-34 year-olds, by educational attainment and gender (2008 and 2018)

Percentage of employed 25-34 year-olds among all 25-34 year-olds

		Below upper secondary						Upper secondary or post-secondary non-tertiary						Tertiary					
		Men		Women		Total		Men		Women		Total		Men		Women		Total	
		2008	2018	2008	2018	2008	2018	2008	2018	2008	2018	2008	2018	2008	2018	2008	2018	2008	2018
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Countries																		
	Australia	81 b	69	46 b	43	64 b	57	92 b	86	69 b	69	82 b	79	94 b	91	80 b	80	86 b	85
	Austria	74	67	50	49	61	58	90	88	77	81	84	85	91	89	85	82	88	85
	Belgium	71 b	62	43 b	35	59 b	50	90 b	84	74 b	71	83 b	78	92 b	89	90 b	87	91 b	88
	Canada	68	70	49	40	61	58	86	84	72	70	80	78	89	89	82	84	85	86
	Chile[1]	m	77	m	48	m	64	m	80	m	59	m	69	m	88	m	83	m	85
	Colombia	m	90	m	49	m	72	m	88	m	61	m	75	m	89	m	76	m	82
	Czech Republic	62 b	69	38 b	36	50 b	52	93 b	95	62 b	65	79 b	82	91 b	94	69 b	70	79 b	80
	Denmark	81 b	67	69 b	49	75 b	63	92 b	84	82 b	73	88 b	81	91 b	88	89 b	82	90 b	85
	Estonia	79	84	59	57	71	75	94	91	72	67	84	81	96	94	71	75	82	83
	Finland	75	63	58	30	69	49	86	82	70	69	79	76	95	92	82	81	87	85
	France	77	64	46	37	62	51	89	83	73	68	82	76	92	88	86	84	89	85
	Germany	70 b	68	41 b	45	55 b	57	83 b	87	72 b	80	78 b	84	93 b	91	83 b	84	88 b	88
	Greece	89 b	71	43 b	31	71 b	54	87 b	71	63 b	50	75 b	62	84 b	79	78 b	64	80 b	70
	Hungary	60	75	32	39	47	57	86	91	61	67	75	81	93	94	75	76	82	84
	Iceland	91	82	74	75	84	80	88	89	76	78	83	84	95	93	88	92	91	92
	Ireland	67 b	63	43 b	34	57 b	50	87 b	83	70 b	76	79 b	75	91 b	89	85 b	85	88 b	87
	Israel	63 b	74	22 b	44	47 b	62	75 b	74	60 b	66	68 b	71	87 b	90	82 b	84	84 b	87
	Italy	79 b	66	42 b	35	63 b	53	83 b	72	64 b	53	74 b	63	76 b	70	69 b	66	72 b	67
	Japan[2]	m	m	m	m	m	m	x(13)	x(14)	x(15)	x(16)	x(17)	x(18)	92 d,b	94 d	69 d,b	81 d	80 d,b	87 d
	Korea	72 b	76	48 b	55	63 b	65	74 b	71	50 b	54	63 b	65	84 b	82	65 b	71	74 b	76
	Latvia	74	69	52	54	66	64	88	85	72	67	81	78	93	92	85	88	88	90
	Lithuania	59 b	63	58 b	27	59 b	50	81 b	86	71 b	71	76 b	80	94 b	95	86 b	91	90 b	93
	Luxembourg	88 b	81	59 b	55	75 b	67	85 b	85	71 b	83	78 b	84	87 b	89	83 b	86	85 b	87
	Mexico	92	92	40	42	64	66	89	89	56	55	71	71	90	88	78	75	83	81
	Netherlands	87 b	76	60 b	50	75 b	65	95 b	89	85 b	80	90 b	85	97 b	93	92 b	91	94 b	92
	New Zealand	79	80	56	57	68	70	91	91	69	71	81	82	92	93	77	83	83	87
	Norway	75	67	62	55	70	62	92	87	84	75	89	82	89	89	90	89	89	89
	Poland	65 b	59	41 b	28	55 b	48	87 b	90	64 b	60	76 b	78	92 b	94	84 b	84	88 b	88
	Portugal	88	84	72	74	81	80	81	85	79	83	80	84	90	86	84	87	87	86
	Slovak Republic	34 b	43	25 b	26	30 b	35	89 b	91	65 b	66	78 b	80	93 b	91	74 b	67	82 b	77
	Slovenia	78 b	74	56 b	31	70 b	61	90 b	88	83 b	79	87 b	85	94 b	91	89 b	82	91 b	85
	Spain	77	72	58	52	69	63	84	73	73	65	78	69	87	81	81	76	84	78
	Sweden	76 b	74	52 b	55	65 b	66	89 b	88	79 b	81	84 b	85	90 b	89	86 b	86	88 b	87
	Switzerland	85 b	76	61 b	56	71 b	67	91 b	89	80 b	81	85 b	86	96 b	92	87 b	86	92 b	89
	Turkey	82 b	84	20 b	27	49 b	54	86 b	87	33 b	35	65 b	65	86 b	84	70 b	62	79 b	73
	United Kingdom[3]	75 b	77	45 b	50	60 b	66	89 b	92	73 b	75	81 b	84	91 b	93	85 b	87	88 b	90
	United States	73	73	42	41	60	59	81	79	67	65	75	73	90	89	82	82	86	85
	OECD average	75	72	49	45	63	60	87	85	70	68	79	78	91	89	81	81	86	84
	EU23 average	73	69	50	43	63	58	88	85	72	70	80	79	91	89	82	81	86	84
Partners	Argentina	m	82	m	40	m	64	m	91	m	58	m	75	m	83	m	74	m	78
	Brazil	89 b	76	56 b	45	73 b	62	91 b	84	70 b	63	80 b	73	94 b	89	86 b	82	89 b	85
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	92	86	45	43	70	66	96	85	69	57	82	72	92	88	83	76	87	81
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[3]	89 b	91	47 b	47	67 b	68	86 b	90	46 b	49	67 b	71	82 b	91	64 b	79	73 b	84
	Russian Federation[1]	m	69	m	48	m	60	m	88	m	67	m	80	m	95	m	82	m	88
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	59	49	31	30	46	41	71	56	50	43	60	49	87	83	87	80	87	81
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: In most countries, there is a break in the time series, represented by the code "b", as data for 2018 refer to ISCED 2011 while data for 2008 years refer to ISCED-97. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2017 instead of 2018.
2. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of the adults are under this group).
3. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (13% of adults aged 25-64 are in this group).

Source: OECD / ILO (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A3.3. Employment, unemployment and inactivity rates of 25-34 year-olds, by educational attainment (2018)

Employment and inactivity rates are measured as a percentage of all 25-34 year-olds; unemployment rates as a percentage of 25-34 year-olds in the labour force

		Employment rate			Unemployment rate			Inactivity rate		
		Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	Countries									
	Australia	57	79	85	15	5	4	31	17	12
	Austria	58	85	85	16	5	4	30	11	11
	Belgium	50	78	88	20	8	4	38	15	9
	Canada	58	78	86	11	7	5	35	16	10
	Chile[1]	64	69	85	11	10	8	29	23	8
	Colombia	72	75	82	8	11	12	22	16	8
	Czech Republic	52	82	80	13	3	2	40	16	19
	Denmark	63	81	85	10	5	7	30	15	8
	Estonia	75	81	83	7	5	3	20	14	14
	Finland	49	76	85	16	9	5	42	16	11
	France	51	76	85	25	12	6	32	14	9
	Germany	57	84	88	13	3	3	34	13	10
	Greece	54	62	70	27	25	23	26	17	9
	Hungary	57	81	84	13	4	2	34	16	15
	Iceland	80	84	92	6	3	3	15	13	5
	Ireland	50	75	87	15	7	4	41	19	9
	Israel	62	71	87	5	6	4	35	25	10
	Italy	53	63	67	22	15	12	33	26	23
	Japan[2]	m	x(3)	87[4]	m	x(6)	3[4]	m	x(9)	10[4]
	Korea	65	65	76	6	8	6	32	30	19
	Latvia	64	78	90	19	10	5	22	14	6
	Lithuania	50	80	93	18	7	2	39	13	5
	Luxembourg	67	84	87	13	5	6	23	11	7
	Mexico	66	71	81	3	4	5	32	26	15
	Netherlands	65	85	92	7	3	2	30	13	6
	New Zealand	70	82	87	7	4	2	25	14	10
	Norway	62	82	89	10	4	3	31	14	8
	Poland	48	78	88	13	5	3	45	18	9
	Portugal	80	84	86	8	8	6	12	9	8
	Slovak Republic	35	80	77	37	7	5	45	14	20
	Slovenia	61	85	85	17	8	7	26	8	8
	Spain	63	69	78	25	18	12	16	16	11
	Sweden	66	85	87	17	5	4	20	11	9
	Switzerland	67	86	89	13	5	4	23	10	7
	Turkey	54	65	73	12	11	14	39	27	15
	United Kingdom[3]	66	84	90	8	4	2	29	13	8
	United States	59	73	85	9	6	2	35	22	13
	OECD average	60	78	84	14	7	6	30	16	11
	EU23 average	58	79	84	16	8	6	31	14	11
Partners	Argentina	64	75	78	12	9	7	27	18	17
	Brazil	62	73	85	14	13	8	27	16	8
	China	m	m	m	m	m	m	m	m	m
	Costa Rica	66	72	81	10	13	9	26	18	11
	India	m	m	m	m	m	m	m	m	m
	Indonesia[1]	68	71	84	3	5	5	30	25	11
	Russian Federation[1]	60	80	88	15	8	4	29	13	8
	Saudi Arabia	m	m	m	m	m	m	m	m	m
	South Africa	41	49	81	37	35	10	35	24	10
	G20 average	m	m	m	m	m	m	m	m	m

Note: In most countries, data refer to ISCED 2011. For Indonesia and Saudi Arabia, data refer to ISCED-97. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2017.
2. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of adults are in this group).
3. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (13% of adults aged 25-64 are in this group).

Source: OECD / ILO (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933976688

Table A3.4. Employment rates of tertiary-educated adults, by field of study (2018)

Percentage of employed 25-64 year-olds among all 25-64 year-olds

		Education	Arts or humanities (except languages), social sciences, journalism and information		Arts and humanities, social sciences, journalism and information	Business and administration or law		Business, administration and law	Natural sciences, mathematics and statistics	Information and communication technologies	Engineering, manufacturing and construction	Health		Health and welfare	Total
			Arts	Humanities (except languages), social sciences, journalism and information		Business and administration	Law					Health (medical and dental)	Health (nursing and associate health fields)		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Countries														
	Australia	84	x(4)	x(4)	81	x(7)	x(7)	84	82	84	85	x(13)	x(13)	86	84
	Austria	86	83	82	81	x(7)	x(7)	86	82	90	88	90	84	86	86
	Belgium	85	x(4)	86	84	x(7)	x(7)	86	82	90	90	x(13)	x(13)	88	86
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	83
	Chile[1]	83	84	89	86	83	85	83	78	90	89	92	83	83	84
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m	m	82
	Czech Republic	83	85	82	82	85	88	85	84	92	91	90	82	84	87
	Denmark	90	83	85	83	90	x(7)	90	80	87	90	93	92	90	88
	Estonia	86	79	85	84	81	87	82	87	94	86	94	86	88	85
	Finland	88	x(4)	90	87	x(7)	x(7)	86	86	95	91	x(13)	x(13)	89	87
	France	81	x(4)	82	81	x(7)	x(7)	85	86	87	89	x(13)	x(13)	85	85
	Germany	87	87	86	86	89	89	90	87	92	91	90	88	89	89
	Greece	72	x(4)	72	68	x(7)	x(7)	76	76	84	77	x(13)	x(13)	81	74
	Hungary	84	x(4)	83	84	x(7)	x(7)	85	88	93	88	x(13)	x(13)	87	86
	Iceland[2]	92	x(4)	x(4)	92	x(7)	x(7)	95	92	97	93	x(13)	x(13)	95	92
	Ireland	m	m	m	m	m	m	m	m	m	m	m	m	m	85
	Israel	m	m	m	m	m	m	m	m	m	m	m	m	m	87
	Italy	82	72	78	77	83	80	82	78	87	85	x(13)	x(13)	87	81
	Japan[3]	m	m	m	m	m	m	m	m	m	m	m	m	m	85[d]
	Korea	m	m	m	m	m	m	m	m	m	m	m	m	m	78
	Latvia	90	91	90	88	90	90	90	91	92	86	92	97	93	89
	Lithuania	91	87	91	90	93	x(7)	93	89	94	90	94	92	93	91
	Luxembourg	89	x(4)	93	89	x(7)	x(7)	90	95	89	95	x(13)	x(13)	89	86
	Mexico	78	83	74	76	79	82	80	76	84	84	79	76	78	80
	Netherlands	88	89	89	88	92	88	91	88	93	92	89	90	88	90
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	88
	Norway	89	88	87	86	91	94	91	87	91	91	89	92	91	89
	Poland	85	x(4)	88	88	x(7)	x(7)	89	88	96	92	x(13)	x(13)	92	89
	Portugal	86	x(4)	86	85	x(7)	x(7)	90	89	91	89	x(13)	x(13)	92	88
	Slovak Republic	82	77	81	80	79	86	80	81	93	86	90	84	83	83
	Slovenia	87	x(4)	89	88	x(7)	x(7)	90	89	97	93	x(13)	x(13)	93	89
	Spain	76	x(4)	80	79	x(7)	x(7)	81	80	86	85	x(13)	x(13)	85	82
	Sweden	90	88	90	88	90	88	90	86	94	92	88	94	92	90
	Switzerland	87	82	86	84	89	85	88	86	93	92	92	90	90	89
	Turkey[2]	71	x(4)	x(4)	67	x(7)	x(7)	73	73	74	78	x(13)	x(13)	78	74
	United Kingdom	79	x(4)	84	84	x(7)	x(7)	85	80	87	88	x(13)	x(13)	83	86
	United States[1, 4]	80	81	84	83	x(7)	x(7)	86	85	87	88	x(13)	x(13)	85	82
	OECD average	84	m	85	83	m	m	86	84	90	89	m	m	87	85
	EU23 average	85	m	85	84	m	m	87	85	91	89	m	m	88	86
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	81
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	83
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	77	c	74	74	81	82	81	82	89	89	x(13)	x(13)	80	81
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[1]	m	m	m	m	m	m	m	m	m	m	m	m	m	85
	Russian Federation[1]	82	m	84	85	x(7)	x(7)	81	83	96	84	x(13)	x(13)	84	83
	Saudi Arabia[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	74
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	85
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.
1. Year of reference 2017.
2. Year of reference 2016.
3. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of adults are in this group).
4. Data refer to bachelor's degree field, even for those with additional tertiary degrees.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A3.5. Unemployment rates of 25-64 year-olds, by duration of unemployment and educational attainment (2018)

Percentage of unemployed 25-64 year-olds among 25-64 year-olds in the labour force

		Below upper secondary				Upper secondary or post-secondary non-tertiary				Tertiary			
		Unemployment rate	Distribution by duration of unemployment			Unemployment rate	Distribution by duration of unemployment			Unemployment rate	Distribution by duration of unemployment		
			Less than 3 months	3 months to less than 12 months	12 months or more		Less than 3 months	3 months to less than 12 months	12 months or more		Less than 3 months	3 months to less than 12 months	12 months or more
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
OECD	Australia	7	x(3)	61 d	39	4	x(8)	67 d	33	3	x(13)	80 d	20
OECD	Austria	11	25	37	39	4	32	34	34	3	36	37	27
OECD	Belgium	12	13	24	64	5	17	28	55	3	26	31	43
OECD	Canada	9	55	35	10	6	56	32	11	4	55	33	11
OECD	Chile[1]	6	73	23	3	7	73	24	3	6	68	25	7
OECD	Colombia	6	x(3)	92 d	8	9	x(8)	88 d	12	9	x(13)	84 d	16
OECD	Czech Republic	9	21	50	29	2	32	45	23	1	48	37	15
OECD	Denmark	6	31	33	36	3	34	37	29	4	29	41	30
OECD	Estonia	8	41	35	24	5	33	34	33	4	39	42	19
OECD	Finland	12	35	24	41	7	39	32	29	4	34	39	26
OECD	France	14	16	28	56	8	19	35	46	5	26	37	37
OECD	Germany	9	19	25	56	3	24	28	48	2	33	33	34
OECD	Greece	22	9	17	74	20	9	18	73	14	11	20	69
OECD	Hungary	9	23	35	41	3	23	31	45	1	33	33	34
OECD	Iceland	3	m	m	m	2	m	m	m	2	m	m	m
OECD	Ireland	8	x(3)	37 d	63	5	x(8)	54 d	46	4	x(13)	69 d	31
OECD	Israel	5	13	33	53	4	13	43	45	3	10	42	48
OECD	Italy	13	13	21	66	8	16	24	60	6	23	28	49
OECD	Japan[2]	m	m	m	m	m	m	m	m	2 d	m	m	m
OECD	Korea	3	m	m	m	4	m	m	m	3	m	m	m
OECD	Latvia	15	16	30	53	8	19	36	45	4	31	36	33
OECD	Lithuania	16	20	34	46	8	24	38	38	3	28	52	20
OECD	Luxembourg	6	20	36	44	5	31	34	35	4	34	41	25
OECD	Mexico	2	89	10	1	3	81	17	1	4	74	23	4
OECD	Netherlands	5	22	25	53	3	23	34	44	2	32	33	35
OECD	New Zealand	5	x(3)	72 d	28	3	x(8)	83 d	17	2	x(13)	88 d	12
OECD	Norway	6	28	35	37	3	31	35	34	2	33	40	28
OECD	Poland	9	26	38	36	4	30	39	31	2	35	45	20
OECD	Portugal	7	x(3)	36 d	64	7	x(8)	50 d	50	5	x(13)	51 d	49
OECD	Slovak Republic	27	9	18	72	5	13	23	64	3	28	31	41
OECD	Slovenia	9	20	26	54	5	18	31	51	4	26	34	41
OECD	Spain	21	25	27	48	14	28	29	44	8	29	31	40
OECD	Sweden	15	23	45	32	3	33	45	21	3	36	46	18
OECD	Switzerland	8	x(3)	42 d	58	4	x(8)	58 d	42	4	x(13)	61 d	39
OECD	Turkey	9	x(3)	80 d	20	9	x(8)	73 d	27	10	x(13)	65 d	35
OECD	United Kingdom[3]	5	25	33	42	3	36	31	33	2	46	31	23
OECD	United States	7	54	27	19	5	55	29	16	2	55	30	15
OECD	OECD average	10	28	30	41	6	31	32	36	4	35	35	29
OECD	EU23 average	12	22	31	49	6	25	33	42	4	32	36	33
Partners	Argentina	8	34	20	46	7	30	20	51	5	36	24	40
Partners	Brazil	10	33	27	40	10	22	30	48	6	23	30	47
Partners	China	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Costa Rica	8	65	21	14	9	54	23	22	6	54	27	19
Partners	India	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Indonesia[1]	2	m	m	m	3	m	m	m	3	m	m	m
Partners	Russian Federation[1]	12	18	30	52	6	20	32	48	3	22	33	46
Partners	Saudi Arabia[4]	0	m	m	m	4	m	m	m	10	m	m	m
Partners	South Africa	25	m	m	m	26	m	m	m	6	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns are available at http://stats.oecd.org/, Education at a Glance Database.
1. Year of reference 2017.
2. Data for tertiary education include upper secondary or post-secondary non-tertiary programmes (less than 5% of the adults are under this group).
3. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (13% of adults aged 25-64 are in this group).
4. Year of reference 2016.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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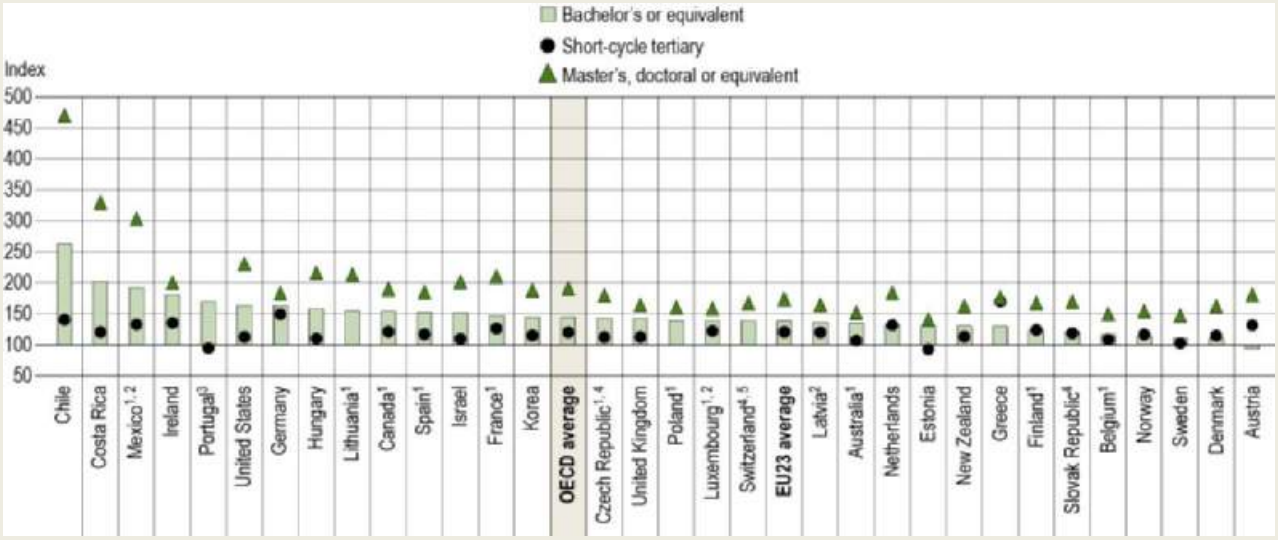
Indicator A4. What are the earnings advantages from education?

Highlights

- On average across OECD countries, adults with a short-cycle tertiary degree earn 20% more than adults with upper secondary education. The earnings advantage increases to 44% for those with a bachelor's degree and to 91% for those with a master's or doctoral degree.
- The gender gap in earnings persists across all levels of educational attainment, and the gap is wider among tertiary-educated adults. Women earn less than men do even with a tertiary degree in the same broad field of study.
- The tertiary broad fields of study most often associated with the highest earnings are engineering, manufacturing and construction, and information and communication technologies (ICT).

Figure A4.1. Relative earnings of tertiary-educated adults, by educational attainment (2017)

25-64 year-old workers (full- and part-time workers), upper secondary education = 100



1. Year of reference differs from 2017. Refer to the source table for details.
2. Earnings net of income tax.
3. Bachelor's or equivalent includes master's, doctoral or equivalent.
4. Index 100 refers to the combined ISCED levels 3 and 4 of the educational attainment levels in the ISCED 2011 classification.
5. Bachelor's, master's, doctoral or equivalent include short-cycle tertiary.

Countries are ranked in descending order of the relative earnings of 25-64 year-olds with a bachelor's or equivalent qualification.

Source: OECD (2019), Table A4.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933976992

Context

Higher levels of education usually translate into better employment opportunities (see Indicator A3) and higher earnings. The potential to earn more and see those earnings increase over time, along with other social benefits, is an important incentive for individuals to pursue education and training.

In particular, the attainment of a tertiary degree is associated with higher earnings in all OECD countries. However, this advantage can vary according to age, gender, level of tertiary education and field of study. Individuals with higher qualifications and more experience are more likely to earn higher wages. However, in many countries, gender gaps in earnings persist regardless of age, level of education or field of study.

A number of factors other than education also play a role in individuals' earnings, including the demand for skills in the labour market, the supply of workers and their skills, the minimum wage and other labour-market laws, and structures and practices (such as the strength of labour unions, the coverage of collective-bargaining agreements and the quality of working environments). These factors also contribute to differences in the distribution of earnings.

Other findings

- Across countries, the likelihood of earning more than the median increases with educational attainment. On average across OECD countries, about two out of three tertiary-educated adults earn more than the median of all employed people, including both full-time and part-time earners, while only about one out of four adults without upper secondary education do so.
- The earnings advantage for tertiary-educated workers increases with age. While young adults (25-34 year-olds) with tertiary education earn nearly 40% more than their peers with upper secondary education, older adults (45-54 year-olds) earn 70% more.
- In most countries with available data, the gender gap in earnings is smaller for those with a degree in education or ICT, and larger for those with a degree in business, administration and law.

Note

This indicator presents two types of relative earnings. The first uses the earnings of adults whose highest level of educational attainment is upper secondary education as a baseline. The results reflect the difference in earnings between adults with upper secondary education and those with different levels of attainment. The second type, used to indicate gender disparities in earnings, uses men's earnings as a baseline. In both cases, given the focus on *relative* earnings, any increase or decrease in the results could reflect a change in the interest group (numerator) or in the baseline group (denominator). For example, higher relative earnings for tertiary-educated individuals may reflect higher earnings among tertiary-educated individuals and/or lower earnings among those with upper secondary education.

Analysis

Relative earnings, by educational attainment

Earnings tend to increase with the level of educational attainment. On average across OECD countries, adults (aged 25-64) without upper secondary education earn about 21% less for part-time or full-time employment than those with upper secondary education, while those with a tertiary degree earn about 57% more (Table A4.1).

Indeed, having a tertiary degree carries a considerable earnings advantage in most OECD and partner countries. The relative earnings for full-time and part-time workers are highest in Chile, Colombia and Costa Rica, where adults with a tertiary education earn over twice as much as those with upper secondary education. In all of these countries, the share of adults with tertiary education is among the lowest in OECD and partner countries (less than 25%), which may partially explain the large earnings advantage of tertiary-educated workers (OECD, 2017[1]).

The earnings advantage of tertiary-educated workers, however, varies considerably by level of tertiary attainment. In most OECD member and partner countries, workers with a master's or doctoral degree earn more than those with a bachelor's degree, who in turn earn more than those with a short-cycle tertiary degree. On average across OECD countries, those with a short-cycle degree earn about 20% more than those with only an upper secondary education. The earnings advantage increases to 44% for those with a bachelor's degree and to nearly 91% for those with a master's or doctoral degree (Figure A4.1).

There are some important exceptions to this general pattern. In Estonia and Portugal, adults with a short-cycle degree earn less than those with an upper secondary education. In Austria, the same is true for those with a bachelor's degree. In all three cases, however, these groups represent relatively small shares of the tertiary-educated population. Moreover, unlike in most countries, the earnings of workers with a short-cycle tertiary degree are higher than those of workers with a bachelor's degree in Austria, Denmark, Finland and Norway. With the exception of Denmark, these countries have among the highest short-cycle tertiary attainment rates, with at least 10% of adults having attained this level (see Indicator A1).

Relative earnings of tertiary-educated workers, by age and through time

Higher educational attainment is associated with higher earnings throughout a person's working life, and the advantage is particularly large for older workers. On average across OECD countries, young adults (25-34 year-olds) with tertiary education earn nearly 40% more than their peers with upper secondary education. Older adults (45-54 year-olds) earn 70% more. The earnings advantage increases with age in all OECD and partner countries, although the size of the difference varies considerably, from over 70 percentage points in Chile, Colombia and Ireland to less than 10 percentage points in Estonia, New Zealand and the United States (Figure A4.2).

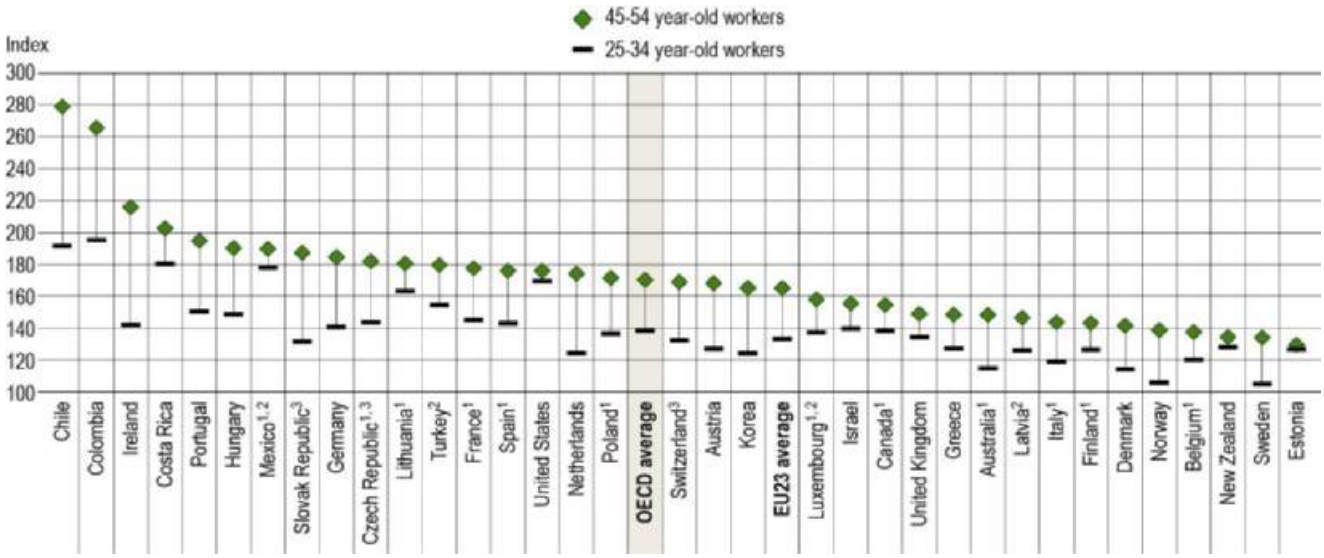
A greater earnings advantage for older age groups could mean either that the earnings advantage increases with experience or that the earnings advantage has fallen for younger generations (or a combination of both effects). In the first case, age acts as a proxy for work experience and in the second case, age acts as a proxy for changes over time. Although it is not possible to determine the main driving force in each country for the results shown in Figure A4.2, it is possible to shed some light on the issue by analysing the trends in earnings advantages over the past decade.

In most OECD countries, the earnings advantage of tertiary-educated workers has not changed considerably between 2007 and 2017. In at least 20 OECD and partner countries, the difference in the earnings advantage of adults with tertiary education has changed by less than 10 percentage points during the last decade, and in many cases the difference is less than 5 percentage points. Although these results only cover one decade, they suggest that in many OECD countries, the higher earnings advantage of older workers is mostly the result of a positive relationship between relative earnings and work experience.

A possible explanation for the increase in the earnings advantage of tertiary workers as they progress in their careers is that people with higher levels of education are more likely to be and remain employed, and may have more opportunities to gain experience on the job.

Figure A4.2. Relative earnings of tertiary-educated adults, by age group (2017)

25-34 year-old and 45-54 year-old workers (full- and part-time workers); upper secondary education = 100



1. Year of reference differs from 2017. Refer to the source table for details.
2. Earnings net of income tax.
3. Index 100 refers to the combined ISCED levels 3 and 4 of the educational attainment levels in the ISCED 2011 classification.

Countries are ranked in descending order of the relative earnings of 45-54 year-olds with tertiary education.

Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Distribution of earnings relative to the median

A strongly skewed earnings distribution signals income inequality, which may affect the social cohesion of communities and have a significant impact on economic growth. Data on the distribution of earnings among groups with different levels of education show the degree to which earnings centre around the country median. "Median earnings" refer to the earnings of all workers, without adjusting for differences in hours worked.

Across OECD and partner countries, the likelihood of earning more than the median increases with educational attainment. On average across OECD countries, 68% of tertiary-educated adults earn more than the median of all employed adults, including both full-time and part-time earners, while only 26% of adults without upper secondary education do so. The difference is even more striking when considering the share of adults earning more than twice the median. Across OECD countries, an average of 23% of tertiary-educated workers earn more than twice median earnings, compared to only 7% of those with upper secondary or post-secondary non-tertiary education and 3% for those without upper secondary education (Table A4.2).

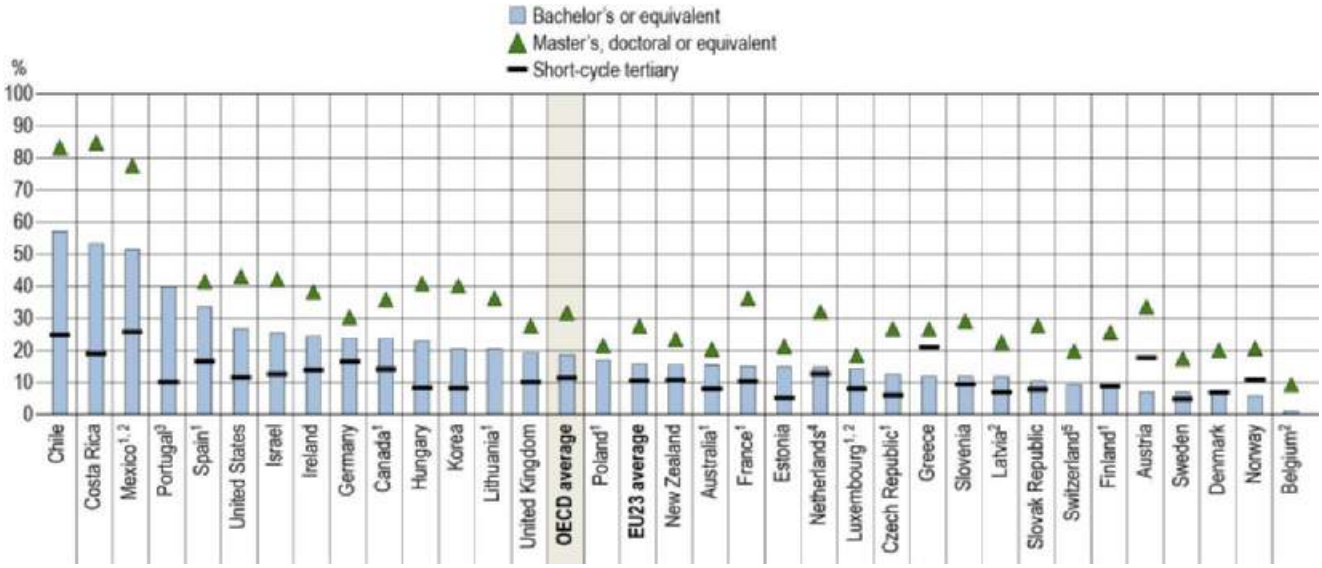
In some countries, the earnings distribution is more skewed than in others. In Chile, Costa Rica, Colombia, Hungary, Mexico and Portugal, over 80% of tertiary-educated workers earn more than the median. Moreover, in Costa Rica and Mexico about half of tertiary-educated workers earn more than twice median earnings. Indeed,

countries with relatively high levels of income inequality also tend to be those with the highest share of the population without tertiary or even upper secondary education (OECD, 2018[2]).

Among tertiary-educated workers, the distribution of earnings can vary considerably depending on the level of tertiary education attained. In nearly all OECD countries, the share of adults earning more than twice the median increases at each level from short-cycle tertiary, to bachelor's and master's or doctoral degrees. On average across OECD countries, 11% of workers with a short-cycle tertiary degree earn more than twice the median. The share increases to 19% among those with a bachelor's degree and to 32% among those with a master's or doctoral degree (Figure A4.3).

Figure A4.3. Percentage of tertiary-educated adults earning more than twice the median, by level of tertiary education (2017)

25-64 year-old workers (full- and part-time workers)



1. Year of reference differs from 2017. Refer to the source table for details.
2. Earnings net of income tax.
3. Bachelor's or equivalent includes master's, doctoral or equivalent.
4. Data refer to full-time, full-year earners only.
5. Bachelor's, master's, doctoral or equivalent include short-cycle tertiary.

Countries are ranked in descending order of the share of 25-64 year-olds with a bachelor's or equivalent qualification earning more than twice the median.

Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Relative earnings of tertiary-educated adults, by field of study

The earnings advantage for tertiary-educated adults also varies by their field of study. Among the 14 OECD countries with data available, the broad fields of study most commonly associated with the highest earnings are engineering, manufacturing and construction (six countries) and ICT (four countries). On average across OECD countries, only 14% of tertiary graduates in 2017 obtained a degree in engineering, manufacturing and construction and 4% obtained a degree in ICT. Using higher earnings as a proxy for market demand, these figures suggest a potential imbalance in some countries between the fields most in demand by the labour market and the current supply of graduates. Indeed, this imbalance may help explain the high earnings premium for these fields in some countries (see Box A1.1 in Indicator A1).

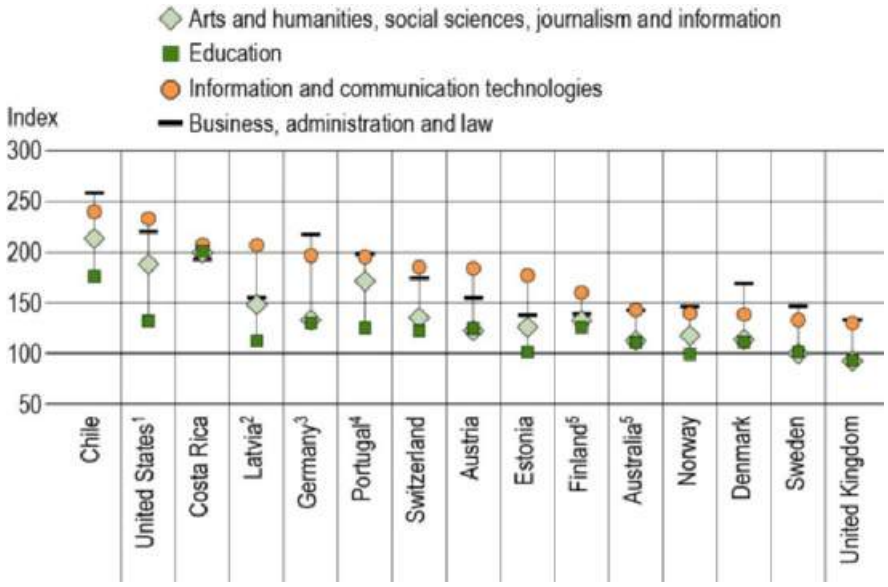
In some countries, the difference in earnings advantages across fields is relatively small. This is the case in Australia and Finland, where those with the highest-paying degree earn 30-40% more than those with the lowest-paying degree. In other countries, such as the United Kingdom and the United States, those with a degree in the highest-paying field of study earn nearly twice what those with a degree in the lowest-paying field of study earn (Table A4.4). Some of the differences in earnings across fields may be explained by different patterns of full-time versus part-time employment.

In some countries, there are tertiary fields of study that are actually associated with an earnings disadvantage when compared to adults with only upper secondary education. In the United Kingdom, for example, individuals with a tertiary degree in the broad fields of education or arts and humanities, social sciences, journalism and information earn less on average than adults who attained an upper secondary qualification. In the same country, adults with a tertiary degree in engineering manufacturing and construction and natural sciences, mathematics and statistics earn over 60% more than adults with upper secondary education (Figure A4.4).

Data from the few countries able to disaggregate earnings across narrower fields of study highlight the wide discrepancies that may exist within a broad field. For example, within the broad field of health, those with a medical or dental degree earn about twice as much as those with a degree in nursing or associated health field in nearly every country with available data (Table A4.4).

Figure A4.4. Relative earnings of tertiary-educated adults, by field of study (2017)

25-64 year-old tertiary-educated workers (full- and part-time workers); upper secondary education (all fields) = 100



1. Data refer to the field of study at the bachelor's level.
2. Earnings net of income tax.
3. Earnings refer to academic programmes only.
4. Arts and humanities, social sciences, journalism and information does not include the subfield of Languages.
5. Year of reference differs from 2017. Refer to the source table for details.

Countries are ranked in descending order of the relative earnings of 25-64 year-olds with a tertiary degree in information and communication technologies.
Source: OECD (2019), Table A4.4. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977049

Differences in earnings between women and men, by educational attainment

Women do not earn as much as men in any OECD or partner country. Across OECD countries, tertiary-educated women working full time earn only 75% of the earnings of tertiary-educated men. This 25% gap in the earnings of tertiary-educated women is slightly larger than the gap for women with below upper secondary education and for those with upper secondary or post-secondary non-tertiary education (both 22%) (Table A4.3).

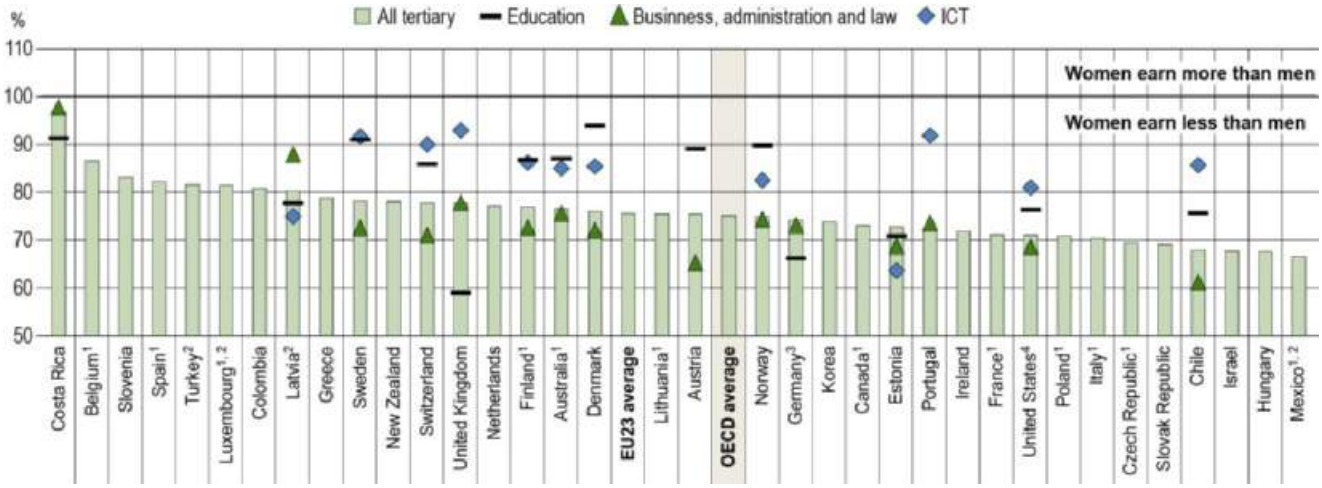
As women are more likely to work part time than men, the gender gap in the average earnings of all workers (including full-time and part-time earners) is even larger. On average across OECD countries, tertiary-educated women in full-time or part-time work earn only 69% of the earnings of tertiary-educated men (OECD, 2019[3]).

The reasons for the gender gap in earnings include gender stereotyping, social conventions and discrimination against women (OECD, 2017[4]), but also differences between men and women in their choice of fields of study. Men are more likely than women to study in fields associated with higher earnings, such as engineering, manufacturing and construction or ICT, while a larger share of women enrol in fields associated with lower earnings, including education, and arts and humanities (see Indicator B4).

Nevertheless, Figure A4.5 highlights the fact that women earn less than men even with a degree in the same field of study. Indeed, women's earnings do not surpass men's in any field of study with available data – although some fields seem to have been more successful than others in reducing the gender pay gap. In most countries with available data, the gender gap is smaller for the fields of education and ICT and larger for the field of business, administration and the law when compared to the average gap across all fields of study. Additional factors which help explain the gender gap in earnings within the same field of study could include employment in different sectors within the field, career progression, types of occupation and types of contracts.

Figure A4.5. Women's earnings as a percentage of men's earnings, by field of study (2017)

25-64 year-old full-time tertiary-educated workers



1. Year of reference differs from 2017. Refer to the source table for details.
2. Earnings net of income tax.
3. Earnings by field refer to academic programmes only.
4. Earnings by field refer to the field of study at the bachelor's level.

Countries are ranked in descending order of women's earnings (all tertiary) as a percentage of men's earnings.

Source: OECD (2019), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977068

In recent years, awareness of the differences in pay between men and women has risen. Many countries have introduced new national policies to reduce disparities in earnings between men and women. Some countries have put in place concrete measures, such as pay transparency, to foster equity in pay between men and women (OECD, 2017[4]). In most of the countries with available data, the gender gap between the earnings of tertiary-educated men and women has narrowed between 2010 and 2017. On average across OECD countries with data available for both years, the gap fell by about 1.5 percentage points, reaching just over 5 percentage points in Austria, Estonia and Korea (OECD, 2019[3]).

Definitions

Adults refer to 25-64 year-olds.

Educational attainment refers to the highest level of education attained by a person.

Fields of study are categorised according to the ISCED Fields of Education and Training (ISCED-F 2013). See the *Reader's Guide* for a full listing of the ISCED fields used in this report.

Levels of education: See the *Reader's Guide* at the beginning of this publication for a presentation of all ISCED 2011 levels.

Methodology

The analysis of relative earnings of the population with specific educational attainment and of the distribution of earnings includes full-time and part-time workers. It does not control for hours worked, although the number of hours worked is likely to influence earnings in general and the distribution in particular. The analysis of differences in earnings between men and women include full-time workers only. For the definition of full-time earnings, countries were asked whether they had applied a self-designated full-time status or a threshold value for the typical number of hours worked per week.

Earnings data are based on an annual, monthly or weekly reference period, depending on the country. The length of the reference period for earnings also differs. Data on earnings are before income tax for most countries. Earnings of self-employed people are excluded for many countries and, in general, there is no simple and comparable method to separate earnings from employment and returns to capital invested in a business.

This indicator does not take into consideration the impact of effective income from free government services. Therefore, although incomes could be lower in some countries than in others, the state could be providing both free healthcare and free schooling, for example.

The total average for earnings (men plus women) is not the simple average of the earnings figures for men and women. Instead, it is the average based on earnings of the total population. This overall average weights the average earnings separately for men and women by the share of men and women with different levels of educational attainment.

Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[5]) for more information and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

The indicator is based on the data collection on education and earnings by the OECD Labour Market and Social Outcomes of Learning Network (LSO Network). The data collection takes account of earnings for individuals working full time and full year, as well as part time or part year, during the reference period. This database contains data on dispersion of earnings from work and on student earnings versus non-student earnings. The

source for most countries is national household surveys such as Labour Force Surveys (LFS), the European Union Statistics on Income and Living Conditions (EU-SILC) or other dedicated surveys collecting data on earnings. About one-quarter of countries use data from tax or other registers. Please see Annex 3 for country-specific notes on the national sources (https://doi.org/10.1787/f8d7880d-en).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator A4 Tables

Table A4.1 Relative earnings of workers, by educational attainment (2017)

Table A4.2 Level of earnings relative to median earnings, by educational attainment (2017)

Table A4.3 Differences in earnings between female and male full-time workers, by educational attainment and age group (2017)

Table A4.4 Relative earnings of tertiary-educated adults, by field of study (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980849

Table A4.1. Relative earnings of workers, by educational attainment (2017)

25-64 year-olds with income from employment (full- and part-time workers); upper secondary education = 100

		Below upper secondary	Post-secondary non-tertiary	Tertiary			
				Short-cycle tertiary	Bachelor's or equivalent	Master's, doctoral or equivalent	Total
		(1)	(2)	(3)	(4)	(5)	(6)
OECD	Countries						
	Australia[1]	87	101	107	135	152	131
	Austria	67	107	131	93	181	147
	Belgium[1]	91	102	109	117	150	130
	Canada[1]	86	122	121	153	190	146
	Chile	69	a	140	263	470	238
	Colombia[2]	69	m	x(6)	x(6)	x(6)	232
	Czech Republic[2, 3]	74	m	112	142	180	169
	Denmark	79	138	115	110	163	128
	Estonia	89	90	93	130	141	130
	Finland[1]	98	119	124	123	168	140
	France[3]	79	m	126	147	210	157
	Germany	74	111	149	163	183	169
	Greece	76	98	170	129	176	137
	Hungary	79	98	110	159	216	179
	Iceland	m	m	m	m	m	m
	Ireland	103	102	135	181	200	174
	Israel	82	a	110	151	202	156
	Italy[3]	74	m	x(6)	x(6)	x(6)	139
	Japan	m	m	m	m	m	m
	Korea	75	a	115	145	188	141
	Latvia[4]	88	100	120	136	164	146
	Lithuania[5]	86	113	a	155	213	179
	Luxembourg[1, 4]	77	c	122	139	159	148
	Mexico[1, 4]	59	a	133	192	303	195
	Netherlands	82	124	132	132	184	150
	New Zealand	90	109	113	130	163	133
	Norway	76	101	117	113	155	126
	Poland[1]	83	100	m	139	161	156
	Portugal	76	106	95	169[d]	x(4)	169
	Slovak Republic[2]	64	m	119	121	169	163
	Slovenia	m	a	m	m	m	m
	Spain[1]	76	93r	117	152	185	157
	Sweden	79	111	103	112	147	122
	Switzerland[2]	78	m	x(4,5)	139[d]	167[d]	153
	Turkey[4]	73	a	x(6)	x(6)	x(6)	164
	United Kingdom	79	a	113	142	165	142
	United States	69	m	113	164	231	172
	OECD average	79	m	120	144	191	157
	EU23 average	81	107	121	138	174	152
Partners	Argentina	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m
	China	m	m	m	m	m	m
	Costa Rica	71	c	121	201	330	201
	India	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Year of reference 2016.
2. Index 100 refers to the combined ISCED levels 3 and 4 of the educational attainment levels in the ISCED 2011 classification.
3. Year of reference 2015.
4. Earnings net of income tax.
5. Year of reference 2014.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933976916

Table A4.2. Level of earnings relative to median earnings, by educational attainment (2017)

Median earnings from work for 25-64 year-olds with earnings (full- and part-time workers) for all levels of education

		Below upper secondary					Upper secondary or post-secondary non-tertiary					Tertiary				
		At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below twice the median	More than twice the median	At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below twice the median	More than twice the median	At or below half of the median	More than half the median but at or below the median	More than the median but at or below 1.5 times the median	More than 1.5 times the median but at or below twice the median	More than twice the median
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Countries															
	Australia[1]	13	57	22	4	4	8	50	29	8	6	5	31	36	14	14
	Austria	37	42	16	4	1	21	32	30	11	6	16	19	23	18	23
	Belgium[2]	10	65	24	c	c	5	59	33	3	c	2	30	50	14	4
	Canada[1]	38	33	16	6	7	29	28	21	11	11	21	22	21	15	22
	Chile	25	50	18	4	3	13	41	26	10	10	4	16	18	14	48
	Colombia	36	36	21	5	3	18	28	35	10	9	7	12	22	14	45
	Czech Republic[3]	22	58	17	2	0	10	47	32	8	4	3	18	37	18	23
	Denmark	29	40	24	4	2	17	38	34	8	4	14	24	38	13	11
	Estonia	21	47	18	9	5	14	48	19	10	8	9	31	26	17	17
	Finland[1]	29	36	25	6	3	22	38	30	7	3	14	22	33	17	15
	France[3]	34	40	18	5	3	22	37	28	8	5	10	21	32	18	19
	Germany	40	36	17	5	2	22	35	27	10	5	12	18	25	20	25
	Greece	33	39	19	4	4	18	36	30	10	6	10	23	33	20	14
	Hungary	0	80	15	3	1	0	60	26	8	6	0	18	32	20	29
	Iceland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Ireland	40	29	20	6	6	29	33	22	8	7	16	20	21	18	25
	Israel	23	54	14	5	4	20	44	20	8	9	10	26	22	14	27
	Italy[5]	31	34	25	7	3	18	29	30	12	10	15	20	27	15	23
	Japan	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	31	51	14	3	c	16	46	23	8	6	7	28	29	16	19
	Latvia[2]	12	71	13	2	3	10	63	20	3	4	3	41	32	9	15
	Lithuania[4]	31	44	13	8	3	20	43	19	11	7	15	22	20	17	27
	Luxembourg[1, 2]	20	65	11	4	1	12	52	20	12	3	3	30	30	21	16
	Mexico[1, 2]	29	38	21	8	6	12	26	25	15	21	5	11	15	17	52
	Netherlands[5]	33	36	24	5	2	22	35	27	10	5	15	21	26	18	21
	New Zealand	24	41	24	7	5	19	35	26	12	8	14	25	27	18	16
	Norway	31	41	21	5	2	15	39	32	9	4	12	23	39	14	11
	Poland[1]	0	73	20	5	2	0	58	28	9	5	0	28	34	17	20
	Portugal	9	55	25	6	5	6	40	29	10	14	3	14	23	20	40
	Slovak Republic	37	45	14	3	1	18	36	29	11	6	12	17	28	19	25
	Slovenia	0	84	14	1	0	0	64	28	6	2	0	22	33	25	21
	Spain[1]	39	29	20	8	5	27	28	22	13	11	16	17	19	16	32
	Sweden	26	44	26	4	1	16	36	36	9	4	15	25	37	14	10
	Switzerland	29	51	18	1	c	21	40	30	6	3	10	23	33	19	15
	Turkey[2]	30	46	18	5	1	16	36	27	14	7	11	13	17	26	33
	United Kingdom	28	43	20	5	3	21	39	25	10	6	11	24	27	18	20
	United States	42	40	11	4	3	26	38	20	9	8	13	22	22	15	28
	OECD average	26	48	19	5	3	16	41	27	9	7	10	22	28	17	23
	EU23 average	24	49	19	5	3	15	43	27	9	6	9	23	30	17	21
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	22	50	21	5	3	10	37	31	11	11	3	12	20	15	50
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2016.
2. Earnings net of income tax.
3. Year of reference 2015.
4. Year of reference 2014.
5. Data refer to full-time, full-year earners only.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787888933976935

Table A4.3. Differences in earnings between female and male full-time workers, by educational attainment and age group (2017)

Adults with income from employment (full-time workers), average annual earnings of women as a percentage of men's earnings

		Below upper secondary			Upper secondary or post-secondary non-tertiary			Tertiary		
		25-64	35-44	55-64	25-64	35-44	55-64	25-64	35-44	55-64
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	Countries									
	Australia[1]	82	81	80	77	74	70	76	79	73
	Austria	76	76	74	82	82	84	75	75	79
	Belgium[1]	89	90	89	92	90	90	86	87	84
	Canada[1]	71	59	74	70	74	65	73	78	73
	Chile	81	89	74	76	76	71	68	71	68
	Colombia	79	79	77	80	77	77	81	81	78
	Czech Republic[2]	81	82	83	79	75	86	69	66	82
	Denmark	83	81	83	81	80	82	76	78	72
	Estonia	62	61	67	63	67	71	73	82	76
	Finland[1]	81	80	81	78	76	79	77	76	74
	France[2]	78	c	c	80	76	100	71	76	64
	Germany	80	c	93	86	85	87	74	72	84
	Greece	70	69	69	80	80	74	79	81	75
	Hungary	87	87	84	87	85	90	67	63	75
	Iceland	m	m	m	m	m	m	m	m	m
	Ireland	76	c	c	77	74	72	72	83	70
	Israel	69	69	66	70	70	82	68	70	58
	Italy[2]	80	71	83	77	75	72	70	64	74
	Japan	m	m	m	m	m	m	m	m	m
	Korea	71	72	69	66	69	63	74	78	74
	Latvia[3]	73	74	78	72	71	76	80	74	88
	Lithuania[4]	79	76	73	79	76	85	75	70	80
	Luxembourg[1, 3]	83	c	c	81	c	c	81	87	c
	Mexico[1, 3]	74	72	75	78	73	93	66	76	35
	Netherlands	87	90	88	83	89	79	77	87	75
	New Zealand	82	72	83	76	75	76	78	76	73
	Norway	82	81	82	79	77	78	75	76	72
	Poland[1]	75	73	76	80	74	87	71	69	74
	Portugal	78	78	75	75	76	69	72	76	68
	Slovak Republic	74	75	74	74	70	80	69	64	75
	Slovenia	83	81	83	86	82	94	83	81	87
	Spain[1]	80	83	79	78	76	70	82	83	88
	Sweden	85	83	85	82	82	82	78	79	75
	Switzerland	80	79	78	82	87	80	78	84	79
	Turkey[3]	72	73	c	82	83	c	82	84	c
	United Kingdom	77	74	72	72	70	71	78	77	75
	United States	71	70	68	70	68	66	71	75	66
	OECD average	78	77	78	78	77	79	75	77	74
	EU23 average	79	78	79	79	78	81	76	76	77
Partners	Argentina	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m
	Costa Rica	84	82	86	83	83	c	97	95	98
	India	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Year of reference 2016.
2. Year of reference 2015.
3. Earnings net of income tax.
4. Year of reference 2014.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A4.4. Relative earnings of tertiary-educated adults, by field of study (2017)

25-64 year-olds with income from employment (full- and part-time workers); upper secondary education (all fields) = 100

		Education	Arts or humanities (except languages), social sciences, journalism and information		Arts and humanities, social sciences, journalism and information	Business and administration or law		Business, administration and law	Natural sciences, mathematics and statistics	Information and communication technologies	Engineering, manufacturing and construction	Health		Health and welfare	Other fields
			Arts	Humanities (except languages), social sciences, journalism and information		Business and administration	Law					Health (medical and dental)	Health (nursing and associate health fields)		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	**Countries**														
	Australia[1]	111	m	m	113	m	m	143	140	143	151	m	m	128	109
	Austria	125	m	m	122	m	m	155	164	184	167	m	m	168	100
	Belgium	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	176	m	m	214	m	m	259	252	240	300	m	m	241	183
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Denmark	111	m	m	114	m	m	169	145	139	151	m	m	110	131
	Estonia	101	105	136	126	130	166	138	136	177	132	200	110	132	120
	Finland[1]	126	109	143	132	134	213	139	150	160	163	221	110	126	128
	France	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Germany[2]	130	111	145	133	209	256	218	163	197	216	284	152	171	170
	Greece	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Hungary	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Iceland	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Ireland	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Japan	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Latvia[3]	113	123	154	148	151	166	155	147	207	146	145	134	136	146
	Lithuania	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	99	79	125	118	139	180	146	138	140	157	196	103	116	130
	Poland	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Portugal[4]	125	118	165	158	197	208	198	179	195	194	m	m	163	141
	Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Spain	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Sweden	101	82	108	100	123	152	147	117	133	147	172	106	117	116
	Switzerland	122	107	152	135	170	204	174	167	185	163	214	110	133	127
	Turkey	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	United Kingdom	93	m	m	92	m	m	133	181	130	160	m	m	100	105
	United States[5]	132	149	200	188	m	m	220	250	233	260	m	m	180	161
	OECD average	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	EU23 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	201	c	202	199	187	232	193	c	207	204	m	m	210	193
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2016.
2. Earnings refer to academic programmes only.
3. Earnings net of income tax.
4. Arts and humanities, social sciences, journalism and information does not include the subfield of Languages.
5. Data refer to the field of study at the bachelor's level.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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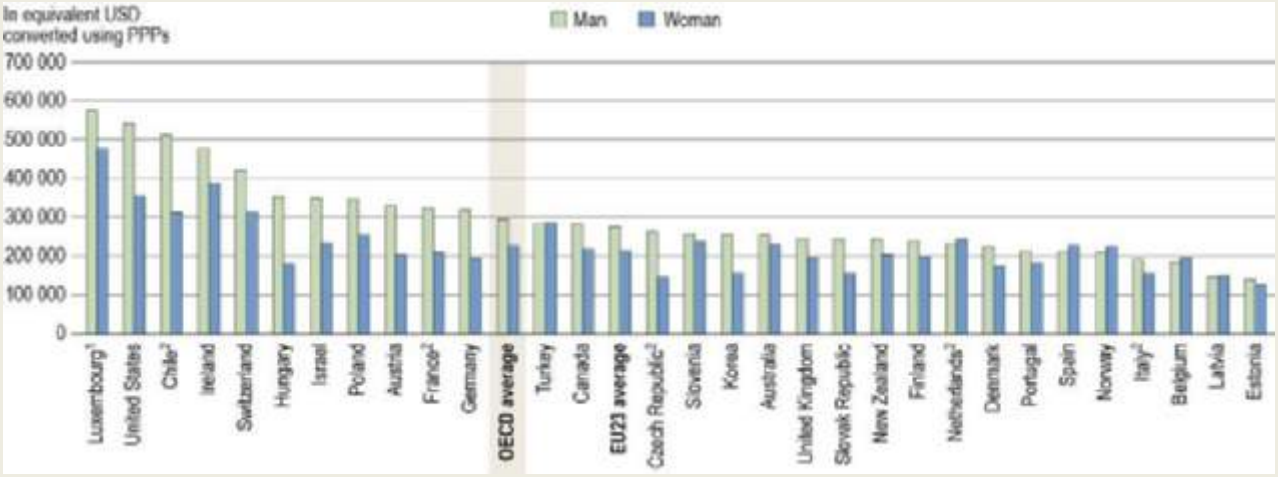
Indicator A5. What are the financial incentives to invest in education?

Highlights

- Adults who complete tertiary education benefit from high returns on investment because they are more likely to be employed and to earn more than adults without tertiary education.
- Not only does education pay off for individuals financially, but the public sector also benefits from having a large proportion of tertiary-educated individuals, for example through greater tax revenues and social contributions.
- Across OECD countries on average, a man invests around USD 45 100 (direct costs plus foregone earnings) to earn a tertiary degree, while a woman invests around USD 34 800. Because men tend to have higher earnings and employment rates, they also have higher total benefits over their career: USD 341 000 for men, compared to USD 262 400 for women.

Figure A5.1. Private net financial returns for a man or a woman attaining tertiary education (2016)

As compared with returns to upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%



1. Results are based on the net earnings of tertiary-educated adults (as compared with the net earnings of adults with upper secondary education).
2. Year of reference differs from 2016. Refer to the source table for details.
Countries are ranked in descending order of private net financial returns for a man.
Source: OECD (2019), Tables A5.1a and A5.1b. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Investing time and money in education is an investment in human capital. Better chances of employment (see Indicator A3) and higher earnings (see Indicator A4) are strong incentives for adults to invest in education and postpone employment. Although women currently have higher levels of education than men on average (see

Indicator A1), men reap more benefits from their investment, as they have better employment and earning outcomes from education, on average.

Countries benefit from more highly educated individuals through higher revenues from taxes and social contributions paid once individuals enter the labour market. As both individuals and governments benefit from higher levels of educational attainment, it is important to consider the financial returns to education alongside other indicators, such as access to and completion of higher education (see Indicator B5).

Other factors not reflected in this indicator also affect the returns to education. The financial returns may be affected by the field of study and by the country-specific economic, labour-market and institutional context, as well as by social and cultural factors. Furthermore, returns to education are not limited to financial returns, but also include other economic outcomes, such as increased productivity, and social outcomes, such as greater participation in cultural or sport activities (see Indicator A6).

Other findings

- In most OECD countries, the main cost of tertiary education is not direct payments, such as tuition fees and living expenses, but the earnings individuals forego while they are in education. This is true even when taking students' earnings into account.
- The private benefits from investing in education depend on countries' tax and social contributions systems. For instance, in Chile, Estonia and Korea, income taxes and social contributions amount to less than one-quarter of the gross earnings benefits for a man attaining tertiary education, while in Belgium and the Netherlands they add up to more than half of the gross earnings benefits.
- For nearly all countries with available data, the private and public net financial returns from obtaining a bachelor's, master's or doctoral degree are greater than the returns from obtaining a short-cycle tertiary degree.

Note

This indicator provides information on the incentives to invest in further education by considering its costs and benefits, including net financial returns and internal rates of return. It examines the choice between pursuing higher levels of education and entering the labour market, focusing on two scenarios: 1) investing in tertiary education versus entering the labour market with an upper secondary qualification; and 2) investing in upper secondary education versus entering the labour market without an upper secondary qualification (available on line).

It considers two types of investors: 1) the individuals (referred to here as "private") who choose to pursue higher levels of education and the additional net earnings and costs they can expect; and 2) the government (referred to here as "public") that decides to invest in education and the additional revenue it would receive (e.g. as tax revenues) and the costs involved.

This indicator estimates the financial returns on investment in education only up to a theoretical retirement age of 64 and, therefore, does not take pensions into account. The direct costs of education presented in this indicator do not take into account student loans.

Please note that due to continuous improvements to this indicator's methodology, the values presented in this edition of *Education at a Glance* are not comparable with those in previous editions.

Analysis

Financial incentives for individuals to invest in tertiary education

On average across OECD countries, investing in education pays off in the long run for both men and women. The gains associated with a higher level of education that individuals can expect to receive over their career exceed the costs they bear during their studies. This is true for tertiary education, and it also holds for upper secondary education (Figure A5.1, Tables A5.1a and b, and Tables A5.4a and b, available on line).

Across OECD countries, the average private financial return from tertiary education for a man is USD 295 900. Although young women tend to be more likely to complete higher education than young men (see Indicator A1), they tend to receive lower relative net financial returns on investing in tertiary education than men. For a woman, on average, the net financial return from tertiary education is USD 227 600, representing about three-quarters of the return for a man (Figure A5.1).

The private financial returns from tertiary education are higher for men than for women in most OECD countries with available data. The only countries where women have higher private financial returns than men are Belgium, Latvia, the Netherlands, Norway, Spain and Turkey (Tables A5.1a and b). Women in these countries still faced lower earnings and employment rates than men in 2016 (Education at a Glance Database), but they gain more from attaining a tertiary degree, compared to only upper secondary education, than men do. This means that, in these countries, the gap between earnings and employment by level of educational attainment is larger for women than for men.

The generally lower returns for women can be attributed to a variety of factors, such as women's lower earnings, lower employment rates, a greater share of part-time work on average and differences in choices of field of study between men and women. The availability of affordable, high-quality early childhood education and care can also influence women’s employment outcomes.

Another way to analyse returns to education is through the internal rate of return, which is the real interest rate that would equalise the costs and benefits, leading an investment to break even. It can be interpreted as the interest rate on the investment made on a higher level of education that an individual can expect to receive every year during a working-age life. On average across OECD countries, the internal rate of return to tertiary education is 17% for men and 21% for women. The higher internal rate of return for women reflects the fact that their initial investment to attain the higher level of education (in terms of foregone earnings) is lower (Tables A5.1a and b).

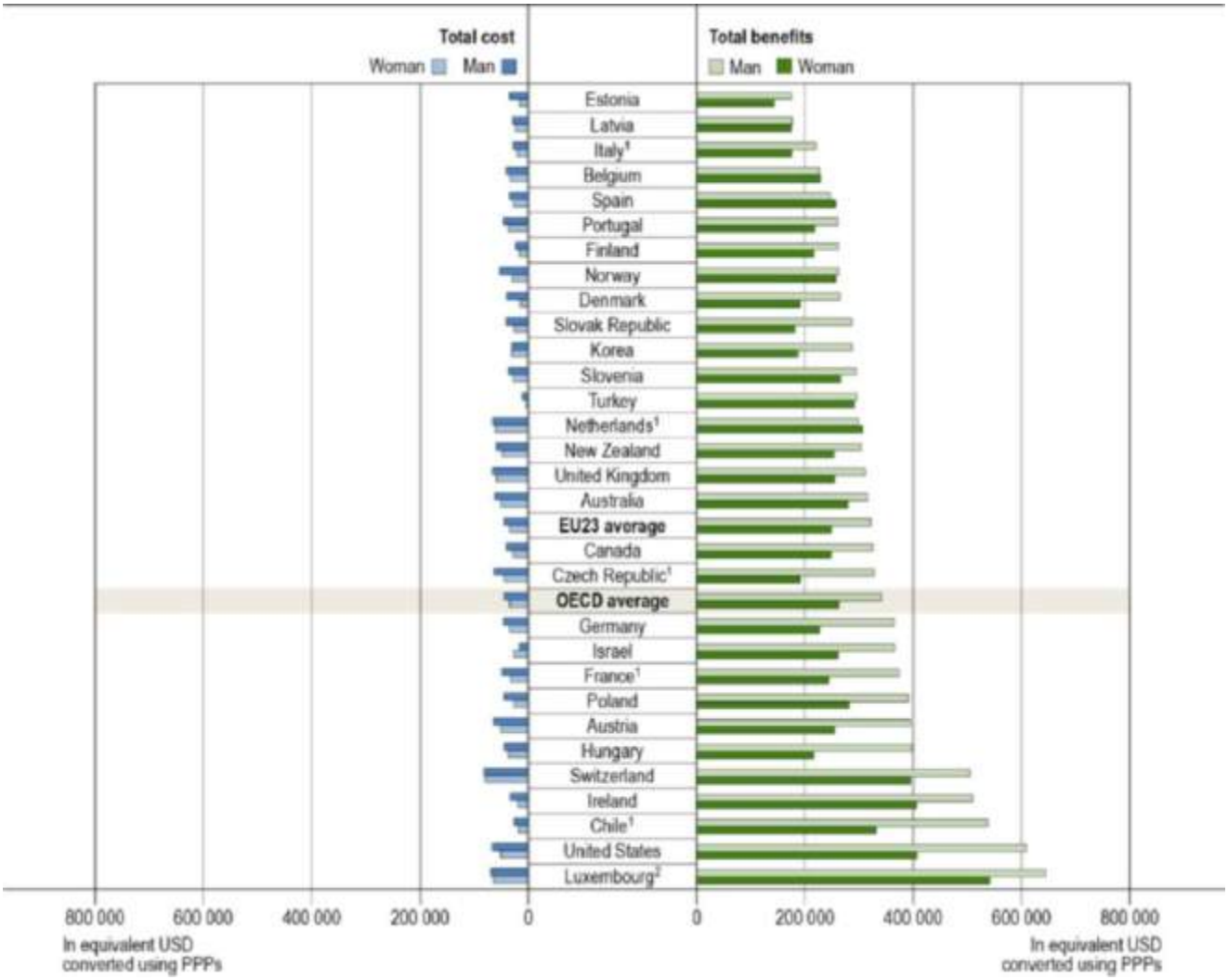
The costs and benefits of tertiary education for individuals

Private net financial returns are the difference between the costs and benefits associated with attaining an additional level of education. In this analysis, the costs include direct costs of attaining education and foregone earnings, while the benefits correspond to earnings from employment. To show the impact of the tax system on total benefits, the income tax effect and social contributions effect are also analysed (see *Definitions* section).

Total private costs (composed of direct costs and foregone earnings) generally rise with the level of education. On average across OECD countries, the total direct cost for a man or a woman of attaining tertiary education is about USD 8 400. However, in most countries, the main costs are foregone earnings, i.e. the earnings individuals could expect to receive if they decided not to pursue further education. These vary substantially across countries, depending on the length of education, earnings levels and the difference in earnings across levels of educational attainment. The current model also takes into account the fact that, in many countries, it is common for students to work while studying, thus reducing their foregone earnings and the total cost of education. Indicator A6 in *Education at a Glance 2017* (OECD, 2017[1]) shows the prevalence of student employment and the level of student earnings across OECD and partner countries.

Figure A5.2. Private costs and benefits of education for a man or a woman attaining tertiary education (2016)

As compared with returns to upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%



1. Year of reference differs from 2016. Refer to the source table for details.
2. Results are based on the net earnings of tertiary-educated adults (as compared with the net earnings of adults with upper secondary education).
Countries are ranked in ascending order of total private benefits for a man.
Source: OECD (2019), Tables A5.1a and A5.1b. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Men's foregone earnings while attaining tertiary education range from less than USD 10 000 in Israel and Turkey to nearly USD 70 000 in Switzerland. When direct costs and foregone earnings are combined, Turkey has the lowest total cost and Switzerland the highest of all OECD countries with available data. Men or women attaining tertiary education in Switzerland can expect their total costs to be more than seven times higher than those in Turkey (Tables A5.1a and b).

Figure A5.2 shows that the earning advantages of higher education bring considerable benefits for individuals, but how men and women benefit can depend on country-specific labour-market outcomes. On average, the total

benefit for a tertiary-educated man is USD 341 000, while the total benefit for a tertiary-educated woman is USD 262 400. This means that, over a career of 40 years, a tertiary-educated man will gain about USD 2 000 more per year in total benefits (compared to a man with only upper secondary education) than a tertiary-educated woman. This is mainly due to gender gaps in earnings (see Indicator A4), but is also related to higher inactivity and unemployment rates for women (see Indicator A3) (Tables A5.1a and b).

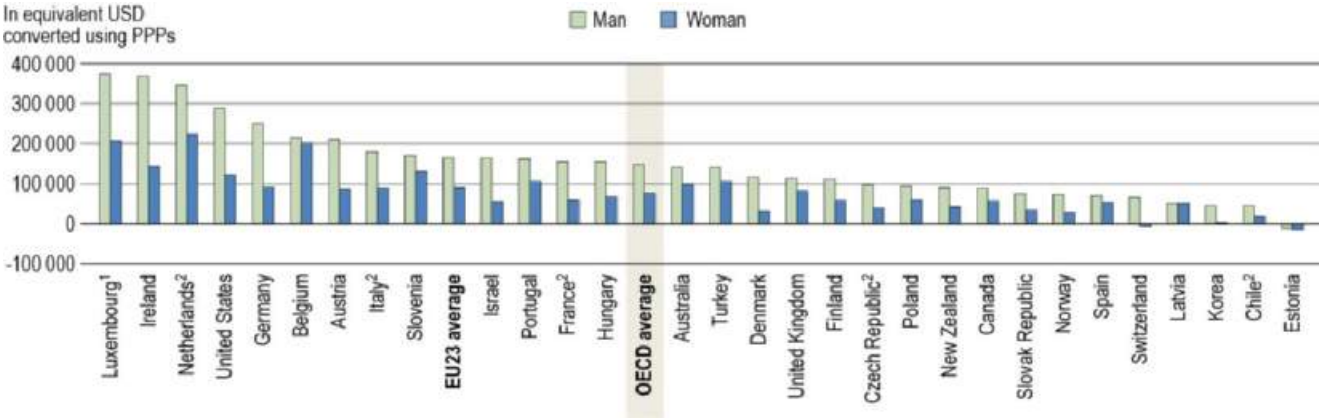
While further education yields higher earnings over the course of an individual's career, private benefits from investing in education also depend on countries' tax and social contributions systems (Brys and Torres, 2013[2]). For instance, in Chile, Estonia and Korea, income taxes and social contributions amount to less than one-quarter of the gross earnings benefits for a man attaining tertiary education, while in Belgium and the Netherlands they add up to more than half of the gross earnings benefits. As women tend to have lower earnings, they often fall into lower income tax brackets. For example, in Ireland and Israel, the income tax and social contributions relative to gross earnings for a tertiary-educated woman are about 10 percentage points lower than for a tertiary-educated man (Tables A5.1a and b). Taxes and social contributions also relate to pensions and retirement programmes, which are not considered in this indicator.

Financial incentives for governments to invest in tertiary education

Governments are major investors in education (see Indicator C3). From a budgetary point of view, it is important to analyse whether these investments will be recovered, particularly in an era of substantial fiscal constraints. Since higher levels of educational attainment tend to translate into higher earnings (see Indicator A4), investment in education generates higher public returns, because tertiary-educated adults pay higher income taxes and social contributions. On average across OECD countries, the public net financial returns for each individual completing tertiary education are about USD 148 200 for a man and USD 77 300 for a woman (Figure A5.3).

Figure A5.3. Public net financial returns for a man or a woman attaining tertiary education (2016)

As compared with returns to upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%



1. Results are based on the net earnings of tertiary-educated adults (as compared with the net earnings of adults with upper secondary education).
2. Year of reference differs from 2016. Refer to the source table for details.

Countries are ranked in descending order of total public returns for a man.

Source: OECD (2019). Tables A5.2a and A5.2b. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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The net financial returns on investment for governments are generally closely related to private returns. Countries where individuals benefit the most from pursuing tertiary education are also those where governments gain the

largest returns (Figure A5.1 and Figure A5.3). This is the case in Ireland, Luxembourg and the United States, countries with very large net financial private and public returns.

However, different tax systems can considerably affect whether public returns will follow private returns. Chile, for example, has one of the highest private returns for a man attaining tertiary education, but the second-lowest public returns because it collects a smaller share of individuals' additional earnings in the form of taxes and social contributions (Tables A5.1a and A5.2a).

The costs and benefits of tertiary education for governments

Public net financial returns are based on the difference between the costs and the benefits associated with an individual attaining an additional level of education. In this analysis, the costs include direct public costs for supporting education and foregone taxes on earnings, while the benefits are calculated using income tax and social contributions.

For governments, direct costs (including student grants) represent the largest share of total public costs for tertiary education, even though student loans are not taken into account in this indicator. This is particularly true in countries such as Denmark, Finland and Norway, where students pay low or no tuition fees and have access to generous public subsidies for higher education (see Indicator C5). The countries with high direct costs are also the countries with the largest total public costs, reaching over USD 100 000 for men in Denmark, Luxembourg, Norway and Switzerland. In contrast, Chile has the lowest total public cost (around USD 10 000 for men and women) of all OECD countries. On average across OECD countries, the total public cost for an individual to attain tertiary education is USD 58 100 for a man and USD 54 100 for a woman (Tables A5.2a and b).

Governments offset the costs of direct investment and foregone tax revenue associated with education by receiving additional tax revenue and social contributions from higher-paid workers, who often have higher educational attainment. On average, these total public benefits are USD 206 300 for a man with tertiary education and USD 131 400 for a woman (Tables A5.2a and b).

Total public benefits differ between men and women, mainly due to differences in labour-market outcomes. This suggests that governments have a role to play in easing the integration and participation of women in the labour market. On average, the total public benefits of education for a man attaining tertiary education are about 57% larger than the total public benefits for a tertiary-educated woman. Across OECD countries, Ireland, Luxembourg and the Netherlands have the largest total public benefits of tertiary education for a man (above USD 400 000) and Belgium, Luxembourg and the Netherlands have the largest benefit for a woman (above USD 250 000) (Tables A5.2a and b).

The internal rate of return to governments is higher for a man attaining tertiary education (9%) than for a woman (7%). This difference by gender is due to the fact that the public costs (i.e. public investment) are very similar for men and women while the public benefits for a man are greater than the public benefits for a woman (Tables A5.2a and b, and Tables A5.5a and b, available on line).

On average, the total public benefits (USD 206 300) for a tertiary-educated man can be broken down into income tax effects (USD 148 100) and social contribution effects (USD 58 200). For a tertiary-educated woman, the total public benefits (USD 131 400) can be broken down into USD 87 300 in income tax effects and USD 44 100 in social contribution effects (Tables A5.2a and b).

Private and public costs and benefits by level of tertiary education

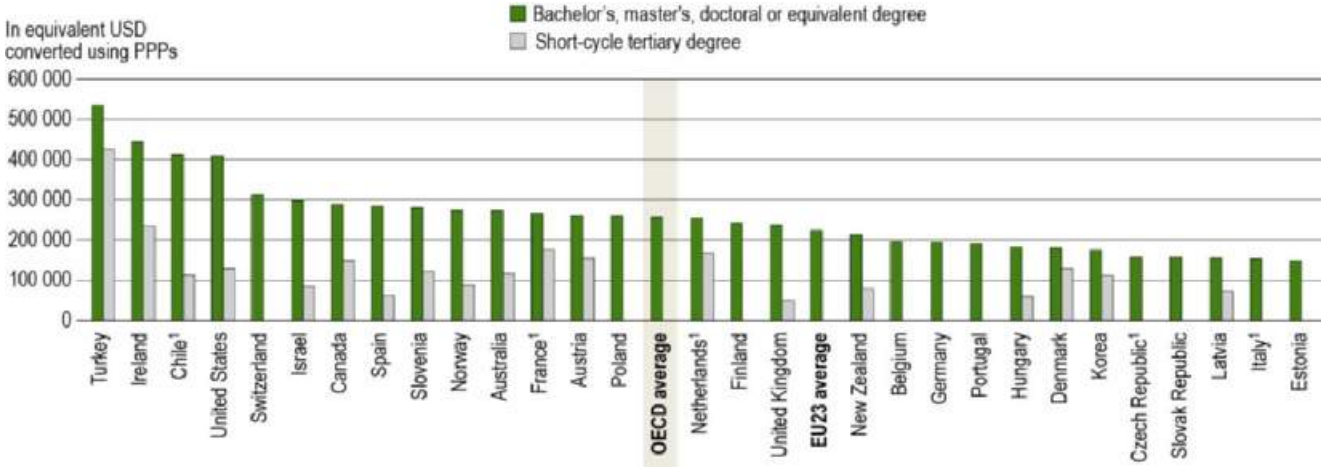
The returns for tertiary education can be broken down by level into short-cycle tertiary (ISCED 5), and bachelor's, master's and doctoral or equivalent level (ISCED 6 to 8). The composition of the population with qualifications at each tertiary level differs between countries (see Indicator A1), and the mix of qualifications can have a significant effect on the financial returns to education for tertiary education overall (Figure A5.4).

For nearly all countries with available data, the private and public net financial returns from obtaining a bachelor's, master's, doctoral or equivalent degree are greater than from obtaining a short-cycle tertiary degree. Although the total costs of a bachelor's, master's, doctoral or equivalent degree tend to be higher than those of a short-cycle tertiary degree, the total benefits accrued during individuals' working lives compensate for the higher initial costs (Tables A5.3a and b).

Turkey is the only country where both the private and public returns to a short-cycle tertiary degree are higher than for a bachelor's, master's and doctoral degree for a man. Turkey is also the OECD country with the highest share of first-time entrants to tertiary education in short-cycle tertiary programmes (48%) (see Indicator B4). The public returns for a woman attaining short-cycle tertiary education are higher than for a bachelor's, master's and doctoral degree in Denmark and Korea.

Figure A5.4. Private financial returns for a woman attaining a short-cycle tertiary degree or a bachelor's, master's and doctoral or equivalent degree (2016)

As compared with returns to upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%



Note: Short-cycle tertiary degree corresponds to ISCED level 5 and bachelor's, master's, doctoral or equivalent degree corresponds to ISCED levels 6, 7 and 8.
1. Year of reference differs from 2016. Refer to the source table for details.
Countries are ranked in descending order of total private returns for a woman with a bachelor's, master's, doctoral or equivalent degree.
Source: OECD (2019). Table A5.3b. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Box A5.1. The effect of the discount rate on the net financial returns to education

The calculation of the financial returns, or the net present value (NPV), of education corresponds to a cost-benefit analysis that converts future expected flows into a present value by using a discount rate. The discount rate takes into account the fact that money tomorrow is worth less than money today, and must therefore be "discounted" at a specific rate to find its current worth. The choice of the discount rate is challenging, and it will make a considerable difference when analysing the returns to long-term investments, as is the case with investment in education.

The results presented in the tables and figures of this indicator are calculated using a discount rate of 2%, based on the average real interest on government bonds across OECD countries. However, it can be argued

that education is not a risk-free investment, and that the discount rate should therefore be higher. The OECD countries that perform similar cost-benefit analysis use higher discount rates than 2%, but the rate used varies across countries (OECD, 2018[3]).

Table A5.a. Net financial returns for a man attaining tertiary education, by discount rate (2016)

As compared with a man attaining upper secondary education, in equivalent USD converted using PPPs for GDP

	Discount rate		
	2.00%	3.75%	8.00%
Australia	254 300	152 300	41 300
Austria	330 600	179 900	30 500
Belgium	185 200	105 200	21 100
Canada	283 900	178 300	61 500
Chile[1]	511 300	330 900	133 000
Czech Republic[1, 2]	263 500	155 100	36 400
Denmark	224 900	132 800	34 400
Estonia	140 600	85 500	23 900
Finland	238 000	149 600	53 200
France[1]	323 800	191 400	53 800
Germany	319 100	196 500	64 000
Hungary[2]	353 300	229 500	87 500
Ireland	476 400	310 600	127 400
Israel	350 200	238 400	106 900
Italy[1]	190 800	99 800	12 900
Korea	256 000	163 600	62 100
Latvia	147 500	94 400	32 500
Luxembourg[2, 3]	575 700	350 800	113 500
Netherlands[2, 4]	233 200	136 600	31 600
New Zealand	243 800	147 200	41 900
Norway	210 100	111 800	12 300
Poland[2]	345 800	218 700	76 500
Portugal[2]	214 000	116 400	19 400
Slovak Republic[2]	244 100	147 300	41 000
Slovenia[2]	258 100	152 500	42 800
Spain	212 200	126 000	35 600
Switzerland	422 600	253 400	71 400
Turkey[2]	284 600	187 900	78 600
United Kingdom	245 100	147 900	40 800
United States	542 600	346 300	128 200
OECD average	295 900	177 600	55 600
EU23 average	276 100	164 000	48 100

Note: Values are based on the difference between men who attained a tertiary education compared with those who have attained an upper secondary education. Values have been rounded to the nearest hundred.
1. Year of reference 2015.
2. The probability of students having earnings refers to the employment rate from the LSO TRANS questionnaire instead of the share of earners from the LSO Earnings questionnaire.
3. Results are based on the net earnings of tertiary-educated adults (as compared with the net earnings of adults with upper secondary education).
4. Year of reference 2014.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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In order to assess the size of the impact of the discount rate it is helpful to perform a sensitivity analysis. Table A5.a shows how the private financial returns for a man attaining tertiary education changes when three different discount rates are used. Changing from a discount rate of 2% to a rate of 3.75% reduces the NPV by over 30% in all countries with available data. If a discount rate of 8% is used, the NPV falls by at least 70% in all countries. These comparisons highlight the sensitivity of the NPV results to changes in the discount rate.

Definitions

Adults refer to 15-64 year-olds.

Direct costs are the direct expenditure on education per student during the time spent in school. Direct cost of education does not include student loans.

- **Private direct costs** are the total expenditure by households on education. They include net payments to educational institutions as well as payments for educational goods and services outside of educational institutions (school supplies, tutoring, etc.).
- **Public direct costs** are the spending by government on a student's education. They include direct public expenditure on educational institutions, government scholarships and other grants to students and households, and transfers and payments to other private entities for educational purposes. They do not include student loans.

Foregone earnings are the net earnings an individual not in education (a non-student) can expect, minus the net earnings an individual can expect to receive while studying.

Foregone taxes are the additional tax revenues the government would have received if the individual had chosen to enter the labour force as a non-student instead of pursuing further studies.

Gross earnings benefits are the discounted sum of earnings premiums over the course of a working-age life associated with a higher level of education.

The **income tax effect** is the discounted sum of additional levels of income tax paid by the private individual or earned by the government over the course of a working-age life associated with a higher level of education.

The **internal rate of return** is the (hypothetical) real interest rate equalising the costs and benefits related to the educational investment. It can be interpreted as the interest rate an individual can expect to receive every year during a working-age life on the investment made on a higher level of education.

Levels of education: See the *Reader's Guide* at the beginning of this publication for a presentation of all ISCED 2011 levels.

Net financial returns are the net present value of the financial investment in education, the difference between the discounted financial benefits and the discounted financial cost of education, representing the additional value that education produces over and above the 2% real interest that is charged on these cash flows.

Methodology

This indicator estimates the financial returns on investment in education from the age of 15 to a theoretical retirement age of 64. Returns to education are studied from the perspective of financial investment.

Two periods are considered(Diagram 1):

1. time spent in education during which the private individual and the government pay the cost of education

2. time spent after leaving formal education (or "not studying") during which the individual and the government receive the added payments associated with further education.

In calculating the returns to education, the approach taken here is the net present value of the investment. To allow direct comparisons of costs and benefits, the NPV expresses present value for cash transfers happening at different times. In this framework, costs and benefits during a working-age life are transferred back to the start of the investment. This is done by discounting all cash flows back to the beginning of the investment with a fixed interest rate (discount rate).

Diagram 1. Financial returns on investment in education over a lifetime for a representative individual



To set a value for the discount rate, long-term government bonds have been used as a benchmark. The choice of discount rate is challenging, as it should reflect not only the overall time horizon of the investment, but also the cost of borrowing or the perceived risk of the investment (Box A5.1). To allow for comparability and to facilitate the interpretation of results, the same discount rate (2%) is applied across all OECD countries. All values presented in the tables in this indicator are in NPV equivalent USD using purchasing power parities (PPPs).

Change in methodology between Education at a Glance 2019 *and* Education at a Glance 2018

The current model focuses on earnings from employment. The unemployment benefits and social transfers, reported in the 2018 edition, are not included in the 2019 edition. Compared to previous editions, the main changes have been the use of the employment rate (instead of a ratio based on the active population) as the probability for an individual to receive earnings and the introduction of actual students' earnings in the calculation of foregone earnings. Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[4]) for more information and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

The source for the direct costs of education is the UOE data collection on finance (year of reference 2016 unless otherwise specified in the tables).

The data on gross earnings are based on the OECD Network on Labour Market and Social Outcomes earnings data collection, which compiles data from national Labour Force Surveys, EU Statistics on Incomes and Living Conditions, Structure of Earnings Surveys, and other national registers and surveys. Earnings are age-, gender- and attainment-level specific. For the calculation of this indicator, data on earnings have been pooled from three different years (2014-16).

Income tax data are computed using the OECD Taxing Wages model, which determines the level of taxes based on a given level of income. This model computes the level of the tax wedge on income for several household composition scenarios. For this indicator, a single worker with no children is used. For country-specific details on income tax in this model, see *Taxing Wages 2018* (OECD, 2018[5]).

Employee social contributions are computed using the OECD Taxing Wages model's scenario of a single worker aged 40 with no children. For country-specific details on employee social contributions in this model, see *Taxing Wages 2018* (OECD, 2018[5]).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator A5 Tables

Table A5.1a Private costs and benefits for a man attaining tertiary education (2016)

Table A5.1b Private costs and benefits for a woman attaining tertiary education (2016)

Table A5.2a Public costs and benefits for a man attaining tertiary education (2016)

Table A5.2b Public costs and benefits for a woman attaining tertiary education (2016)

Table A5.3a Private/public costs and benefits for a man attaining tertiary education, by level of tertiary education (2016)

Table A5.3b Private/public costs and benefits for a woman attaining tertiary education, by level of tertiary education (2016)

WEB Table A5.4a Private costs and benefits for a man attaining upper secondary education (2016)

WEB Table A5.4b Private costs and benefits for a woman attaining upper secondary education (2016)

WEB Table A5.5a Public costs and benefits for a man attaining upper secondary education (2016)

WEB Table A5.5b Public costs and benefits for a woman attaining upper secondary education (2016)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980868

Table A5.1a. Private costs and benefits for a man attaining tertiary education (2016)

As compared with a man attaining upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%

		Direct costs	Foregone earnings	Total costs	Earnings benefits decomposition (taking into account the employment effect)			Total benefits	Net financial returns	Internal rate of return
					Gross earnings benefits	Income tax effect	Social contribution effect			
		(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6)	(7) = (4) + (5) + (6)	(8) = (7) + (3)	(9)
OECD	Countries									
	Australia	- 23 900	- 38 200	- 62 100	490 000	- 173 600	0	316 400	254 300	13%
	Austria	0	- 64 300	- 64 300	695 800	- 197 100	- 103 800	394 900	330 600	10%
	Belgium	- 1 600	- 39 800	- 41 400	499 800	- 197 300	- 75 900	226 600	185 200	11%
	Canada	- 13 800	- 27 200	- 41 000	464 000	- 122 400	- 16 700	324 900	283 900	17%
	Chile[1]	- 10 500	- 15 800	- 26 300	592 400	- 13 300	- 41 500	537 600	511 300	31%
	Colombia	m	m	m	m	m	m	m	m	m
	Czech Republic[1, 2]	- 4 200	- 59 600	- 63 800	472 400	- 93 100	- 52 000	327 300	263 500	12%
	Denmark	0	- 39 100	- 39 100	485 500	- 221 500	0	264 000	224 900	13%
	Estonia	0	- 34 500	- 34 500	220 500	- 41 900	- 3 500	175 100	140 600	13%
	Finland	0	- 23 200	- 23 200	457 100	- 155 300	- 40 600	261 200	238 000	20%
	France[1]	- 4 700	- 44 500	- 49 200	592 800	- 140 000	- 79 800	373 000	323 800	14%
	Germany	- 3 900	- 42 400	- 46 300	705 600	- 214 100	- 126 100	365 400	319 100	16%
	Greece	m	m	m	m	m	m	m	m	m
	Hungary[2]	- 12 100	- 32 900	- 45 000	599 000	- 89 900	- 110 800	398 300	353 300	20%
	Iceland	m	m	m	m	m	m	m	m	m
	Ireland	- 2 000	- 31 300	- 33 300	920 400	- 373 900	- 36 800	509 700	476 400	32%
	Israel	- 8 400	- 7 400	- 15 800	553 900	- 126 000	- 61 900	366 000	350 200	40%
	Italy[1]	- 3 900	- 24 700	- 28 600	436 700	- 175 000	- 42 300	219 400	190 800	10%
	Japan	m	m	m	m	m	m	m	m	m
	Korea	- 7 300	- 23 700	- 31 000	354 600	- 37 800	- 29 800	287 000	256 000	22%
	Latvia	- 9 600	- 19 800	- 29 400	256 300	- 52 500	- 26 900	176 900	147 500	16%
	Lithuania	m	m	m	m	m	m	m	m	m
	Luxembourg[2, 3]	- 2 600	- 66 400	- 69 000	1 201 900	- 402 700	- 154 500	644 700	575 700	17%
	Mexico	m	m	m	m	m	m	m	m	m
	Netherlands[2, 4]	- 5 200	- 60 800	- 66 000	721 800	- 289 500	- 133 100	299 200	233 200	11%
	New Zealand	- 18 500	- 40 700	- 59 200	431 400	- 128 400	0	303 000	243 800	13%
	Norway	0	- 52 400	- 52 400	437 800	- 139 400	- 35 900	262 500	210 100	9%
	Poland[2]	- 2 600	- 42 900	- 45 500	532 100	- 45 900	- 94 900	391 300	345 800	18%
	Portugal[2]	- 9 700	- 36 900	- 46 600	459 300	- 148 200	- 50 500	260 600	214 000	10%
	Slovak Republic[2]	- 7 400	- 34 200	- 41 600	405 100	- 65 100	- 54 300	285 700	244 100	13%
	Slovenia[2]	- 1 100	- 34 800	- 35 900	519 100	- 110 400	- 114 700	294 000	258 100	14%
	Spain	- 10 700	- 23 600	- 34 300	353 600	- 84 700	- 22 400	246 500	212 200	14%
	Sweden	m	m	m	m	m	m	m	m	m
	Switzerland	- 12 800	- 69 200	- 82 000	679 800	- 132 900	- 42 300	504 600	422 600	14%
	Turkey[2]	- 2 300	- 9 200	- 11 500	467 500	- 101 300	- 70 100	296 100	284 600	36%
	United Kingdom	- 36 500	- 29 700	- 66 200	459 000	- 96 100	- 51 600	311 300	245 100	13%
	United States	- 36 000	- 30 300	- 66 300	954 800	- 272 900	- 73 000	608 900	542 600	20%
	OECD average	- 8 400	- 36 700	- 45 100	547 300	- 148 100	- 58 200	341 000	295 900	17%
	EU23 average	- 5 900	- 39 300	- 45 200	549 700	- 159 700	- 68 700	321 300	276 100	15%

Note: Values are based on the difference between men who attained a tertiary education compared with those who have attained an upper secondary education. Values have been rounded up to the nearest hundred. Direct cost to education does not include student loans.

Due to changes in the methodology, values in this edition of *Education at a Glance* cannot be compared to results from previous editions. See *Definitions* and *Methodology* sections for more information.

1. Year of reference 2015.
2. The probability of students having earnings refers to the employment rate from the LSO TRANS questionnaire instead of the share of earners from the LSO Earnings questionnaire.
3. Results are based on the net earnings of tertiary-educated adults (as compared with the net earnings of adults with upper secondary education).
4. Year of reference 2014.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933977087

Table A5.1b. Private costs and benefits for a woman attaining tertiary education (2016)

As compared with a woman attaining upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%

		Direct costs	Foregone earnings	Total costs	Earnings benefits decomposition (taking into account the employment effect)			Total benefits	Net financial returns	Internal rate of return
					Gross earnings benefits	Income tax effect	Social contribution effect			
		(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6)	(7) = (4) + (5) + (6)	(8) = (7) + (3)	(9)
OECD	Countries									
	Australia	- 23 900	- 26 100	- 50 000	406 500	- 127 300	0	279 200	229 200	14%
	Austria	0	- 50 300	- 50 300	420 900	- 86 900	- 79 900	254 100	203 800	10%
	Belgium	- 1 600	- 31 500	- 33 100	485 000	- 152 700	- 103 900	228 400	195 300	18%
	Canada	- 13 800	- 15 000	- 28 800	349 300	- 73 200	- 28 100	248 000	219 200	23%
	Chile[1]	- 10 500	- 7 400	- 17 900	358 100	- 2 000	- 25 100	331 000	313 100	37%
	Colombia	m	m	m	m	m	m	m	m	m
	Czech Republic[1, 2]	- 4 200	- 40 800	- 45 000	270 200	- 50 400	- 29 700	190 100	145 100	10%
	Denmark	0	- 14 200	- 14 200	311 600	- 122 000	0	189 600	175 400	26%
	Estonia	0	- 16 000	- 16 000	180 700	- 34 900	- 2 900	142 900	126 900	22%
	Finland	0	- 16 500	- 16 500	356 400	- 108 000	- 32 300	216 100	199 600	27%
	France[1]	- 4 700	- 28 100	- 32 800	362 400	- 67 500	- 51 500	243 400	210 600	19%
	Germany	- 3 900	- 30 000	- 33 900	402 500	- 92 800	- 83 200	226 500	192 600	14%
	Greece	m	m	m	m	m	m	m	m	m
	Hungary[2]	- 12 100	- 24 800	- 36 900	325 300	- 48 800	- 60 200	216 300	179 400	14%
	Iceland	m	m	m	m	m	m	m	m	m
	Ireland	- 2 000	- 16 700	- 18 700	586 200	- 155 900	- 24 900	405 400	386 700	57%
	Israel	- 8 400	- 18 500	- 26 900	340 400	- 45 900	- 33 600	260 900	234 000	24%
	Italy[1]	- 3 900	- 17 000	- 20 900	300 700	- 97 100	- 28 500	175 100	154 200	13%
	Japan	m	m	m	m	m	m	m	m	m
	Korea	- 7 300	- 24 400	- 31 700	212 900	- 8 200	- 17 900	186 800	155 100	20%
	Latvia	- 9 600	- 14 100	- 23 700	251 600	- 50 800	- 26 400	174 400	150 700	19%
	Lithuania	m	m	m	m	m	m	m	m	m
	Luxembourg[2, 3]	- 2 600	- 62 100	- 64 700	928 800	- 268 400	- 119 600	540 800	476 100	20%
	Mexico	m	m	m	m	m	m	m	m	m
	Netherlands[2, 4]	- 5 200	- 56 300	- 61 500	600 900	- 194 100	- 101 900	304 900	243 400	13%
	New Zealand	- 18 500	- 30 100	- 48 600	330 700	- 77 600	0	253 100	204 500	16%
	Norway	0	- 30 100	- 30 100	376 300	- 89 400	- 30 900	256 000	225 900	18%
	Poland[2]	- 2 600	- 24 700	- 27 300	379 700	- 31 000	- 67 700	281 000	253 700	22%
	Portugal[2]	- 9 700	- 26 900	- 36 600	358 700	- 101 200	- 39 500	218 000	181 400	12%
	Slovak Republic[2]	- 7 400	- 19 300	- 26 700	253 800	- 38 000	- 34 300	181 500	154 800	13%
	Slovenia[2]	- 1 100	- 26 800	- 27 900	447 900	- 83 000	- 99 000	265 900	238 000	16%
	Spain	- 10 700	- 17 200	- 27 900	346 300	- 68 800	- 21 600	255 900	228 000	18%
	Sweden	m	m	m	m	m	m	m	m	m
	Switzerland	- 12 800	- 67 600	- 80 400	496 300	- 70 100	- 30 900	395 300	314 900	14%
	Turkey[2]	- 2 300	- 2 000	- 4 300	425 200	- 70 600	- 63 800	290 800	286 500	62%
	United Kingdom	- 36 500	- 22 400	- 58 900	367 500	- 71 100	- 42 300	254 100	195 200	13%
	United States	- 36 000	- 15 400	- 51 400	580 800	- 130 200	- 44 400	406 200	354 800	20%
	OECD average	- 8 400	- 26 400	- 34 800	393 800	- 87 300	- 44 100	262 400	227 600	21%
	EU23 average	- 5 900	- 27 800	- 33 700	396 900	- 96 200	- 52 500	248 200	214 500	19%

Note: Values are based on the difference between women who attained a tertiary education compared with those who have attained an upper secondary education. Values have been rounded up to the nearest hundred. Direct cost to education does not include student loans.

Due to changes in the methodology, values in this edition of *Education at a Glance* cannot be compared to results from previous editions. See *Definitions* and *Methodology* sections for more information.

1. Year of reference 2015.
2. The probability of students having earnings refers to the employment rate from the LSO TRANS questionnaire instead of the share of earners from the LSO Earnings questionnaire.
3. Results are based on the net earnings of tertiary-educated adults (as compared with the net earnings of adults with upper secondary education).
4. Year of reference 2014.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A5.2a. Public costs and benefits for a man attaining tertiary education (2016)

As compared with a man attaining upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%

		Direct costs	Foregone taxes on earnings	Total costs	Earnings benefits decomposition (taking into account the employment effect)		Total benefits	Net financial returns	Internal rate of return
					Income tax effect	Social contribution effect			
		(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6) = (4) + (5)	(7) = (6) + (3)	(8)
OECD	Countries								
	Australia	- 24 100	- 8 200	- 32 300	173 600	0	173 600	141 300	12%
	Austria	- 68 300	- 22 400	- 90 700	197 100	103 800	300 900	210 200	7%
	Belgium	- 54 000	- 4 200	- 58 200	197 300	75 900	273 200	215 000	10%
	Canada	- 41 500	- 9 100	- 50 600	122 400	16 700	139 100	88 500	7%
	Chile[1]	- 8 800	- 1 200	- 10 000	13 300	41 500	54 800	44 800	12%
	Colombia	m	m	m	m	m	m	m	m
	Czech Republic[1, 2]	- 30 200	- 17 500	- 47 700	93 100	52 000	145 100	97 400	8%
	Denmark	- 81 500	- 24 200	- 105 700	221 500	0	221 500	115 800	5%
	Estonia	- 48 900	- 7 800	- 56 700	41 900	3 500	45 400	- 11 300	1%
	Finland	- 74 600	- 10 400	- 85 000	155 300	40 600	195 900	110 900	6%
	France[1]	- 51 800	- 12 500	- 64 300	140 000	79 800	219 800	155 500	8%
	Germany	- 71 100	- 19 900	- 91 000	214 100	126 100	340 200	249 200	9%
	Greece	m	m	m	m	m	m	m	m
	Hungary[2]	- 28 600	- 16 600	- 45 200	89 900	110 800	200 700	155 500	12%
	Iceland	m	m	m	m	m	m	m	m
	Ireland	- 37 000	- 4 500	- 41 500	373 900	36 800	410 700	369 200	17%
	Israel	- 23 700	- 200	- 23 900	126 000	61 900	187 900	164 000	16%
	Italy[1]	- 34 900	- 2 600	- 37 500	175 000	42 300	217 300	179 800	9%
	Japan	m	m	m	m	m	m	m	m
	Korea	- 20 100	- 2 300	- 22 400	37 800	29 800	67 600	45 200	8%
	Latvia	- 19 800	- 7 800	- 27 600	52 500	26 900	79 400	51 800	9%
	Lithuania	m	m	m	m	m	m	m	m
	Luxembourg[2, 3]	- 171 600	- 12 300	- 183 900	402 700	154 500	557 200	373 300	8%
	Mexico	m	m	m	m	m	m	m	m
	Netherlands[2, 4]	- 59 100	- 16 400	- 75 500	289 500	133 100	422 600	347 100	11%
	New Zealand	- 31 000	- 7 200	- 38 200	128 400	0	128 400	90 200	9%
	Norway	- 82 500	- 20 000	- 102 500	139 400	35 900	175 300	72 800	4%
	Poland[2]	- 31 800	- 14 200	- 46 000	45 900	94 900	140 800	94 800	8%
	Portugal[2]	- 32 100	- 4 600	- 36 700	148 200	50 500	198 700	162 000	10%
	Slovak Republic[2]	- 35 700	- 8 600	- 44 300	65 100	54 300	119 400	75 100	7%
	Slovenia[2]	- 38 300	- 17 100	- 55 400	110 400	114 700	225 100	169 700	9%
	Spain	- 35 200	- 1 400	- 36 600	84 700	22 400	107 100	70 500	7%
	Sweden	m	m	m	m	m	m	m	m
	Switzerland	- 96 500	- 13 000	- 109 500	132 900	42 300	175 200	65 700	4%
	Turkey[2]	- 28 800	- 2 000	- 30 800	101 300	70 100	171 400	140 600	12%
	United Kingdom	- 26 500	- 8 300	- 34 800	96 100	51 600	147 700	112 900	11%
	United States	- 47 900	- 9 400	- 57 300	272 900	73 000	345 900	288 600	14%
	OECD average	- 47 900	- 10 200	- 58 100	148 100	58 200	206 300	148 200	9%
	EU23 average	- 51 600	- 11 700	- 63 300	159 700	68 700	228 400	165 100	9%

Note: Values are based on the difference between men who attained a tertiary education compared with those who have attained an upper secondary education. Values have been rounded up to the nearest hundred. Direct cost to education does not include student loans.
Due to changes in the methodology, values in this edition of *Education at a Glance* cannot be compared to results from previous editions. See *Definitions* and *Methodology* sections for more information.
1. Year of reference 2015.
2. The probability of students having earnings refers to the employment rate from the LSO TRANS questionnaire instead of the share of earners from the LSO Earnings questionnaire.
3. Results are based on the net earnings of tertiary-educated adults (as compared with the net earnings of adults with upper secondary education).
4. Year of reference 2014.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A5.2b. Public costs and benefits for a woman attaining tertiary education (2016)

As compared with a woman attaining upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%

		Direct costs	Foregone taxes on earnings	Total costs	Earnings benefits decomposition (taking into account the employment effect)		Total benefits	Net financial returns	Internal rate of return
					Income tax effect	Social contribution effect			
		(1)	(2)	(3) = (1) + (2)	(4)	(5)	(6) = (4) + (5)	(7) = (6) + (3)	(8)
OECD	Countries								
	Australia	- 24 100	- 4 300	- 28 400	127 300	0	127 300	98 900	12%
	Austria	- 68 300	- 13 400	- 81 700	86 900	79 900	166 800	85 100	5%
	Belgium	- 54 000	- 1 100	- 55 100	152 700	103 900	256 600	201 500	12%
	Canada	- 41 500	- 3 200	- 44 700	73 200	28 100	101 300	56 600	7%
	Chile[1]	- 8 800	- 600	- 9 400	2 000	25 100	27 100	17 700	8%
	Colombia	m	m	m	m	m	m	m	m
	Czech Republic[1, 2]	- 30 200	- 10 500	- 40 700	50 400	29 700	80 100	39 400	5%
	Denmark	- 81 500	- 9 000	- 90 500	122 000	0	122 000	31 500	3%
	Estonia	- 48 900	- 3 500	- 52 400	34 900	2 900	37 800	- 14 600	0%
	Finland	- 74 600	- 7 800	- 82 400	108 000	32 300	140 300	57 900	5%
	France[1]	- 51 800	- 8 000	- 59 800	67 500	51 500	119 000	59 200	6%
	Germany	- 71 100	- 13 200	- 84 300	92 800	83 200	176 000	91 700	6%
	Greece	m	m	m	m	m	m	m	m
	Hungary[2]	- 28 600	- 12 500	- 41 100	48 800	60 200	109 000	67 900	7%
	Iceland	m	m	m	m	m	m	m	m
	Ireland	- 37 000	- 400	- 37 400	155 900	24 900	180 800	143 400	12%
	Israel	- 23 700	- 700	- 24 400	45 900	33 600	79 500	55 100	9%
	Italy[1]	- 34 900	- 1 800	- 36 700	97 100	28 500	125 600	88 900	7%
	Japan	m	m	m	m	m	m	m	m
	Korea	- 20 100	- 2 300	- 22 400	8 200	17 900	26 100	3 700	3%
	Latvia	- 19 800	- 5 200	- 25 000	50 800	26 400	77 200	52 200	9%
	Lithuania	m	m	m	m	m	m	m	m
	Luxembourg[2, 3]	- 171 600	- 10 500	- 182 100	268 400	119 600	388 000	205 900	6%
	Mexico	m	m	m	m	m	m	m	m
	Netherlands[2, 4]	- 59 100	- 13 300	- 72 400	194 100	101 900	296 000	223 600	10%
	New Zealand	- 31 000	- 4 700	- 35 700	77 600	0	77 600	41 900	6%
	Norway	- 82 500	- 8 600	- 91 100	89 400	30 900	120 300	29 200	3%
	Poland[2]	- 31 800	- 8 000	- 39 800	31 000	67 700	98 700	58 900	7%
	Portugal[2]	- 32 100	- 3 300	- 35 400	101 200	39 500	140 700	105 300	9%
	Slovak Republic[2]	- 35 700	- 2 700	- 38 400	38 000	34 300	72 300	33 900	5%
	Slovenia[2]	- 38 300	- 12 900	- 51 200	83 000	99 000	182 000	130 800	8%
	Spain	- 35 200	- 1 400	- 36 600	68 800	21 600	90 400	53 800	6%
	Sweden	m	m	m	m	m	m	m	m
	Switzerland	- 96 500	- 11 800	- 108 300	70 100	30 900	101 000	- 7 300	2%
	Turkey[2]	- 28 800	- 300	- 29 100	70 600	63 800	134 400	105 300	11%
	United Kingdom	- 26 500	- 5 200	- 31 700	71 100	42 300	113 400	81 700	11%
	United States	- 47 900	- 5 000	- 52 900	130 200	44 400	174 600	121 700	9%
	OECD average	- 47 900	- 6 200	- 54 100	87 300	44 100	131 400	77 300	7%
	EU23 average	- 51 600	- 7 200	- 58 800	96 200	52 500	148 700	89 900	7%

Note: Values are based on the difference between women who attained a tertiary education compared with those who have attained an upper secondary education. Values have been rounded up to the nearest hundred. Direct cost to education does not include student loans.
Due to changes in the methodology, values in this edition of *Education at a Glance* cannot be compared to results from previous editions. See *Definitions* and *Methodology* sections for more information.
1. Year of reference 2015.
2. The probability of students having earnings refers to the employment rate from the LSO TRANS questionnaire instead of the share of earners from the LSO Earnings questionnaire.
3. Results are based on the net earnings of tertiary-educated adults (as compared with the net earnings of adults with upper secondary education).
4. Year of reference 2014.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A5.3a. Private/public costs and benefits for a man attaining tertiary education, by level of tertiary education (2016)

As compared with a man attaining upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%

		Short-cycle tertiary (ISCED 5)						Bachelor's, master's and doctoral or equivalent level (ISCED 6 to 8)					
		Private			Public			Private			Public		
		Total costs	Total benefits	Net financial returns	Total costs	Total benefits	Net financial returns	Total costs	Total benefits	Net financial returns	Total costs	Total benefits	Net financial returns
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	-22 300	135 400	113 100	-9 900	60 400	**50 500**	-77 300	375 300	**298 000**	-42 500	210 600	**168 100**
	Austria	-54 300	264 200	209 900	-77 200	204 600	**127 400**	-69 400	562 600	**493 200**	-97 900	420 200	**322 300**
	Belgium	m	m	m	m	m	**m**	-41 900	228 500	**186 600**	-59 300	275 900	**216 600**
	Canada	-27 100	193 800	166 700	-31 500	79 900	**48 400**	-46 300	428 400	**382 100**	-58 700	191 900	**133 200**
	Chile[1]	-17 500	189 500	172 000	-4 500	15 400	**10 900**	-44 500	684 600	**640 100**	-18 800	73 300	**54 500**
	Colombia	m	m	m	m	m	**m**	m	m	**m**	m	m	**m**
	Czech Republic[1,2]	m	m	m	m	m	**m**	-63 600	340 400	**276 800**	-47 500	151 000	**103 500**
	Denmark	-18 000	128 700	110 700	-48 600	86 700	**38 100**	-41 600	295 400	**253 800**	-112 400	258 100	**145 700**
	Estonia	a	a	a	a	a	**a**	-34 500	200 600	**166 100**	-56 700	52 000	**-4 700**
	Finland	a	a	a	a	a	**a**	-23 200	298 900	**275 700**	-85 000	228 200	**143 200**
	France[1]	-24 200	208 100	183 900	-32 700	102 700	**70 000**	-56 000	489 600	**433 600**	-72 500	302 700	**230 200**
	Germany	m	m	m	m	m	**m**	-46 500	392 800	**346 300**	-91 400	362 700	**271 300**
	Greece	a	a	a	a	a	**a**	m	m	**m**	m	m	**m**
	Hungary[2]	-30 100	163 600	133 500	-20 900	82 400	**61 500**	-45 500	404 600	**359 100**	-46 400	203 900	**157 500**
	Iceland	m	m	m	m	m	**m**	m	m	**m**	m	m	**m**
	Ireland	-20 800	223 600	202 800	-25 800	154 600	**128 800**	-36 600	597 500	**560 900**	-45 500	498 800	**453 300**
	Israel	-4 200	147 600	143 400	-6 700	41 800	**35 100**	-21 900	465 900	**444 000**	-32 900	264 400	**231 500**
	Italy[1]	m	m	m	m	m	**m**	-28 600	219 500	**190 900**	-37 600	217 300	**179 700**
	Japan	m	m	m	m	m	**m**	m	m	**m**	m	m	**m**
	Korea	-18 700	191 300	172 600	-8 400	37 100	**28 700**	-34 800	309 800	**275 000**	-27 700	76 000	**48 300**
	Latvia	-21 000	95 500	74 500	-21 700	41 700	**20 000**	-32 100	185 100	**153 000**	-29 500	82 900	**53 400**
	Lithuania	a	a	a	a	a	**a**	m	m	**m**	m	m	**m**
	Luxembourg	m	m	m	m	m	**m**	m	m	**m**	m	m	**m**
	Mexico	m	m	m	m	m	**m**	m	m	**m**	m	m	**m**
	Netherlands[2,3]	-31 800	200 000	168 200	-29 600	215 600	**186 000**	-66 400	309 800	**243 400**	-75 900	444 000	**368 100**
	New Zealand	-39 500	161 300	121 800	-18 100	57 000	**38 900**	-64 900	325 500	**260 600**	-44 600	140 200	**95 600**
	Norway	-29 400	107 000	77 600	-43 000	80 300	**37 300**	-53 400	351 500	**298 100**	-105 100	230 200	**125 100**
	Poland[2]	m	m	m	m	m	**m**	-45 500	405 700	**360 200**	-46 000	145 900	**99 900**
	Portugal[2]	m	m	m	m	m	**m**	-46 600	273 500	**226 900**	-36 900	210 300	**173 400**
	Slovak Republic[2]	m	m	m	m	m	**m**	-42 400	289 700	**247 300**	-45 200	121 000	**75 800**
	Slovenia[2]	-21 500	167 600	146 100	-14 900	117 500	**102 600**	-38 200	341 800	**303 600**	-63 800	270 500	**206 700**
	Spain	-13 900	128 100	114 200	-17 400	46 500	**29 100**	-41 200	286 400	**245 200**	-42 400	131 400	**89 000**
	Sweden	m	m	m	m	m	**m**	m	m	**m**	m	m	**m**
	Switzerland	m	m	m	m	m	**m**	-83 100	504 100	**421 000**	-111 000	175 100	**64 100**
	Turkey[2]	-6 500	505 100	498 600	-17 300	301 300	**284 000**	-13 700	468 000	**454 300**	-36 600	280 600	**244 000**
	United Kingdom	-53 500	143 600	90 100	-17 400	66 100	**48 700**	-68 200	359 100	**290 900**	-36 400	176 400	**140 000**
	United States	-37 400	151 700	114 300	-32 300	70 300	**38 000**	-83 000	732 800	**649 800**	-71 800	426 800	**355 000**
	OECD average	m	m	m	m	m	**m**	-48 000	383 700	**335 700**	-57 900	228 400	**170 500**
	EU23 average	m	m	m	m	m	**m**	-45 700	341 100	**295 400**	-59 400	239 600	**180 200**

Note: Values are based on the difference between men who attained a tertiary education compared with those who have attained an upper secondary education. Values have been rounded up to the nearest hundred. Direct cost to education does not include student loans.
Due to changes in the methodology, values in this edition of *Education at a Glance* cannot be compared to results from previous editions. See *Definitions* and *Methodology* sections for more information.
1. Year of reference 2015.
2. The probability of students having earnings refers to the employment rate from the LSO TRANS questionnaire instead of the share of earners from the LSO Earnings questionnaire.
3. Year of reference 2014.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A5.3b. Private/public costs and benefits for a woman attaining tertiary education, by level of tertiary education (2016)

As compared with a woman attaining upper secondary education, in equivalent USD converted using PPPs for GDP; future costs and benefits are discounted at a rate of 2%

		Short-cycle tertiary (ISCED 5)						Bachelor's, master's and doctoral or equivalent level (ISCED 6 to 8)					
		Private			Public			Private			Public		
		Total costs	Total benefits	Net financial returns	Total costs	Total benefits	Net financial returns	Total costs	Total benefits	Net financial returns	Total costs	Total benefits	Net financial returns
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	- 16 700	134 600	**117 900**	- 8 000	52 200	**44 200**	- 63 800	337 500	**273 700**	- 38 100	155 800	**117 700**
	Austria	- 42 600	197 500	**154 900**	- 69 600	116 300	**46 700**	- 54 400	315 000	**260 600**	- 88 200	220 300	**132 100**
	Belgium	m	m	**m**	m	m	**m**	- 33 500	229 900	**196 400**	- 56 300	257 400	**201 100**
	Canada	- 19 000	168 500	**149 500**	- 27 600	57 000	**29 400**	- 32 500	321 100	**288 600**	- 52 100	138 200	**86 100**
	Chile[1]	- 11 100	124 000	**112 900**	- 4 000	9 300	**5 300**	- 31 000	444 000	**413 000**	- 17 800	39 700	**21 900**
	Colombia	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Czech Republic[1,2]	m	m	**m**	m	m	**m**	- 44 900	203 100	**158 200**	- 40 500	85 900	**45 400**
	Denmark	- 6 500	135 900	**129 400**	- 41 700	83 000	**41 300**	- 15 100	195 500	**180 400**	- 96 300	126 500	**30 200**
	Estonia	a	a	**a**	a	a	**a**	- 16 000	164 600	**148 600**	- 52 400	43 400	**- 9 000**
	Finland	a	a	**a**	a	a	**a**	- 16 500	259 600	**243 100**	- 82 400	175 800	**93 400**
	France[1]	- 15 300	191 100	**175 800**	- 30 300	89 400	**59 100**	- 37 800	305 000	**267 200**	- 67 600	154 100	**86 500**
	Germany	m	m	**m**	m	m	**m**	- 34 200	229 700	**195 500**	- 84 600	179 000	**94 400**
	Greece	a	a	**a**	a	a	**a**	m	m	**m**	m	m	**m**
	Hungary[2]	- 24 700	84 300	**59 600**	- 18 200	42 500	**24 300**	- 37 300	220 100	**182 800**	- 42 200	110 800	**68 600**
	Iceland	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Ireland	- 11 700	246 600	**234 900**	- 23 300	75 200	**51 900**	- 20 600	464 500	**443 900**	- 41 100	229 400	**188 300**
	Israel	- 9 400	93 900	**84 500**	- 6 900	12 900	**6 000**	- 34 700	332 800	**298 100**	- 33 400	110 900	**77 500**
	Italy[1]	m	m	**m**	m	m	**m**	- 20 900	175 200	**154 300**	- 36 800	125 700	**88 900**
	Japan	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Korea	- 19 100	131 100	**112 000**	- 8 400	14 800	**6 400**	- 35 500	210 700	**175 200**	- 27 700	32 800	**5 100**
	Latvia	- 17 300	90 400	**73 100**	- 20 000	38 100	**18 100**	- 25 800	181 100	**155 300**	- 26 700	80 400	**53 700**
	Lithuania	a	a	**a**	a	a	**a**	m	m	**m**	m	m	**m**
	Luxembourg	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Mexico	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Netherlands[2,3]	- 29 500	197 200	**167 700**	- 28 000	126 400	**98 400**	- 61 900	316 800	**254 900**	- 72 800	317 700	**244 900**
	New Zealand	- 32 300	111 300	**79 000**	- 16 400	26 900	**10 500**	- 53 300	267 100	**213 800**	- 41 900	83 800	**41 900**
	Norway	- 17 500	105 500	**88 000**	- 36 900	52 400	**15 500**	- 30 600	304 900	**274 300**	- 93 500	142 500	**49 000**
	Poland[2]	m	m	**m**	m	m	**m**	- 27 300	287 600	**260 300**	- 39 800	101 100	**61 300**
	Portugal[2]	m	m	**m**	m	m	**m**	- 36 600	227 800	**191 200**	- 35 600	148 700	**113 100**
	Slovak Republic[2]	m	m	**m**	m	m	**m**	- 27 300	185 100	**157 800**	- 39 300	73 800	**34 500**
	Slovenia[2]	- 16 800	139 800	**123 000**	- 12 500	87 000	**74 500**	- 29 700	310 600	**280 900**	- 59 300	218 300	**159 000**
	Spain	- 10 600	72 900	**62 300**	- 17 400	15 200	**- 2 200**	- 33 900	318 300	**284 400**	- 42 400	120 500	**78 100**
	Sweden	m	m	**m**	m	m	**m**	m	m	**m**	m	m	**m**
	Switzerland	m	m	**m**	m	m	**m**	- 81 500	394 800	**313 300**	- 109 700	100 900	**- 8 800**
	Turkey[2]	- 2 400	427 900	**425 500**	- 16 400	231 900	**215 500**	- 5 200	540 800	**535 600**	- 34 600	286 000	**251 400**
	United Kingdom	- 48 500	99 800	**51 300**	- 15 200	48 200	**33 000**	- 60 800	297 900	**237 100**	- 33 300	132 900	**99 600**
	United States	- 29 000	159 400	**130 400**	- 29 800	55 900	**26 100**	- 64 400	474 200	**409 800**	- 66 300	215 300	**149 000**
	OECD average	m	m	**m**	m	m	**m**	- 36 800	293 600	**256 800**	- 53 500	145 100	**91 600**
	EU23 average	m	m	**m**	m	m	**m**	- 33 400	257 200	**223 800**	- 54 600	152 700	**98 100**

Note: Values are based on the difference between women who attained a tertiary education compared with those who have attained an upper secondary education. Values have been rounded up to the nearest hundred. Direct cost to education does not include student loans.
Due to changes in the methodology, values in this edition of *Education at a Glance* cannot be compared to results from previous editions. See *Definitions* and *Methodology* sections for more information.
1. Year of reference 2015.
2. The probability of students having earnings refers to the employment rate from the LSO TRANS questionnaire instead of the share of earners from the LSO Earnings questionnaire.
3. Year of reference 2014.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Indicator A6. How are social outcomes related to education?

Highlights

- Higher educational attainment is associated with greater social connectedness. The association is particularly striking for participation in cultural or sporting activities where, on average across OECD countries participating in the European Union Statistics on Income and Living Conditions (EU-SILC), participation for adults with tertiary education is above 90%, compared to less than 60% for those with below upper secondary education.
- Work-life balance is an important dimension of well-being. However, in contrast to social connectedness, higher educational attainment does not seem to be associated with a better equilibrium. In about half of countries with data, the difference in work-life balance by educational attainment is not statistically significant.
- Education may be a catalyst that enhances the motivation to read books and conversely frequent reading may raise educational aspirations. On average across OECD countries and economies participating in the Survey of Adult Skills (PIAAC), the percentage of frequent readers increases with each additional educational level of education.

Figure A6.1. Measures of social connections, by educational attainment (2015)

European Union Statistics on Income and Living Conditions (EU-SILC-2015), 25-64 year-olds, average



Note: Refer to the source table and Annex 3 for more information on the questions asked.
Social connection measures are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who responded positively to the question.
Source: OECD (2019), Table A6.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Promoting social cohesion, often reflected in levels of civic and social engagement, is a policy priority in OECD countries. Evidence indicates that in general, levels of civic participation are inadequate, posing a challenge for the maintenance and improvement of our societies. Education may play an important role in ensuring social cohesion by fostering the social and emotional skills that can contribute to enhancing social connections and protecting people from isolation. Adults' social networks comprise their family, friends, colleagues and, more widely, the community they live in. Social interactions are shaped by our social context and our household's socio-economic status, but when they complete further education people expand their social networks, increase their participation in the labour force (see Indicator A3) and ultimately benefit from the advantages of positive social inclusion, such as better health (VicHealth, 2010[1]).

Online social networks have been growing significantly in our societies and an increasing share of our personal interactions take place on line. In 2019, Facebook had 2.38 billion monthly active users representing over 30% of the estimated world population (Statista, 2019[2]; Worldometers, 2019[3]). The term "friend" has a different meaning in the virtual world where face-to-face interaction is not a prerequisite for friendship and the digital divide may prevent a share of the population from building this social capital, namely older and less educated adults.

Work-life balance is a highly topical and relevant aspect of social well-being and quality of life. As a contributor to job and family stress, excessive working hours are increasingly recognised as one of the major issues facing many societies today. Work-life balance is a core dimension of OECD's framework for measuring quality of life in the *Better Life Index* (OECD, 2013[4]), and is part of the framework adopted for measuring education and social outcomes in *Education at a Glance* (OECD, 2017[5]). It is therefore important to assess how educational attainment is associated with this social outcome which is a key determinant of well-being and life satisfaction.

Other findings

- Social connection measures related to personal ties, such as having someone to ask for help and getting together with friends, show a smaller gap by educational attainment than participation in cultural and sporting activities, social media, and formal volunteering.
- In most countries participating in the Survey of Adult Skills (PIAAC), there is a positive association between the level of educational attainment and the ability to work more flexible hours.
- Reading books infrequently is not always associated with a low literacy level. For example, in Japan the frequency of book reading is low while literacy proficiency is the highest among countries and economies participating in the Survey of Adult Skills (PIAAC).
- Data from the Survey of Adults Skills (PIAAC) show that educational attainment can affect job satisfaction through indirect effects. Even if in some cases educational attainment seems to have no direct effect on job satisfaction, mediating variables such as job complexity, income and autonomy at work may capture these indirect effects.

Note

The differences by educational attainment displayed in this indicator do not account for socio-economic status and other moderating or mediating factors. The educational attainment gradient should therefore not be interpreted as the effect of education on the social outcome measured.

Analysis

Social connections, by educational attainment

Participation in various social activities across OECD countries is higher on average for 25-64 year-olds who attained tertiary education than for their lower-educated peers. However, the advantage in social connectedness for individuals with higher education depends heavily on the type of activity measured. On average across OECD countries participating in EU-SILC, participation in cultural and sporting activities, in social media, and in formal volunteering is highly related to educational attainment. Over 90% of tertiary-educated adults participated in cultural and sporting activities in the 12 months prior to the survey while less than 60% of adults with below upper secondary education did so. This is the largest gap by educational attainment across the different domains of social connection measured (Figure A6.1).

On average across OECD countries taking part in EU-SILC, almost 80% of adults reported participation in sporting or cultural activities in the previous 12 months, with participation increasing with educational attainment in all countries. In contrast, less than one-third of adults reported daily active participation in social media, and one-quarter reported participating in formal voluntary activities in the 12 months prior to the survey. While there is still a clear tendency for more participation in formal volunteering and social media among those with higher levels of educational attainment, the percentage-point differences between attainment levels are smaller, which may be partly explained by the generally lower participation in these activities. In contrast, measures related to personal ties show very little difference by educational attainment; adults of all education levels were almost equally likely to get together with friends on a weekly basis. Similarly, the range across educational levels in the proportion of adults who have someone to ask for help (moral, material or financial) is less than 10 percentage points on average (Figure A6.1 and Table A6.1).

Participation in any sporting or cultural activities in the last 12 months, by educational attainment

The pattern emerging from OECD countries participating in EU-SILC is that tertiary-educated 25-64 year-olds are more likely to engage in sporting or cultural activities than their peers with lower educational attainment. On average, roughly 90% of those with a tertiary education participated in at least one sporting or cultural activity in the previous 12 months prior to the survey; the highest shares (98% and over) can be found in Finland, Iceland, Norway and Switzerland. In contrast, less than 80% of tertiary-educated adults in Greece and Italy participated in such activities. The participation rates of tertiary-educated adults in Greece and Italy are the same as or lower than participation rates for adults with below upper secondary education in Denmark, Iceland, Netherlands, Norway and Sweden. The gap in sporting or cultural engagement between those with a tertiary education and those with an upper secondary or post-secondary non-tertiary education tends to widen when fewer tertiary-educated adults participated in such activities. The difference reaches 36 percentage points in Poland, 33 in Hungary and 29 in Lithuania. Those without an upper secondary qualification are even less likely to participate, with rates ranging from 89% in Iceland to 21% in Hungary. Iceland has the least variation in participation by educational attainment, where the difference in participation between those with below upper secondary education and those with tertiary education is only 9 percentage points, compared to a gap of 36 percentage points on average (Figure A6.2).

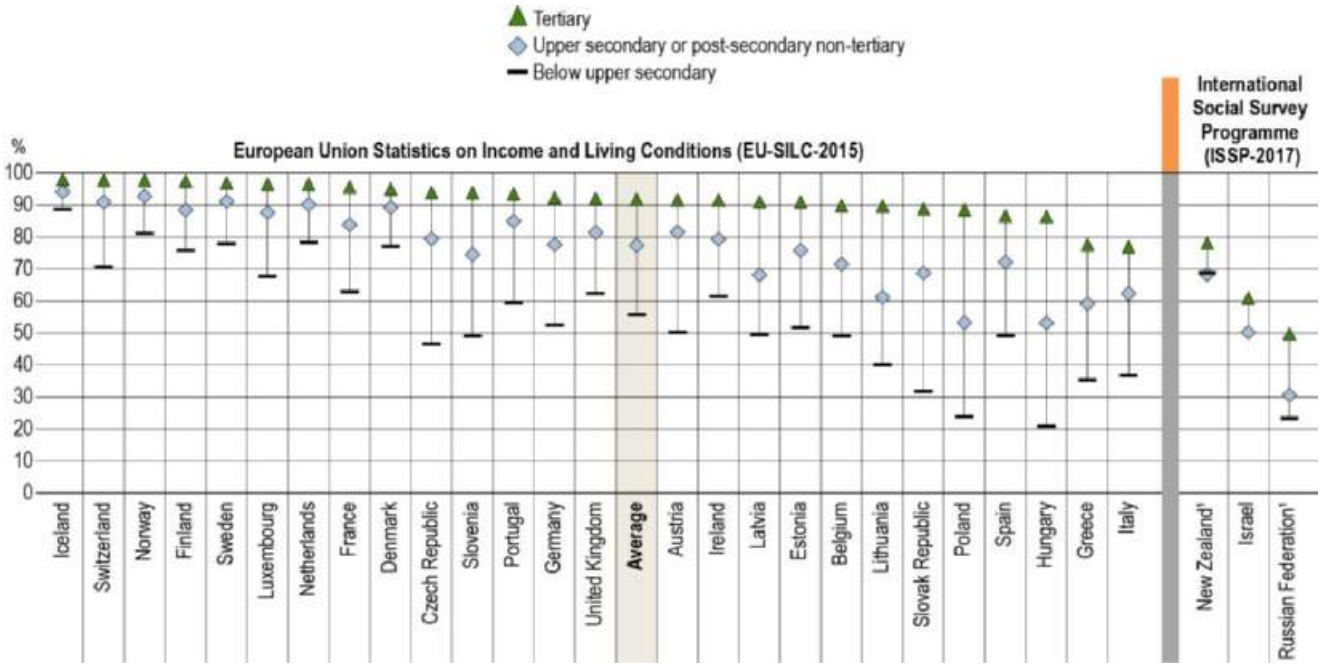
Getting together with friends at least once a week, by educational attainment

On average across OECD countries participating in EU-SILC, 25-64 year-olds with a tertiary education are more likely to meet friends on a weekly basis than adults with a lower educational attainment, but the average difference compared with those with an upper secondary or post-secondary non-tertiary education is only around 1 percentage point. The gap between tertiary-educated adults and those who have not completed upper secondary education is similar. The Netherlands and the Slovak Republic were the two countries where tertiary-educated adults were more likely to get together with friends at least once a week than those with an upper secondary or post-secondary non-tertiary education, both with a difference of about 7 percentage points.

Elsewhere, the gap was below 5 percentage points except in Finland where the situation is reversed: 65% of adults with upper secondary or post-secondary non-tertiary education reported getting together with friends at least once a week compared to only 55% of tertiary-educated adults (Table A6.1).

Figure A6.2. Participation in cultural or sporting activities in the last 12 months, by educational attainment (2015 or 2017)

European Union Statistics on Income and Living Conditions (EU-SILC-2015) and International Social Survey Programme (ISSP-2017), 25-64 year-olds



Note: Refer to the source table and Annex 3 for more information on the questions asked in the two surveys.
1. The distribution of educational attainment varies by 10-15 percentage points compared to data published in Indicator A1.
Countries are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who participated in any cultural or sporting activities at least once in the last 12 months.
Source: OECD (2019), Table A6.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Participation in formal voluntary activities, by educational attainment

Greater educational attainment is generally associated with participation in volunteering activities. Across OECD countries participating in EU-SILC, however, participation in formal voluntary activities varies widely even for people with the same educational level. The shares of tertiary-educated adults who volunteer span from 13% in Hungary and Latvia to 59% in Norway. Shares fall a little among adults with an upper secondary or post-secondary non-tertiary education, ranging from 5% in Hungary to 53% in Norway, while among adults without upper secondary education the shares range from 3% in Hungary to 33% in Denmark and the Netherlands. Volunteering thus appears more widespread in some countries than in others, but the percentage-point difference between the tertiary-educated and upper secondary-educated adults averaged 7 percentage points across OECD countries, similar to the 9 percentage-point gap on average between 25-64 year-olds who completed upper secondary education and those who did not (Table A6.1).

The countries showing the largest participation gap between tertiary-educated adults and adults with upper secondary or post-secondary non-tertiary qualification are Lithuania and the United Kingdom (15 percentage

points). In comparison, the difference between adults with upper secondary or post-secondary non-tertiary and those without upper secondary education is over 15 percentage points in Austria, Luxembourg, Norway and Switzerland (Table A6.1).

Having someone to ask for help, by educational attainment

This measure shows the least variation across educational levels. Regardless of their attainment, the great majority of people in the countries surveyed can rely on a social network of some kind, as they mostly have someone to ask for help. On average among OECD countries participating in EU-SILC, 97% of tertiary-educated adults reported having someone to ask for help, falling to 95% among adults with upper secondary or post-secondary non-tertiary education and to 90% among those who did not complete upper secondary education. Generally, countries with a large percentage of tertiary-educated adults who have someone to ask for help are also those where the shares for less highly educated adults are also relatively high. In the Czech Republic, Finland, Norway and the Slovak Republic almost all tertiary-educated adults have someone to ask for help and the difference for adults with upper secondary or post-secondary non-tertiary education amounts to just 1 percentage point (Table A6.1).

The largest variation in access to someone to ask for help is found between those who have an upper secondary or post-secondary non-tertiary education and those who do not. The difference amounts to at least 8 percentage points in Belgium, Luxembourg, the Netherlands and Switzerland (Table A6.1).

Participation in social media, by educational attainment

On average across OECD countries participating in EU-SILC, 23% of adults with below upper secondary education reported actively using social media on a daily basis. The share rises to 31% among adults with upper secondary or post-secondary non-tertiary education and to 36% among tertiary-educated adults. The greatest gap between adults with below upper secondary education and adults with tertiary education is seen in the Slovak Republic where 8% of adults with below upper secondary education reported daily active participation in social media, rising to 47% among tertiary-educated adults. A similar pattern is observed in Greece where the gap is also over 30 percentage points. In contrast, in Norway there is almost no difference by educational attainment, with 48% of adults with below upper secondary education reporting they actively participate in social media on a daily basis. This is the highest share for this level of educational attainment across OECD countries participating in EU-SILC and it is almost the same as the share among tertiary-educated adults in Norway (49%) (Table A6.1).

Work-life balance, by educational attainment

Existing data and research suggest a possible negative association between educational attainment and work-life balance, one that is moderated to a significant extent by other work-related, family-related or individual characteristics (Statistics Canada, 2016[6]; Konishi and Dufour, 2016[7]; Tausig and Fenwick, 2001[8]). Work-life balance is not traditionally included in school curricula which could explain why higher educational attainment is not positively associated with this important social outcome. Higher educational attainment leads to higher employment rates and higher earnings and is often associated with better health. It is also associated with greater social connections, but there does not seem to be a strong link between educational attainment and the ability to find a better equilibrium between their working life and their family life.

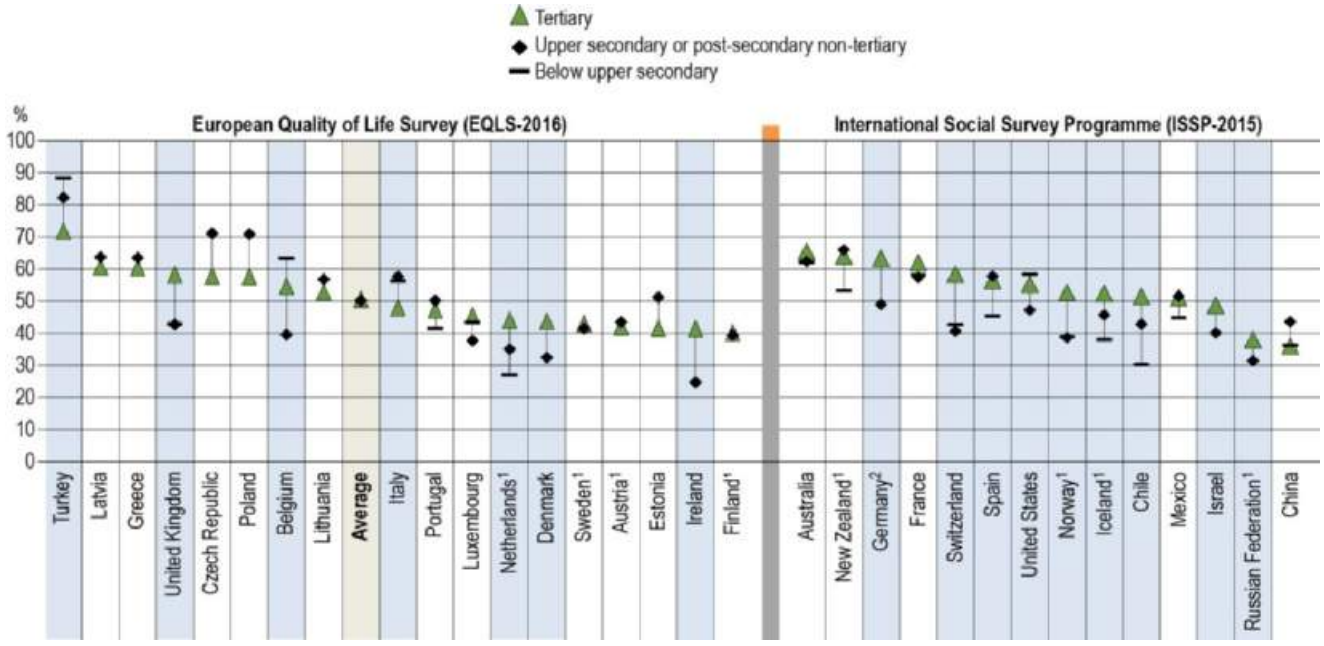
This section uses data from the European Quality of Life Survey (EQLS) and the International Social Survey Programme (ISSP) to assess the difference by educational attainment in the level to which people report that their work negatively interferes with their family life, and vice versa. It uses data from the Survey of Adult Skills (PIAAC) to assess job flexibility and the mean number of hours worked per week in relation to educational attainment. These two elements are not direct measures of people's satisfaction with their work-life balance, but they are important indicators to measure work intensity and how much time people have available outside work.

Work interferes with family life, by educational attainment

The results from the EQLS and ISSP show that the relationship between educational attainment and the impact of work on family life goes in different directions in different OECD member and partner countries. In Chile, Iceland and the Netherlands, the percentage of adults who report that their job negatively affects their family life rises with each level of educational attainment. In contrast, in Turkey higher educational attainment is associated with a smaller share of adults reporting a negative impact of work on family life. Furthermore, in about half of the countries with data, there is no statistically significant difference between any level of educational attainment measured. On average across the OECD countries that participated in the EQLS, 50% of adults with upper secondary or post-secondary non-tertiary education reported that over the 12 months preceding the survey it has been difficult for them to fulfil their family responsibilities because of the amount of time they spend at work, compared with 51% of those with tertiary education (Figure A6.3).

Figure A6.3. Job has a negative impact on family life, by educational attainment (2015 or 2016)

European Quality of Life Survey (EQLS-2016) and International Social Survey Programme (ISSP-2015), percentage of employed 25-64 year-olds who reported that their job negatively impacted their family life in the last 12 months



Note: Refer to the source table and Annex 3 for more information on the questions asked in the two surveys. Blue zone denotes statistically significant differences between some or all educational attainment levels.
1. The distribution of educational attainment varies by 10-15 percentage points compared to data published in Indicator A1.
2. Year of reference 2016.
Countries are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who reported that their job negatively impacted their family life in the last 12 months.
Source: OECD (2019), Table A6.2a. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977391

As Figure A6.3 shows, the variation between countries for the same level of educational attainment are generally more significant than the variation between levels of attainment within countries. This shows that, regardless of educational attainment, there is a wide variation across OECD member and partner countries in the share of adults who report that their job negatively affects their family life. For example, in Turkey, 88% of adults with below upper secondary education reported that it has been difficult for them to fulfil their family responsibilities

because of the amount of time they spend at work while the share for similarly educated adults in the Netherlands is 27%. By comparison, the largest difference by educational attainment within one country is in Belgium where the gap reaches 23 percentage points between adults with below upper secondary education and adults with upper secondary or post-secondary non-tertiary education (Figure A6.3).

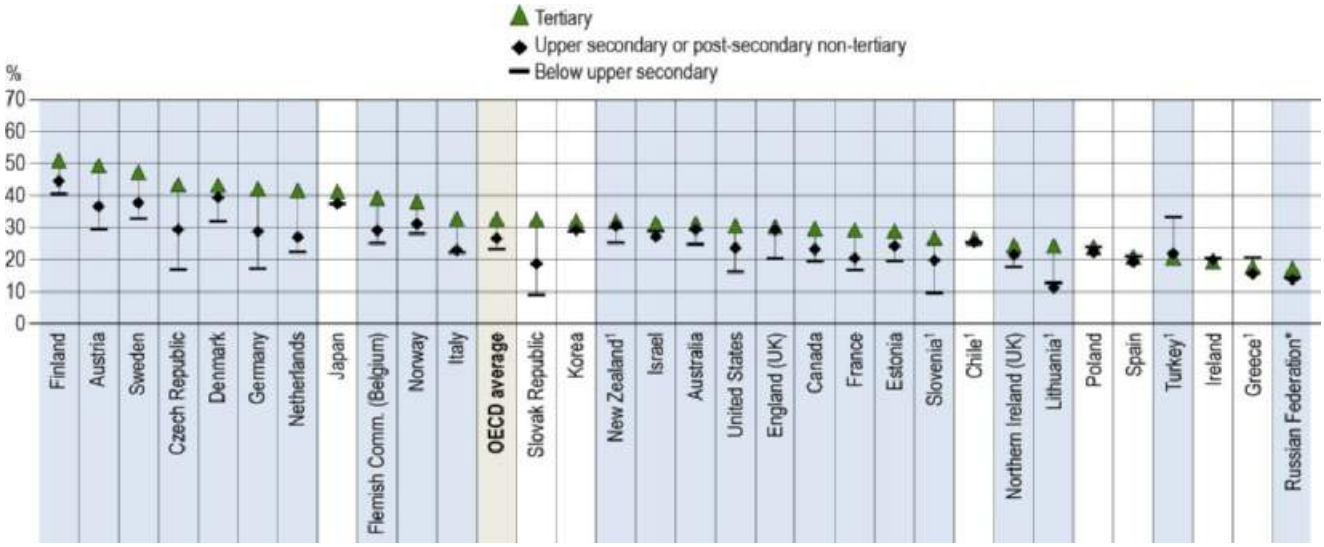
Family life interferes with work, by educational attainment

Adults were less likely to report that their family life negatively affected their job than the other way around. Less than half of adults reported that their family life interfered with their job in all OECD member and partner countries, with a few notable exceptions. For example, in Turkey, 82% of adults with below upper secondary education reported that, during the 12 months preceding the survey, they had several times experienced difficulty in concentrating at work because of their family responsibilities. The share is lower among those who had completed tertiary education (63%) but still higher than the share in any other OECD member or partner countries that participated in the EQLS or ISSP (Table A6.2a).

The relationship between educational attainment and the share of adults reporting that their family life negatively affects their job also goes in different directions across both OECD member and partner countries. The gap by educational attainment is generally low; in more than half of the OECD countries with available data, the gap between any level of educational attainment is 8 percentage points or less (Table A6.2a).

Figure A6.4. Job flexibility, by educational attainment (2012 or 2015)

Survey of Adult Skills (PIAAC), percentage of 25-64 year-olds who reported having a high or very high degree of flexibility over working hours in their main job



Note: Blue zone denotes statistically significant differences between some or all educational attainment levels.
1. Reference year is 2015; for all other countries and economies the reference year is 2012.
* See note on data for the Russian Federation in the *Source* section.
Countries and economies are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds who reported having a high or very high degree of flexibility over working hours in their main job.
Source: OECD (2019), Table A6.2b. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Job flexibility and intensity, by educational attainment

One area related to work-life balance where educational attainment seems to have a greater impact and in a more consistent direction, is job flexibility. Data from the Survey of Adult Skills (PIAAC) show that on average across OECD countries and economies, 23% of adults with below upper secondary education reported that they have a high or very high degree of flexibility over working hours in their main job. The proportion rises to 27% for those with upper secondary or post-secondary non-tertiary and 33% for those with tertiary education. The gap is particularly large in Austria, the Czech Republic, Germany, the Netherlands, the Slovak Republic and Slovenia where the difference across the different levels of educational attainment is over 15 percentage points (Figure A6.4).

Job intensity is another area that is related to work-life balance. This variable is also covered by the Survey of Adult Skills (PIAAC) which asks adults to report the number of hours per week they usually work in their main job. The average across OECD countries and economies ranges from 38 hours among adults with below upper secondary education to 39 hours among adults with upper secondary or post-secondary non-tertiary education and among adults with tertiary education, but this again masks results going in opposite directions. For example, in Greece those with a tertiary qualification reported working 40 hours per week while those who did not complete upper secondary education reported working 44 hours per week. In contrast, in Austria and Germany, those with a tertiary qualification reported working 40 hours per week and those who did not complete upper secondary education reported working 35 hours per week or less (Table A6.2b).

Box A6.1. Frequency of reading books and educational attainment (2012 or 2015)

There is a robust body of evidence that activities requiring focused attention, such as reading books, are declining, while activities that encourage on multitasking, such as instant messaging, are increasing (Levine, Waite and Bowman, 2007[9]). Poor academic performance can be predicted by higher levels of smartphone use (Beland and Murphy, 2016[10]), media multitasking (Junco, 2012[11]; Levine, Waite and Bowman, 2007[9]), social media networking (Junco, 2012[12]) and general electronic media usage (Jacobsen and Forste, 2011[13]; Junco and Cotten, 2012[14]). On the other hand, the evidence indicates a strong relationship between regularly reading books and higher literacy skills (OECD, 2010[15]).

Reading is an important gateway to personal development, and to social, economic and civic life (Holden, 2004[16]). The main outcomes of "reading for pleasure or empowerment" reported by adults are enjoyment, relaxation, empathy, knowledge, relatedness, community cohesion and increasing social capital (The Reading Agency, 2015[17]).

Although the association between levels of education and reading books in everyday life is less established, especially in international comparisons, the data collected by the Survey of Adult Skills (PIAAC) show its existence and the strength of this association.

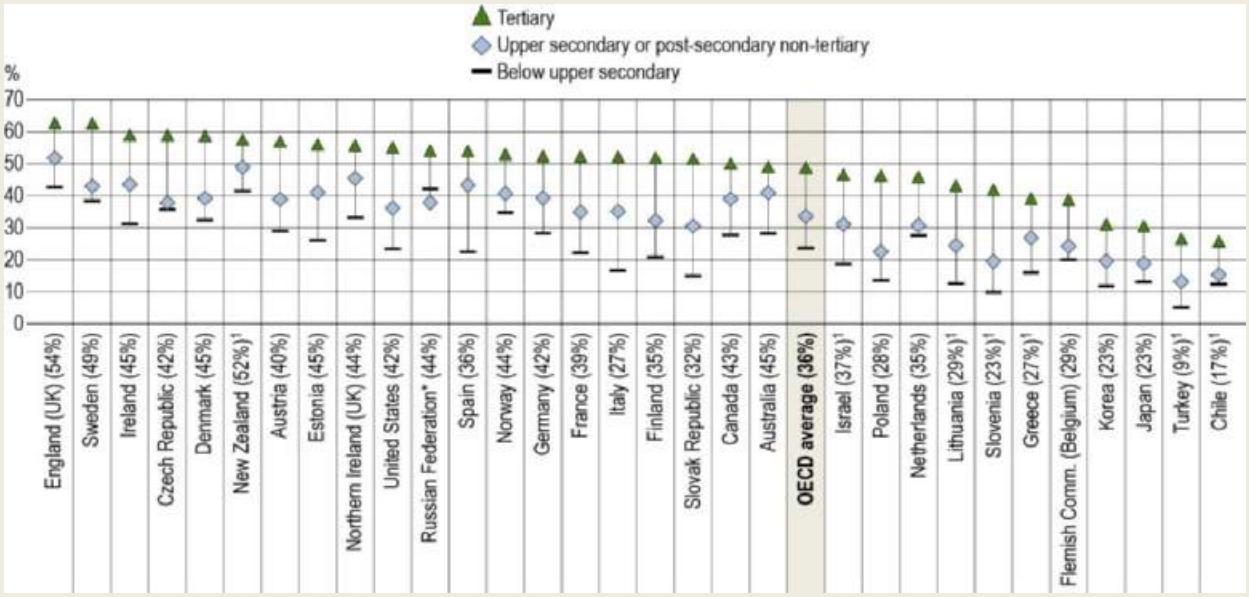
On average across participating OECD countries and economies, the percentage of frequent readers increases with each additional educational level of education. Chile, the Czech Republic, the Netherlands, Sweden and the Russian Federation are the only countries where no statistically significant differences were found in the percentage of frequent readers between adults with below upper secondary education and adults with upper secondary or post-secondary non-tertiary education. The difference between adults with upper secondary or post-secondary non-tertiary education and adults with tertiary education is generally larger and it is statistically significant in all participating countries and economies (Figure A6.a).

In most countries and economies, the relationship between frequency of reading and educational attainment also remains strong in the employed population. Gender, age and literacy proficiency are among the important factors associated with frequency of reading. Women read more than men in all countries and economies and across all attainment levels. The relationship between age and frequency of reading differs across countries

and economies but the general trend shows a higher share of frequent readers among 45-64 year-olds than among 25-44 year-olds (Table A6.a, available on line).

Figure A6.a. Adults who read books at least once a week, by educational attainment (2012 or 2015)

Survey of Adult Skills (PIAAC), 25-64 year-old non-students



Note: The value in parentheses represents the total percentage of adults who read books at least once a week, regardless of educational attainment. All countries and economies have statistically significant differences between some or all educational attainment levels.
1. Reference year is 2015; for all other countries and economies the reference year is 2012.
* See note on data for the Russian Federation in the *Source* section.
Countries and economies are ranked in descending order of the percentage of adults with tertiary education who read books in everyday life at least once a week.
Source: OECD (2019), Table A6.a, available on line. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

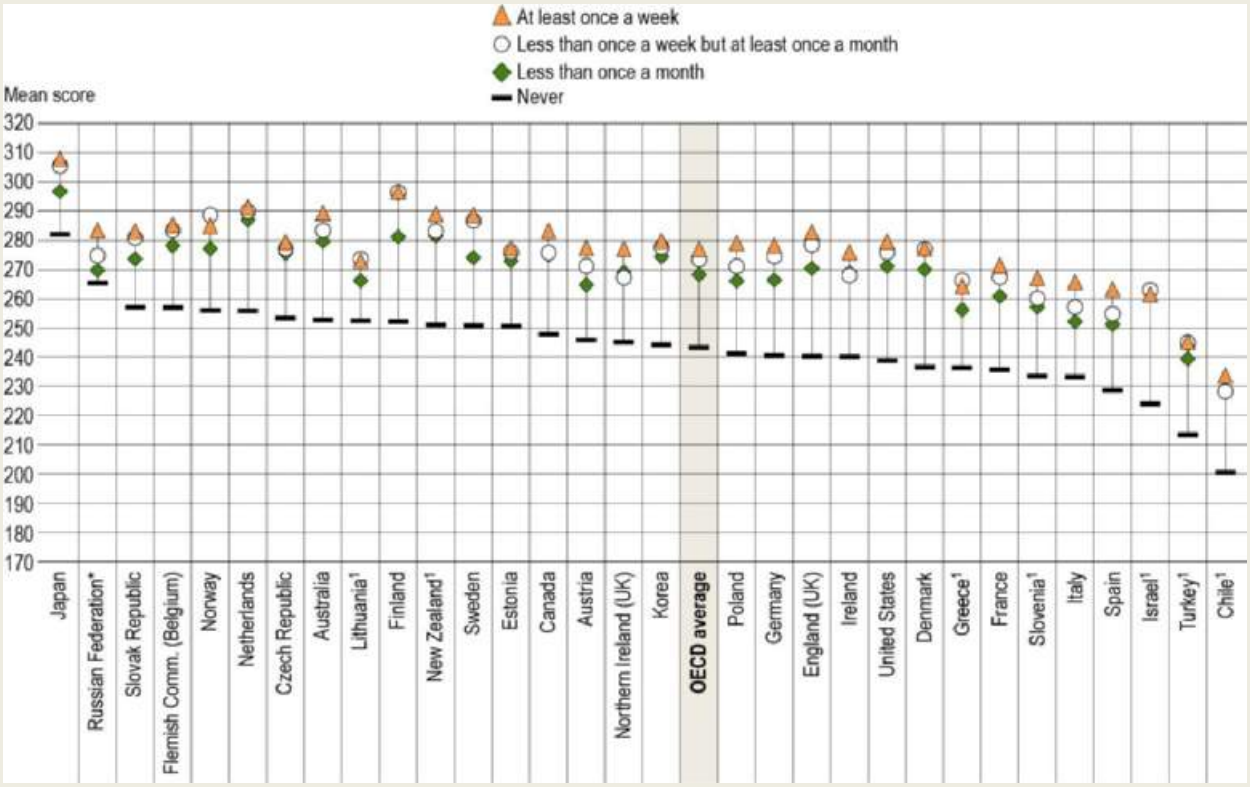
StatLink https://doi.org/10.1787/888933977429

Figure A6.b shows that the largest difference in literacy proficiency is between those who do not read books in everyday life and those who do (at any frequency). On average across OECD countries and economies, adults who reported never reading books in everyday life have a mean literacy score of 243. This score rises to 269 for those who reported a frequency of less than once a month, 273 for those who reported a frequency of less than once a week but at least once a month, and 277 for those who reported reading books in everyday life at least once a week (Figure A6.b).

The evidence shows different associations in different countries and economies between frequency of reading books and literacy proficiency. For example, in Chile and Turkey both variables are low. However, in Japan, the frequency of book reading is low while literacy proficiency is the highest among participating countries and economies. In contrast, England (United Kingdom) and New Zealand have the highest frequency of book reading but literacy proficiency scores below that of Japan (Figure A6.a and Figure A6.b). Some countries have policies to promote reading, for example, England (United Kingdom) and New Zealand have active organisations that promote reading. Because of both low frequency of reading and low literacy proficiency, Chile recently implemented a national programme to promote reading from the start of primary education (*I Read First programme*).

Figure A6.b. Mean literacy proficiency score, by frequency of reading books (2012 or 2015)

Survey of Adult Skills (PIAAC), 25-64 year-old non-students



Note: The difference between the mean literacy proficiency score for adults who report never reading books and those who report reading books less than once a month is statistically significant in all countries and economies, except in the Russian Federation.
1. Reference year is 2015; for all other countries and economies the reference year is 2012
* See note on data for the Russian Federation in the *Source* section.
Countries and economies are ranked in descending order of the mean literacy score of those who reported that the frequency of reading books in everyday life is "Never".
Source: OECD (2019). Table A6.b, available on line. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977448

To conclude, those who are more educated tend to read frequently but this does not imply a causal relationship between educational attainment and frequent reading in everyday life. However, what can be assumed is a mutually reinforcing relationship between reading performance and the frequency of reading (OECD, 2010[15]) and consequently a mutually reinforcing relationship between frequency of reading and education. Reading books in everyday life for pleasure or empowerment is a matter of choice, and education may be a catalyst that enhances the motivation to read while, conversely, frequent reading may raise educational aspirations.

Box A6.2. Job satisfaction and structural equation modelling, by educational attainment (2012 or 2015)

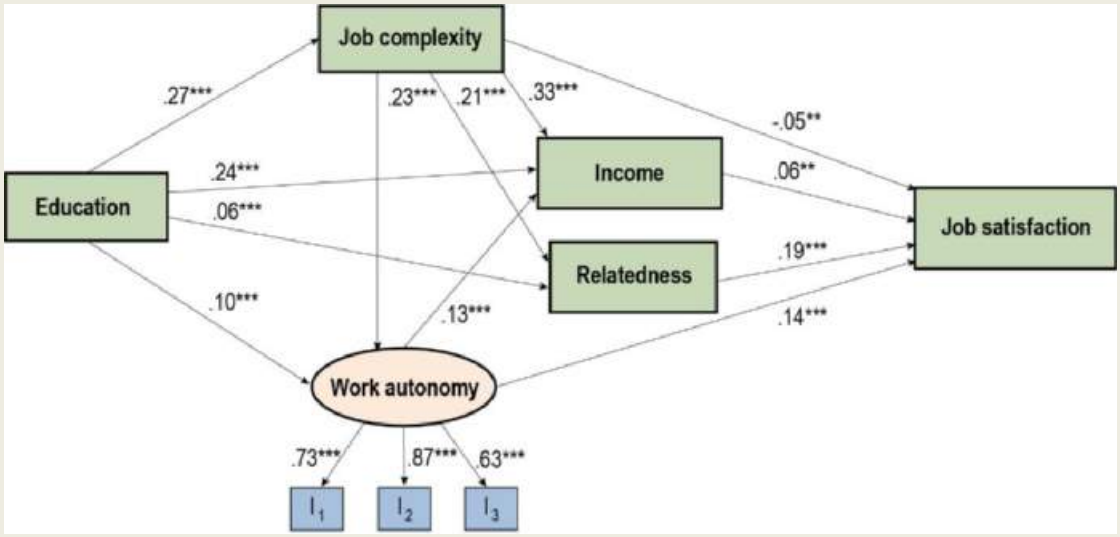
Analysing the indirect impact of education

The causal effect of education on social outcomes is often analysed using regression analyses where education is a predictor and the coefficient represents its impact on an outcome. This approach may not take into account that education can also affect outcomes through mediating factors. With regards to job satisfaction for instance, where previous research on the direct effects of education has provided inconclusive results, estimating indirect effects may provide additional insight (Fabra and Camisón, 2009[18]).

The possible relevance of indirect relations between education and job satisfaction can be illustrated through the development of a structural equation model, using data from the Survey of Adult Skills (PIAAC). In this model, it is assumed that there is no direct effect of educational attainment on job satisfaction, but education may have an indirect effect by affecting working and employment conditions, which in turn are related to job satisfaction. Variables representing these conditions are job complexity, income, the frequency of exchanges between colleagues (relatedness) and work autonomy. It is also assumed that single predictors of job satisfaction are inter-related. Figure A6.c shows the resulting path diagram of the indirect effects of education on job satisfaction, using New Zealand as an example. Arrows represent the effects of each variable. The arrow numbers specify the standardised coefficients of these effects (Figure A6.c).

Figure A6.c. Model with indirect effects of education on job satisfaction for New Zealand (2015)

Survey of Adult Skills (PIAAC)



Note: For work autonomy three indicators were available, thus it was measured as a latent variable indicated by the freedom to determine the sequence of task (I1), of the way it can be done (I2) and the freedom to determine the speed (I3). Education was measured by ISCED levels, job complexity by frequency of complex problems at work, relatedness by frequency of learning exchange between staff, and income by percentile ranks. The effects are standardised. *** indicates p=0.001, ** indicates p=0.05.

Source: OECD calculations using data from the Survey of Adult Skills (PIAAC). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977467

Although there is no arrow from education to job satisfaction (no direct effect), it can be seen that there are various indirect paths from education to job satisfaction via different variables. Among these variables, different paths from education to job satisfaction are possible, with effects of different magnitude (Figure A6.c).

The consideration of indirect effects helps to better understand the pathways through which a variety of working and employment conditions can influence job satisfaction. For example, in the model for New Zealand, education has a greater influence on job complexity than on work autonomy, but work autonomy in turn has a positive direct effect on job satisfaction, while job complexity does not. However, the analysis of indirect effects in the model shows that in fact job complexity does have an indirect effect on work satisfaction through its effect on income, work autonomy and relatedness (Figure A6.c).

The structural equation model allows the total effects to be calculated by considering all the direct and indirect effects. Education and job satisfaction can therefore be related by taking into account the indirect effects. Table A6.c displays the resulting total effects of the model variables in Korea, New Zealand and the Slovak Republic. For these countries, education indirectly affects job satisfaction. However, the inter-relations of the variables can differ in different countries, highlighting the importance of taking country contexts into account when producing or reviewing evidence for making policy (Table A6.c).

Table A6.c. Total effects of variables on job satisfaction (2012 or 2015)

Survey of Adult Skills (PIAAC)

Variables	Slovak Republic	Korea	New Zealand
Income	0.07***	0.11***	0.06**
Job complexity	0.09***	0.07***	0.04**
Relatedness	0.15***	0.11***	0.19***
Work autonomy	0.21***	0.15***	0.15***
Education	0.11***	0.10***	0.05***

Note: There is no variance homogeneity of variables over countries. Thus standardised effects are not directly comparable over countries. *** indicates p=0.001, ** indicates p=0.05.
Source: OECD calculations using data from the Survey of Adult Skills (PIAAC). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

The results in Table A6.c show that education has a positive total effect on job satisfaction overall in the countries examined. Considering indirect effects allows more options for modelling the relationships between variables and can lead to different results than when only direct effects are analysed. The results show it is important to determine precisely the impact of variables and consider indirect effects when developing related policy measures, to avoid drawing incorrect conclusions about causal inter-relations.

Definitions

Age groups: Adults refer to 25-64 year-olds.

Educational attainment refers to the highest level of education reached by a person.

Levels of education: See the *Reader's Guide* at the beginning of this publication for a presentation of all ISCED 2011 levels.

The previous classification, ISCED-97, is used for the analyses based on the Survey of Adult Skills (PIAAC): **Below upper secondary** corresponds to ISCED-97 levels 0, 1, 2 and 3C short programmes; **upper secondary**

or post-secondary non-tertiary corresponds to ISCED-97 levels 3A, 3B, 3C long programmes, and level 4; and **tertiary** corresponds to ISCED-97 levels 5A, 5B and 6.

Methodology

For the 2016 European Quality of Life Survey (EQLS) and the 2015 and 2017 International Social Survey Programme (ISSP), percentages of adults for each educational attainment level were compared at a country level with their respective percentages in Indicator A1. Following consultations with countries, data on educational attainment were recoded to improve compatibility with the levels in Indicator A1 for the following surveys and countries:

- ISSP 2017: Israel and the Russian Federation.
- ISSP 2015: Chile, France, Israel, the Russian Federation and the United States.

See Annex 3 (https://doi.org/10.1787/f8d7880d-en) for more information on the discrepancies in the survey sample distribution.

Source

Data from the EU-SILC 2015 module on social and cultural participation and material deprivation provided evidence on social connections for European OECD member countries.

Data from ISSP 2017 provided evidence on social connections for non-European OECD member and partner countries (ISSP Research Group, 2019[19]).

Data from EQLS provided evidence on work-life balance for European OECD member countries (Eurofound, 2018[20]).

Data from ISSP 2015 provided evidence on work-life balance for European OECD member countries and non-European OECD member and partner countries (ISSP Research Group, 2017[21]).

Data from the OECD Programme for the International Assessment of Adult Competencies (the Survey of Adult Skills [PIAAC]) provided evidence on job intensity and flexibility, frequency of book reading by educational attainment, and job satisfaction by educational attainment.

Note regarding data from the Russian Federation in the Survey of Adult Skills (PIAAC)

The sample for the Russian Federation does not include the population of the Moscow municipal area. The data published, therefore, do not represent the entire resident population aged 16-65 in the Russian Federation but rather the population of the Russian Federation excluding the population residing in the Moscow municipal area. More detailed information regarding the data from the Russian Federation as well as that of other countries can be found in the *Technical Report of the Survey of Adult Skills*, Second Edition (OECD, 2016[22]).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator A6 Tables

Table A6.1 Social connections, by educational attainment (2015 or 2017)

Table A6.2a Work-life balance, by educational attainment (2015 or 2016)

Table A6.2b Job intensity and flexibility, by educational attainment (2012 or 2015)

WEB Table A6.a Adults who read books at least once a week, by labour-force status, gender, age and educational attainment (2012 or 2015)

WEB Table A6.b Mean literacy proficiency score, by educational attainment and frequency of reading books (2012 or 2015)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980887

Table A6.1. Social connections, by educational attainment (2015 or 2017)

European Union Statistics on Income and Living Conditions (EU-SILC-2015) and International Social Survey Programme (ISSP-2017), 25-64 year-olds

		European Union Statistics on Income and Living Conditions (EU-SILC-2015)														
		Adults who participated in any cultural or sporting activities in the last 12 months			Adults who get together with friends living outside their household at least once a week			Adults who participated in formal voluntary activities in the last 12 months (any unpaid non-compulsory work for or through an organisation, a formal group or a club)			Adults who have someone to ask for help (moral, material or financial)			Adults who actively participate in social media on a daily basis		
		Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary
		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
		(1)	(3)	(5)	(9)	(11)	(13)	(17)	(19)	(21)	(25)	(27)	(29)	(33)	(35)	(37)
OECD	Countries															
	Austria	50	82	92	45	48	51	15	31	36	91	96	97	24	32	36
	Belgium	49	72	90	59	61	62	12	18	28	85	93	95	27	38	38
	Czech Republic	47	79	94	37	41	45	5	12	19	94	98	99	15	19	33
	Denmark	77	89	95	38	33	37	33	39	43	91	95	98	36	41	45
	Estonia	52	76	91	46	41	40	10	15	23	89	92	96	22	25	31
	Finland	76	88	98	65	65	55	26	35	43	98	98	99	28	39	44
	France	63	84	96	45	47	44	16	23	29	89	92	97	13	18	19
	Germany	52	78	92	44	44	48	15	28	35	91	97	98	25	23	25
	Greece	35	59	78	78	81	83	9	12	17	95	96	97	11	33	47
	Hungary	21	53	86	53	50	51	3	5	13	95	97	98	9	21	34
	Iceland	89	94	98	30	30	30	25	36	42	93	96	99	37	31	37
	Ireland	61	79	92	53'	51'	50'	20'	27'	38'	95'	95'	97'	28'	46'	50'
	Italy	37	62	77	56	62	64	9	14	17	82	89	92	16	28	37
	Latvia	49	68	91	39	32	32	5	6	13	86	92	95	14	16	28
	Lithuania	40	61	90	40	28	27	8	14	29	91	97	99	8	11	23
	Luxembourg	68	88	97	57	54	56	23	41	46	79	89	93	33	39	37
	Netherlands	78	90	97	47	49	57	33	39	50	85	93	96	36	44	43
	Norway	81	93	98	64	64	64	31	53	59	93	98	99	48	48	49
	Poland	24	53	89	21'	19'	22'	6'	12'	26'	92'	95'	99'	5'	12'	26'
	Portugal	60	85	94	69	72	70	6	12	17	87	92	96	14	39	39
	Slovak Republic	32	69	89	49	55	62	5	7	14	92	98	99	8	27	47
	Slovenia	49	75	94	50	55	54	19	30	39	93	96	98	11	19	22
	Spain	49	72	87	66	69	72	7	11	16	95	97	98	23	38	40
	Sweden	78	91	97	62	62	63	27	38	40	94	98	98	38	45	45
	Switzerland	71	91	98	54	58	59	19	38	43	87	96	97	27	24	24
	United Kingdom	62	81	92	48'	51'	50'	12'	18'	33'	88'	94'	94'	34'	45'	44'
	Average	56	77	92	51	51	52	15	24	31	90	95	97	23	31	36

		International Social Survey Programme (ISSP-2017)														
		Adults who participated in groups or associations for leisure, sports or culture in the past 12 months			Adults who have contact with a close friend at least once a week, either face-to-face or by phone, Internet or any other communication device			Adults who took part in the activities of charitable or religious organisations that do voluntary work in the past 12 months			Adults who have someone to help with a household or a garden job they are unable to do themselves			Adults who mostly have contact with their family members and close friends through text messages, mobile phones or other Internet-based communication devices		
		Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary
		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
		(1)	(3)	(5)	(9)	(11)	(13)	(17)	(19)	(21)	(25)	(27)	(29)	(33)	(35)	(37)
OECD	Countries															
	Israel	c	50	61	75	79	79	c	27	38	88	92	93	51	45	53
	New Zealand[1]	69	68	78	62	69	66	44	45	56	95	97	98	44	48	49
Partner	Russian Federation[1]	23	31	50	77	73	78	6	10	15	97	96	96	35	29	36

Note: Additional columns showing data not disaggregated by level of educational attainment are available for consultation on line along with standard errors for data from the International Social Survey Programme (ISSP-2017) (see StatLink below).

1. The distribution of educational attainment varies by 10-15 percentage points compared to data published in Indicator A1.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787888933977296

Table A6.2a. Work-life balance, by educational attainment (2015 or 2016)

European Quality of Life Survey (EQLS-2016) and International Social Survey Programme (ISSP-2015), employed 25-64 year-olds

		European Quality of Life Survey (EQLS-2016)															
		Adults who reported that over the last 12 months it has been difficult for them to fulfil their family responsibilities because of the amount of time they spend at work (every day to several times a year)								Adults who reported that over the last 12 months it has been difficult for them to concentrate at work because of their family responsibilities (every day to several times a year)							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Countries																
OECD	Austria[1]	c	c	43	(3.4)	42	(3.4)	43	(2.4)	c	c	22	(2.7)	22	(2.6)	22	(1.8)
OECD	Belgium	63	(7.4)	40	(4.2)	55	(4.3)	50	(2.8)	30	(6.9)	23	(3.6)	28	(3.6)	26	(2.4)
OECD	Czech Republic	c	c	71	(2.8)	58	(6.6)	68	(2.7)	c	c	45	(3.3)	39	(6.5)	44	(2.9)
OECD	Denmark	c	c	32	(3.4)	44	(3.7)	39	(2.5)	c	c	25	(3.3)	24	(3.4)	24	(2.2)
OECD	Estonia	c	c	51	(3.5)	42	(4.3)	49	(2.7)	c	c	26	(3.1)	25	(3.8)	26	(2.4)
OECD	Finland[1]	c	c	39	(5.2)	40	(3.6)	39	(2.8)	c	c	22	(4.4)	26	(3.3)	25	(2.5)
OECD	Greece	c	c	64	(3.6)	60	(4.9)	64	(2.7)	c	c	41	(3.6)	42	(5.0)	44	(2.8)
OECD	Ireland	c	c	25	(4.1)	41	(4.1)	35	(2.8)	c	c	17	(3.3)	31	(4.1)	26	(2.7)
OECD	Italy	56	(4.3)	58	(2.7)	48	(3.8)	55	(2.0)	35	(4.2)	36	(2.6)	25	(3.1)	33	(1.8)
OECD	Latvia	c	c	64	(4.1)	61	(4.8)	62	(3.0)	c	c	43	(4.4)	38	(4.8)	42	(3.2)
OECD	Lithuania	c	c	57	(5.0)	53	(4.4)	55	(3.2)	c	c	36	(5.0)	35	(4.2)	35	(3.1)
OECD	Luxembourg	43	(5.1)	38	(4.0)	45	(3.7)	43	(2.4)	26	(4.9)	21	(3.3)	20	(3.0)	22	(2.0)
OECD	Netherlands[1]	27	(5.7)	35	(4.0)	44	(3.4)	39	(2.4)	13	(4.3)	16	(3.3)	20	(2.7)	18	(1.9)
OECD	Poland	c	c	71	(3.3)	58	(6.0)	67	(2.9)	c	c	48	(3.6)	43	(6.1)	47	(3.0)
OECD	Portugal	41	(4.3)	50	(4.6)	47	(5.0)	46	(2.6)	29	(4.1)	37	(4.5)	36	(4.8)	34	(2.5)
OECD	Sweden[1]	c	c	41	(3.9)	43	(3.1)	42	(2.4)	c	c	21	(3.3)	23	(2.6)	22	(2.0)
OECD	Turkey	88	(2.8)	82	(3.3)	72	(4.3)	81	(2.0)	82	(3.7)	78	(3.5)	63	(4.9)	75	(2.4)
OECD	United Kingdom	43	(5.0)	43	(3.9)	58	(3.7)	49	(2.4)	34	(4.9)	26	(3.5)	30	(3.5)	29	(2.2)
	Average	m	m	50	(0.9)	51	(1.0)	51	(0.6)	m	m	32	(0.9)	32	(1.0)	33	(0.6)

		International Social Survey Programme (ISSP-2015)															
		Adults who reported feeling that the demands of their job interfere with their family life (always to sometimes)								Adults who reported feeling that the demands of their family life interfere with their job (always to sometimes)							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Countries																
OECD	Australia	62	(6.6)	62	(4.4)	66	(3.1)	63	(2.6)	26	(6.3)	36	(4.4)	39	(3.2)	35	(2.6)
OECD	Chile	30	(5.4)	43	(4.9)	51	(5.8)	43	(3.1)	18	(3.7)	23	(3.6)	38	(5.9)	27	(2.8)
OECD	France	58	(4.8)	57	(3.7)	62	(2.8)	60	(2.1)	18	(4.2)	25	(3.2)	28	(2.6)	25	(1.8)
OECD	Germany[2]	c	c	49	(2.2)	63	(2.7)	54	(1.7)	c	c	24	(1.9)	31	(2.6)	27	(1.5)
OECD	Iceland[1]	38	(5.1)	46	(3.7)	52	(2.6)	48	(1.9)	22	(4.3)	29	(3.4)	43	(2.6)	36	(1.9)
OECD	Israel	c	c	40	(3.2)	49	(2.6)	44	(1.9)	c	c	35	(3.1)	43	(2.6)	39	(1.9)
OECD	Mexico	45	(3.0)	51	(4.3)	51	(5.1)	48	(2.2)	35	(2.8)	36	(4.1)	32	(4.8)	35	(2.1)
OECD	New Zealand[1]	53	(6.6)	66	(4.9)	64	(4.0)	60	(2.5)	30	(6.6)	32	(5.0)	44	(4.2)	38	(2.6)
OECD	Norway[1]	39	(3.7)	39	(3.4)	53	(2.1)	47	(1.6)	16	(2.9)	19	(2.9)	28	(1.9)	24	(1.4)
OECD	Spain	45	(2.8)	58	(3.7)	56	(3.0)	52	(1.8)	22	(2.3)	32	(3.5)	34	(2.9)	29	(1.6)
OECD	Switzerland	43	(5.2)	41	(2.6)	58	(3.1)	47	(1.9)	31	(4.8)	36	(2.6)	42	(3.1)	38	(1.8)
OECD	United States	58	(7.3)	47	(2.9)	55	(2.9)	52	(2.0)	41	(7.3)	34	(2.7)	35	(2.7)	35	(1.9)
Partners	China	36	(2.9)	44	(4.6)	36	(3.8)	38	(2.1)	30	(2.7)	26	(4.1)	19	(3.1)	26	(1.9)
Partners	Russian Federation[1]	c	c	31	(3.7)	38	(2.0)	37	(1.7)	c	c	17	(3.0)	21	(1.7)	20	(1.4)

1. The distribution of educational attainment varies by 10-15 percentage points compared to data published in Indicator A1.
2. Year of reference 2016.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933977315

Table A6.2b. Job intensity and flexibility, by educational attainment (2012 or 2015)

Survey of Adult Skills (PIAAC), employed 25-64 year-olds

		Mean number of hours worked per week in the main job among employed 25-64 year-olds								Percentage of employed 25-64 year-olds who report having a high or very high flexibility of working hours in their main job							
		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total		Below upper secondary		Upper secondary or post-secondary non-tertiary		Tertiary		Total	
		Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	**Countries**																
	Australia	36	(0.5)	39	(0.4)	38	(0.3)	38	(0.2)	25	(1.7)	29	(1.6)	31	(1.2)	29	(0.7)
	Austria	35	(0.6)	38	(0.3)	40	(0.4)	38	(0.2)	30	(2.7)	37	(1.3)	49	(1.7)	38	(1.0)
	Canada	40	(0.6)	38	(0.2)	39	(0.2)	39	(0.1)	19	(1.7)	23	(1.1)	30	(0.9)	27	(0.7)
	Chile[1]	39	(0.8)	39	(0.7)	39	(0.6)	39	(0.4)	25	(2.5)	26	(2.4)	27	(2.1)	26	(1.4)
	Czech Republic	40	(0.9)	43	(0.3)	43	(0.4)	43	(0.2)	17	(4.5)	29	(1.6)	43	(3.6)	32	(1.4)
	Denmark	35	(0.5)	38	(0.3)	38	(0.2)	37	(0.2)	32	(2.5)	39	(1.3)	43	(1.2)	40	(0.7)
	Estonia	40	(0.5)	40	(0.2)	39	(0.2)	40	(0.1)	20	(1.9)	24	(0.9)	29	(1.1)	26	(0.6)
	Finland	39	(0.5)	38	(0.3)	38	(0.2)	38	(0.2)	41	(2.9)	45	(1.6)	51	(1.2)	47	(0.8)
	France	35	(0.3)	37	(0.2)	38	(0.2)	37	(0.2)	17	(1.2)	20	(0.7)	29	(1.1)	23	(0.5)
	Germany	33	(1.3)	36	(0.3)	40	(0.4)	37	(0.2)	17	(3.0)	29	(1.2)	42	(1.3)	33	(0.9)
	Greece[1]	44	(0.9)	43	(0.5)	40	(0.5)	42	(0.3)	21	(2.6)	16	(1.3)	18	(1.8)	18	(1.1)
	Ireland	34	(0.7)	36	(0.4)	37	(0.3)	36	(0.3)	21	(1.9)	20	(1.4)	19	(1.1)	20	(0.8)
	Israel[1]	40	(0.9)	41	(0.5)	41	(0.4)	41	(0.2)	29	(2.9)	27	(1.5)	31	(1.3)	30	(1.0)
	Italy	39	(0.5)	39	(0.4)	37	(0.6)	39	(0.3)	22	(1.8)	23	(1.3)	33	(2.0)	24	(1.1)
	Japan	40	(0.8)	40	(0.4)	42	(0.3)	41	(0.2)	37	(3.3)	38	(1.4)	41	(1.2)	39	(0.8)
	Korea	44	(0.7)	44	(0.5)	43	(0.3)	43	(0.3)	29	(2.1)	29	(1.3)	32	(1.1)	30	(0.8)
	Lithuania[1]	40	(0.9)	40	(0.2)	38	(0.3)	40	(0.2)	13	(4.1)	11	(0.9)	24	(1.5)	16	(0.8)
	Netherlands	32	(0.4)	34	(0.3)	35	(0.3)	34	(0.2)	22	(1.6)	27	(1.2)	42	(1.4)	32	(0.9)
	New Zealand[1]	38	(0.6)	38	(0.5)	38	(0.3)	38	(0.2)	25	(1.7)	30	(1.7)	32	(1.1)	30	(0.8)
	Norway	35	(0.5)	36	(0.3)	38	(0.2)	37	(0.2)	28	(2.1)	31	(1.3)	38	(1.1)	34	(0.6)
	Poland	41	(0.9)	42	(0.3)	39	(0.3)	41	(0.2)	24	(3.8)	22	(1.2)	24	(1.5)	23	(1.0)
	Slovak Republic	39	(0.7)	42	(0.2)	42	(0.4)	42	(0.2)	9	(1.8)	19	(1.2)	33	(1.8)	22	(0.9)
	Slovenia[1]	41	(0.6)	42	(0.2)	42	(0.2)	42	(0.2)	10	(1.7)	20	(1.1)	27	(1.5)	21	(0.9)
	Spain	40	(0.4)	38	(0.6)	38	(0.3)	38	(0.2)	21	(1.4)	19	(1.8)	21	(1.2)	21	(0.8)
	Sweden	37	(0.6)	39	(0.3)	40	(0.3)	39	(0.2)	33	(2.5)	38	(1.3)	47	(1.3)	41	(0.9)
	Turkey[1]	45	(0.6)	45	(0.7)	43	(0.4)	45	(0.4)	33	(2.3)	22	(2.4)	21	(1.8)	28	(1.6)
	United States	39	(0.9)	39	(0.3)	42	(0.4)	40	(0.2)	16	(2.8)	24	(1.2)	31	(1.1)	26	(0.8)
	Economies																
	Flemish Comm. (Belgium)	37	(0.8)	38	(0.3)	39	(0.3)	39	(0.2)	25	(2.5)	29	(1.1)	39	(1.4)	33	(0.9)
	England (UK)	35	(0.7)	37	(0.4)	37	(0.3)	37	(0.2)	20	(2.0)	29	(1.6)	30	(1.5)	28	(0.9)
	Northern Ireland (UK)	35	(0.6)	36	(0.5)	37	(0.4)	36	(0.3)	18	(2.2)	22	(1.8)	24	(1.7)	22	(1.2)
	OECD average	38	(0.1)	39	(0.1)	39	(0.1)	39	(0.0)	23	(0.5)	27	(0.3)	33	(0.3)	29	(0.2)
Partner	Russian Federation*	40	(2.2)	42	(0.6)	41	(0.3)	41	(0.2)	14	(5.4)	14	(1.2)	17	(1.4)	16	(1.0)

1. Reference year is 2015; for all other countries and economies the reference year is 2012.

* See note on data for the Russian Federation in the *Source* section.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933977334

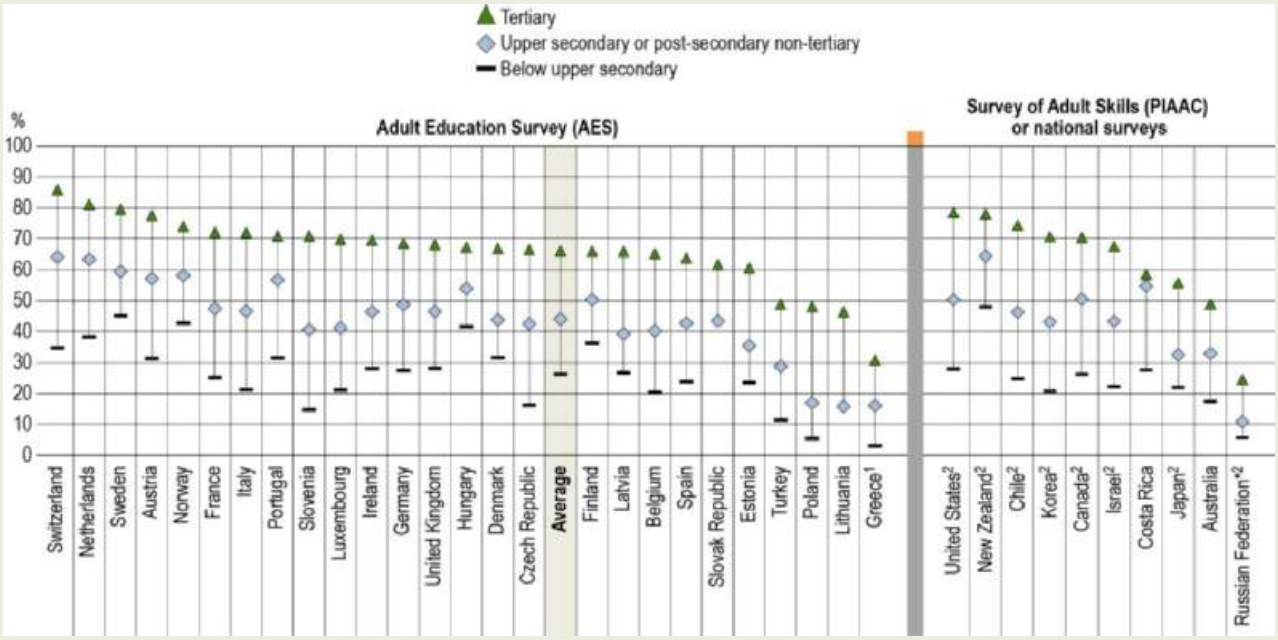
Indicator A7. To what extent do adults participate equally in education and learning?

Highlights

- Learning begets learning. On average across OECD countries, the participation of adults in formal and/or non-formal education and training is about 20 percentage points higher for those who completed tertiary education than for those who completed upper secondary or post-secondary non-tertiary education.
- Participation in non-formal education and training is much higher than participation in formal education and training. This holds true even for 25-34 year-olds: on average across the OECD countries taking part in the Adult Education Survey (AES), 50% of younger adults were participating in non-formal education and training while only about 16% were participating in formal education and training.
- Participation in adult education and training is largely driven by employment. On average across the OECD countries participating in the AES, 70% of the education and training activities followed by tertiary-educated 25-64 year-olds participating in non-formal education and training were job-related and sponsored by their employer.

Figure A7.1. Participation in formal and/or non-formal education, by educational attainment (2016)

Adult Education Survey (AES), Survey of Adult Skills (PIAAC) or national surveys, 25-64 year-olds



1. Some categories might need to be interpreted with caution. Refer to the source table for more details.
2. Year of reference differs from 2016. Refer to the source table for more details.
* See note on data for the Russian Federation in the *Source* section.
Countries are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds participating in formal and/or non-formal education.
Source: OECD (2019), Table A7.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977543

Context

Adult learning can play an important role in helping adults to develop and maintain key information-processing skills and acquire other knowledge and skills throughout their lives. It is crucial to provide and ensure access to organised learning opportunities for adults beyond initial formal education, especially for workers who need to adapt to changes throughout their careers (OECD, 2013[1]).

Adult learning can also contribute to non-economic goals, such as personal fulfilment, improved health, civic participation and social inclusion. However, the wide variation in adult learning activities and participation among OECD countries at similar levels of economic development suggests that there are significant differences in learning cultures, learning opportunities at work and adult education systems (Borkowsky, 2013[2]).

Other findings

- Across all OECD countries taking part in the AES, participation in formal and/or non-formal education and training increases with each additional level of formal educational attainment.
- Distance learning is an increasingly common form of participation in adult learning. Across OECD countries and economies participating in the Survey of Adult Skills (PIAAC), 20% of the adults who reported participating in non-formal education and training were doing so through distance learning.
- Across OECD countries, most adults enrolled in formal education are attending a tertiary programme. However, in Australia, Belgium, Mexico and Sweden, less than half of adults participating in formal education were enrolled in tertiary programmes.

Analysis

Participation in formal and/or non-formal education and training by gender, age group and educational attainment

On average across OECD countries taking part in the Adult Education Survey (AES), 47% of 25-64 year-olds had participated in formal and/or non-formal education and training in the 12 months preceding the survey. In Greece and Turkey, less than 25% of adults were participating, while this rate reaches 60% and above in Austria, the Netherlands, Norway, Sweden and Switzerland (Table A7.1).

Figure A7.1 shows that adults with higher educational attainment are more likely to participate in formal and/or non-formal education and training activities. On average across OECD countries taking part in the AES, 26% of 25-64 year-olds with below upper secondary education had participated in formal and/or non-formal education and training in the 12 months preceding the survey. This rate increases to 44% for those with upper secondary or post-secondary non-tertiary education and reaches 66% for those with a tertiary education. Participation across countries varies greatly even among tertiary-educated adults: the rates range from 31% in Greece to 86% in Switzerland. The difference in participation between those with a tertiary degree and those with below upper secondary education is over 25 percentage points in all OECD countries participating in AES, and reaches 50 percentage points or more in the Czech Republic, Italy, Slovenia and Switzerland (Figure A7.1).

Completing upper secondary or post-secondary non-tertiary education is also associated with big differences in participation rates: participation is at least 25 percentage points higher in Austria, the Czech Republic, Italy, the Netherlands, Portugal, Slovenia and Switzerland among adults educated to this level compared to those who did not complete upper secondary education. In contrast, Denmark, Estonia, Finland, Greece, Hungary, Latvia, Norway, Poland and Sweden have the smallest gap, with 15 percentage points difference or less (Figure A7.1).

In most countries, the participation rates for women and men vary by less than 5 percentage points. The gender gap exceeds 10 percentage points only in Estonia and Finland; in both countries women participate more than men do. In Turkey, the gender gap is reversed and particularly large considering the country's generally low participation in adult learning: 17% of women and 25% of men had taken part in formal and/or non-formal education and training (Table A7.1).

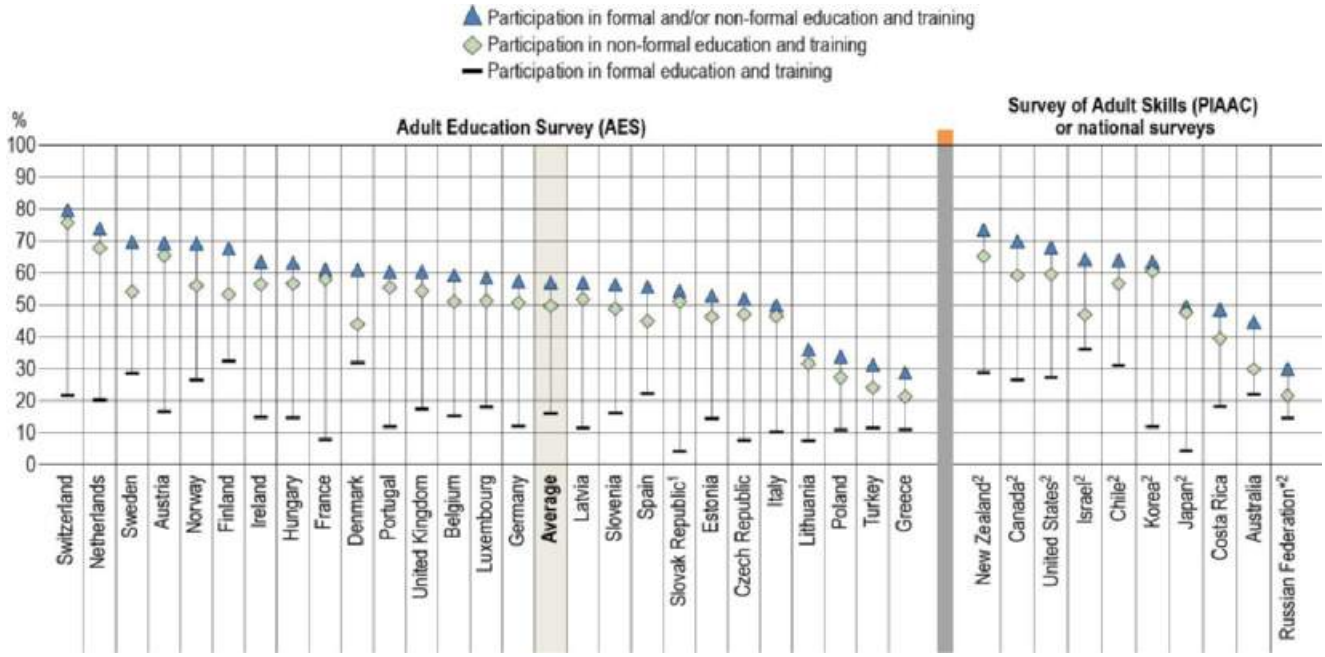
In all countries participating in AES, younger adults (25-34 year-olds) are more likely to participate in formal and/or non-formal education and training than older age groups (35-44, 45-54 and 55-64 year-olds). On average across OECD countries taking part in the AES, 57% of 25-34 year-olds were taking part in formal and/or non-formal education and training, 52% of 35-44 year-olds, 46% of 45-54 year-olds and 33% of 55-64 year-olds. The participation gap between age groups is highest in Finland where the rates are 68% for 25-34 year-olds and 34% for 55-64 year-olds. In contrast, the gap is the lowest in Germany where 57% of younger adults were taking part in formal and/or non-formal education and training compared to 44% among older adults (Table A7.1).

Comparison of participation in formal and non-formal education and training

Participation in non-formal education and training surpasses participation in formal education and training among all age groups. This is true in all countries, even among 25-34 year-olds, the age group with the highest participation in formal education and training. On average across OECD countries taking part in the AES, 16% of 25-34 year-olds were taking part in formal education and training while 50% were taking part in non-formal education and training. In Greece, Poland and Turkey, participation in both formal and non-formal education and training is below 30%. In contrast, the rates are above 30% for both types of adult learning programmes in Denmark and Finland. In Denmark, the data suggest that a significant share of younger adults who were taking part in non-formal education and training were also taking part in formal education and training (Figure A7.2).

Figure A7.2. Participation of 25-34 year-olds in education and training, by formal/non-formal status (2016)

Adult Education Survey (AES), Survey of Adult Skills (PIAAC) or national surveys



1. Some categories might need to be interpreted with caution. Refer to the source table for more details.
2. Year of reference differs from 2016. Refer to the source table for more details.
* See note on data for the Russian Federation in the *Source* section.
Countries are ranked in descending order of the percentage of 25-34 year-olds participating in formal and/or non-formal education.
Source: OECD (2019), Table A7.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977562

Participation in non-formal education (job-related and non-job related)

Figure A7.3 shows that education and training sponsored by the employer makes up the largest share of activities among tertiary-educated adults participating in non-formal education. This is true for all countries except Greece, where the commonest form of non-formal education was job-related education not sponsored by the employer.

Non-job-related education is less common than job-related education in all countries, but represents 20% or more of the programmes undertaken by adults in Austria, France, Italy, Luxembourg, Slovenia and Switzerland. This shows that participation in non-formal adult education is most commonly linked to a current job or to improve skills for a future job and is rarely strictly for leisure (Table A7.2a).

The share of not job-related non-formal education and training activities increases for participants with below upper secondary education. This can be partly explained by the lower employment rates for adults with lower levels of education (see Indicator A3) and therefore their lower exposure to job-related training opportunities. This is an important consideration as participation in adult learning among those who are not employed is key to them increasing their human capital and reintegrating into the labour market (Table A7.2a).

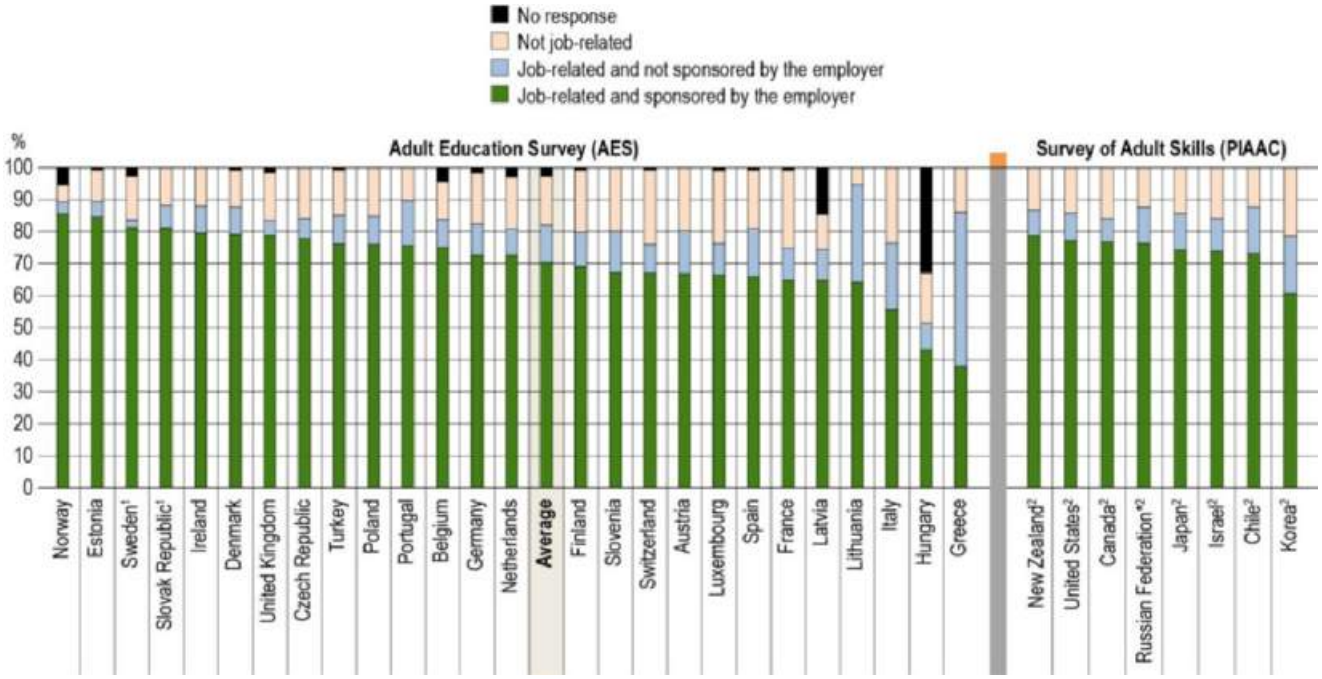
Distance learning and non-formal education

Non-formal education activities can take place in many different settings, including seminars, private lessons, on-the-job training and distance learning courses (OECD, 2014[3]). The growth in participation in education has led to increased demand for more flexible learning options, and as a result distance learning (particularly online

learning) has become mainstream (Kentnor, 2015[4]). Distance learning is also a feature of non-formal education; on average across OECD countries, 20% of all adults who reported participating in non-formal education and training in the Survey of Adult Skills did so through distance learning. The largest shares of adults participating in non-formal distance learning are in Lithuania and Poland, where more than 45% of adults participating in non-formal education took part in distance learning. On the other hand, just 9% of adults in Norway and Slovenia participating in non-formal learning did so by distance learning (Figure A7.4 and Table A7.2c, available on line).

Figure A7.3. Distribution of job-related and employer sponsorship education and training activities among tertiary-educated adults participating in non-formal education (2016)

Adult Education Survey (AES), Survey of Adult Skills (PIAAC), 25-64 year-olds



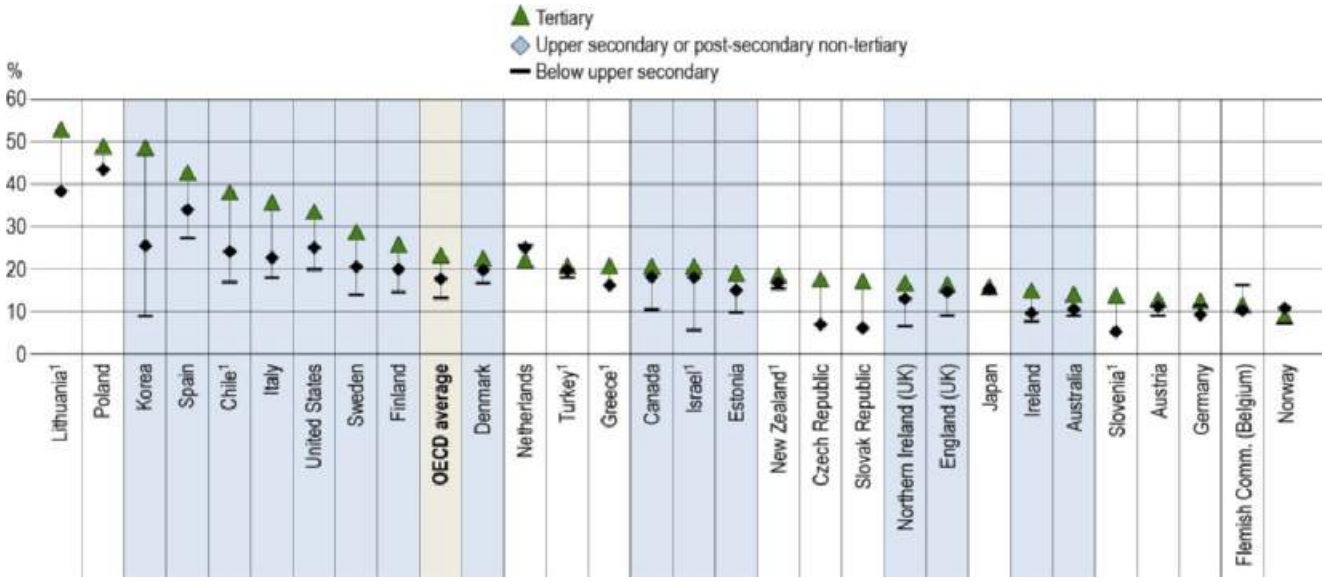
1. Some categories might need to be interpreted with caution. Refer to the source table for more details.
2. Year of reference differs from 2016. Refer to the source table for more details.
* See note on data for the Russian Federation in the *Source* section.
Countries are ranked in descending order of the percentage of tertiary-educated 25-64 year-olds participating in non-formal job-related education sponsored by their employer.
Source: OECD (2019), Table A7.2a. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977581

Differences are also evident in distance-learning patterns across attainment levels in OECD countries. In the majority of countries, among adults who participate in non-formal education, those who have attained tertiary education are more likely to participate through distance learning than adults with below upper secondary education. This mirrors the greater tendency for adults with tertiary education to participate in non-formal education (Figure A7.1). The differences are particularly large in Korea, where the share of adults with tertiary education participating in non-formal distance learning is 40 percentage points higher than the share of adults with below upper secondary education. Conversely, in Austria, Germany, Japan, the Netherlands, New Zealand, Norway and Turkey, the difference is less than 5 percentage points across education levels (Figure A7.4 and Table A7.2c, available on line).

Figure A7.4. Distance learning rates among adults participating in non-formal education and training (2012 or 2015)

Survey of Adult Skills (PIAAC), 25-64 year-olds



Note: Grey zone denotes statistically significant differences between below upper secondary and tertiary education.
1. Reference year is 2015; for all other countries and economies the reference year is 2012.
Countries and economies are ranked in descending order of the distance learning participation rate among tertiary-educated adults participating in non-formal education.
Source: OECD (2019). Table A7.2c, available on line only. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977600

On average across the OECD, there is little difference in participation in non-formal distance learning by gender (19% for men and 21% for women). However, the gender differences are more substantial in a small number of countries; in Poland, the share of men participating in non-formal distance learning was 57%, which was 21 percentage points higher than the share of participating women. The share of men participating in non-formal distance education was also 10 percentage points higher than the share of women in Lithuania and Turkey (Table A7.2c, available on line).

Enrolment in different levels of formal education by age group

The share of adults enrolled in formal education decreases with age, but the distribution of educational levels they are enrolled in remains somewhat similar across the different age groups. On average across OECD countries, 16% of 25-29 year-olds are participating in formal education, 7% of 30-39 year-olds and only 2% of 40-64 year-olds. Across all three age groups, tertiary education is the most common but its share decreases slightly with age: from 79% among 25-29 year-olds, to 72% among 30-39 year-olds and 65% among 40-64 year-olds (Table A7.3).

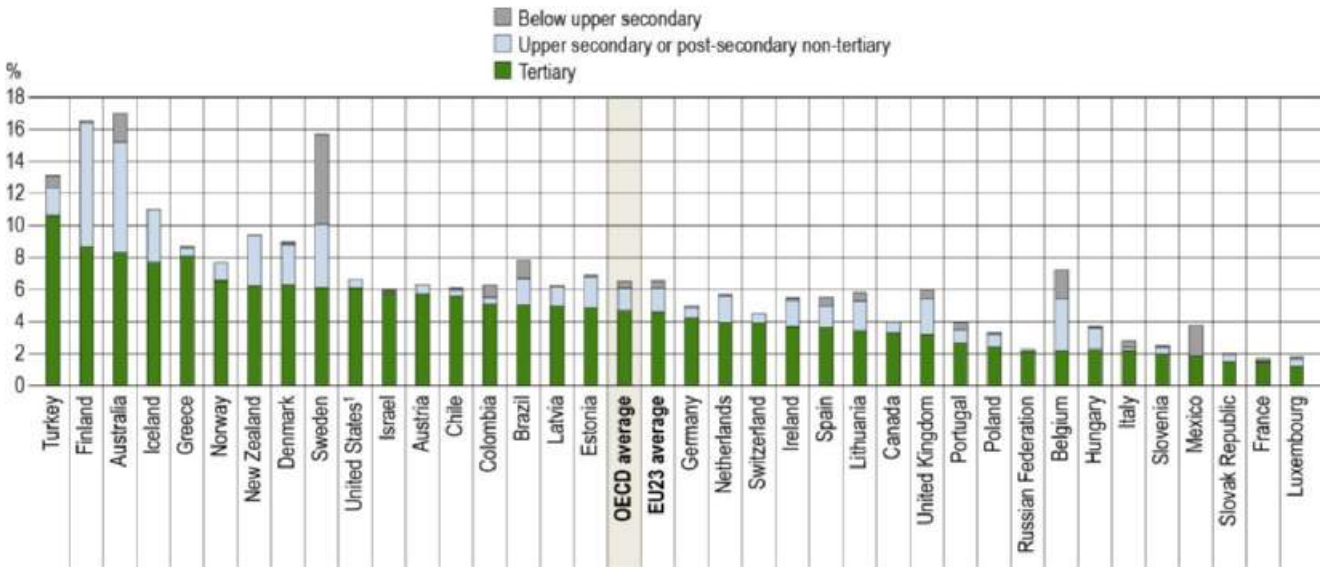
Across OECD countries, enrolment in formal education among 30-39 year-olds ranges from 2% in France, Korea, Luxembourg and the Slovak Republic to over 15% in Australia, Finland and Sweden. The level of education also shows some substantial differences among countries for this age group. In most countries, tertiary education remains the most important level, indicating the high demand for tertiary education in the labour market. However, in Australia, Belgium, Mexico and Sweden, less than half of participants are enrolled in tertiary programmes. In Australia, Belgium and Finland at least 40% of 30-39 year-olds who are enrolled in formal education are in upper

secondary or post-secondary non-tertiary programmes while in Mexico about half of participants are enrolled in below upper secondary education (Figure A7.5 and Table A7.3).

The high enrolment rate of 30-39 year-olds in formal education in Sweden is in line with the national effort to make adult education accessible. Formal adult education, organised at the municipal level, is deep-rooted in Sweden. Its aim is to provide basic adult education for all Swedish residents who are at least 20 years old and have not completed lower secondary education (Eurydice, 2018[5]). In the public education system, adult education and training is free of charge for Swedish citizens (OECD, 2015[6]). Similarly, in Finland, adults are entitled to acquire the same educational and vocational qualifications as the young, and in some cases, young and older students learn together. This may partly explain the higher than average share of 30-39 year-olds enrolled in formal upper secondary or post-secondary non-tertiary programmes in Finland. Finally, providing information and guidance is key to increase participation and inclusiveness. For example, Denmark's relatively high enrolment rates could be associated with the country's proactive dissemination of information about general education, higher education and adult/continuing education through the website *UddannelsesGuiden* (OECD, 2019[7]).

Figure A7.5. Enrolment in different levels of formal education (2017)

OECD / UIS / Eurostat, 30-39 year-olds



1. Data for upper secondary and post-secondary non-tertiary education enrolment excludes upper secondary education.
Note: The enrolment rates for each level of education is calculated based on the distribution presented in Table A7.3.
Countries are ranked in descending order of the percentage of 30-39 year-olds enrolled in formal tertiary education.
Source: OECD/UIS/Eurostat (2019), Table A7.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977619

Definitions

Adults refer to 25-64 year-olds.

Adult education and learning: **Formal education** is planned education provided in the system of schools, colleges, universities and other formal educational institutions that normally constitutes a continuous "ladder" of full-time education for children and young people. The providers may be public or private. **Non-formal education** is sustained educational activity that does not correspond exactly to the definition of formal education. Non-formal

education may take place both within and outside educational institutions and cater to individuals of all ages. Depending on country contexts, it may cover education programmes in adult literacy, basic education for out-of-school children, life skills, work skills and general culture.

Levels of education: See the *Reader's Guide* at the beginning of this publication for a presentation of all ISCED 2011 levels.

The previous classification, ISCED-97, is used for the analyses based on the Survey of Adult Skills (PIAAC): **Below upper secondary** corresponds to ISCED-97 levels 0, 1, 2 and 3C short programmes; **upper secondary or post-secondary non-tertiary** corresponds to ISCED-97 levels 3A, 3B, 3C long programmes and level 4; and **tertiary** corresponds to ISCED-97 levels 5A, 5B and 6.

Methodology

Calculations for data based Adult Education Survey (AES) can be found at: https://circabc.europa.eu/ui/group/d14c857a-601d-438a-b878-4b4cebd0e10f/library/c28a2e5b-ecdf-4b07-ac2f-f3811d032295/details.

For data from the Survey of Adult Skills (PIAAC), the observations based on a numerator with fewer than 5 observations or on a denominator with fewer than 30 observations times the number of categories have been replaced by "c" in the tables.

Source

Tables A7.1, A7.2a and A7.2b on adult education and training are based on:

- Adult Education Survey (AES) for European OECD countries.
- The OECD Programme for the International Assessment of Adult Competencies (the Survey of Adult Skills [PIAAC]) for: Canada, Chile, Israel, Japan, Korea, New Zealand, the Russian Federation and the United States.
- The Survey of Work-Related Training and Adult Learning, Australian Bureau of Statistics, for Australia.
- Encuesta Continua de Empleo (ECE), Instituto Nacional de Estadística y Censos (INEC), for Costa Rica.

Table A7.2c on participation in distance learning is based on data from the OECD Programme for the International Assessment of Adult Competencies (the Survey of Adult Skills [PIAAC]) for all countries and economies.

Table A7.3 on enrolment in formal education is based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018 for all countries; all data refer to the academic year 2016/17 (for details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en).

Note regarding data from the Russian Federation in the Survey of Adult Skills (PIAAC)

The sample for the Russian Federation does not include the population of the Moscow municipal area. The data published, therefore, do not represent the entire resident population aged 16-65 in the Russian Federation but rather the population of the Russian Federation excluding the population residing in the Moscow municipal area. More detailed information regarding the data from the Russian Federation as well as that of other countries can be found in the *Technical Report of the Survey of Adult Skills*, Second Edition (OECD, 2016[8]).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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OECD (2014), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eag-2014-en. [3]

OECD (2013), *OECD Skills Outlook 2013 : First results from the Survey of Adult Skills*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264204256-en. [1]

Indicator A7 Tables

Table A7.1 Participation in formal and/or non-formal education and training, by gender, age group and educational attainment (2016)

Table A7.2a Distribution of non-formal education and training activities, by gender, age group and educational attainment (2016)

WEB Table A7.2b Participation in job-related and non-job-related non-formal education and training, by gender, age group and educational attainment (2016)

WEB Table A7.2c Participation in distance learning among adults participating in non-formal education and training, by gender and age group and educational attainment (2012 or 2015)

Table A7.3 Enrolment in formal education, by age group, and distribution by level of education (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980906

Table A7.1. Participation in formal and/or non-formal education and training, by gender, age group and educational attainment (2016)

Adult Education Survey (AES), Survey of Adult Skills (PIAAC) or national surveys, 25-64 year-olds

Adult Education Survey (AES)

Participation in formal and/or non-formal education and training

		Total	Educational attainment: Below upper secondary	Educational attainment: Upper secondary or post-secondary non-tertiary	Educational attainment: Tertiary	Gender: Men	Gender: Women	Age group: 25-34 year-olds	Age group: 35-44 year-olds	Age group: 45-54 year-olds	Age group: 55-64 year-olds
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Countries										
OECD	Austria	60	31	57	78	61	59	69	68	61	41
OECD	Belgium	45	20	40	65	44	46	59	51	43	29
OECD	Czech Republic	46	16	43	67	50	43	52	51	49	29
OECD	Denmark	50	32	44	67	48	53	61	56	49	37
OECD	Estonia	44	24	35	61	37	51	53	50	41	30
OECD	Finland	54	36	50	66	48	60	68	60	54	34
OECD	France	51	25	47	72	49	54	61	59	50	35
OECD	Germany	52	27	49	69	52	52	57	55	53	44
OECD	Greece	17	3	16	31	16	18	29	21	13	6
OECD	Hungary	56	42	54	67	59	53	63	61	60	38
OECD	Ireland	54	28	46	70	54	54	64	58	50	40
OECD	Italy	42	21	47	72	44	39	50	43	42	33
OECD	Latvia	48	27	39	66	43	52	57	53	47	34
OECD	Lithuania	28	c	16	46	24	32	36	30	27	19
OECD	Luxembourg	48	21	41	70	48	48	59	54	46	30
OECD	Netherlands	64	38	63	81	65	64	74	69	63	51
OECD	Norway	60	43	58	74	60	60	69	65	57	47
OECD	Poland	26	5	17	48	25	26	34	30	23	13
OECD	Portugal	46	32	57	71	48	45	60	54	43	29
OECD	Slovak Republic	46	c	43	62	47	45	54	51	48	30
OECD	Slovenia	46	15	41	71	44	48	56	54	48	27
OECD	Spain	43	24	43	64	44	43	56	47	42	29
OECD	Sweden	64	45	59	80	60	68	70	66	63	55
OECD	Switzerland	69	35	64	86	70	68	80	71	68	57
OECD	Turkey	21	11	29	49	25	17	31	25	14	7
OECD	United Kingdom	52	28	47	68	50	54	60	57	51	39
	Average	47	26	44	66	47	48	57	52	46	33

Survey of Adult Skills (PIAAC) or national surveys

Participation in formal and/or non-formal education and training

		Total	Educational attainment: Below upper secondary	Educational attainment: Upper secondary or post-secondary non-tertiary	Educational attainment: Tertiary	Gender: Men	Gender: Women	Age group: 25-34 year-olds	Age group: 35-44 year-olds	Age group: 45-54 year-olds	Age group: 55-64 year-olds
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Countries										
OECD	Australia	37	17	33	49	36	39	45	40	36	26
OECD	Canada[1]	58	26	50	70	59	58	70	64	57	41
OECD	Chile[2]	47	25	46	74	53	42	64	49	40	30
OECD	Israel[2]	53	22	43	68	53	53	64	53	48	41
OECD	Japan[1]	42	22	32	56	48	35	49	44	46	31
OECD	Korea[1]	50	21	43	71	54	46	63	56	45	32
OECD	New Zealand[2]	68	48	64	78	68	67	73	71	66	59
OECD	United States[1]	59	28	50	79	59	59	68	62	56	51
Partners	Costa Rica	40	28	55	59	38	42	49	39	37	31
Partners	Russian Federation*[1]	20	6	11	24	16	23	30	23	15	8

Note: Participation in formal and/or non-formal education and training during previous 12 months. Additional columns showing data for participation in formal and non-formal education and training separately are available for consultation on line (see StatLink below). Note that the average differs from the one published by Eurostat as this is an unweighted average and the country coverage is different.

1. Year of reference 2012.
2. Year of reference 2015.

* See note on data for the Russian Federation in the *Source* section.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations..

StatLink https://doi.org/10.1787/888933977486

Table A7.2a. Distribution of non-formal education and training activities, by gender, age group and educational attainment (2016)

Adult Education Survey (AES), Survey of Adult Skills (PIAAC) or national surveys, 25-64 year-olds who participated in non-formal education and training activities

Adult Education Survey (AES)

		Total			Educational attainment: Below upper secondary			Upper secondary or post-secondary non-tertiary			Tertiary		
		Job-related and sponsored by the employer	Job-related and not sponsored by the employer	Not job-related	Job-related and sponsored by the employer	Job-related and not sponsored by the employer	Not job-related	Job-related and sponsored by the employer	Job-related and not sponsored by the employer	Not job-related	Job-related and sponsored by the employer	Job-related and not sponsored by the employer	Not job-related
		(1)	(2)	(3)	(5)	(6)	(7)	(9)	(10)	(11)	(13)	(14)	(15)
OECD	Countries												
	Austria	68	12	21	57	19	24	70	9	22	67	14	20
	Belgium	73	8	13	70	c	15	69	9	14	75	9	12
	Czech Republic	81	5	14	77	c	18	82	4	14	78	6	16
	Denmark	77	8	14	65	13	21	79	5	16	79	9	12
	Estonia	82	6	12	70	c	19	79	6	15	85	5	10
	Finland	68	12	19	50	22	27	70	12	17	69	11	19
	France	64	10	25	56	11	31	64	8	26	65	10	24
	Germany	74	8	17	61	12	25	76	7	17	73	10	16
	Greece	35	47	19	c	48	c	31	45	24	38	48	14
	Hungary	48	7	21	62	5	28	51	7	24	43	8	16
	Ireland	78	9	13	74	9	17	76	11	13	80	8	12
	Italy	59	16	25	62	15	23	61	12	26	56	21	24
	Latvia	66	10	13	60	11	26	70	11	15	65	10	11
	Lithuania	63	31	6	c	c	c	62	33	5	64	31	5
	Luxembourg	67	9	23	64	10	22	68	8	23	67	10	23
	Netherlands	71	8	17	59	9	27	72	7	17	73	8	16
	Norway	85	4	6	75	c	c	88	3	5	86	4	5
	Poland	76	9	15	60	c	c	75	10	15	76	9	15
	Portugal	77	12	11	80	8	12	77	11	13	76	14	10
	Slovak Republic	85	7	8	97	c	m	87	7	6	81	7	12
	Slovenia	67	12	21	71	c	c	66	11	23	67	13	20
	Spain	66	13	20	63	11	25	69	10	20	66	15	18
	Sweden	79	3	16	71	c	18	78	3	17	81	2	14
	Switzerland	66	9	25	65	15	20	64	9	27	67	9	24
	Turkey	72	8	20	64	6	30	73	7	20	76	9	15
	United Kingdom	79	4	15	79	c	14	80	4	15	79	5	15
	Average	70	11	16	67	14	22	71	10	17	70	12	15

Survey of Adult Skills (PIAAC) or national surveys

		Total			Educational attainment: Below upper secondary			Upper secondary or post-secondary non-tertiary			Tertiary		
		Job-related and sponsored by the employer	Job-related and not sponsored by the employer	Not job-related	Job-related and sponsored by the employer	Job-related and not sponsored by the employer	Not job-related	Job-related and sponsored by the employer	Job-related and not sponsored by the employer	Not job-related	Job-related and sponsored by the employer	Job-related and not sponsored by the employer	Not job-related
		(1)	(2)	(3)	(4)	(5)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Countries												
	Australia	m	m	m	m	m	m	m	m	m	m	m	m
	Canada[1]	78	8	14	75	10	15	80	9	11	77	7	16
	Chile[2]	70	15	15	60	18	23	72	15	13	73	15	12
	Israel[2]	73	11	16	c	c	c	72	12	16	74	10	16
	Japan[1]	74	11	15	70	12	18	73	10	17	74	11	14
	Korea[1]	59	18	23	51	20	29	57	18	25	61	18	22
	New Zealand[2]	78	9	13	76	10	14	78	10	13	79	8	13
	United States[1]	78	9	14	c	c	c	80	8	12	77	9	14
Partners	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation*[1]	73	11	16	c	c	c	c	c	c	76	11	12

Note: The distribution of non-formal education and training activities refers to the previous 12 months. Additional columns showing the "no response" category and showing data by gender and age group are available for consultation on line (see StatLink below). Note that the average differs from the one published by Eurostat as this is an unweighted average and the country coverage is different.

1. Year of reference 2012.
2. Year of reference 2015.

* See note on data for the Russian Federation in the *Source* section.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table A7.3. Enrolment in formal education, by age group, and distribution by level of education (2017)

OECD/UIS/Eurostat

		25-64 year-olds				25-29 year-olds				30-39 year-olds				40-64 year-olds			
			Distribution				Distribution				Distribution				Distribution		
		Enrolment rates	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Enrolment rates	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Enrolment rates	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary	Enrolment rates	Below upper secondary	Upper secondary or post-secondary non-tertiary	Tertiary
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Countries																
	Australia	13	11	41	49	28	8	33	60	17	11	41	49	8	14	48	38
	Austria	5	0	9	91	18	0	7	93	6	0	9	91	1	0	14	86
	Belgium	6	23	46	31	14	16	29	56	7	25	45	30	3	26	62	12
	Canada	3	0	11	89	10	0	10	90	4	0	17	83	1	0	0	100
	Chile	5	2	6	91	16	1	5	94	6	2	6	92	1	6	12	83
	Colombia	5	14	6	80	12	7	5	88	6	12	7	81	2	31	9	59
	Czech Republic	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Denmark	7	0	25	75	30	0	22	78	9	0	30	70	2	0	25	75
	Estonia	5	2	29	69	15	2	23	75	7	2	28	70	2	5	41	54
	Finland	11	1	47	52	31	0	33	66	17	1	47	52	6	1	63	36
	France	2	0	10	90	7	0	7	93	2	0	11	89	0	0	17	83
	Germany	4	1	16	84	21	1	17	83	5	1	14	85	0	1	12	87
	Greece	6	1	7	92	20	0	9	90	9	1	6	93	3	2	5	92
	Hungary	3	1	35	64	11	0	19	80	4	1	38	61	1	1	54	45
	Iceland	9	0	30	70	24	0	27	73	11	0	30	70	4	0	34	66
	Ireland	4	2	33	65	12	2	26	73	5	2	31	67	2	3	42	55
	Israel	6	0	2	98	20	0	3	97	6	0	1	99	2	0	0	100
	Italy	2	11	6	83	12	6	3	91	3	16	6	78	1	20	14	65
	Japan	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	2	m	m	m	9	m	m	m	2	m	m	m	1	m	m	m
	Latvia	4	1	16	83	16	2	14	84	6	1	19	79	1	1	14	86
	Lithuania	4	7	29	64	13	4	20	75	6	9	32	59	1	11	46	44
	Luxembourg	1	3	27	70	7	2	26	72	2	3	30	67	0	5	28	66
	Mexico	4	43	11	46	10	20	25	55	4	51	0	49	2	73	0	27
	Netherlands	5	2	29	69	18	1	20	79	6	2	29	69	2	3	43	55
	New Zealand	7	0	35	65	14	0	27	73	9	0	34	66	4	0	44	56
	Norway	6	0	13	87	19	0	12	88	8	0	14	86	2	0	12	88
	Poland	3	0	23	77	11	0	16	84	3	0	28	72	1	0	31	69
	Portugal	3	16	19	64	10	6	14	81	4	12	21	67	1	31	24	45
	Slovak Republic	2	1	19	80	7	1	12	88	2	1	25	74	1	1	29	70
	Slovenia	2	2	19	79	13	1	20	79	3	3	18	79	0	4	15	81
	Spain	4	11	22	66	16	6	15	79	6	10	24	66	2	20	30	51
	Sweden	11	31	25	44	27	21	26	54	16	36	25	39	5	38	24	38
	Switzerland	4	0	13	87	17	0	12	88	5	0	13	87	1	0	16	84
	Turkey	10	4	12	84	30	1	9	90	13	6	13	81	3	8	15	77
	United Kingdom	4	9	38	53	10	6	34	60	6	9	37	53	2	11	42	47
	United States[1]	5	a	8	92	14	a	7	93	7	a	8	92	2	a	9	91
	OECD average	5	6	21	73	16	3	17	79	7	7	22	72	2	10	26	65
	EU23 average	5	7	22	72	16	4	18	78	7	7	22	71	2	10	27	63
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	6	17	20	63	15	9	20	72	8	15	21	65	3	33	20	47
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	2	1	4	95	7	1	4	95	2	1	4	96	0	0	3	97
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

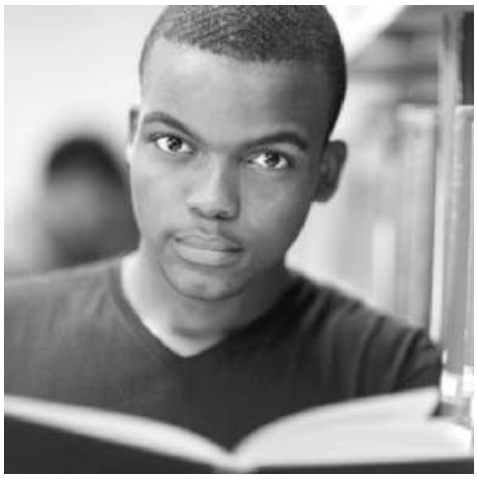
1. Data for upper secondary and post-secondary non-tertiary education enrolment excludes upper secondary education.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Chapter B. Access to education, participation and progress



Indicator B1 Who participates in education?
StatLink https://doi.org/10.1787/888933980925
Indicator B2 How do early childhood education systems differ around the world?
StatLink https://doi.org/10.1787/888933980944
Indicator B3 Who is expected to graduate from upper secondary education?
StatLink https://doi.org/10.1787/888933980963
Indicator B4 Who is expected to enter tertiary education?
StatLink https://doi.org/10.1787/888933980982
Indicator B5 How many students complete tertiary education?
StatLink https://doi.org/10.1787/888933981001
Indicator B6 What is the profile of internationally mobile students?
StatLink https://doi.org/10.1787/888933981020
Indicator B7 What are the characteristics and outcomes of doctoral graduates?
StatLink https://doi.org/10.1787/888933981039

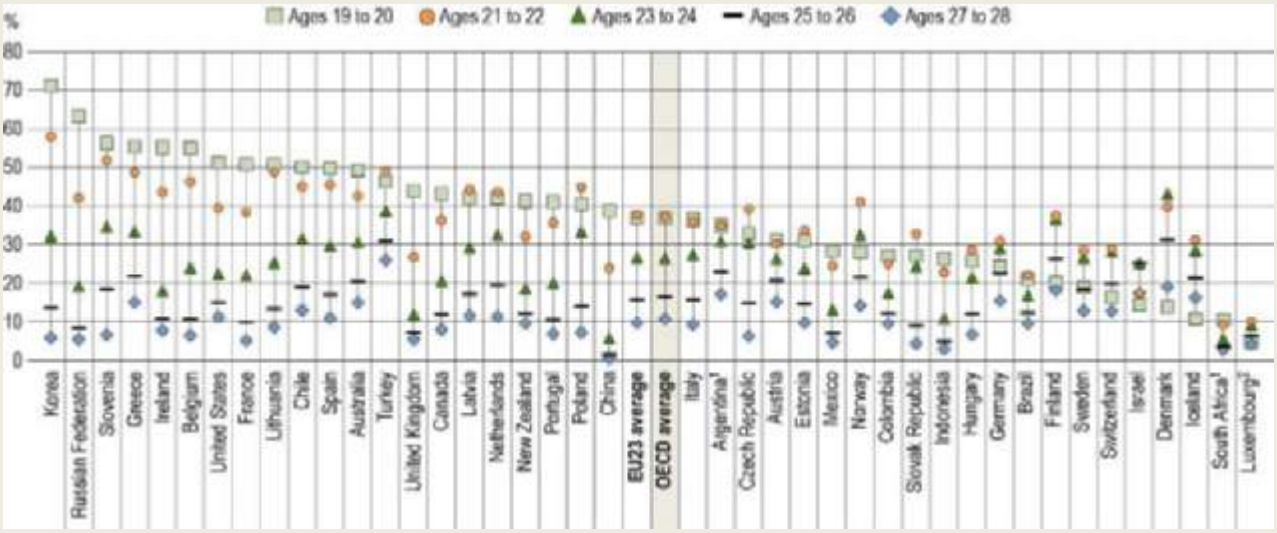
Indicator B1. Who participates in education?

Highlights

- On average across OECD countries, around 70% of 17-18 year-olds are enrolled in upper secondary education (more than 40% in general programmes and around 30% in vocational programmes). In most countries, students in this age group are not typically enrolled in post-secondary non-tertiary and tertiary programs.
- More than 40% of 19-20 year-olds are enrolled in tertiary programmes in almost half of OECD countries. Enrolment in tertiary education peaks among those aged 21-22 in about one-third of countries, while only in Denmark does enrolment reach its highest level at the age of 23-24.
- Enrolment in bachelor's programmes is more prevalent than enrolment in other programmes at the tertiary level. The average enrolment rate across OECD countries in bachelor's programmes reaches 32% among 20-21 year-olds.

Figure B1.1. Tertiary enrolment rates from age 19 to age 28 (2017)

Students in full-time and part-time programmes in both public and private institutions



1. Year of reference 2016.
2. Underestimated due to many resident students enrolled in neighbouring countries.
Countries are ranked in descending order of enrolment rates at ages 19 to 20.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787888933977695

Context

Pathways through education can be diverse, both across countries and for different individuals within the same country. Experiences in primary and secondary education are probably the most similar across countries. Compulsory education is usually relatively homogeneous as pupils progress through primary and lower

secondary education, but as people have different abilities, needs and preferences, most education systems try to offer different types of education programmes and modes of participation, especially at the more advanced levels of education, including upper secondary and tertiary education.

Ensuring that people have suitable opportunities to attain adequate levels of education is a critical challenge and depends on their ability to progress through the different levels of an educational system. Developing and strengthening both general and vocational education at upper secondary level can make education more inclusive and appealing to individuals with different preferences and aptitudes. Vocational education and training (VET) programmes are an attractive option for youth who are more interested in practical occupations and for those who want to enter the labour market earlier (OECD, 2019[1]). In many education systems, VET enables some adults to reintegrate into a learning environment and develop skills that will increase their employability.

To some extent, the type of upper secondary programme students attended conditions their educational tracks. Successful completion of upper secondary programmes gives students access to post-secondary non-tertiary education programmes, where available, or to tertiary education. Upper secondary vocational education and post-secondary non-tertiary programmes, which are mostly vocational in nature, can allow students to enter the labour market earlier, but higher levels of education often lead to higher earnings and better employment opportunities (see Indicators A3 and A4). Tertiary education has become a key driver of today's economic and societal development. The deep changes that have occurred in the labour market over the past decades suggest that better-educated individuals have (and will continue to have) an advantage as the labour market becomes increasingly knowledge-based. As a result, ensuring that a large share of the population has access to a high-quality tertiary education capable of adapting to a fast-changing labour market are some of the main challenges tertiary educational institutions, and educational systems more generally, face today.

Other findings

- There are various types of bachelor's and master's programmes. Three-to-four-year bachelor's degrees account for 72% of students at bachelor's and master's level on average across the OECD.
- Part-time enrolment in tertiary education varies across levels: on average across OECD countries in 2017, 16% of students in bachelor's programmes were part time, compared to 21% in master's and doctoral programmes, and 26% in short-cycle tertiary programmes.
- Across the 23 countries that are both members of the European Union and the OECD, enrolment of tertiary students in public institutions (77%) is higher than the average across OECD countries (71%). Among all OECD countries, only Belgium, Chile, Estonia, Israel, Japan, Korea, Latvia and the United Kingdom had less than half of students enrolled in public institutions in 2017, compared to 95% or more in Canada, Denmark, Greece, Ireland, Luxembourg and Saudi Arabia.

Analysis

Compulsory education

In OECD countries, compulsory education typically begins with primary education, starting at the age of 6. However, in about one-third of OECD and partner countries, compulsory education begins earlier while in Estonia, Finland, Indonesia, Lithuania, the Russian Federation and South Africa, compulsory education does not begin until the age of 7. Compulsory education ends with the completion or partial completion of upper secondary education at 16 on average across OECD countries, ranging from 14 in Korea and Slovenia to 18 in Belgium, Chile, Germany and Portugal. In the Netherlands, there is a partial compulsory education (i.e. pupils must attend some form of education for at least two days a week) from age 16 to 18 or until when they complete a diploma. However, high enrolment rates extend beyond the end of compulsory education in a number of countries. On average across OECD countries, full enrolment (the age range when at least 90% of the population are enrolled in education) lasts 14 years from the age of 4 to the age of 17. For most countries the period of full enrolment lasts 11-16 years in most countries and reaches 17 years in Norway. Full enrolment is shorter in Costa Rica, Indonesia and Turkey and can be as short as four years in Colombia.

In almost all OECD countries, the enrolment rate among 4-5 year-olds in education exceeded 90% in 2017. Enrolment at an early age is relatively common in the OECD area, with about one-third of countries achieving full enrolment for 3-year-olds. In Iceland and Norway, full enrolment is also achieved for 2-year-olds (see Indicator B2). In other countries, full enrolment is achieved for children at the age of 5, except in Finland, the Slovak Republic and Turkey where full enrolment is achieved at age 6, and in Colombia at age 9.

In all OECD countries, compulsory education comprises primary and lower secondary programmes. In most countries, compulsory education also covers, at least partially, upper secondary education, depending on the theoretical age range associated with the different levels of education in each country. In OECD countries, there is nearly universal coverage of basic education, as enrolment rates among 6-14 year-olds attained or exceeded 95% in all OECD and partner countries except Colombia (88%).

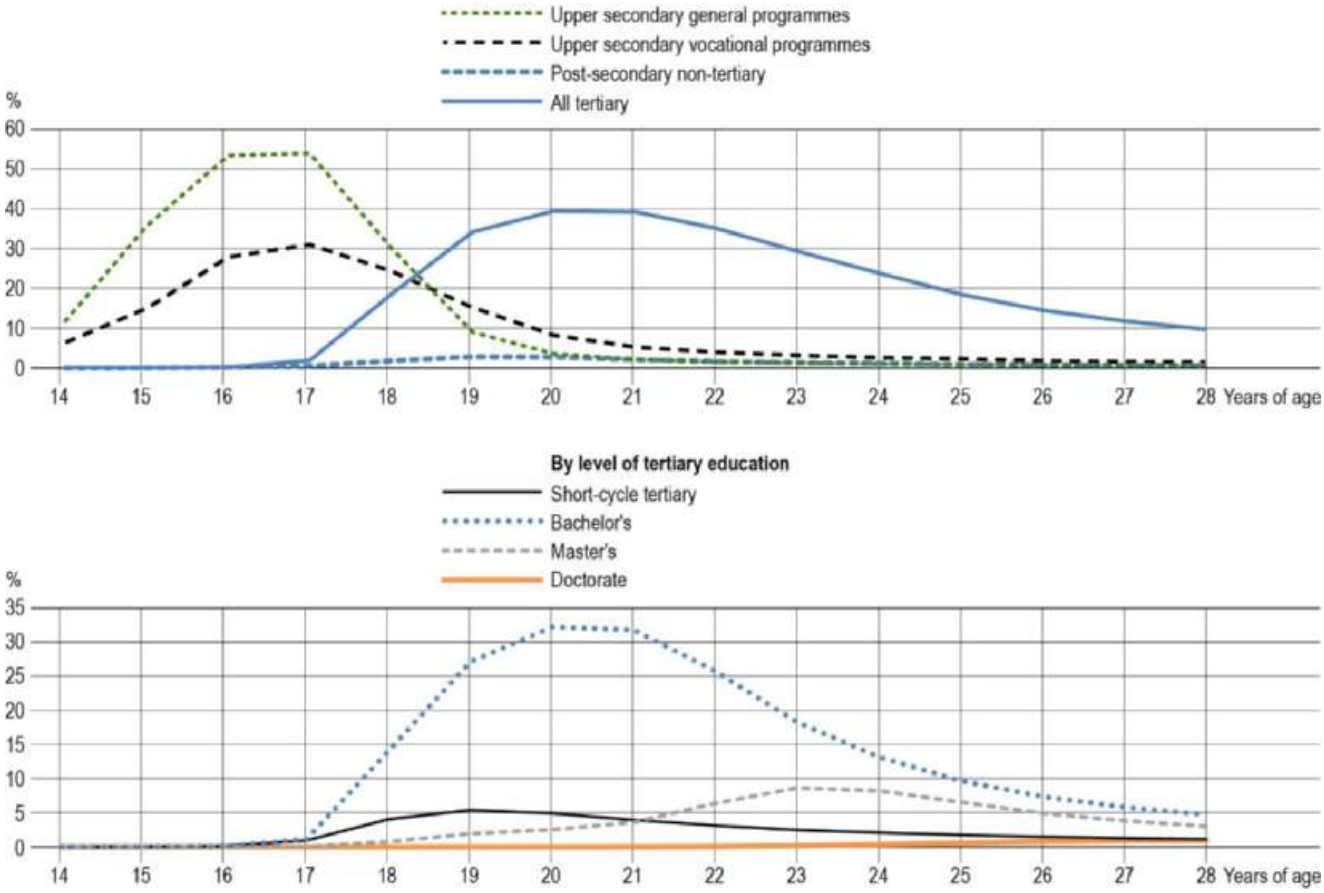
Upper secondary and post-secondary non-tertiary education pathways

Upper secondary education is typically designed to prepare students for tertiary education, to provide them with the skills to enter the labour market, or both. Programmes at this level offer students more varied, specialised and in-depth instruction than at lower secondary level. Students typically enter this level between 14 and 16 years of age, and these programmes usually end 12 or 13 years after the beginning of primary school. Therefore, this educational level accounts for most of the enrolment of 15-19 year-olds. The duration of upper secondary education varies from two years in Australia, Ireland, Lithuania and the Russian Federation to five years in Italy.

While general education is designed to develop learners' general knowledge and competencies, often to prepare them for more advanced education programmes, vocational education and training programmes are considered effective at developing skills directly applicable to the labour market. Upper secondary vocational education tracks prepare participants for direct entry into specific occupations and attract a diverse range of students, including youths seeking technical skills to start work, adults wishing to increase their employability and students who may pursue higher education at a later stage (OECD, 2019[1]). Countries with well-established VET and apprenticeship programmes have been more effective in holding the line on youth unemployment (OECD, 2018[2]). However, some countries consider vocational education a less attractive option than academic education, and some research suggests that participation in vocational education increases the risk of unemployment at later ages (Hanushek, Woessmann and Zhang, 2011[3]).

Figure B1.2. OECD average enrolment rates by level of study (2017)

Students in full-time and part-time programmes in both public and private institutions



Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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On average across OECD countries, 42% of students in upper secondary education were enrolled in vocational upper secondary programmes. The distribution of upper secondary students by programme orientation largely depends on the education programmes available, as well as the labour-market outcomes of these programmes. In about one-third of countries with available data, more upper secondary students are enrolled in vocational than in general programmes, reaching at least 70% in the Czech Republic, Finland and Slovenia.

Participation in upper secondary vocational education is highest between the ages of 15 to 19, reaching its peak among 17 year-olds (31% enrolment on average across OECD countries), but it is less concentrated than in general programmes. Participation in general programmes is generally higher and covers a narrower age range, between 15 and 18 years of age (Figure B1.2).

Enrolment in post-secondary non-tertiary programmes is much more spread out over a wider age range. Post-secondary non-tertiary education provides knowledge, skills and competencies with less complexity than those characteristic of tertiary education, but building on secondary education. Programmes at this level prepare students for labour-market entry as well as tertiary education (UNESCO-UIS, 2012[4]). The majority of students enrol in post-secondary non-tertiary programmes between the ages of 18 and 22, although enrolment typically remains low (Figure B1.2).

Transition to tertiary education

Tertiary programmes account for most of the participation in education between the ages of 20 and 29, including short-cycle, bachelor's, master's and doctoral programmes. Tertiary education builds on secondary education, providing learning activities in specialised fields of education. It aims at learning with a high level of complexity and specialisation. Tertiary education includes what is commonly understood as academic education but also includes advanced vocational or professional education.

Programme orientation at the upper secondary level tends to influence enrolment patterns in tertiary education (see Indicator B5). Countries with a greater participation of 15-19 year-olds in upper secondary general programmes than in vocational tracks tend to have higher enrolment rates in tertiary education. This is the case for example in France, Greece, Ireland, Korea and the United States where participation in tertiary education is over 50% among 19-20 year-olds, and at least 40% of 15-19 year-olds (up to 100% in the United States) were enrolled in general upper secondary programmes in 2017. There are notable exceptions, however: in Belgium, the Netherlands and Slovenia more than half of all 15-19 year-old students were enrolled in vocational programmes but tertiary enrolment rates for 19-22 year-olds were above the OECD average in the same period.

Countries can be divided into three groups based on the age when students typically transition into tertiary education.

- **Transition to tertiary education occurs mostly at age 19-20:** the OECD and partner countries with the highest participation in tertiary education are also the ones in which students' transition into tertiary education tends to occur at a younger age. In about half of OECD and partner countries, participation in tertiary education among 19-20 year-olds is 40% or more and in France, Ireland, Korea, the Russian Federation, the United Kingdom and the United States, enrolment rates for this age group are at least 10 percentage points higher than among 21-22 year-olds. Korea, with 71% of 19-20 year-olds in tertiary education is well above the other countries (Figure B1.1).
- **Transition to tertiary education occurs mostly at age 19-22:** on average across OECD countries, 37% of 19-20 year-olds and 21-22 year-olds were enrolled in tertiary education in 2017. Enrolment rates in these two age groups are also very similar and close to the OECD average in a number of countries, including Argentina, Austria, Italy, Estonia and the Netherlands.
- **Transition to tertiary education occurs mostly at age 21-22:** transition into tertiary education begins a bit later and tertiary enrolment rates peak among 21-22 year-olds in the Czech Republic, Hungary, Iceland and the Slovak Republic, as well as in Norway, Poland and Turkey where enrolment exceeds 40%. In addition, in Finland, Germany, Sweden and Switzerland, participation in tertiary education among 21-22 year-olds is similar to the rate among 23-24 year-olds. Denmark is the only country where enrolment in tertiary education peaks among 23-24 year-olds. Various factors can influence a later entrance to tertiary education (see Indicator B4).

Tertiary education pathways

The share of students enrolled in each tertiary education level and at each age illustrates the different educational systems and pathways in countries. As students get older, they enrol in bachelor's programmes and can then move on to higher educational levels, including master's programmes from the age of 20 (or earlier in case of long first degrees, see Box B1.1), and doctoral programmes from the age of 25. Depending on the structure of the educational system, students across the OECD may also enrol in short-cycle tertiary programmes from the age of 17.

Short-cycle tertiary programmes are often designed to provide participants with professional knowledge, skills and competencies; these practically based programmes prepare students to enter the labour market, but may also provide a pathway to other tertiary education programmes. The OECD average enrolment rate for these programmes peaks at age 18-21, reaching between 4% and 5%. These programmes are not offered in some countries such as Estonia, Finland, Greece and Lithuania. However, enrolment rates in short-cycle tertiary

programs are more similar to those in bachelor's programmes in countries like Canada, Chile, France, Korea, the Russian Federation, Spain, Turkey and the United States. In these countries, enrolment of 19-20 year-olds in these programmes exceeds 10%. The typical enrolment period (for which at least 50% of students at this level are enrolled) lasts between two years (France) and seven years (Turkey).

Enrolment in bachelor's programmes is more prevalent than enrolment in other programmes at the tertiary level. They are designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. In most OECD countries, the typical age range over which students enrol in bachelor's programmes lasts 4-5 years, starting from age 18 or 19, although participation at this level may start later (at 21 or 22) in a number of countries like Denmark, Iceland and Israel. Only in Belgium, France, Ireland, Lithuania, the Slovak Republic, Slovenia and the United Kingdom do the typical enrolment ages exactly reflect the typical duration of bachelor's programmes, which is usually three years. The average enrolment rate across OECD countries in bachelor's programmes peaks between the ages of 19 and 22, reaching 32% among 20-21 year-olds. Overall enrolment patterns at this level strongly mirror those at tertiary level more generally.(

Master's programmes are designed to provide advanced academic or professional knowledge, skills and competencies and may have a substantial research component. They are less prevalent than bachelor's in OECD countries, where the average enrolment rate remains below 10%: among 22-26 year-olds enrolment rates range between 5% and 9%, peaking at the age of 23. In 2017, at least 10% of the population aged 21-22 were enrolled in master's programmes in Belgium, France, Italy, Poland Portugal, the Russian Federation and Sweden. The enrolment rate for 23-24 year-olds is higher than for 21-22 year-olds on average across OECD countries and it reached 15% in France and Italy and more in the Czech Republic (17%), Poland (20%), the Slovak Republic (17%) and Slovenia (20%).

Box B1.1. Types of bachelor's and master's programmes

There are various types of bachelor's and master's programmes. First short degrees at bachelor's level (i.e. with a cumulative theoretical duration of three to four years) are the most popular type of programme in OECD and partner countries and account for 72% of students at bachelor's and master's level on average across the OECD and at least 90% of students at these levels in Brazil, Korea and Mexico (Figure B1.a). Across OECD countries, only 13% of all students at bachelor's and master's level are enrolled in a first short master's programme following a bachelor's degree. Enrolling in these programmes is particularly uncommon in Brazil, Colombia, Japan, Mexico and New Zealand, accounting for less than 10% of all bachelor's and master's students (Figure B1.a).

First degrees may take longer than four years and may award qualifications either at bachelor's or, more often, at master's level, depending on the field of study and the setup of the tertiary education system in each country. Their longer duration is due to the greater complexity of content. Long first degrees, especially at master's level, cover highly specialised professional studies of greater cumulative duration (e.g. medicine, dentistry, architecture, law or engineering). All first degrees in Colombia are long and 91% of all bachelor's and master's students were enrolled in this type of programme in 2017. Other than Colombia, these programmes are popular in France, Italy, Portugal and Sweden where the share of students enrolled at these levels equalled or exceeded 19% in the same year.

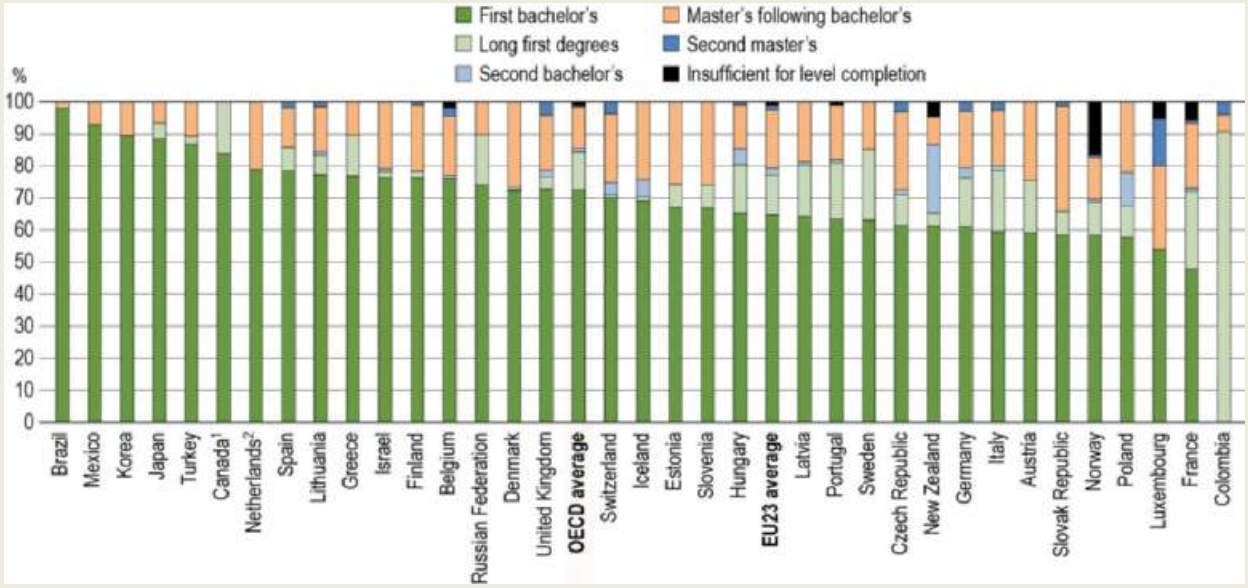
In addition to first bachelor's and master's programmes, students in tertiary education may enrol in second or further degree programmes, which are typically 1-2 years long at bachelor's level and 1-4 years of (often professionally oriented) full-time study at master's level (UNESCO-UIS, 2012[4]). Second or further degrees are more uncommon in OECD countries, although they equal or exceed 10% of bachelor's and master's students in New Zealand and Poland at bachelor's level and in Luxembourg at master's level. In New Zealand,

for example, these generally relate to professionally oriented one-year post-bachelor's programmes in a specific field.

Recognised intermediate qualifications from the successful completion of stages of programmes (prior to completing a first degree) which are insufficient for full completion of a level may be classified at a lower attainment level or simply classified as insufficient for level completion. An example of the latter are the *classes préparatoires aux grandes écoles* (higher school preparatory classes) in France, which are not recognised as degrees but rather prepare students for a degree programmes (e.g. in the fields of business or engineering).

Figure B1.a. Share of bachelor's and master's students by educational programme (2017)

Students in full-time and part-time programmes in both public and private institutions



Note: Long first degrees and programmes insufficient for level completion include programmes classified at both bachelor's and master's levels.
1. Excludes private institutions at short-cycle tertiary level.
2. Master's following a bachelor's programme include second or further bachelor's degrees.
Countries are ranked in descending order of the share of students enrolled in first bachelor's degrees or equivalent programmes.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Profile of tertiary students

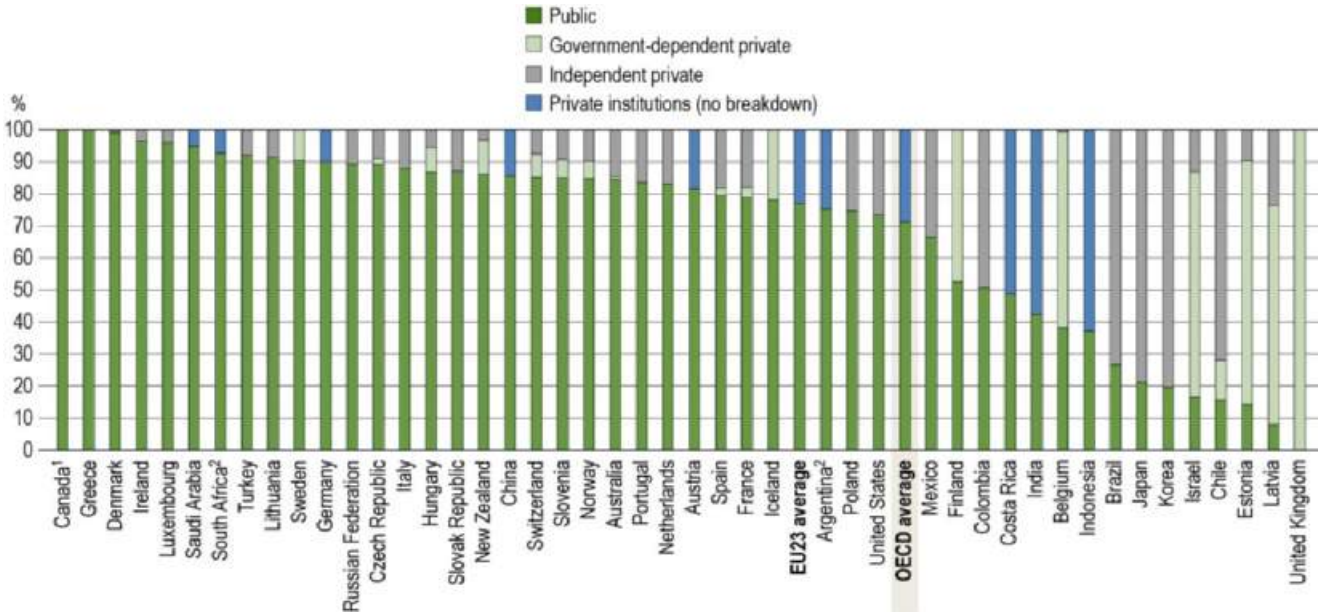
Public institutions tend to dominate enrolments across tertiary education levels. In general across OECD countries, while the relative share of enrolment in public institutions tends to fall with higher educational levels from primary to tertiary education (OECD, 2018[2]), the opposite is true within tertiary education, where enrolment in public institutions increases with each higher level.

On average across OECD countries in 2017, 71% of students in tertiary education were enrolled in public institutions, compared to 77% on average across the EU23. Among all OECD and partner countries, only Belgium, Estonia, Israel, Latvia and the United Kingdom have more than 50% of students enrolled in government-dependent private institutions and only Brazil, Chile, Japan and Korea have more than 50% of students in independent private institutions. In contrast, 95% of tertiary students or more were enrolled in public institutions in 2017 in Canada, Denmark, Greece, Ireland, Luxembourg and Saudi Arabia (Figure B1.3).

The share of students enrolled in public institutions varies by level of education. On average across the OECD, 60% of students in short-cycle tertiary programmes are enrolled in public institutions compared to 69% for bachelor's programmes. In some countries, the share of students enrolled in public institutions is much larger in short-cycle tertiary programmes than at bachelor's level. This is the case in Brazil, Colombia, Costa Rica, Israel, Latvia and Mexico, where the difference between these levels is equal to or exceeds 30 percentage points.

Figure B1.3. Share of tertiary students enrolled by type of institution (2017)

Students in full-time and part-time programmes



1. Excludes private institutions at short-cycle tertiary level.
2. Year of reference 2016.
Countries are ranked in descending order of share of tertiary students enrolled in public institutions.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977733

The share of master's students in public institutions is 1 percentage point higher than at bachelor's level on average across OECD countries. However, the difference equals or exceeds 25 percentage points or more in Brazil, Finland and Japan. In contrast, in some countries a smaller share of students is enrolled in public institutions in master's programmes than at bachelor's level: in Estonia, Mexico, the Netherlands, Saudi Arabia and the United States, the share of students in public institutions at master's programmes is at least 15 percentage points lower than at bachelor's level. In doctoral programmes, the average share of enrolment in public institutions increases by 8 percentage points compared to master's programmes, reaching 78% in 2017 on average across OECD countries and 100% in 15 OECD and partner countries. Only in Costa Rica, Estonia, Israel and Latvia are the majority of doctoral students enrolled in private institutions (in Estonia, Israel and Latvia more than 9 out of 10 doctoral students enrolled in government-dependent private institutions).

The share of part-time enrolment increases with higher levels of education and with the average age of students enrolled (OECD, 2018[2]). However, this varies across different tertiary education levels: on average across OECD countries in 2017, 16% of students in bachelor's programmes were part time, 21% in master's and doctoral programmes and 26% in short-cycle tertiary programmes (Table B1.3). However, there are stark disparities between countries. The share of part-time students in bachelor programmes ranges from 2% or less in the Czech Republic and Luxembourg as well as in countries where bachelor's programmes do not allow part-time

study at this level (Austria, Chile, Colombia, Costa Rica, France, Greece, Italy, Mexico and Turkey), to 49% in the Russian Federation and 53% in Sweden. The share of part-time students reaches its peak for master's programmes in New Zealand (63%) and for doctorates in Finland, Germany, Norway and Slovenia, where at least 75% of doctoral students are enrolled part time.

Subnational variations in enrolment

Subnational variation in enrolment patterns reveal the equality of access to education across a country, as well as labour-market opportunities and perceptions of lifelong learning for levels beyond compulsory education. Between the ages of 6 and 14 (corresponding to compulsory education in many countries) and 15 to 19 (when students transition to the labour market or to tertiary education), subnational differences are lower than for other ages, with coefficients of variation across regions lower than 20% in all countries with subnational data.

On average across all countries with subnational data and across age groups from the age of 6, the largest variation in enrolment at subnational level can be observed for older age groups. While regional differences in enrolment levels for 20-29 year-olds are relatively low in Estonia, Germany and Sweden, the coefficient of variation shows considerable variation and exceeds 80% in the Czech Republic, Latvia, Lithuania and the Slovak Republic. Latvia also has the highest ratio between the highest and lowest enrolment rates at subnational level for this age group.

Subnational disparities in enrolment increase among 30-39 year-olds. The variation is especially high in Greece, Latvia and the Slovak Republic, where the coefficient of regional variation exceeds 70%. The enrolment rate for older adults (40-64 year-olds) are relatively low, reaching 2% on average across OECD countries. Regional differences at this age are still observed across countries with available data, particularly in Greece and Latvia, where the ratio between the highest and lowest enrolment rates across regions increases the most for this age group compared to the one for 30-39 year-olds (OECD, 2019[5]).

Definitions

The data in this indicator cover formal education programmes that represent at least the equivalent of one semester (or half of a school/academic year) of full-time study and take place entirely in educational institutions or are delivered as combined school- and work-based programmes.

Full enrolment, for the purposes of this indicator, is defined as enrolment rates exceeding 90%.

General education programmes are designed to develop learners' general knowledge, skills and competencies, often to prepare them for other general or vocational education programmes at the same or a higher education level. General education does not prepare people for employment in a particular occupation, trade or class of occupations or trades.

Vocational education and training (VET) programmes prepare participants for direct entry into specific occupations without further training. Successful completion of such programmes leads to a vocational or technical qualification that is relevant to the labour market.

Private institutions are those controlled and managed by a non-governmental organisation (e.g. a church, a trade union or a business enterprise, foreign or international agency), or their governing board consists mostly of members not selected by a public agency. Private institutions are considered **government-dependent** if they receive more than 50% of their core funding from government agencies or if their teaching personnel are paid by a government agency. **Independent private** institutions receive less than 50% of their core funding from government agencies and their teaching personnel are not paid by a government agency.

A **full-time student** is someone who is enrolled in an education programme whose intended study load amounts to at least 75% of the normal full-time annual study load. A **part-time student** is one who is enrolled in an education programme whose intended study load is less than 75% of the normal full-time annual study load.

Methodology

Except where otherwise noted, figures are based on head counts, because of the difficulty for some countries to quantify part-time study. Net enrolment rates are calculated by dividing the number of students of a particular age group enrolled in all levels of education by the size of the population of that age group. While enrolment and population figures refer to the same period in most cases, mismatches may occur due to data availability in some countries resulting in enrolment rates exceeding 100%.

For more information, please see the OECD *Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications* (OECD, 2018[6]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the academic year 2016/17 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018 (for details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en). Data from Argentina, the People's Republic of China, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

Data on subnational regions for selected indicators are available in the OECD Regional database (OECD, 2019[5]).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator B1 Tables

Table B1.1 Enrolment rates by age group (2005, 2010 and 2017)

Table B1.2 Enrolment rates in tertiary education, by age group and level of education (2017)

Table B1.3 Profile of students enrolled in tertiary education (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980925

Table B1.1. Enrolment rates by age group (2005, 2010 and 2017)

Students in full-time and part-time programmes in both public and private institutions

		Number of years for which at least 90% of the population of school age are enrolled	Age range at which at least 90% of the population of school age are enrolled	Students as a percentage of the population of a specific age group											
				6 to 14	15 to 19	20 to 24	25 to 29	30 to 39	40 to 64	15 to 19	20 to 24	25 to 29	15 to 19	20 to 24	25 to 29
		2017								2010			2005		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Countries														
	Australia	13	5-17	100	90	56	28	17	8	83	45	19	82	44	21
	Austria	12	4-15	99	78	34	18	6	1	78	33	17	m	m	m
	Belgium	16	3-18	99	95	49	14	7	3	92	52	17	94	42	15
	Canada[1]	12	5-16	100	78	33	10	4	1	76	36	11	m	m	m
	Chile	13	5-17	97	81	43	16	6	1	76	37	13	m	m	m
	Colombia	4	9-12	88	59	25	12	6	2	m	m	m	m	m	m
	Czech Republic	14	5-18	98	91	41	10	2	1	91	39	11	91	34	10
	Denmark	15	3-17	99	86	54	30	9	2	85	49	27	m	m	m
	Estonia	15	4-18	97	89	39	15	7	2	91	44	14	91	40	14
	Finland	13	6-18	99	86	51	31	17	6	87	53	31	87	55	30
	France	15	3-17	100	86	37	7	2	0	84	34	6	84	32	7
	Germany	15	3-17	99	87	48	21	5	0	89	45	17	88	41	18
	Greece	13	5-17	97	86	52	20	9	3	m	m	m	m	m	m
	Hungary	13	4-16	96	84	36	11	4	1	92	41	11	87	38	13
	Iceland	16	2-17	99	87	44	24	11	4	m	m	m	m	m	m
	Ireland	15	3-17	100	93	44	12	5	2	91	32	9	89	32	10
	Israel	15	3-17	97	66	21	20	6	2	64	24	21	m	m	m
	Italy	15	3-17	98	85	36	12	3	1	85	35	11	82	33	10
	Japan[2]	14	4-17	100	m	m	m	m	m	m	m	m	m	m	m
	Korea	14	3-17	97	87	50	9	2	1	85	54	10	87	46	9
	Latvia	16	3-18	98	93	45	16	6	1	94	44	11	m	m	m
	Lithuania	14	5-18	100	94	47	13	6	1	98	56	16	98	49	17
	Luxembourg	12	4-15	96	76	20	7	2	0	m	m	m	m	m	m
	Mexico	11	4-14	100	61	26	10	4	2	51	19	5	48	17	5
	Netherlands	14	4-17	100	93	54	18	6	2	90	47	12	m	m	m
	New Zealand	14	3-16	99	80	35	14	9	4	80	42	19	74	41	20
	Norway	17	2-18	99	87	46	19	8	2	87	48	19	89	46	19
	Poland	14	5-18	96	93	50	11	3	1	84	11	2	85	12	3
	Portugal	14	4-17	99	89	37	10	4	1	85	37	14	74	35	12
	Slovak Republic	11	6-16	95	83	32	7	2	1	m	m	m	m	m	m
	Slovenia	15	4-18	98	93	60	13	3	0	94	54	16	93	50	17
	Spain	15	3-17	97	87	49	16	6	2	82	37	12	78	34	11
	Sweden	16	3-18	100	91	44	27	16	5	m	m	m	m	m	m
	Switzerland	13	5-17	100	85	39	17	5	1	85	34	14	83	31	13
	Turkey[3]	10	6-15	99[4]	73	51	30	13	3	m	m	m	m	m	m
	United Kingdom	15	3-17	98	85	31	10	6	2	76	27	10	m	m	m
	United States	13	5-17	100	83	36	14	7	2	80	38	15	77	32	13
	OECD average	14	4-17	98	84	42	16	6	2	84	40	14	m	m	m
	Average for countries with available data for all reference years				87	43	15			86	41	14	m	m	m
	EU23 average	14	4-17	98	88	43	15	6	2	88	41	14	m	m	m
Partners	Argentina[4]	13	5-17	100	77	41	21	m	m	m	m	m	m	m	m
	Brazil	11	4-14	98	67	29	15	8	3	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	7	6-12	92	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	7	5-11	m	m	m	4	1	0	m	m	m	m	m	m
	Russian Federation	12	6-17	98	87	35	7	2	0	m	m	m	82	34	13
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

1. Excludes post-secondary non-tertiary education.
2. Breakdown by age not available after 15 years old.
3. The 6 to 14 age group includes a number of students aged over 14 who are enrolled in primary education.
4. Year of reference 2016.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B1.2. Enrolment rates in tertiary education, by age group and level of education (2017)

Students enrolled in full-time and part-time programmes in both public and private institutions

		Age 19 to 20		Age 21 to 22			Age 23 to 24			Age 25 to 26				Age 27 to 28			
		Short-cycle tertiary	Bachelor's	Short-cycle tertiary	Bachelor's	Master's	Short-cycle tertiary	Bachelor's	Master's	Short-cycle tertiary	Bachelor's	Master's	Doctorate	Short-cycle tertiary	Bachelor's	Master's	Doctorate
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Countries																
	Australia	8	41	7	31	4	6	15	9	5	8	6	1	5	5	4	1
	Austria	9	19	2	22	6	2	14	10	1	9	10	1	1	6	7	1
	Belgium	1	53	1	32	12	1	12	11	1	4	5	1	1	2	3	1
	Canada[1]	11	32	6	28	2	4	12	4	3	6	3	1	2	3	2	1
	Chile	16	33	12	32	1	7	22	2	5	12	2	0	4	7	2	0
	Colombia	9	18	6	19	0	4	12	1	3	8	1	0	3	5	1	0
	Czech Republic	0	29	0	32	7	0	13	17	0	5	9	2	0	2	2	2
	Denmark	2	11	5	33	1	4	28	11	3	15	14	1	2	9	8	1
	Estonia	a	28	a	28	5	a	14	10	a	7	7	1	a	5	4	1
	Finland	a	20	a	36	2	a	30	7	a	17	8	0	a	11	6	1
	France	16	27	5	15	19	2	5	15	1	2	6	1	0	1	3	1
	Germany	0	20	0	24	7	0	18	11	0	11	11	1	0	7	7	2
	Greece	a	55	a	48	1	a	30	3	a	17	4	1	a	11	3	1
	Hungary	2	20	1	21	6	1	12	9	0	6	5	1	0	3	2	1
	Iceland	0	10	0	30	1	1	24	4	1	14	6	0	1	10	5	1
	Ireland	2	53	1	39	3	1	11	5	1	6	3	1	1	4	2	1
	Israel	7	7	3	15	0	2	21	1	3	20	3	0	2	11	4	0
	Italy	0	31	0	26	10	0	12	15	0	6	9	1	0	4	5	1
	Japan	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	22	50	12	46	1	4	26	2	1	9	3	1	1	2	2	1
	Latvia	6	34	6	33	5	4	16	9	3	8	6	1	2	5	4	1
	Lithuania	a	47	a	44	4	a	14	11	a	7	6	1	a	4	3	1
	Luxembourg[2]	1	4	2	8	0	2	5	2	1	2	3	0	0	1	3	1
	Mexico	2	27	1	24	0	0	12	1	0	6	1	0	0	3	1	0
	Netherlands	0	41	0	38	5	0	22	10	0	12	7	1	0	6	4	1
	New Zealand	6	36	4	26	2	3	13	2	3	8	1	1	2	6	1	1
	Norway	1	24	1	33	7	1	21	10	1	13	8	0	0	9	4	1
	Poland	0	36	0	35	10	0	13	20	0	7	6	1	0	4	2	1
	Portugal	2	31	1	21	14	0	9	10	0	5	5	1	0	3	3	1
	Slovak Republic	1	24	1	23	9	0	7	17	0	2	5	1	0	1	2	1
	Slovenia	8	45	8	38	6	4	11	20	2	4	12	1	1	2	3	1
	Spain	12	35	9	31	5	5	16	7	3	8	5	1	2	5	3	1
	Sweden	1	12	1	18	10	1	14	11	1	10	7	1	1	7	4	1
	Switzerland	0	16	0	26	2	0	20	8	0	11	7	2	0	6	4	2
	Turkey	19	26	16	31	2	13	23	3	10	16	4	0	8	13	4	0
	United Kingdom[3]	2[d]	41	1[d]	20	5	1[d]	5	5	1[d]	3	3	1	1[d]	2	2	1
	United States	19	32	12	26	2	7	10	5	5	5	5	0	4	3	3	0
	OECD average	5	30	4	29	5	2	16	8	2	8	6	1	1	5	3	1
	EU23 average	3	31	2	29	7	1	14	11	1	7	7	1	1	4	4	1
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	0	21	0	22	0	0	17	0	0	12	0	0	0	9	0	0
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	India	a	m	a	m	m	a	m	m	a	m	m	m	a	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation[4]	21[d]	34	5[d]	26	11	2[d]	10	7	1[d]	5	2	1	1[d]	3	1	0
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

1. Excludes private institutions at short-cycle tertiary level.
2. Underestimated due to many resident students enrolled in neighbouring countries.
3. Short-cycle tertiary programmes include a small number of bachelor's professional programmes.
3. Short-cycle tertiary programmes include part of upper secondary vocational programmes.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B1.3. Profile of students enrolled in tertiary education (2017)

		Typical enrolment ages[1]				Share of students enrolled in public institutions				Share of part-time students			
		Short-cycle tertiary	Bachelor's	Master's	Doctorate	Short-cycle tertiary	Bachelor's	Master's	Doctorate	Short-cycle tertiary	Bachelor's	Master's	Doctorate
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	18-28	18-22	22-27	24-33	63	92	90	99	65	26	35	29
	Austria	17-19	19-23	22-28	26-33	82	77	85	98	a	a	a	a
	Belgium	19-27	19-21	21-24	25-30	41	39	33	43	70	29	24	0
	Canada[2]	18-22	19-22	22-27	26-32	m	100	100	100	12	19	25	6
	Chile	18-23	19-23	22-31	27-33	4	20	23	43	a	a	a	a
	Colombia	17-22	18-23	24-33	32-37	80	39	30	63	a	a	a	a
	Czech Republic	19-22	20-23	22-25	25-30	80	86	93	100	0	2	8	0
	Denmark	20-25	21-25	23-26	27-32	98	99	100	100	25	12	7	0
	Estonia	a	19-23	22-28	26-32	a	22	1	0	a	10	9	13
	Finland	a	20-25	23-30	28-38	a	39	83	100	a	27	52	100
	France	18-19	18-20	21-24	24-28	67	86	76	99	a	a	a	a
	Germany	21-25	20-24	23-27	27-31	78	86	95	100	42	11	6	76
	Greece	a	18-23	23-32	25-29	a	100	100	100	a	a	5	a
	Hungary	19-22	20-23	21-25	25-29	86	86	88	93	29	29	27	22
	Iceland	22-28	21-25	24-33	26-36	64	78	79	96	31	25	41	43
	Ireland	18-21	19-21	22-30	24-31	100	96	93	100	60	7	46	19
	Israel	18-25	22-26	25-33	28-35	42	12	11	0	0	19	4	0
	Italy	19-21	19-22	22-26	25-28	0	87	90	96	a	a	a	a
	Japan	m	m	m	m	7	20	47	71	3	9	7	9
	Korea	18-20	19-22	23-30	24-34	2	24	32	38	m	m	m	m
	Latvia	19-26	19-22	22-27	25-32	45	a	a	a	49	30	6	1
	Lithuania	a	19-21	23-26	26-30	a	90	97	99	a	24	14	11
	Luxembourg	21-23	20-23	23-28	27-31	100	93	98	100	0	2	48	8
	Mexico	18-20	19-22	24-29	26-30	97	67	39	61	a	a	a	a
	Netherlands	22-30	19-22	22-27	26-30	31	90	64	100	72	13	35	a
	New Zealand	18-28	18-22	21-28	25-34	53	94	98	100	57	39	63	43
	Norway	20-25	19-24	21-26	26-34	71	82	93	98	42	35	28	100
	Poland	21-29	19-22	22-24	25-29	100	73	78	92	a	26	40	13
	Portugal	18-20	18-21	20-24	27-30	83	80	87	94	0	6	4	7
	Slovak Republic	19-22	20-22	22-24	24-29	66	87	86	95	10	21	26	45
	Slovenia	19-22	19-21	23-25	25-31	72	85	92	79	42	19	8	77
	Spain	19-23	18-22	22-28	24-33	75	83	71	95	11	29	30	0
	Sweden	21-28	20-26	21-26	26-33	39	95	92	92	6	53	39	57
	Switzerland	21-31	20-24	23-27	26-30	13	81	96	100	93	31	15	0
	Turkey	19-25	19-24	23-29	27-33	94	92	83	91	a	a	a	a
	United Kingdom	18-29	18-20	21-27	22-29	a	a	a	a	48	10	46	25
	United States	18-23	18-21	22-28	23-33	91	68	48	52	58	22	44	35
	OECD average					60	69	70	78	26	16	21	21
	EU23 average					65	73	74	81	25	16	21	21
Partners	Argentina[3]	m	m	m	m	x(6)	75[4]	74	88	m	m	m	m
	Brazil	30-32	18-24	24-31	26-33	64	25	83	88	m	m	m	m
	China	m	m	m	m	87	83	100	100	m	m	m	m
	Costa Rica	m	m	m	m	81	45	44	41	a	a	a	a
	India	a	m	m	m	a	40	56	74	a	m	m	m
	Indonesia	m	m	m	m	43	35	53	77	m	m	m	m
	Russian Federation	16-18	18-21	20-23	23-26	93	85	96	100	27	49	25	28
	Saudi Arabia	m	m	m	m	100	95	81	100	m	m	m	m
	South Africa[3]	m	m	m	m	87	94	97	100	m	m	m	m
	G20 average					62	67	71	81	m	m	m	m

1. Typical enrolment ages correspond to the shortest age interval which covers at least 50% of students at that level.
2. Private institutions at short-cycle tertiary level are excluded.
3. Year of reference 2016.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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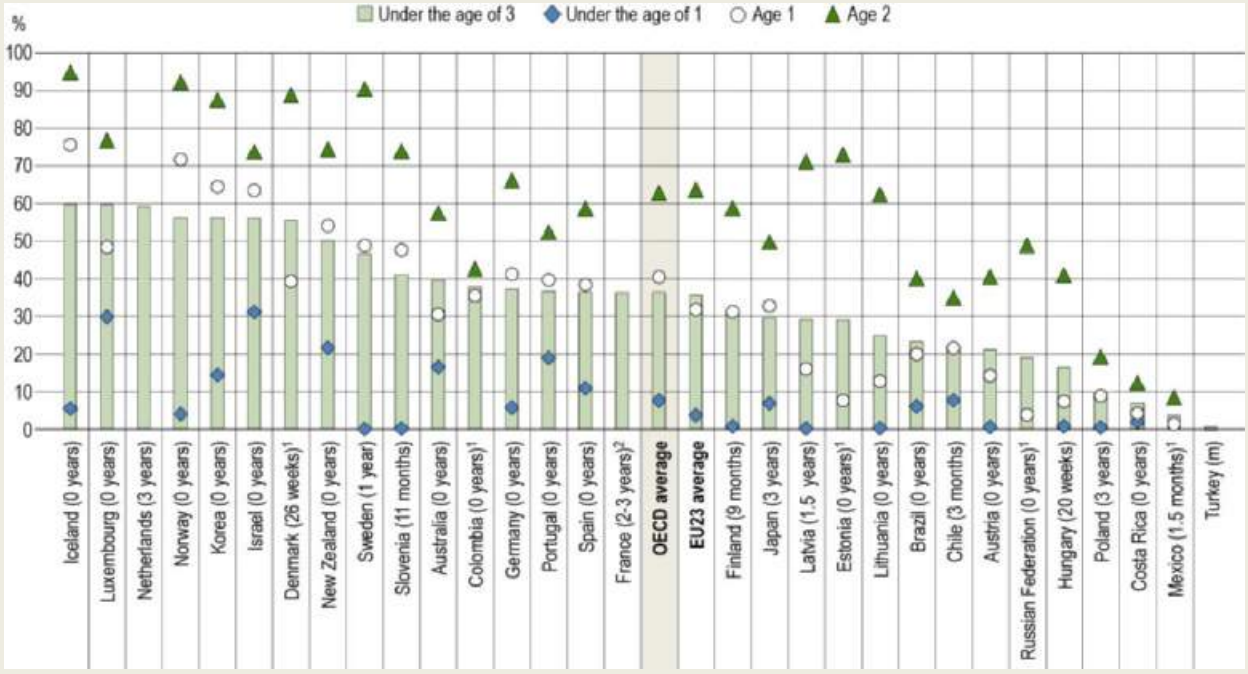
Indicator B2. How do early childhood education systems differ around the world?

Highlights

- More than 70% of the OECD countries with available data have integrated early childhood education and care (ECEC) services, where one or several authorities are responsible for administering the whole ECEC system and setting adequate intentional education for children from the ages of 0 or 1 until entry into primary education.
- ECEC has experienced a surge of policy attention in OECD countries in recent decades, with a focus on children under the age of 3. On average across OECD countries in 2017, more than one-third of children under 3 were enrolled in early childhood education (ISCED 0) and other registered ECEC services outside the scope of ISCED 0, an increase of 8 percentage points compared to 2010. On average, 40% of 1-year-olds and 62% of 2-year-olds were already enrolled in ECEC services.
- Universal or near-universal participation in at least one year of ECEC is now the norm in OECD countries, which is significant progress towards one of the education targets of the United Nations' Sustainable Development Goals (SDG 4.2.2). Enrolment rates for 5 year-olds in pre-primary or primary education is above 90% in 36 out of 43 countries with available data in 2017.

Figure B2.1. Enrolment rates of children under the age of 3 in early childhood education and care, by age (2017)

All ECEC services (Early childhood education [ISCED 0] and other registered ECEC services outside the scope of ISCED 0)



Note: Figures in parentheses refer to the age when ECEC systems start offering intentional education objectives.
1. Age 1 also includes children under the age of 1.
2. Data for other registered ECEC services come from the survey "*Modes de garde et d'accueil des jeunes enfants 2013*" conducted by the statistical division of the French Ministry for Solidarities and Health (DREES). Figures refer to the primary custody arrangements.
Countries are ranked in descending order of the enrolment rates in ISCED 0 of children under the age of 3.
Source: OECD (2019). Table B2.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933977847

Context

The benefits of ECEC services are not limited to better labour-market outcomes and fertility rates. There is an increasing awareness of the key role that ECEC plays in children's development, learning and well-being. Children who start strong will be more likely to have better outcomes when they grow older. This is particularly true for children from disadvantaged socio-economic backgrounds, because they often have fewer opportunities to develop these abilities in their home-learning environments (OECD, 2017[1]).

Economic prosperity also depends on maintaining a high employment-to-population ratio, and the increasing number of women entering the labour market has contributed to greater government interest in expanding ECEC services. High-quality ECEC services and other provision aiming to improve people's work-life balance give parents greater opportunities to enter employment and make it possible for individuals to combine work and family responsibilities (OECD, 2018[2]; OECD, 2011[3]; OECD, 2016[4]).

Such evidence has prompted policy makers to design early interventions, to take initiatives that aim to enhance the quality of ECEC services and improve the equity of access to ECEC settings, lower the age of compulsory education, and to rethink their education spending patterns to gain "value for money" (Duncan and Magnuson, 2013[5]). Despite these general trends, there are significant differences across OECD countries in the quality of ECEC services provided to young children, the types of ECEC services available and the usual number of hours per week each child attends.

Other findings

- In early childhood educational development services (ISCED 01), public funding accounts for an average of 69% of total expenditure, while in pre-primary education (ISCED 02), it amounts to 83%. In total, expenditure on ECEC (ISCED 0) accounts for an average of 0.8% of gross domestic product (GDP), of which around three-quarters goes to pre-primary education.
- Variations across countries in the duration of ECEC programmes have a strong impact on the level of expenditure allocated to ECEC. For instance, in Ireland, children typically enter primary education at the age of 5 while in Finland they typically enter at age 7. To avoid this distortion, this indicator now calculates expenditure by age and not by ISCED level. Expenditure on all children aged 3 to 5 enrolled in ECEC and primary education amounts to an average of 0.6% of GDP. It exceeds 0.9% only in Iceland, Norway and Sweden.
- A bachelor's degree (ISCED 6) has become the minimum qualification required to be a teacher in ECEC (ISCED 0) in around three-quarters of OECD countries with available data.
- The child-teacher ratio at the pre-primary level for OECD countries, excluding teachers' aides, ranges from more than 25 children per teacher in Colombia and Mexico to fewer than 10 in Finland and Germany. However, some countries make extensive use of teachers' aides in pre-primary education, as shown by their smaller ratios of children to contact staff than of children to teaching staff. In the majority of these countries, teachers' aides need an upper secondary qualification.

Analysis

Types of early childhood education and care services

There is a growing consensus among OECD countries about the importance for good quality ECEC. However, the types of early childhood education and care (ECEC) services available to children and parents in OECD countries differ greatly. There are variations in the targeted age groups, governance of centres, funding of services, type of delivery (full-day versus part-day attendance), and the location of provision, either in centres or schools, or at home (OECD, 2017[1]).

Generally, formal ECEC services can be classified into two categories:

- The ECEC services reported in the ISCED 2011 classification (OECD/Eurostat/UNESCO Institute for Statistics, 2015[6]). To be classified as ISCED level 0, ECEC services should:
  1. have adequate intentional educational properties
  2. be institutionalised (usually school-based or otherwise institutionalised for a group of children)
  3. have an intensity of at least two hours per day of educational activities and a duration of at least 100 days a year
  4. have a regulatory framework recognised by the relevant national authorities (e.g. a curriculum)
  5. have trained or accredited staff (e.g. educators are required to have pedagogical qualifications).
- The other registered ECEC services that are considered an integral part of countries' ECEC provision but do not comply with all the ISCED 0 criteria to be considered an educational programme (e.g. *crèches* in France or *amas* in Portugal). The distinction between these two categories is explicitly shown in Tables B2.1 and B2.5.

Informal care services (generally unregulated care arranged by the child's parent either in the child's home or elsewhere, provided by relatives, friends, neighbours, babysitters or nannies) are not covered by this indicator (see the *Definitions* section for more details).

Enrolment in early childhood education and care

Enrolment of children under the age of 3

Participation in high-quality ECEC can have a positive effect on children's well-being, learning and development in the first years of their lives (OECD, 2018[2]).

On average across OECD countries in 2017, around one-third of children under the age of 3 were enrolled in ECEC, either full time or part time. This average masks great differences across countries. Less than 5% of children under 3 are enrolled in ECEC services in Mexico and Turkey, while this proportion is 50% or over in Denmark, Iceland, Israel, Luxembourg, Korea, the Netherlands, New Zealand and Norway (Table B2.1).

The length of parental leave and the age when ECEC services start becoming available also influence the age at which children enrol in these services. For instance, only 7 of the 22 countries with available data have enrolment rates of over 10% for children below the age of 1, namely Australia, Israel, Korea, Luxembourg, New Zealand, Portugal and Spain. In contrast, once children reach the age of 1, around 40% will be enrolled in ECEC, with enrolment rates at this age exceeding 50% in Iceland, Israel, Korea, Luxembourg, New Zealand and Norway. By the age of 2, enrolment in ECEC services has become the norm in many countries, with 62% of 2-year-olds enrolled in ECEC. However, this average also hides wide variation. Enrolment rates for 2-year-olds range from less than 20% in Costa Rica, Mexico and Poland to 89% or more in Luxembourg and in all Nordic countries except Finland (Figure B2.1).

Despite significant differences across countries, a common pattern is emerging. The share of children under the age of 3 enrolled in ECEC is rising in most countries with available data for years 2010 and 2017, and has increased on average by 8 percentage points between 2010 and 2017 (from 26% to 34%). The rise has been particularly marked in many European countries, as a result of further stimulus from the objectives set by the European Union (EU) at its Barcelona 2002 meeting, to supply subsidised full-day places for one-third of children under the age of 3 by 2010 (OECD, 2017[1]). Globally, the rise in ECEC provision over recent decades is strongly correlated to the increase in women's participation in the labour force, particularly for mothers with children under 3. Countries with higher enrolment rates of children under 3 in 2017 tend to be those in which the employment rates of mothers are highest ((OECD, 2018[2]; OECD, 2018[7]); Table B2.1).

However, wider enrolment in ECEC services does not guarantee the quality of education provided to children. In countries such as Norway, for instance, not only do more than half of children below the age of 3 attend ECEC services, but they also attend programmes that have integrated ECEC curricula (including intentional educational objectives) adapted to the age of children from 0 until the beginning of primary school. In these programmes, children are often exposed to an ECEC setting with trained or accredited staff, even before they turn 3. In other countries with high enrolment rates, such as France and the Netherlands, different standards are often set for different ECEC settings or for different age groups of children (Table B2.1 and Box B2.1).

Enrolment of children from age 3 until entry to primary education

In many OECD countries, ECEC begins for most children long before they are 5 years old and there are universal legal entitlements to a place in ECEC services for at least one or two years before the start of compulsory schooling. On average, 87% of 3-5 year-olds are enrolled in ECEC (ISCED 0) and primary education, at that age usually in pre-primary education (ISCED 02). In half of the 42 countries with available data, the enrolment of children between the ages of 3 and 5 is near universal, exceeding 90% (Table B2.2).

The highest enrolment rates of 3-year-olds in ECEC are found in Belgium, Denmark, France, Hungary, Iceland, Israel, Norway, Spain and the United Kingdom, where they exceed 95%. Almost nine out of ten 4-year-olds (88%) are enrolled in pre-primary and primary education across OECD countries. In the EU23 countries (countries that are members of both the EU and the OECD), 92% of 4-year-olds are enrolled. OECD enrolment rates at this age vary from 98% or higher in Belgium, Denmark, France, Iceland, Ireland, Israel, Spain and the United Kingdom, to less than 50% in Saudi Arabia, Switzerland and Turkey (Table B2.2).

This situation is the result of the expansion of ECEC services over recent decades in many countries. Between 2005 and 2017, the average enrolment of 3-5 year-olds in pre-primary or primary education in OECD countries rose from 76% to 86%. A few countries have seen spectacular increases in ECEC over this period, as in Chile, Lithuania, Israel, Poland, the Russian Federation and Turkey. In contrast, other countries have not shown much change. For instance, Switzerland reported among the lowest enrolment rates in 2005 and this is still the case in 2017 (Figure B2.2).

Over this period, the increased focus on ECEC policy has resulted in the extension of compulsory education to younger children, increased provision of free ECEC for some ages and targeted population groups, universal provision for older children and, in some countries, the creation of integrated ECEC programmes from the age of 1 until entry into primary education. For instance, compulsory education coincided with the start of primary school in most countries a decade ago. In contrast, compulsory education started at pre-primary level in around one-third of countries with available data in 2017 (Table B2.2).

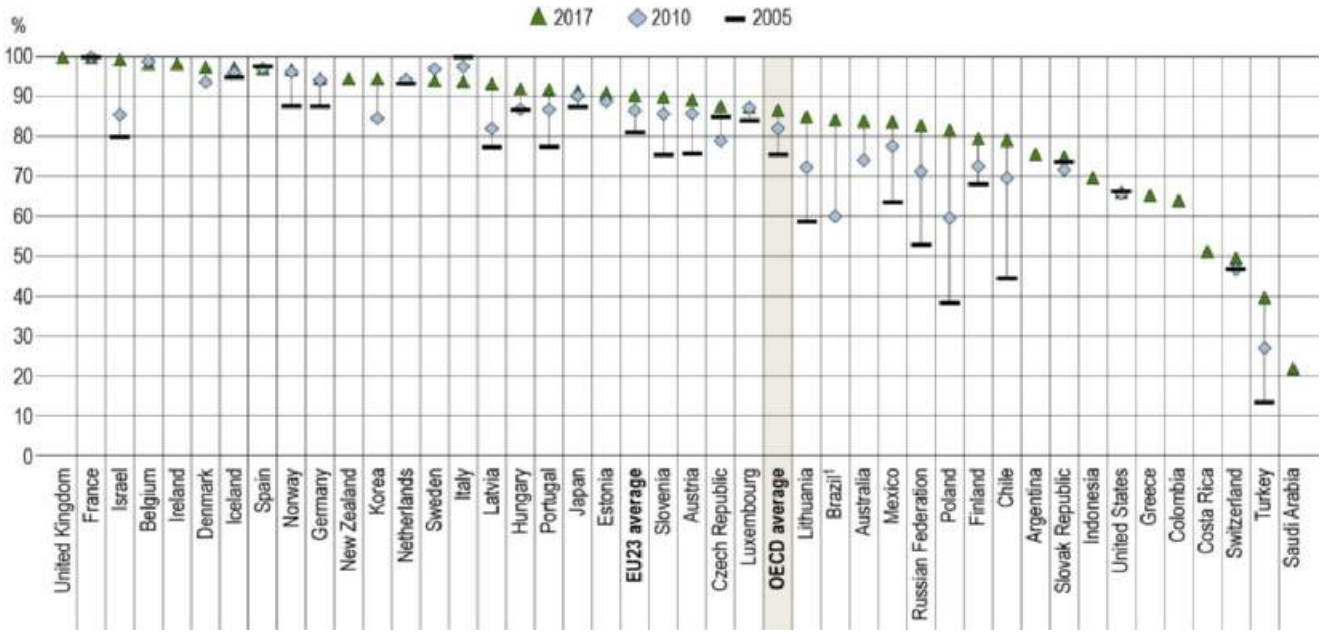
Enrolment in ECEC by subnational regions

If average enrolment of 3-5 year-olds in pre-primary or primary education now exceeds 80% in many countries, some strong subnational differences remain in access to education at these ages. In 7 out of 23 countries with available data, there is a difference of more than 20 percentage points between the regions with the highest and the lowest rates of enrolment. For instance, there are striking differences in the United States, where up to 80% of

3-5 year-olds are enrolled in ECEC and primary education in the District of Columbia, compared to only 46% in North Dakota (OECD, 2019[8]). Similar strong regional differences are observed in France (from 79% in Mayotte to 100% in several regions), Greece (from 57% in Attica to 78% in Western Macedonia), Lithuania (from 65% in Taurage to 94% in Vilnius), the Slovak Republic (from 63% in East area to 83% in West area) and Switzerland (39 % in Central area to 86% in Ticino). In some of these countries, the organisation and governance of ECEC sharply differ between regions. Each region has the autonomy to make the decision to what extent ECEC services should be prioritised and funded, which can lead to wide variations in enrolment rates (see more details in Box B2.1). By contrast, the difference between regions is less than 8 percentage points only in Estonia, Germany, Hungary, Latvia, the Netherlands, Slovenia and Sweden. This emphasises the importance of granting equal access to ECEC across territories and between urban and rural areas.

Figure B2.2. Change in enrolment rates of children aged 3 to 5 years (2005, 2010 and 2017)

Early childhood education (ISCED 0) and primary education



1. Year of reference 2012 instead of 2010.
Countries are ranked in descending order of the enrolment rates of 3-5 year-olds in 2017.
Source: OECD (2019). Table B2.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Enrolment in ECEC by type of institution

Parents' needs and expectations regarding accessibility, cost, programme, staff quality and accountability are all important in assessing the expansion of ECEC programmes and the type of providers. When parents' needs for quality, accessibility or affordability are not met by public institutions, some parents may be more inclined to send their children to private pre-primary institutions (Shin, Jung and Park, 2009[9]).

In most countries, the share of children enrolled in private institutions is considerably larger in ECEC than in primary and secondary education. Private institutions can be classified into two categories: independent and government-dependent. Independent private institutions are controlled by a non-governmental organisation or by a governing board not selected by a government agency and receive less than 50% of their core funding from

government agencies. Government-dependent private institutions have similar governance structures but they rely on government agencies for more than 50% of their core funding.

On average across OECD countries, about half of the children in early childhood educational development services (ISCED 01) are enrolled in private institutions. This average, however, hides huge discrepancies across countries. In Chile, Denmark, Finland, Hungary, Iceland, Latvia, Lithuania, Slovenia, Sweden and the Russian Federation, 20% or less of the children in early childhood educational development programmes attend private ECEC institutions, while in Costa Rica, Indonesia, Israel, Korea, New Zealand and the United Kingdom, more than three-quarters of all children attend private institutions (Table B2.3).

Private institutions usually are more common for children under the age of 3 than for older ones. About two-thirds of children enrolled in pre-primary education (ISCED 02) attend public institutions across OECD countries, and up to three-quarters of children across EU23 countries, reflecting the development of policies promoting the public provision of ECEC that occurred in most European countries over the past two decades. In a few countries, however, ECEC remains mostly privately provided and funded: in Australia, India, Indonesia, Ireland, Japan, Korea and New Zealand, at least 70% of children attending pre-primary programmes are in private institutions (Table B2.3). In Ireland, the government provides a capitalisation fee to participating playschools and day-care services.

Financing early childhood education and care

Sustained public financial support is critical for the growth and quality of ECEC programmes. Appropriate funding helps to recruit trained staff who are qualified to support children's cognitive, social and emotional development. Investment in early childhood facilities and materials also helps support the development of child-centred environments for well-being and learning. In countries that do not channel sufficient public funding towards achieving both broad access and high-quality programmes, some parents may be more inclined to send their children to private ECEC services. Moreover, if the cost of ECEC is not sufficiently subsidised, the ability of parents to pay will greatly influence the participation to ECEC of children from disadvantaged socio-economic backgrounds (OECD, 2017[1]).

Expenditure per child

In pre-primary education, annual expenditure per child for both public and private settings averages USD 8 349 in OECD countries, ranging from less than USD 5 000 in Colombia, Ireland, Mexico, and the Russian Federation to more than USD 10 000 in Austria, Finland, Germany, Iceland, Luxembourg, Norway, Sweden and Switzerland. Annual expenditure per child enrolled in early childhood educational development services (ISCED 01) is significantly higher than in pre-primary education (ISCED 02) in 10 out of the 15 OECD countries with available data for both programmes, averaging USD 12 080 for ISCED 01. The smaller child-to-staff ratio in early childhood development services (ISCED 01) is one of the main drivers of this difference (Tables B2.3 and B2.4). The average number of hours children spend in ECEC settings per year also influences different countries' spending (see Box B2.2 in (OECD, 2018[10])).

Expenditure as a percentage of GDP

Spending on ECEC can also be analysed relative to a nation's wealth. Expenditure on all ECEC settings accounts for an average of 0.8% of GDP across OECD countries, of which three-quarters are allocated to pre-primary education. While 0.3% or less of GDP is spent on pre-primary education in Australia, Colombia, Greece and Japan, countries such as Iceland, Norway and Sweden spend at least 1% of GDP (Table B2.4).

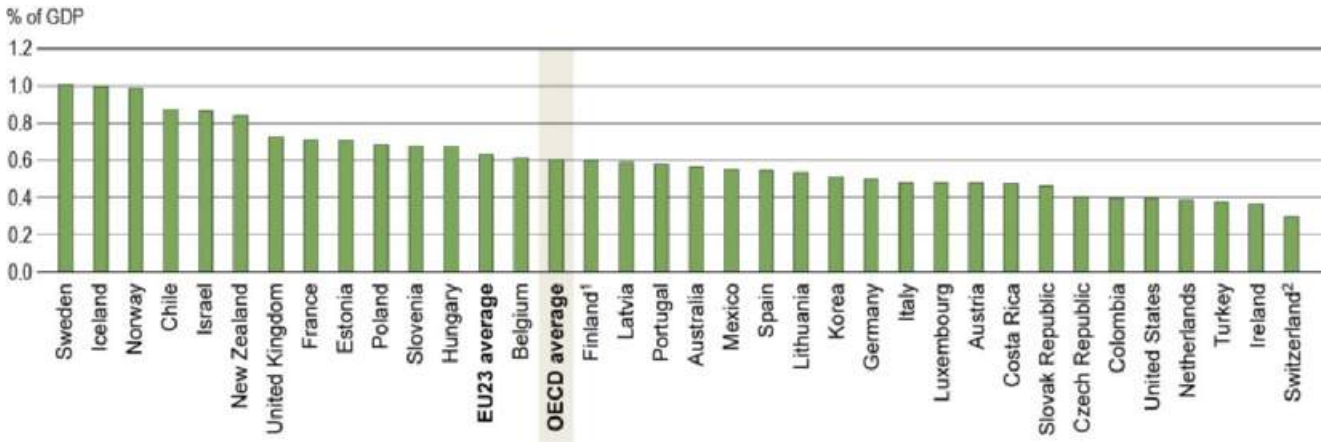
These differences are largely explained by enrolment rates, legal entitlements and the intensity of participation, as well as the different starting ages for primary education. On the latter point, the shorter duration of pre-primary education, as the result of children's earlier transition from pre-primary to primary education in Australia, Ireland, New Zealand and the United Kingdom, partly explains why the expenditure on ECEC as a percentage of GDP is

below the OECD average in these four countries. Similarly, late entry into primary education, as in Estonia, Finland, Latvia, Poland and Sweden, means a longer duration of ECEC than in other countries and may explain why they spend more as a percentage of GDP than the OECD average (see the starting age of primary education in Tables B2.1 and B2.4).

To avoid this distortion, the indicator on the financing of ECEC is presented by age as well as by ISCED level. As this is first time this indicator is presenting estimates expenditure on all children aged 3 to 5 enrolled in either ECEC or primary education, data should be interpreted with caution. This new methodology avoids the distortion arising from the differences in age groups attending ECEC, and compares expenditure on children of the same ages, giving a more accurate picture of countries' investment in young children. Across OECD countries, the share of national resources devoted to 3-5 year-olds enrolled in ECEC and primary education is 0.6% of GDP. It ranges from less than 0.4% of GDP in Colombia, the Czech Republic, Ireland, the Netherlands, Switzerland, Turkey and the United States, to more than 0.8 % in Chile, Israel, Iceland, New Zealand, Norway and Sweden (Figure B2.3).

Figure B2.3. Expenditure on all children aged 3 to 5 enrolled in early childhood education and care (ISCED 0) and primary education, as a percentage of GDP (2016)

Public and private institutions



1. Expenditure on all children aged 3 to 5 are underestimated due to the estimation method used.
2. Public sources only.

Countries are ranked in descending order of expenditure as a percentage of GDP.
Source: OECD (2019). Table B2.4. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Public and private funding of ECEC

The source of funding for ECEC settings varies across countries. In many countries, the public sector provides universal access from a certain age. Many governments may also delegate responsibility for the public funding of ECEC to local authorities. In general, public funding of ECEC is more decentralised than at any other level of education (OECD, 2018[11]).

Generally, there has been a substantial and increasing public investment in ECEC, although there are differences between pre-primary (ISCED 02) and early childhood educational development (ISCED 01). On average, public sources account for 69% of total expenditure on early childhood educational development, while for pre-primary education, the share of public expenditure is 83%. Japan and the United Kingdom are the only countries where private funds account for more than 40% of total expenditure on pre-primary education. In the United Kingdom,

most of the private funding comes from households. In Japan, the high cost is shared between households, foundations and the business sector (Table B2.4).

Box B2.1. Who is responsible for early childhood education and care?

Countries present different profiles when the governance of ECEC is analysed (Figure B2.a).

Currently, about half of OECD countries have an integrated system, where responsibility for administering all ECEC services lies with one lead authority at the national and/or regional level. In all the countries with an integrated system except Hungary and Iceland, the education ministry is in charge of the entire ECEC age group at the central level. The responsibilities of the leading authority in those countries may stretch from curriculum development to standard setting, monitoring and financing. Countries with integrated systems also have integrated ECEC curricula adapted to the age of children from under 1 until the beginning of primary school. An increasing number of countries have recently moved towards these types of integrated systems.

Figure B2.a. Who is responsible for early childhood education and care (ECEC)?

The entire ECEC system (ISCED 01 and ISCED 02) is under the responsibility of the ministry of education	Pre-primary education (ISCED 02) is administered under the responsibility of the ministry of education. ECEC services for younger children (ISCED 01 and other services outside ISCED) are under the responsibility of another authority (e.g. ministry of health and welfare; ministry of Labour, Social Affairs and Family) or subject to regional arrangements.	The entire ECEC system (ISCED 01 and 02) is administered by different authorities (which may vary depending on regional arrangements)
17 countries	**10 countries**	**9 countries**
Australia, Brazil, Chile, Costa Rica, Estonia, Finland, Hungary[1], Iceland[2], Latvia, Lithuania, Luxembourg, New Zealand, Norway, Slovenia, Spain, Sweden and the United Kingdom[3]	Belgium, the Czech Republic, France, Italy, Korea[4], the Netherlands[5], Portugal[4], Poland, the Slovak Republic and Switzerland	Austria[6], Canada, Colombia[7], Denmark, Germany, Ireland[8], Japan, Mexico and the United States

1. The state Secretariat for Education is responsible for ISCED 0 while the state Secretariat for Family and Youth Affairs is responsible for ECEC services outside ISCED 0. Both are under the auspices of the Ministry of Human Capacities.
2. The entire ECEC system (ISCED 01 and ISCED 02) is administered under the responsibility of the Ministry of Health and Welfare.
3. In England, Scotland and Northern Ireland the entire ECEC system is the responsibility of the education ministry, but for Wales ECEC services for younger children is the responsibility of the health and welfare ministry.
4. In ISCED 02, the health and welfare authority has also an important role.
5. For 3-year-olds, the welfare authority is responsible for ECEC, except for targeted programmes where the education authority is responsible. For ages 4 and 5, the education authority is responsible for ECEC.
6. Tageseltern, Kinderkrippe and Kindergarten are governed by regional legislation; regarding Vorschulstufe (ISCED 02) education authority is responsible.
7. The entire ECEC system is under the authority of the Inter-sectoral Commission for Early Childhood, composed by different sectors
8. The Department of Children and Youth Affairs, in collaboration with the Department of Education and Skills, has overall responsibility for policy in relation to ECEC.

Source: INES ad-hoc survey. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Ten out of the 36 countries with available data have what is called a “split system”. In many countries with a split system, policies for care and early education have developed separately and fall under the responsibility of different authorities. In these countries, ECEC services for children under the age of 3 are often under the

authority of the social affairs, family, or health and welfare ministries, while settings providing ECEC for older children are under the authority of the education ministry. In countries with split systems, different quality standards are often set for different ECEC settings or for different ages. ECEC services for children under the age of 3 are also often outside the scope of ISCED 0 in these countries. In contrast, in all countries with an integrated system, the same quality standards are applied to any ECEC setting.

Finally, in a third group of countries, multiple authorities (which may vary depending on regional arrangements) administer the entire ECEC system (ISCED 01 and ISCED 02) and ECEC services are for most of them in adherence with ISCED 0 criteria. Countries in this group are often federal countries. For instance, early childhood development services (ISCED 01) are governed by regional legislations in Austria while *Vorschulstufe* (ISCED 02) falls under the responsibility of the ministry of education. In Ireland, the Department of Children and Youth Affairs, in collaboration with the Department of Education and Skills, has overall responsibility for policy in relation to ECEC. Finally, Germany concentrates responsibility for the entire ECEC age bracket on the welfare sector, under the auspices of the Federal Ministry of Family Affairs, Senior Citizens, Women and Youth, as well as the federal states and municipalities. Most of the countries in this group have an integrated curriculum including intentional education objectives starting from the ages of 0 or 1 until the beginning of primary school (OECD, 2017[1]).

In principle, children should not have any difficulty making the transition from childcare to early education in countries with integrated administration of early childhood services, where there is generally a common curriculum for children aged 1 to 5 years, which applies to the majority of countries with available data. In contrast, there can be fundamental differences in goals, means and quality between the childcare and early education sectors in countries operating split or two-tier early childhood systems. The result can be a lack of coherence for children and families, with confusing differences in objectives, funding streams, operational procedures, regulatory frameworks, and staff training and qualifications.

Staffing of early childhood education and care

Minimum qualifications among ECEC teaching staff

Prospective teachers should be provided with high-quality initial training. The type of qualification, duration of training and the programme content provided can influence how well initial teacher education prepares teachers for their role. Evidence from the literature shows that the level and duration of initial staff training are positively associated with overall ECEC quality (Manning, 2017[12]). Highly qualified staff result in a more stimulating environment and high-quality pedagogical practices, which boost children's well-being and learning outcomes (Litjens, 2010[13]).

The qualification awarded at the completion of a teacher-training programme for almost all ECEC teaching staff is a tertiary qualification. In 19 out of the 25 countries with available data, an individual can teach in ECEC (ISCED 0) after earning at least a bachelor's degree or equivalent (ISCED level 6) at the end of their initial teacher education. However, there are some exceptions. In the Slovak Republic, pre-primary teachers can start teaching with an upper secondary diploma, but an increasing number of teachers now have a bachelor's or a master's degree. In Germany, they can begin teaching after graduating from a tertiary vocational programme (e.g. Erzieherausbildung, ISCED 6); in Austria and Israel, they typically graduate at ISCED level 5 after a two-year short-cycle tertiary programme. At the other end of spectrum, in France, Poland and Portugal pre-primary school teachers are required to have a master's degree or equivalent (ISCED level 7), For France, since school year 2010/2011, each student who wants to become an ECEC or primary teacher must obtain a master's degree or equivalent (Table B2.3).

However, no matter how high the quality of pre-service training, it cannot be expected to prepare teachers for all the challenges they will face throughout their careers. Given the changes in student demographics, the length of most teachers' careers, and the need to update knowledge and competencies, initial teacher education must only

be viewed as the starting point for teachers' ongoing development. Recent research also shows that in pre-primary education, the effects of specialised in-service training on process quality are greater than those of pre-service training, particularly when it comes to collaborative work, support for play and support for early literacy, mathematics and science (Assel, 2006[14]; de Haan, 2013[15]).

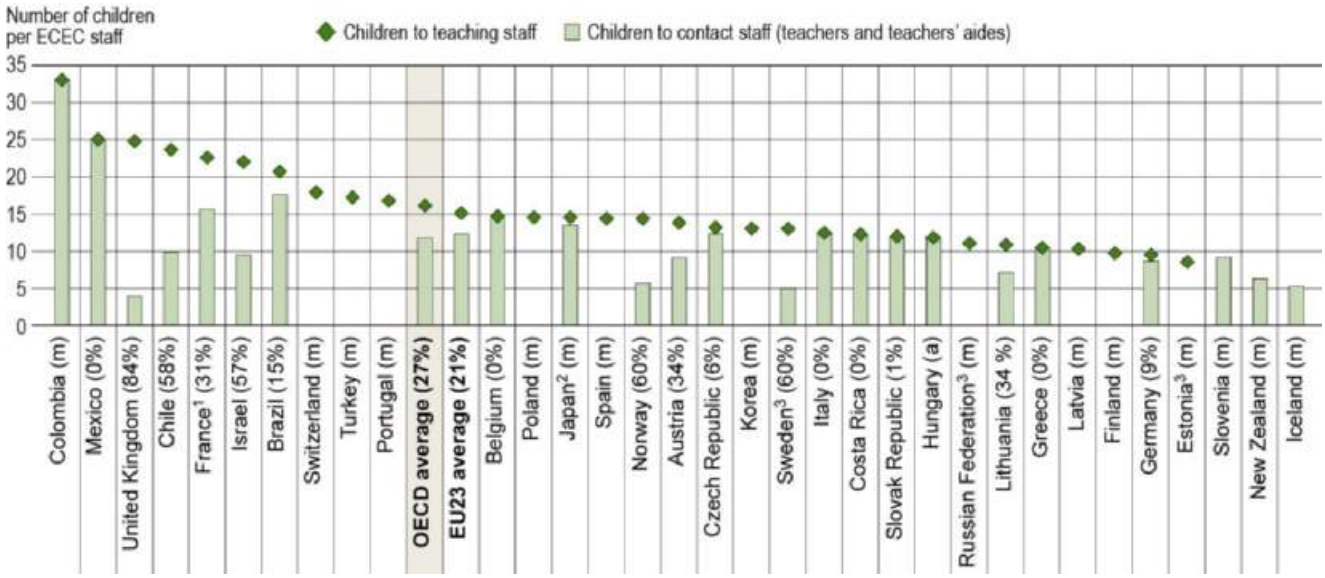
Child-staff ratios

Research demonstrates that enriched, stimulating environments and high-quality pedagogy are fostered by better-qualified practitioners, and that better-quality staff-child interactions facilitate better learning outcomes. In that context, lower child-staff ratios are found to be consistently supportive of staff-child relationships across different types of ECEC settings. Smaller ratios are often seen as beneficial, because they allow staff to focus more on the needs of individual children and reduce the amount of class time needed to deal with disruptions (OECD, 2018[16]).

The ratio of children to teaching staff is an important indicator of the resources devoted to education. Child-staff ratios and group size are often the most commonly used regulations to improve ECEC quality. On average across OECD countries, there are 16 children for every teacher working in pre-primary education but wide variations are observed across countries. Thus, the child-teaching staff ratio, excluding teachers' aides, ranges from more than 20 children per teacher in Brazil, Chile, Colombia, France, Israel, Mexico and the United Kingdom to less than 10 in Finland and Germany (Table B2.3).

Figure B2.4. Ratio of children to staff in pre-primary (ISCED 02) education (2017)

Public and private institutions, calculation based on full-time equivalents



Note: Figures in parentheses show the percentages of teachers' aides among ECEC contact staff (teachers and teachers' aides).
1. Excluding independent private institutions. Data on teachers are not comparable with previous years due to a new methodology introduced.
2. Data on staff do not cover all ECEC services.
3. ISCED 0 instead of pre-primary education (ISCED 02).
Countries are ranked in descending order of the ratio of children to teaching staff in pre-primary education.
Source: OECD (2019). Table B2.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Some countries – Austria, Chile, France, Israel, Lithuania, Norway, Sweden and the United Kingdom – also make extensive use of teachers' aides, which can be seen from the smaller ratios of children to contact staff than of children to teaching staff. Teachers' aides assist teachers in their daily tasks and deal with children with special needs. In most countries, they have an upper secondary qualification, often vocationally oriented (Table B2.3 and Figure B2.4).

Child-to-staff ratio matters more for interactions with children under the age of 3 than for 3-5 year-olds (OECD, 2018[16]). In most countries, the ratios of children to contact staff (teachers and teachers' aides) are smaller in early childhood development programmes than in pre-primary education. On average across the 13 OECD countries with available data for both programmes, there are 12 children for every contact staff working in pre-primary education, while the ratio is only 5 children per teacher in early childhood development (Table B2.3). However, the number of hours per week that represent typical full-time enrolment in an education programme at ISCED level 0 varies widely between countries. Because of this, figures should be interpreted with caution (see *Methodology* section).

Definitions

Adults refer to 25-64 year-olds.

ECEC services: The types of ECEC services available to children and parents differ greatly. Despite those differences, most ECEC settings typically fall into one of the following categories ((OECD, 2017[1]) and Table B2.5):

- **Regular centre-based ECEC:** More formalised ECEC centres typically belong to one of these three sub-categories:
  - *Centre-based ECEC for children under the age of 3*: Often called "crèches", these settings may have an educational function, but they are typically attached to the social or welfare sector and associated with an emphasis on care. Many of them are part time and provided in schools, but they can also be provided in designated ECEC centres.
  - *Centre-based ECEC for children from the age of 3:* Often called kindergarten or pre-school, these settings tend to be more formalised and are often linked to the education system.
  - *Age-integrated centre-based ECEC for children from birth or age 1 up to the beginning of primary school*: Called kindergarten, pre-school, or pre-primary, these settings offer a holistic pedagogical provision of education and care (often full-day).
- **Family childcare ECEC:** Licensed home-based ECEC, which is most prevalent for children under age 3. These settings may or may not have an educational function and be part of the regular ECEC system.
- **Licensed or formalised drop-in ECEC centres:** Often receiving children across the entire ECEC age bracket and even beyond, these drop-in centres allow parents to complement home-based care by family members or family childcare with more institutionalised services on an ad-hoc basis (without having to apply for a place).

Some of these ECEC services are in adherence with the criteria defined in the ISCED 2011 classification (see ISCED 0 definition). Others are considered an integral part of countries' ECEC provision but are not in adherence with all the ISCED criteria. Table B2.5 makes the distinction between these two categories explicit.

Informal care services: Generally unregulated care arranged by the child's parent either in the child's home or elsewhere, provided by relatives, friends, neighbours, babysitters or nannies, these services are not covered in this indicator.

ISCED 01 refers to early childhood educational development services, typically aimed at children under the age of 3. The learning environment is visually stimulating, and the language is rich and fosters self-expression, with an emphasis on language acquisition and the use of language for meaningful communication. There are

opportunities for active play so that children can exercise their co-ordination and motor skills under supervision and in interaction with staff.

ISCED 02 refers to pre-primary education, aimed at children in the years immediately prior to starting compulsory schooling, typically aged between the ages of 3 and 5. Through interaction with peers and educators, children improve their use of language and their social skills, start to develop logical and reasoning skills, and talk through their thought processes. They are also introduced to alphabetical and mathematical concepts, understanding and use of language, and are encouraged to explore their surrounding world and environment. Supervised gross motor activities (i.e. physical exercise through games and other activities) and play-based activities can be used as learning opportunities to promote social interactions with peers and to develop skills, autonomy and school readiness.

For data-reporting purposes, data from age-integrated programmes designed to include children younger and older than 3 are allocated to levels 01 and 02 according to the age of the children. This may involve the estimation of expenditure and personnel at levels 01 and 02.

Teachers and comparable practitioners: Teachers have the most responsibility for a group of children at the class or playroom level. They may also be called pedagogue, educator, childcare practitioner or pedagogical staff in education, while the term teacher is almost universally used at the primary level.

Teachers' aides: Aides support the teacher in a group of children or class. They usually have lower qualification requirements than teachers, which may range from no formal requirements to, for instance, vocational education and training. This category is only included in the *Education at a Glance* indicator on children-to-staff ratio.

Please see Indicators C1, C2 and D2 for definitions of expenditure per student on educational institutions, expenditure on educational institutions relative to GDP, and child-to-staff ratios.

Methodology

Enrolment rates

Net enrolment rates are calculated by dividing the number of students of a particular age group enrolled in ECEC by the size of the population of that age group. While enrolment and population figures refer to the same period in most cases, mismatches may occur due to data availability and different sources used in some countries resulting in enrolment rates exceeding 100%.

Full-time and part-time children

The concepts used to define full-time and part-time participation at other ISCED levels, such as study load, child participation, and the academic value or progress that the study represents, are not easily applicable to ISCED level 0. In addition, the number of daily or weekly hours that represent typical full-time enrolment in an education programme at ISCED level 0 varies widely between countries. Because of this, full-time equivalents cannot be calculated for ISCED level 0 programmes in the same way as for other ISCED levels.

For data-reporting purposes, countries separate ISCED level 0 data into ISCED 01 and ISCED 02 by age only, as follows: data from age-integrated programmes designed to include children younger and older than 3 are allocated to levels 01 and 02 according to the age of the children. This may involve the estimation of expenditure and personnel at levels 01 and 02.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics* (OECD, 2018[17]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Estimated expenditure for all children aged 3 to 5 enrolled in ECEC and primary education

The calculation of this new measure is based on the distribution of children aged 3 to 5 enrolled in ISCED 01, ISCED 02 and primary education (ISCED 1). For each country, the calculation was based on what proportion of all children enrolled at each of these three ISCED levels were aged 3 to 5. For instance, in Australia, children aged 3 to 5 accounted for 5% of all children enrolled in ISCED 01, 99% of all children enrolled in ISCED 02 and 12% of all children enrolled in ISCED 1. These percentages were used to estimate total expenditure for all children aged 3 to 5 enrolled in ECEC and primary education. Total expenditure for all children aged 3 to 5 are calculated by: 5% of all expenditure in ISCED 01 and 99% of all expenditure in ISCED 02 and 12% of all expenditure in ISCED 1. A similar calculation was made for all countries.

Source

Data refer to the reference year 2017 (school year 2016/17) and financial year 2016.

Data from Argentina, the People's Republic of China, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

Data are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018 (for details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en) and on a special survey administered by the OECD in 2018.

Data on subnational regions for selected indicators are available in the OECD Regional database (OECD, 2019[8]).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator B2 Tables

Table B2.1 Enrolment rates of children under the age of 3 in early childhood education and care, by type of service and age (2005, 2010 and 2017)

Table B2.2 Enrolment rates in early childhood education and care (ECEC) and primary education, by age (2005, 2010 and 2017)

Table B2.3 Enrolment of children in early childhood education and care (ISCED 0) in private institutions, ratio of children to teaching staff and minimum qualification of ECEC staff (2017)

Table B2.4 Financing of early childhood education and care (ISCED 0) and change in expenditure as a percentage of GDP (2012 and 2016)

WEB Table B2.5 Coverage of early childhood education and care in OECD and partner countries

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

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Table B2.1. Enrolment rates of children under the age of 3 in early childhood education and care, by type of service and age (2005, 2010 and 2017)

Public and private institutions

		Age when ECEC services (ISCED 0) start offering intentional education objectives	Under the age of 1			Age 1			Under the age of 2			Age 2			Under the age of 3				
			2017			2017			2017			2017			2017			2010	2005
			ECEC services (ISCED 0)	Other registered ECEC services	Total	ECEC services (ISCED 0)	Other registered ECEC services	Total	ECEC services (ISCED 0)	Other registered ECEC services	Total	ECEC services (ISCED 0)	Other registered ECEC services	Total	ECEC services (ISCED 0)	Other registered ECEC services	Total	Total	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Countries																		
	Australia	0 years	16	0	16	43	0	44	30	0	31	57	0	57	39	0	40	38	m
	Austria	0 years	1	x(15)	1	14	x(15)	14	7	x(15)	7	40	x(15)	40	18	3	21	12	m
	Belgium	Fl: 3-6 Months; Fr.: 2 years	m	m	m	m	m	m	m	m	m	53	m	m	m	m	m	m	m
	Canada	3-4 years	m	a	m	m	a	m	m	a	m	m	a	m	m	a	m	m	m
	Colombia	0 years	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	35	0	35	43	0	43	38	0	38	m	m
	Chile	3 months	7	0	8	21	0	22	14	0	15	34	1	35	21	0	22	m	m
	Czech Republic	2-3 years	a	x(9)	x(10)	a	x(9)	x(10)	a	m	m	17	m	m	6	m	m	m	m
	Denmark	26 weeks	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	39	m	39	89	m	89	55	m	55	m	m
	Estonia	0 years	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	6	1	8	66	7	73	26	3	29	23	m
	Finland	9 months	1	m	1	31	m	31	16	m	16	59	m	59	31	m	31	27	25
	France[1]	2-3 years	a	m	m	a	m	m	a	m	m	12	m	m	4	32	36	m	m
	Germany	0 years	6	a	6	41	a	41	23	a	23	66	a	66	37	a	37	27	17
	Greece[1]	2 months	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	2	m	m	14	m	m	6	m	m	m	m
	Hungary	20 weeks	1	0	1	1	6	7	1	3	4	14	27	41	5	11	16	10	7
	Iceland	0 years	2	4	5	45	31	76	24	17	41	95	0	95	48	12	60	55	53
	Ireland	3 years	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	4	m	m	15	m	m	8	m	m	m	m
	Israel	0 years	31	a	31	64	a	64	47	a	47	74	a	74	56	a	56	m	m
	Italy	2-3 years	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	a	m	m	15	m	m	5	m	m	m	m
	Japan	3 years	a	7	7	a	33	33	a	20	20	6	43	50	2	27	30	19	16
	Korea	0 years	14	a	14	64	a	64	40	a	40	88	a	88	56	a	56	38	m
	Latvia	1.5 years	0	a	0	16	a	16	8	a	8	71	a	71	29	a	29	18	17
	Lithuania	0 years	0	a	0	13	a	13	7	a	7	62	a	62	25	a	25	16	13
	Luxembourg	0 years	27	2	30	64	4	68	46	3	49	73	5	78	55	4	59	m	m
	Mexico	1.5 months	x(8)	a	x(10)	x(8)	a	x(10)	1	a	1	8	a	8	4	a	4	2	2
	Netherlands	3 years	x(14)	x(15)	x(16)	x(14)	x(15)	x(16)	x(14)	x(15)	x(16)	x(14)	x(15)	x(16)	0	59	59	m	m
	New Zealand	0 years	18	4	22	48	6	54	33	5	38	67	7	74	44	6	50	m	m
	Norway	0 years	4	0	4	72	0	72	38	0	38	92	0	92	56	0	56	53	33
	Poland	3 years	0	0	0	0	9	9	0	5	5	7	12	19	2	7	9	4	3
	Portugal	0 years	18	1	19	38	1	40	28	1	29	51	1	52	36	1	37	27	21
	Slovak Republic	2-3 years	a	m	m	a	m	m	a	m	m	15	m	m	5	m	m	3	7
	Slovenia	11 months	0	0	0	48	0	48	24	0	24	74	0	74	41	0	41	34	25
	Spain	0 years	11	m	11	38	m	38	25	m	25	59	m	59	36	m	36	26	15
	Sweden	1 year	0	0	0	48	1	49	24	1	24	88	2	90	45	1	47	46	m
	Switzerland	m	a	m	m	a	m	m	a	m	m	a	m	m	a	m	m	m	m
	Turkey	m	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	m	m	m	m	m	m	0	a	0	m	m
	United Kingdom	0 years	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	United States	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average		m	m	9	m	m	40	21	3	24	49	13	62	26	10	36	25	18
	EU23 average		m	m	6	m	m	31	16	3	19	46	17	62	23	12	36	21	15
	OECD average (all countries with 2010 and 2017 data)		m	m	m	m	m	m	m	m	m	m	m	m	m	m	34	26	m
Partners	Argentina[1]	m	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	2	m	m	11	m	m	5	m	m	m	m
	Brazil[2]	0 years	6	a	6	20	a	20	14	a	14	40	a	40	23	a	23	10	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	0 years	1	1	2	1	5	7	1	3	4	3	10	12	2	5	7	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	3	m	m	12	m	m	6	m	m	m	m
	Russian Federation	0 years	x(8)	x(9)	x(10)	x(8)	x(9)	x(10)	4	m	4	49	m	49	19	m	19	17	21
	Saudi Arabia	m	a	m	m	a	m	m	a	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Early childhood education = ISCED 0, other registered ECEC services = ECEC services outside the scope of ISCED 0, because they are not in adherence with all ISCED criteria. To be classified in ISCED 0, ECEC services should: 1) have an adequate intentional educational properties; 2) be institutionalised (usually school-based or otherwise institutionalised for a group of children); 3) have an intensity of at least 2 hours per day of educational activities and a duration of at least 100 days a year; 4) have a regulatory framework recognised by the relevant national authorities (e.g. curriculum); and 5) have trained or accredited staff (e.g. requirement of pedagogical qualifications for educators).
1. For France, data for other registered ECEC services come from the survey "*Modes de garde et d'accueil des jeunes enfants 2013*" conducted by the statistical division of the French Ministry for Solidarities and Health (DREES). Figures refer to the primary custody arrangements. For Greece, ECEC data include only part of the children enrolled in early childhood development programmes (ISCED 01).
2. Year of reference 2016 instead of 2017.
3. Year of reference 2012 instead of 2010.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B2.2. Enrolment rates in early childhood education and care (ECEC) and primary education, by age (2005, 2010 and 2017)

Public and private institutions, from age 3 to age 6

		Typical starting age of primary education	Starting age of compulsory education	Age 3			Age 4			Age 5			Age 6			Ages 3 to 5		
				ISCED 0	Other registered ECEC services	Total	ISCED 0	Primary education (ISCED 1)	Total	ISCED 0	Primary education (ISCED 1)	Total	ISCED 0	Primary education (ISCED 1)	Total	ECEC (ISCED 0) and primary education		
		2017		2017			2017			2017			2017			2017	2010	2005
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
OECD	Countries																	
	Australia	5	6	66	1	67	85	1	86	20	79	99	2	99	100	84	74	m
	Austria	6	6	76	x(3)	76	93	0	93	98	0	98	42	57	99	89	86	76
	Belgium	6	6	98	0	98	99	0	99	98	1	99	3	95	98	98	99	100
	Canada	6	6	m	a	m	m	m	m	98	0	98	0	100	100	m	m	m
	Chile	6	6	58	1	58	85	0	85	94	0	94	16	81	98	79	70	45
	Colombia	6	5	53	0	53	62	0	63	58	19	77	6	73	79	64	m	m
	Czech Republic	6	6	79	0	79	88	0	88	96	0	96	48	49	96	88	79	85
	Denmark	6	6	96	0	96	98	0	98	97	1	98	7	93	99	98	94	m
	Estonia	7	7	88	3	91	92	0	92	93	0	93	92	1	93	91	89	m
	Finland	7	7	73	m	73	80	0	80	85	0	85	98	0	99	79	73	68
	France	6	6	100	a	100	100	0	100	100	1	100	1	100	100	100	100	100
	Germany	6	6	91	a	91	95	0	95	97	0	98	36	63	99	95	94	88
	Greece[1]	6	5	30	m	m	70	0	70	92	0	92	3	93	97	65	m	m
	Hungary	7	3	85	14	99	96	0	96	96	0	96	61	31	92	92	87	87
	Iceland	6	6	97	0	97	98	0	98	98	0	98	0	99	99	97	96	95
	Ireland	5	6	92	0	92	73	28	100	1	100	100	0	100	100	98	m	m
	Israel	6	3	100	a	100	98	0	98	97	0	97	13	83	96	99	86	80
	Italy	6	6	91	0	91	95	0	95	88	8	96	1	96	97	94	98	100
	Japan	6	6	83	0	83	95	0	95	96	0	96	0	100	100	91	90	87
	Korea	6	6	94	a	94	97	0	97	92	1	93	0	92	92	95	85	m
	Latvia	7	5	90	a	90	94	0	94	97	0	97	94	4	98	93	82	77
	Lithuania	7	7	80	a	80	86	0	86	90	0	90	97	4	101	85	72	59
	Luxembourg	6	4	70	m	m	95	0	95	93	5	98	6	91	97	88	87	84
	Mexico	6	3	47	a	47	92	0	92	75	25	100	1	100	100	84	78	64
	Netherlands	6	5	88	5	93	96	0	96	99	0	99	0	100	100	94	94	93
	New Zealand	5	5	90	5	95	96	0	96	3	94	98	0	99	99	95	m	m
	Norway	6	6	96	0	96	97	0	97	98	0	98	1	99	100	97	96	88
	Poland	7	6	67	2	69	85	0	85	92	0	92	80	18	98	82	60	38
	Portugal	6	6	86	0	86	93	0	93	95	0	96	10	86	96	92	87	78
	Slovak Republic	6	6	68	m	68	79	0	79	78	0	78	41	51	91	75	72	74
	Slovenia	6	6	86	m	86	90	0	90	94	0	94	8	89	98	90	86	75
	Spain	6	6	96	0	96	98	0	98	97	0	97	1	97	98	97	97	98
	Sweden	7	7	93	2	95	94	0	94	95	0	95	98	1	99	94	97	m
	Switzerland	6	4-5	2	m	2	48	0	48	98	1	98	54	46	100	50	47	47
	Turkey	6	5-6	10	a	10	37	0	37	59	15	73	0	95	95	40	27	13
	United Kingdom	5	4-5	100	0	100	100	3	100	0	97	97	0	98	98	100	m	m
	United States	6	4-6	42	m	42	66	0	66	86	5	90	23	77	100	66	66	66
	OECD average	m	m	77	3	79	87	1	88	82	12	94	25	72	97	87	82	76
	EU23 average	m	m	84	4	88	91	1	92	86	9	95	36	62	98	90	87	81
	OECD average (all countries with 2005, 2010 and 2017 data)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	86	81	76
Partners	Argentina[2]	m	5	41	0	41	86	0	86	99	1	100	0	100	100	76	m	m
	Brazil[3]	6	4	64	0	64	90	0	90	91	7	98	11	93	100	84	60	m
	China	6	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	6	4	5	14	19	63	0	63	85	1	85	1	93	95	51	m	m
	India	6	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	7	36	0	36	73	0	73	99	3	100	X(14)	X(14)	100	70	m	m
	Russian Federation	7	7	79	0	79	84	0	84	85	0	85	85	10	95	83	71	53
	Saudi Arabia	m	6	3	0	3	12	0	12	45	5	51	4	96	100	22	m	m
	South Africa	m	7	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Early childhood education = ISCED 0, other registered ECEC services = ECEC services outside the scope of ISCED 0, because they are not in adherence with all ISCED criteria. To be classified in ISCED 0, ECEC services should: 1) have an adequate intentional educational properties; 2) be institutionalised (usually school-based or otherwise institutionalised for a group of children); 3) have an intensity of at least 2 hours per day of educational activities and a duration of at least 100 days a year; 4) have a regulatory framework recognised by the relevant national authorities (e.g. curriculum); and 5) have trained or accredited staff (e.g. requirement of pedagogical qualifications for educators).

1. ECEC data include only part of the children enrolled in early childhood development programmes (ISCED 01).
2. Year of reference 2016 instead of 2017.
3. Year of reference 2012 instead of 2010.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B2.3. Enrolment of children in early childhood education and care (ISCED 0) in private institutions, ratio of children to teaching staff and minimum qualification of ECEC staff (2017)

		Percentage of children enrolled in private institutions (government-dependent and independent private institutions)			Ratio of children to staff in full-time equivalents, by type of ECEC service (public and private institutions)									Minimum ISCED qualification required to enter ECEC profession	
					ISCED 01			ISCED 02			Total (ISCED 0)			Total (ISCED 0)	
		ISCED 01	ISCED 02	Total (ISCED 0)	Share of teachers' aides among contact staff	Children to contact staff (teachers and teachers' aides)	Children to teaching staff	Share of teachers' aides among contact staff	Children to contact staff (teachers and teachers' aides)	Children to teaching staff	Share of teachers' aides among contact staff	Children to contact staff (teachers and teachers' aides)	Children to teaching staff	Teachers	Teachers' aides
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Countries														
	Australia	m	84	m	m	m	m	m	m	m	m	m	m	m	m
	Austria	67	29	36	31	6	9	34	9	14	33	8	13	ISCED 5	ISCED 3
	Belgium	m	53	m	m	m	m	0	15	15	m	m	m	ISCED 6	a
	Canada	m	7	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	4	63	50	45	6	12	58	10	24	58	10	23	ISCED 6	ISCED 3, vocational
	Czech Republic	m	m	m	a	a	a	6	12	13	6	12	13	m	m
	Colombia	m	23	m	m	m	m	m	33	33	m	m	m	m	m
	Denmark	14	21	18	m	m	m	m	m	m	m	7	x(11)	ISCED 6	x(13)
	Estonia	x(3)	x(3)	4	x(10)	x(11)	x(12)	x(10)	x(11)	x(12)	m	m	9	ISCED 6	m
	Finland	20	12	14	m	m	m	m	m	10	m	m	m	ISCED 6 or 7	m
	France[1]	a	13	13	a	a	a	31	16	23	31	16	23	ISCED 7	ISCED 3, vocational
	Germany	73	65	67	8	5	5	9	9	9	9	7	8	ISCED 6, vocational	ISCED 3, vocational
	Greece	40	9	19	m	m	m	0	10	10	m	m	m	m	a
	Hungary	14	11	11	a	11	11	a	12	12	a	12	12	m	a
	Iceland	20	15	17	m	3	m	m	5	m	m	4	m	m	m
	Ireland	a	99	99	a	a	a	m	m	m	m	m	m	m	m
	Israel[1]	100	36	59	m	m	m	57	9	22	m	m	m	ISCED 5	ISCED 3
	Italy	a	28	28	a	a	a	0	12	12	0	12	12	m	a
	Japan[2]	a	76	76	a	a	a	m	13	15	m	13	15	ISCED 5 or 6	m
	Korea	90	78	82	m	m	5	m	m	13	m	m	9	ISCED 5	m
	Latvia	15	7	8	m	m	8	m	m	10	m	m	10	ISCED 5	ISCED 3
	Lithuania	11	5	6	36	7	11	34	7	11	35	7	11	ISCED 6	ISCED 3
	Luxembourg	a	10	10	a	a	a	m	m	m	m	m	m	m	m
	Mexico	64	14	17	64	5	14	0	25	25	12	21	24	ISCED 6	ISCED 2 and training
	Netherlands	a	30	30	a	a	a	m	m	m	m	m	m	m	m
	New Zealand	99	99	99	m	4	m	m	6	m	m	5	m	ISCED 6	m
	Norway	52	48	49	60	3	8	60	6	14	60	4	11	ISCED 6	ISCED 2 or ISCED 3
	Poland	a	24	24	a	a	a	m	m	15	m	m	15	ISCED 7	m
	Portugal	m	47	47	m	m	m	m	m	17	m	m	m	ISCED 7	m
	Slovak Republic	a	6	6	a	a	a	1	12	12	1	12	12	ISCED 3	ISCED 3, vocational
	Slovenia	6	4	5	m	6	m	m	9	m	m	8	m	ISCED 6	ISCED 3, vocational
	Spain	49	33	37	m	m	10	m	m	14	m	m	13	ISCED 5 for ISCED 01; ISCED 6 for ISCED. 02	m
	Sweden	20	17	18	x(10)	x(11)	x(12)	x(10)	x(11)	x(12)	60	5	13	ISCED 6	m
	Switzerland[1]	a	5	5	a	a	a	m	m	18	m	m	18	ISCED 6	m
	Turkey	100	15	16	m	m	m	m	m	17	m	m	m	m	m
	United Kingdom[3]	81	49	55	89	2	20	84	4	25	86	3	23	ISCED 5 or 6	m
	United States	m	41	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	47	34	33	47	5	10	27	12	16	33	9	14	m	m
	EU23 average	34	27	26	41	6	10	21	12	15	32	9	13	m	m
Partners	Argentina[4]	56	31	33	m	m	m	m	m	m	m	m	m	m	m
	Brazil	35	23	28	40	8	14	15	18	21	29	12	17	ISCED 6	ISCESD 3
	China	a	55	55	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	76	11	15	0	5	5	0	12	12	0	11	11	m	m
	India	a	77	77	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	100	95	98	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	1	1	1	x(10)	x(11)	x(12)	x(10)	x(11)	x(12)	m	m	11	m	m
	Saudi Arabia	a	64	64	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	7	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	42	47	m	m	m	m	m	m	m	m	m	m	m

Note: Early childhood educational development programmes = ISCED 01, pre-primary education = ISCED 02; ISCED 5 = Short tertiary cycle; ISCED 6 = Bachelor's degree or equivalent; ISCED 7 = Master's degree or equivalent.

1. France: Data for Columns 7 to 12 represent public and government-dependent private institutions only. Data on teachers are not comparable with previous years due to a new methodology introduced. Israel and Switzerland: Public institutions only.
2. Data on staff do not cover all ECEC services.
3. The minimum qualification of ECEC staff is ISCED 6 in England and ISCED 5 in Scotland.
4. Year of reference 2016 instead of 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B2.4. Financing of early childhood education and care (ISCED 0) and change in expenditure as a percentage of GDP (2012 and 2016)

Public and private institutions

		Annual expenditure per child in USD, converted using PPPs (based on head counts)			Expenditure on ECEC services as a percentage of GDP						Expenditure on all children aged 3 to 5 enrolled in ECEC and primary education (based on head counts)		Relative proportions of private expenditure on early childhood education and care (after transfers from public sources)		
		2016			2016			2012			2016		2016		
		Early childhood educational development (ISCED 01)	Pre-primary (ISCED 02)	Total	Early childhood educational development (ISCED 01)	Pre-primary (ISCED 02)	Total	Early childhood educational development (ISCED 01)	Pre-primary (ISCED 02)	Total	As a % of GDP	Per child	Early childhood educational development (ISCED 01)	Pre-primary (ISCED 02)	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Countries														
	Australia	7 648	7 536	7 582	0.2	0.3	0.6	0.3	0.2	0.4	0.6	8 325	40	34	36
	Austria	11 995	10 028	10 364	0.1	0.5	0.7	0.1	0.5	0.6	0.5	10 112	25	13	15
	Belgium	m	8 427	m	m	0.7	m	m	m	m	0.6	8 433	m	3	m
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile[1]	8 018	6 599	6 908	0.3	0.9	1.2	m	0.8	m	0.9	6 641	18	18	18
	Colombia[1]	m	1 579	m	0.1	0.3	0.5	m	m	m	0.4	1 771	89	28	45
	Czech Republic	a	5 125	5 125	a	0.5	0.5	a	0.5	0.5	0.4	5 125	a	11	11
	Denmark	m	m	m	m	m	m	x(9)	x(9)	1.3	m	m	m	m	m
	Estonia	x(3)	x(3)	7 146	x(6)	x(6)	1.2	x(9)	x(9)	0.4	0.7	7 146	X(3)	X(3)	13
	Finland[2]	20 815	10 961	12 819	0.4	0.9	1.2	0.4	0.8	1.2	0.6	10 961	9	11	10
	France	a	8 165	8 165	a	0.7	0.7	a	0.7	0.7	0.7	8 164	a	7	7
	Germany	16 169	10 101	11 724	0.3	0.6	0.9	0.3	0.5	0.8	0.5	10 100	19	19	19
	Greece	m	5 697	m	m	0.3	m	0.3	0.2	0.5	m	m	m	9	m
	Hungary	6 834	7 171	7 155	0.0	0.8	0.9	0.0	0.7	0.7	0.7	7 169	8	8	8
	Iceland	18 934	13 230	15 012	0.7	1.0	1.7	0.6	1.0	1.6	1.0	13 228	11	15	13
	Ireland	x(3)	x(3)	3 705	X(6)	X(6)	0.1	x(9)	x(9)	0.1	0.4	6 269	X(3)	X(3)	3
	Israel	2 971	5 466	4 568	0.3	0.9	1.2	m	0.7	m	0.9	5 469	84	9	27
	Italy	a	7 395	7 395	a	0.5	0.5	a	0.5	0.5	0.5	7 411	a	12	12
	Japan[3]	a	7 473	7 473	a	0.2	0.2	a	0.2	0.2	m	m	a	51	51
	Korea	m	7 359	m	m	0.5	m	m	m	m	0.5	7 366	m	18	m
	Latvia	a	5 574	5 574	a	0.8	0.8	a	0.8	0.8	0.6	5 574	a	3	3
	Lithuania	6 189	6 178	6 180	0.2	0.7	0.9	0.1	0.6	0.7	0.5	6 178	19	15	16
	Luxembourg	a	17 533	17 533	a	0.5	0.5	a	0.7	0.7	0.5	17 539	a	2	2
	Mexico	x(3)	x(3)	2 296	X(6)	X(6)	0.5	x(9)	x(9)	0.6	0.6	2 317	m	m	16
	Netherlands	a	6 538	6 538	a	0.4	0.4	a	0.4	0.4	0.4	6 538	a	12	12
	New Zealand	9 762	8 141	8 783	0.4	0.6	1.0	0.4	0.6	0.9	0.8	8 191	29	14	21
	Norway	25 365	14 344	18 244	1.0	1.0	2.0	1.0	1.1	2.1	1.0	14 344	14	14	14
	Poland	a	6 832	6 832	a	0.8	0.8	a	0.7	0.7	0.7	6 832	a	18	18
	Portugal	m	7 451	m	m	0.6	m	m	0.6	m	0.6	7 451	m	36	m
	Slovak Republic	a	6 169	6 169	a	0.6	0.6	a	0.5	0.5	0.5	6 169	a	15	15
	Slovenia	10 701	7 819	8 653	0.4	0.7	1.1	0.4	0.8	1.3	0.7	7 819	25	25	25
	Spain	8 202	6 916	7 238	0.2	0.5	0.8	0.2	0.7	0.9	0.5	6 918	41	18	24
	Sweden	17 508	14 528	15 303	0.6	1.4	1.9	0.5	1.2	1.8	1.0	14 528	6	5	6
	Switzerland[4]	a	12 592	12 592	a	0.4	0.4	a	m	m	0.3	12 607	a	m	m
	Turkey	x(3)	x(3)	5 568	X(6)	X(6)	0.3	x(9)	x(9)	0.2	0.4	5 381	X(3)	X(3)	28
	United Kingdom	5 658	5 932	5 880	0.1	0.4	0.5	0.1	0.5	0.6	0.7	7 561	62	50	52
	United States	m	9 151	m	m	0.4	m	m	0.4	m	0.4	9 213	m	26	m
	OECD average	12 080	8 349	8 605	0.3	0.6	0.8	0.3	0.6	0.8	0.6	8 141	31	17	18
	EU23 average	11 809	9 114	9 342	0.3	0.7	0.9	0.3	0.7	0.9	0.6	8 926	25	16	17
Partners	Argentina[4]	m	m	m	m	0.5	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[1, 4]	m	m	m	0.1	0.4	0.5	m	m	m	0.5	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	x(3)	x(3)	4 394	X(6)	X(6)	0.9	x(9)	x(9)	0.8	m	m	X(3)	X(3)	13
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	27	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

1. Year of reference 2017 instead of 2016.
2. Expenditure on all children aged 3 to 5 are underestimated due to the estimation method used.
3. Data on financing do not cover all ECEC services.
4. Public sources only.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

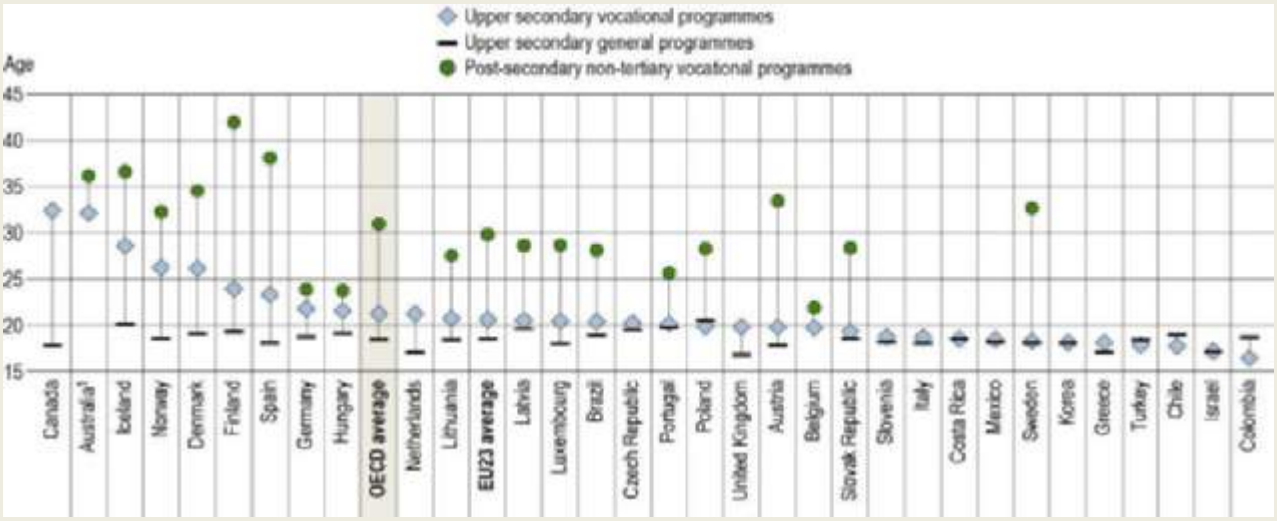
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Indicator B3. Who is expected to graduate from upper secondary education?

Highlights

- In almost all countries with available data, women represent at least half of upper secondary graduates from general programmes. In contrast, women are under-represented in vocational programmes in about seven out of ten countries with available data.
- Across OECD countries, the average age of first-time graduation at upper secondary level is higher for vocational programmes (21 years old) than for general programmes (18 years old), and much higher for post-secondary non-tertiary vocational programmes (31 years old).
- Current estimates indicate that on average, 86% of people across OECD countries will graduate from upper secondary education in their lifetime, and 81% of people will do so before the age of 25.

Figure B3.1 Average age of first-time upper secondary and post-secondary non-tertiary graduates, by programme orientation (2017)



1. Year of reference 2016.

Countries are ranked in descending order of the average age of first time graduates from upper secondary vocational programmes.

Source: OECD/UIS/Eurostat (2019), data could slightly differ from Tables B3.1 and B3.2 as they refer to first-time graduates. See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Upper secondary education, defined as the second stage of learning after completing lower secondary education, is essential for both pursuing further levels of education and successful labour market integration. It can be either vocational or general and provided in both public and private schools, or in vocational and technical institutes. In many countries, this level of education is not compulsory and can last from two to five

years. Post-secondary non-tertiary programmes straddle upper secondary and post-secondary education and may be considered either upper secondary or post-secondary programmes, depending on the country.

In most developed countries, almost all students in lower secondary school enrol in upper secondary education and most of them study in programmes providing access to tertiary education. In general, demand for upper secondary education is increasing worldwide, with the development of a variety of educational pathways. In fact, graduating from upper secondary education has become increasingly important in all countries, as the skills needed in the labour market are becoming more knowledge-based, and workers are progressively required to adapt to the uncertainties of a rapidly changing global economy.

However, while graduation rates give an indication of the extent to which education systems are succeeding in preparing students to meet the minimum requirements of the labour market, they do not capture the quality of education outcomes.

Other findings

- The average age of graduates from vocational programmes varies considerably across countries, particularly at upper secondary level. In Canada, the average age of graduates from upper secondary vocational programmes is 32 years old compared with 16 in Colombia.
- On average across OECD countries, first-time graduation rates increased by 2 percentage points at the upper secondary level and remained constant at the post-secondary non-tertiary level, between 2010 and 2017.
- On average across OECD countries, women represent 54% of post-secondary non-tertiary graduates; however, variations across countries are significant, ranging from 19% in Luxembourg to 75% in Austria and Poland.

Note

Graduation rates, when calculated for all ages, represent the estimated percentage of people from a given age cohort who are expected to graduate within the country at some point during their lifetime. This estimate is based on the number of graduates in 2017 and the age distribution of this group. Graduation rates are based on both the population and the current pattern of graduation and are thus sensitive to any changes in the education system, such as the introduction of new programmes and changes in the duration of programmes. Graduation rates can be very high during a period when an unexpected number of people go back to school.

In this edition of *Education at a Glance*, the focus is predominately on first-time graduates. The notion of graduates (i.e. all graduates, not only first-time graduates) is used when measuring average age, share of female graduates and graduates by field of study (see *Definitions* section).

Analysis

Profile of upper secondary graduates

Profile of upper secondary graduates, by programme orientation

Although many countries have developed extensive vocational programmes at the secondary level, in most countries, fewer students pursue vocational programmes than general programmes. On average across OECD countries, 40% of first-time upper secondary graduates obtained a qualification from a vocational programme. The share of first-time graduates from vocational programmes is particularly low in Brazil, Canada, Colombia, Costa Rica, Hungary, Iceland, Japan, Korea and Lithuania (below 25%). In contrast, in Austria, the Czech Republic, the Slovak Republic and Slovenia, more than 65% of first-time graduates obtained a qualification from a vocational programme.

Vocational education and training (VET) is an important part of upper secondary education in many OECD countries, and it can play a central role in preparing young people for work, developing adults' skills and responding to labour-market needs (see Indicator A1). In some countries, VET has been neglected and marginalised in policy discussions, often overshadowed by the increasing emphasis on general academic education. However, participating in an initial VET programme has both, micro and macro beneficial outcomes: the opportunity to acquire qualifications, integration into the labour market with a satisfactory wage, further career development opportunities, professional status and economic competitiveness (CEDEFOP, 2011[1]).

It has been also found that VET has a positive effect on graduates' employability, because of their early entry into the labour market. The transition to work is faster for upper secondary graduates from vocational programmes than those enrolled in general programmes; they are more likely to get a permanent first job and are less likely to find themselves in a first job with a qualification mismatch. At a time when professional experience is often a requirement to enter the labour market, vocational upper secondary graduates have an advantage over those with little or no professional experience. However, at tertiary level the opposite pattern is found: technical graduates have to search significantly longer for a job than academic graduates in the European Union, mainly because tertiary technical programmes develop more specific skills that lead to a relatively longer search for the correct match (CEDEFOP, 2013[2]).

Vocational programmes can be offered in combined school- and work-based programmes, where between 10% and 75% of the curriculum is presented in the school environment or through distance education. These include apprenticeship programmes that involve concurrent school-based and work-based training, and programmes that involve alternating periods of attendance at educational institutions and participation in work-based training. In countries such as Austria, Denmark, Germany, Latvia, Norway and Switzerland, this type of dual system attracts at least 30% of the students enrolled in upper secondary VET programmes (see the Education at a Glance Database). Through work-based learning, students acquire the skills that are valued in the workplace. Work-based learning is also a way to develop public-private partnerships and to involve social partners and employers in developing VET programmes, often by defining curricular frameworks.

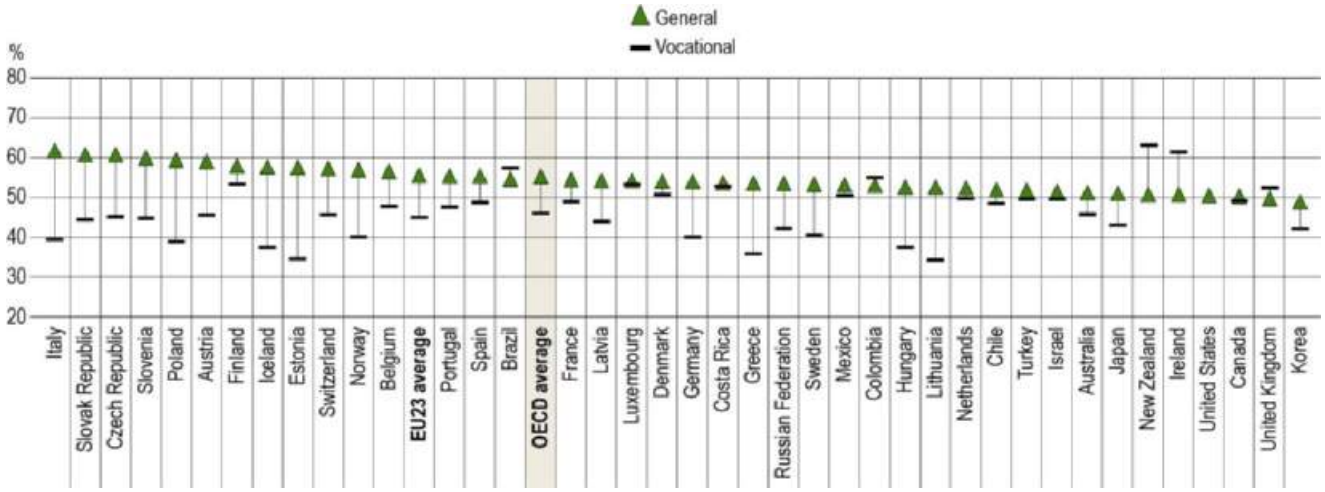
Moreover, high-quality VET programmes can be effective in developing skills among those who would otherwise lack the qualifications to ensure a smooth and successful transition into the labour market. However, it is important to ensure that graduates of upper secondary VET programmes have good employment opportunities, since VET can be more expensive than other education programmes (see Indicator C1).

Profile of upper secondary graduates, by gender

The share of women tends to be significantly higher in upper secondary general programmes than in vocational programmes. On average across OECD countries, women make up 55% of upper secondary graduates from general programmes, compared to 48% for vocational programmes.

In almost all countries with available data, women make up at least half of upper secondary graduates from general programmes, ranging from 49% in Korea to 61% in the Czech Republic and the Slovak Republic, and 62% in Italy. In contrast, women are under-represented in vocational programmes in about seven out of ten countries with available data (Figure B3.2).

Figure B3.2. Share of women among upper secondary graduates, by programme orientation (2017)



Countries are ranked in descending order of the share of women in general programmes.
Source: OECD/UIS/Eurostat (2019), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978018

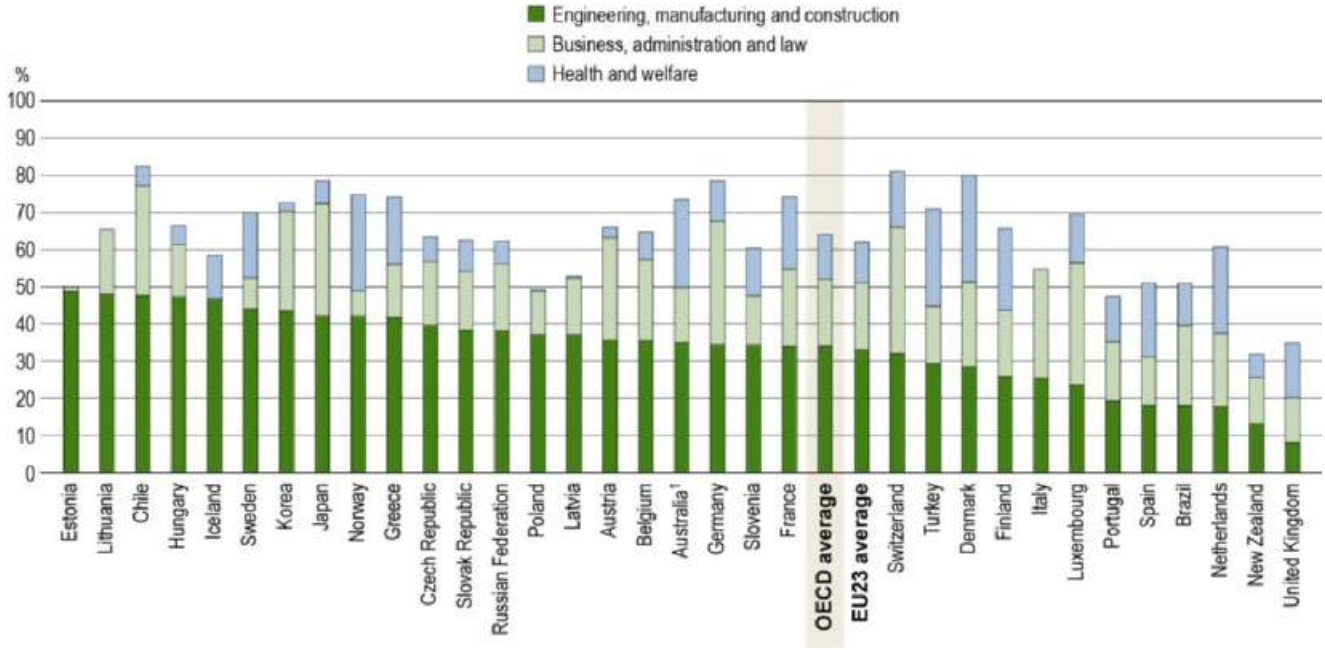
There is, however, significant cross-country variation in vocational programmes. The share of women ranges from less than 36% in Estonia and Lithuania to 63% in New Zealand. In fact, New Zealand is one of just five countries (i.e. Brazil, Colombia, Ireland and the United Kingdom) where women make up a higher share of graduates in vocational programmes than in general programmes. In these countries, the difference between the share of women in vocational and general programmes ranges from less than 4 percentage points in Brazil, Colombia and the United Kingdom to over 10 percentage points in Ireland and New Zealand (Figure B3.2).

Profile of upper secondary vocational graduates, by field of study

On average across OECD countries, 33% of graduates from upper secondary vocational programmes earn a qualification in the field of engineering, manufacturing and construction. This falls to 18% for business, administration and law, and 11% for health and welfare. However, this pattern does not hold for every country. In Chile, Estonia, Hungary, Iceland and Lithuania nearly 50% of students graduate with a specialisation in engineering, manufacturing and construction. In contrast, business, administration and law is the most popular field in upper secondary vocational programmes for Brazil, Luxembourg and Switzerland. In Denmark, the Netherlands, Spain and the United Kingdom, the field of health and welfare is the most popular (Figure B3.3).

The percentage of women pursuing a programme in engineering, manufacturing and construction is low at the upper secondary vocational level: only 12% of graduates in this field of study are women. On the other hand, women are over-represented in health and welfare, where they make up 82% of graduates on average. In fact, in health and welfare, the share of female graduates exceeds 75% in all countries except Latvia (71%), Poland (56%), Slovenia (73%) and Sweden (72%). Between these two extremes, there is more gender balance in the field of services where, on average, 61% of graduates are women, and in business, administration and law, where 65% of graduates are women (Table B3.1).

Figure B3.3 Distribution of upper secondary vocational graduates by selected field of study (2017)



1. Year of reference 2016.
Countries are ranked in descending order of the share of engineering, manufacturing and construction graduates.
Source: OECD/UIS/Eurostat (2019), Table B3.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978037

Gender gaps in fields of study may be partly due to social perceptions of what women and men excel at and the careers they can pursue. For example, the low share of women in the field of engineering, manufacturing and construction may result from the social perception of science as being a masculine domain, which may discourage women from pursuing studies in that field (OECD, 2015[3]).

Profile of upper secondary vocational graduates, by age

The average age of upper secondary graduates tends to be older for vocational programmes than general programmes. On average across OECD countries, first-time upper secondary graduates obtain their qualification at the age of 21 in vocational programmes, compared to 18 in general programmes (Figure B3.1).

However, there is some variation across countries. In Canada, Denmark, Iceland and Norway, the average graduation age is significantly higher for vocational programmes than general ones, with a difference of at least seven years. In contrast, in Chile, Colombia and Poland, students graduate from general programmes at least one year later than from vocational programmes. In the Czech Republic, Israel, Korea, Mexico, Portugal, the Slovak Republic, Sweden and Turkey, the average graduation age is the same for both general and vocational programmes (Figure B3.1).

Differences between the graduation age in vocational and general programmes may reflect differences in these programmes' duration. For instance, in Norway, vocational programmes are one year longer than general programmes, which could contribute to the higher graduation age for vocational programmes (OECD Education GPS, 2018[4]).

Profile of post-secondary non-tertiary graduates

Various kinds of post-secondary non-tertiary programmes (ISCED level 4) are offered in OECD countries. These programmes straddle upper secondary and post-secondary education and may be considered either upper secondary or post-secondary programmes, depending on the country. Although the content of these programmes may not be significantly more advanced than upper secondary programmes, they broaden the knowledge of individuals who have already attained an upper secondary qualification. However about 13 countries do not offer programmes at post-secondary non-tertiary level of education.

Profile of post-secondary non-tertiary graduates, by programme orientation

On average across OECD countries, around 94% of post-secondary non-tertiary first-time graduates have graduated from vocational programmes. Professionalisation is particularly high at this level of education as post-secondary non-tertiary programmes are most often designed for direct labour market entry. There are some national initiatives to provide general programmes at post-secondary non-tertiary level to target students who have completed a vocational upper secondary level and want to increase their chances of entering tertiary education. For instance, in Switzerland, a one-year general programme – *Programme Passerelle DUBS* – prepares graduates from vocational upper secondary education to enter general programmes at the tertiary level (OECD/Eurostat/UNESCO Institute for Statistics, 2015[5])

Profile of post-secondary non-tertiary graduates, by age

The average age of first-time graduates from vocational programmes tends to be higher for post-secondary non-tertiary education than for upper secondary education. On average across OECD countries, first-time upper secondary vocational graduates obtain their qualification at the age of 21, compared to 31 for vocational post-secondary non-tertiary programmes. However, significant variation exists across countries: whereas for some countries, such as Germany, Hungary and Belgium, there is a difference of only two years between the average age of first-time graduation from upper secondary and post-secondary non-tertiary education, for others, such as Finland, Spain and Sweden, the difference is more than 14 years (Figure B3.1).

This pattern could be partially explained by the fact that some countries have developed lifelong learning strategies. In fact, some countries are progressively developing pathways for adults in their VET strategy. In Denmark, Adult Vocational training (AMU) aims to provide adults with skills and competencies relevant to the labour market. The programmes help learners either deepen their existing knowledge in a particular field or develop new knowledge in related fields (CEDEFOP, 2019[6]).

Profile of post-secondary non-tertiary graduates, by field of study

On average across OECD countries, 21% of post-secondary non-tertiary graduates in vocational programmes specialised in health and welfare, 21% in services followed by 20% for business, administration and law; and 19% for engineering, manufacturing and construction. However, this pattern is not always repeated across countries. In Luxembourg, for instance, 80% of post-secondary non-tertiary graduates obtained a qualification in engineering, manufacturing and construction whereas in Austria the share is only 1% (Table B3.2).

Profile of post-secondary non-tertiary graduates, by gender

On average across OECD countries, women make up 54% of post-secondary non-tertiary graduates but there are significant variations across countries, with the share ranging from 19% in Luxembourg to 75% in Austria and Poland.

In almost all countries with available data, women make up more than half of post-secondary non-tertiary graduates from vocational programmes, except in Australia, Belgium, the Czech Republic, Denmark, Iceland, Luxembourg, Portugal and the Russian Federation. The percentage of women pursuing a programme in

engineering, manufacturing and construction is low at the post-secondary non-tertiary level: they make up only 18% of graduates in this field. In contrast, women are over-represented in health and welfare, where the share of female graduates is 75% or more in all countries, except Australia (70%). There is more gender balance in the field of services, where on average 57% of graduates are women, and business, administration and law, where the figure is 66% (Table B3.2).

First-time graduation rates

Upper secondary graduation rates

An upper secondary education is often considered to be the minimum credential for successful entry into the labour market and necessary for continuing to further education. The costs of not completing this level of education on time can be considerable to both individuals and society (see Indicator A5).

Graduation rates offer an indication of whether government initiatives have been successful in increasing the share of people who graduate from upper secondary education. The large differences in graduation rates among countries reflect the variety of systems and programmes available, as well as other country-specific factors, such as current social norms and economic performance.

Current estimates indicate that, on average, 86% of people across OECD countries will graduate from upper secondary education in their lifetime, and 81% of people will do so before the age of 25. First-time graduation rates for those under 25 exceed 80% in more than half of OECD countries with available data, with values ranging from 60% in Mexico to over 90% in Greece, Korea and Slovenia (Table B3.3).

The higher graduation rates for general programmes may reflect the lower share of students enrolled in upper secondary vocational programmes than in general programmes (see Indicator B1), along with lower completion rates for vocational education (Box B3.1 in (OECD, 2017[7])).

In countries with available data, the first-time upper secondary graduation rate for those below the age of 25 increased by 2 percentage points between 2010 and 2017. The increase was striking in three countries: Spain, Turkey (both 18 percentage points) and Mexico (15 percentage points). In contrast, the first-time graduation rate for those under 25 fell by 5 percentage points in Austria, Lithuania and Sweden and by 13 percentage points in the Slovak Republic over the same period (Table B3.3).

However, improved upper secondary graduation rates alone will not guarantee that all graduates will pursue a tertiary degree or enter the labour force immediately, nor that they will have the right skills to succeed once in employment. Indeed, the number of upper secondary graduates who wind up neither employed nor in education or training (NEET) has been growing in about half of OECD countries (see Indicator A2). For this reason, it is important to have high-quality upper secondary programmes that provide individuals with the right mix of guidance and education opportunities to ensure that there are no dead ends after graduation.

Post-secondary non-tertiary graduation rates

First-time graduation rates from post-secondary non-tertiary education are low compared to those from upper secondary programmes. On average, it is estimated that 11% of today's young people in OECD countries will complete a post-secondary non-tertiary programme over their lifetime. The only countries where first-time graduation rates (for all ages) from post-secondary non-tertiary programmes exceed 20% are the Czech Republic, Germany, Hungary, Lithuania, New Zealand and the United States. For OECD countries with available data for 2005, 2010 and 2017, the first-time graduation rate (for people younger than 30) has remained constant over the past decade, at around 3% on average. Nine countries do not offer this level of education: Chile, Costa Rica, Indonesia, Korea, Mexico, the Netherlands, Slovenia, Turkey and the United Kingdom (Table B3.3).

Definitions

Graduates in the reference period can be either first-time graduates or repeat graduates. A first-time graduate is a student who has graduated for the first time at a given level of education in the reference period. Thus, if a student has graduated multiple times over the years, he or she is counted as a graduate each year, but as a first-time graduate only once.

Net graduation rates represent the estimated percentage of an age group that will complete upper secondary education, based on current patterns of graduation.

Typical age is the age at the beginning of the last school/academic year of the corresponding educational level and programme when the degree is obtained.

Methodology

Unless otherwise indicated, graduation rates are calculated as net graduation rates (i.e. as the sum of age-specific graduation rates). Gross graduation rates are presented for countries that are unable to provide such detailed data. In order to calculate gross graduation rates, countries identify the age at which graduation typically occurs (see Annex 1). The number of graduates, regardless of their age, is divided by the population at the typical graduation age. In many countries, defining a typical age of graduation is difficult, however, because graduates are dispersed over a wide range of ages.

Graduates by programme orientation at the upper secondary and post-secondary non-tertiary levels are not counted as first-time graduates, given that many students graduate from more than one upper secondary or post-secondary non-tertiary programme. Therefore, graduation rates cannot be added, as some individuals would be counted twice. In addition, the typical graduation ages are not necessarily the same for the different types of programmes (see Annex 1). Vocational programmes include both school-based programmes and combined school- and work-based programmes that are recognised as part of the education system. Entirely work-based education and training programmes that are not overseen by a formal education authority are not included.

The average age of students is calculated from 1 January for countries where the academic year starts in the second semester of the calendar year and from 1 July for countries where the academic year starts in the first semester of the calendar year. As a consequence, the average age of first-time graduates may be underestimated by up to six months.

When an age breakdown is not available, the gross graduation rate is calculated instead. This refers to the total number of graduates divided by the average cohort of the population at the typical age provided by the country.

In this indicator, age refers generally to the age of students at the beginning of the calendar year. Students could be one year older than the age indicated when they graduate at the end of the school year. Twenty-five is used as the upper age limit for completing secondary education because, across OECD countries, more than 95% of graduates from upper secondary general programmes in 2017 were under 25 (see Education at a Glance Database). People who graduate from this level at age 25 or older are usually enrolled in second-chance programmes. At the post-secondary non-tertiary level, 30 is considered to be the upper age limit for graduation.

Please see Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the academic year 2016/17 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018 (for details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator B3 Tables

Table B3.1 Profile of upper secondary graduates from vocational programmes (2017)

Table B3.2 Profile of post-secondary non-tertiary graduates from vocational programmes (2017)

Table B3.3 Trends in upper secondary and post-secondary non-tertiary first-time graduation rates (2005, 2010 and 2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980963

Table B3.1. Profile of upper secondary graduates from vocational programmes (2017)

		Percentage of first-time graduates who obtained a vocational qualification	Percentage of female graduates	Average age	Distribution of graduates by field of study				Share of female graduates by field of study			
					Business, administration and law	Engineering, manufacturing and construction	Health and welfare	Services	Business, administration and law	Engineering, manufacturing and construction	Health and welfare	Services
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD	Countries											
	Australia[1]	m	46	33	15	35	24	14	64	10	85	60
	Austria	77	46	20	28	36	3	19	65	13	79	74
	Belgium	m	48	19	22	35	7	23	54	20	88	74
	Canada	6	49	32	m	m	m	m	m	m	m	m
	Chile	31	49	18	30	48	5	4	64	28	85	62
	Colombia	24	55	16	m	m	m	m	m	m	m	m
	Czech Republic	69	45	21	17	40	7	18	67	13	90	66
	Denmark	28	51	28	23	28	29	12	66	10	87	45
	Estonia	m	35	19	1	49	0	27	94	19	a	69
	Finland	55	53	29	18	26	22	19	67	17	83	58
	France	m	49	20	21	34	20	19	63	11	91	63
	Germany	44	40	22	33	34	11	12	57	9	86	47
	Greece	25	36	18	14	42	18	5	60	11	81	54
	Hungary	20	37	22	14	47	5	29	72	8	91	57
	Iceland	22	37	28	0	47	12	22	100	8	96	53
	Ireland	m	61	31	m	m	m	m	m	m	m	m
	Israel	42	50	17	m	m	m	m	m	m	m	m
	Italy[2]	58	39	m	29	25	0	30	50	13	a	54
	Japan	23	43	m	30	42	6	8	62	11	83	82
	Korea	18	42	18	27	44	2	5	74	14	78	65
	Lithuania	16	34	21	17	48	0	27	48	3	a	78
	Latvia	25	44	21	15	37	0	24	75	10	71	70
	Luxembourg	60	53	21	33	24	13	6	65	17	81	65
	Mexico	33	50	18	m	m	m	m	m	m	m	m
	Netherlands	54	50	22	20	18	23	22	54	10	88	46
	New Zealand	m	63	33	12	13	6	18	76	15	78	69
	Norway	35	40	28	7	42	26	18	77	8	84	39
	Poland	45	39	20	12	37	0	27	63	12	56	69
	Portugal	36	48	20	16	19	12	24	66	17	86	58
	Slovak Republic	71	44	19	16	38	8	24	71	10	84	62
	Slovenia	67	45	19	13	34	13	16	63	11	73	63
	Spain	33	49	25	13	18	20	14	62	8	77	47
	Sweden	33	41	18	8	44	18	20	58	9	72	62
	Switzerland	m	46	22	34	32	15	9	59	12	89	55
	Turkey	50	50	18	16	29	26	8	51	13	81	63
	United Kingdom	63	52	21	12	8	15	14	53	6	80	51
	United States	a	a	a	a	a	a	a	a	a	a	a
	OECD average	40	46	22	18	34	12	17	65	12	82	61
	EU23 average	46	45	22	18	33	11	20	63	12	81	60
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m
	Brazil	8	57	21	22	18	11	4	62	32	77	66
	China	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	24	53	18	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	46	42	m	18	38	6	18	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m

Note: This table does not include data for all fields of study. The data for other fields are available at http://stats.oecd.org/, Education at a Glance Database.
1. Year of reference 2016.
2. Includes post-secondary non-tertiary level.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933977942

Table B3.2. Profile of post-secondary non-tertiary graduates from vocational programmes (2017)

		Percentage of first-time graduates who obtained a vocational qualification	Percentage of female graduates	Average age	Distribution of graduates by field of study				Share of female graduates by field of study			
					Business, administration and law	Engineering, manufacturing and construction	Health and welfare	Services	Business, administration and law	Engineering, manufacturing and construction	Health and welfare	Services
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD	Countries											
	Australia[1]	100	50	37	23	24	27	10	57	10	70	51
	Austria	100	75	33	8	1	63	1	53	17	79	53
	Belgium	100	50	22	12	26	13	36	56	9	82	69
	Canada	m	m	m	m	m	m	m	m	m	m	m
	Chile	a	a	a	a	a	a	a	a	a	a	a
	Colombia	a	a	a	a	a	a	a	a	a	a	a
	Czech Republic	19	44	m	m	m	m	m	m	m	m	m
	Denmark	100	40	35	96	0	0	1	40	a	a	100
	Estonia	m	62	31	36	24	1	25	91	35	78	41
	Finland	100	59	42	58	19	6	13	57	56	86	61
	France	m	m	m	7	3	16	1	57	29	90	7
	Germany	90	60	24	24	19	43	7	65	14	81	65
	Greece	m	62	25	7	6	31	41	66	25	83	60
	Hungary	100	53	24	19	20	23	17	76	11	78	58
	Iceland	79	32	37	11	45	1	33	49	9	100	49
	Ireland	m	53	30	0	25	34	9	64	1	96	43
	Israel	a	a	a	a	a	a	a	a	a	a	a
	Italy	m	m	m	m	m	m	m	m	m	m	m
	Japan	m	m	m	m	m	m	m	m	m	m	m
	Korea	a	a	a	a	a	a	a	a	a	a	a
	Lithuania	100	63	29	15	19	22	28	83	20	91	70
	Latvia	100	52	29	24	27	12	23	61	18	85	65
	Luxembourg	100	19	29	0	80	0	15	a	4	a	100
	Mexico	a	a	a	a	a	a	a	a	a	a	a
	Netherlands	a	a	a	a	a	a	a	a	a	a	a
	New Zealand	100	61	30	16	10	13	19	72	17	82	65
	Norway	100	66	33	25	5	29	25	88	15	91	31
	Poland	100	75	28	13	0	44	27	80	20	83	69
	Portugal	100	39	26	5	14	0	68	60	10	a	46
	Slovak Republic	100	50	28	13	15	18	39	60	9	83	31
	Slovenia	a	a	a	a	a	a	a	a	a	a	a
	Spain	100	60	38	34	13	25	12	67	31	75	73
	Sweden	87	56	33	10	24	22	12	75	22	95	49
	Switzerland	a	a	a	a	a	a	a	a	a	a	a
	Turkey	a	a	a	a	a	a	a	a	a	a	a
	United Kingdom	a	a	a	a	a	a	a	a	a	a	a
	United States	100	57	m	10	20	34	19	65	7	84	62
	OECD average	94	54	31	20	19	21	21	66	18	85	57
	EU23 average	93	54	30	21	19	21	21	65	19	84	59
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m
	Brazil	100	57	28	26	22	29	10	64	18	84	60
	China	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	a	a	a	a	a	a	a	a	a	a	a
	India	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	100	35	25	5	58	4	20	82	26	92	37
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m

Note: This table does not include data for all fields of study. The data for other fields are available at http://stats.oecd.org/, Education at a Glance Database.
1. Year of reference 2016.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933977961

Table B3.3. Trends in upper secondary and post-secondary non-tertiary first-time graduation rates (2005, 2010 and 2017)

		Upper secondary						Post-secondary non-tertiary					
		All ages			Younger than 25 years			All ages			Younger than 30 years		
		2005	2010	2017	2005	2010	2017	2005	2010	2017	2005	2010	2017
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	m	m	m	m	m	m	m	16	9	m	7	3
	Austria	m	87	85	m	84	79	m	7	7	m	4	3
	Belgium	m	m	m	m	m	m	m	m	5	m	m	5
	Canada	80	85	91	75	81	85	m	m	m	m	m	m
	Chile	83	86	92	77	82	87	a	a	a	a	a	a
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	116 d	110 d	80	m	m	78	x(1)	x(2)	30	m	m	m
	Denmark	83	85	91	74	76	80	1	1	0	1	0	0
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m
	Finland	94	95	100	85	85	89	6	7	9	1	1	1
	France	m	m	m	m	m	m	m	m	m	m	m	m
	Germany	78	83	81	m	m	76	23	25	24	m	m	22
	Greece	96	89	95	96	89	93	m	m	m	m	m	m
	Hungary	84	86	84	80	82	79	20	18	21	18	16	18
	Iceland	m	m	82	m	m	68	m	m	14	m	m	6
	Ireland	92	86	m	90	85	m	14	10	m	14	7	m
	Israel	89	91	90	89	91	90	m	m	m	m	m	m
	Italy	85	85	96 d	67	67	m	6	4	x(3)	4	2	m
	Japan	m	m	98	m	m	m	m	m	m	m	m	m
	Korea	94	92	95	m	m	95	a	a	a	a	a	a
	Latvia	m	89	89	m	88	84	m	3	10	m	2	8
	Lithuania	82	94	87	78	89	84	8	9	21	8	7	15
	Luxembourg	74	70	81	72	68	78	m	2	1	m	1	1
	Mexico	40	45	61	39	44	60	a	a	a	a	a	a
	Netherlands	m	m	89	m	m	84	m	m	a	m	m	a
	New Zealand	95	91	95	86	80	90	26	29	22	12	18	14
	Norway	90	87	93	74	75	82	5	10	4	3	7	2
	Poland	m	84	88	m	83	85	15	13	14	11	10	10
	Portugal	52	106	85	49	66	78	0	3	1	0	3	1
	Slovak Republic	86	86	72	84	84	71	12	10	7	11	8	5
	Slovenia	85	94	95	72	83	93	a	a	a	a	a	a
	Spain	56	61	81	53	57	75	a	a	3	a	a	1
	Sweden	76	75	69	76	75	69	1	3	6	0	2	3
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	48	54	75	48	54	72	a	a	a	a	a	a
	United Kingdom	87	88	87	m	m	81	a	a	a	a	a	a
	United States	74	77	85	74	77	85	17	22	22	m	m	m
	OECD average	81	84	86	m	77	81	m	11	12	m	6	7
	Average for countries with available data for all reference years	80	84	86	m	76	78	m	6	7	m	3	3
	EU23 average	83	87	86	m	79	81	10	8	11	m	5	7
Partners	Argentina 1	m	m	65	m	m	m	m	m	m	m	m	m
	Brazil	m	m	67	m	m	61	m	m	6	m	m	3
	China	m	m	83	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	35	m	m	33	m	m	a	m	m	a
	India	m	m	30	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	66	m	m	m	a	a	a	a	a	a
	Russian Federation	89	97	90	m	m	m	7	12	3	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa 1	m	m	43	m	m	m	m	m	m	m	m	m
	G20 average	m	m	86	m	m	m	m	m	m	m	m	m

1. Year of reference 2016 instead of 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

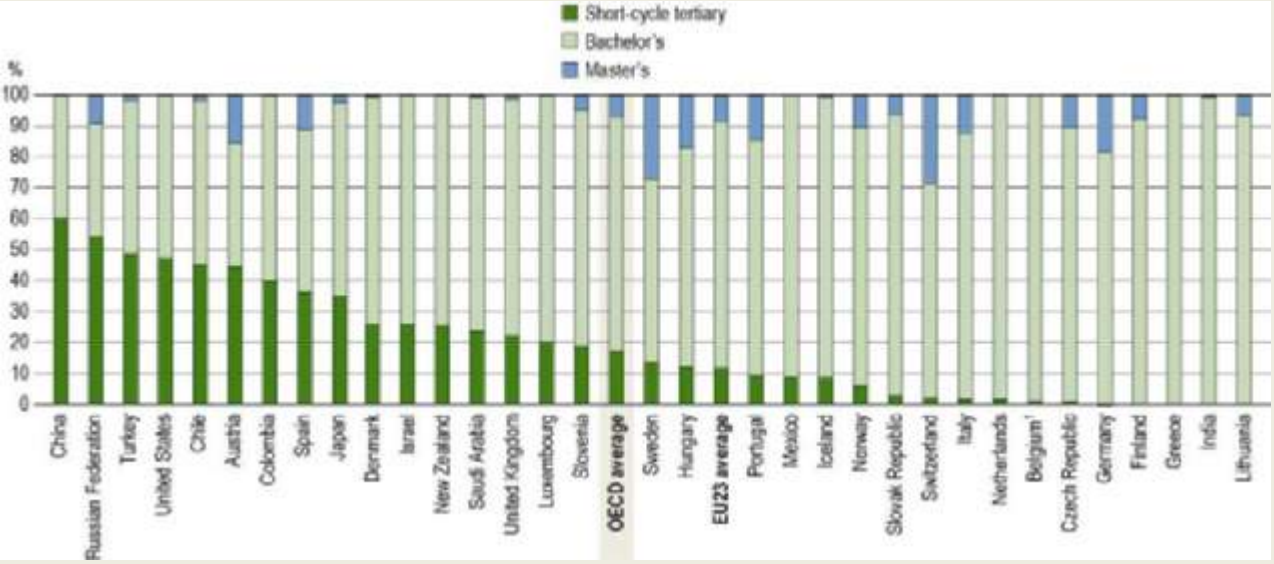
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Indicator B4. Who is expected to enter tertiary education?

Highlights

- Bachelor's programmes are the most common entry route into tertiary education. In 2017, more than seven out of every ten first-time entrants into tertiary education were enrolled at bachelor's level, two at short-cycle tertiary level and less than one at master's level on average across OECD countries.
- Across OECD countries, the average age of new entrants was 22 at bachelor's level and 21 at master's long first degrees (LFDs) level, which is younger than new entrants to short-cycle tertiary programmes (25 years).
- Women outnumber men among new entrants to short-cycle tertiary, bachelor's programmes and master's LFDs. However, there are stark differences across fields of study: women are under-represented in science, technology, engineering and mathematics (STEM) but over-represented in health and welfare.

Figure B4.1. Distribution of first-time entrants into tertiary education, by level of education (2017)



1. Short-cycle tertiary: data refers to the Flemish Community of Belgium only.
Countries are ranked in descending order of percentage of first-time entrants into short-cycle tertiary programmes in 2017.
Source: OECD / UIS / Eurostat (2019), Table B4.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Access to tertiary education plays an essential role in developing young adults' skills so they can contribute fully to society. Yet students' profiles and academic aptitudes can be very diverse. Some people find academic learning unappealing, too long, too uncertain. Not all students develop skills at the same pace, and the

traditional route of only entering tertiary education following an upper secondary general programme is increasingly being challenged. At the same time, the sequencing of higher education within educational life cycles has also seen changes. Students are more likely to postpone entry to higher education, take a gap year, or alternate periods of employment with periods of study. Stimulating employment opportunities and burgeoning economies have prompted students in some countries to defer education in favour of learning in the workplace, particularly when financial support for study is limited. Lifelong learning is slowly emerging as the new vision for education, enabling individuals to continually update their skills to meet volatile and constantly evolving market demand.

To address the growing needs of a diverse population, some countries have progressively adapted their tertiary-level programmes to ensure more learning flexibility to suit a wide range of students' skills and learning aptitudes. This includes building more pathways between upper secondary and tertiary programmes, including those with a vocational orientation, but also expanding the types of programmes available to first-time tertiary students: short-cycle tertiary programmes, bachelor's programmes or long first degrees at master's level. Each education level and programme requires different skills at entry and addresses specific labour-market demands. Flexible entrance criteria can support lifelong learning and second-chance programmes can offer new opportunities to older students who might have dropped out of the education system or for those who wish to develop new skills. Providing a range of educational options adapted to the needs and ambitions of young adults also ensures a smoother transition from education to work.

The profile of first-time entrants to tertiary education provides an indication of the learning trajectories across various tertiary levels and programmes. It also provides information about equity in access to tertiary programmes. Entry rates estimate the proportion of people who are expected to enter a specific type of tertiary education programme at some point during their life. They provide some indication of the accessibility of tertiary education and the degree to which a population is acquiring high-level skills and knowledge. High entry and enrolment rates in tertiary education imply that a highly educated labour force is being developed and maintained.

Other findings

- On average across OECD countries, the share of international new entrants to master's LFDs is 15%, greater than for bachelor's programmes (8%) and much more than for short-cycle tertiary programmes (5%).
- On average across OECD countries, the share of female new entrants to bachelor's and short-cycle tertiary programmes is 53-54%, well below their share of 61% for master's LFDs.
- Based on current patterns, 58% of young adults on average across OECD countries are expected to enter a bachelor's or equivalent programme in their lifetime and 17% will enter a short-cycle tertiary programme.

Note

Short-cycle tertiary and master's long first degree programmes may not exist or are not prevalent in a number of educational systems. To ensure relevant cross-country comparisons, the analysis of the distribution of new or first-time entrants by gender, field of study or mobility at these levels of education only includes those countries where at least 10% of new or first-time tertiary entrants are enrolled in such programmes.

Entry rates are sensitive to changes in the education system, such as the introduction of new programmes. The rates can be very high, even exceeding 100%, during a period when there are unexpectedly high numbers of entrants. In some countries, high entry rates may reflect a temporary phenomenon, such as the effects of economic cycles and crises, university reforms driven by the Bologna Process or a surge in the number of international students. Government efforts to encourage older students to return to education through second-chance programmes can also boost entry rates.

Analysis

Pathways of new and first-time entrants into tertiary education

Students may enter tertiary education at three levels: short-cycle tertiary (ISCED 5), bachelor's (ISCED 6) or master's level (ISCED 7). Each programme has specific entry requirements and develops a specific set of skills relevant to the labour market. Bachelor's programmes are the most common route into tertiary education, and exist in all OECD countries. Short-cycle tertiary programmes are often designed to provide participants with professional knowledge, skills and competencies. Typically, they are practically based, occupation-specific and prepare students to enter the labour market directly. Short-cycle tertiary programmes have the double advantage of offering reasonably priced higher education (as two-year programmes, their direct and foregone costs are lower than four-year programmes – see Indicator A5) and a readily employable qualification, but they do not exist in all countries.

First-time entry into tertiary education at master's level mainly comprises students entering master's long first degrees (LFDs) and students entering a master's programme without a bachelor's degree from the host country. Master's long first degrees are programmes of at least 5 years that prepare students for a first degree or qualification and have equivalent complexity of content to a master's programme. They include highly specialised fields such as medicine, dentistry or, in some cases, law and engineering (OECD/Eurostat/UNESCO Institute for Statistics, 2015[1]). In the United Kingdom, where master's LFDs are not available, first-time tertiary entrants at master's level are students entering the level based on industry experience rather than academic qualifications.

Distribution of first-time tertiary entrants

The level at which students first enter tertiary education helps determine the length of their studies and the employment or further learning opportunities they will have access to following their degree. The distribution pattern of students across each tertiary entry-level programme depends on each programme's availability, capacity and entry requirements within the national education system.

On average across OECD countries, more than three-quarters of first-time tertiary entrants are enrolled in bachelor's programmes. However, the predominance of such programmes in the educational landscape varies greatly from country to country. In Belgium, Finland, Greece, Iceland, India, Lithuania, Mexico, the Netherlands and the Slovak Republic, more than 90% of first-time tertiary entrants enter bachelor's programmes. In other countries, first-time tertiary entrants are more evenly distributed across the various entry-level tertiary programmes. For example, in Austria, Chile, the People's Republic of China, the Russian Federation, Turkey and the United States, 45% or more of first-time entrants into tertiary education entered short-cycle programmes, more than twice the OECD average of 17%. Despite the benefits offered by these programmes, they do not exist in all countries. Where they do, they are not always very attractive to students. In 11 OECD member and partner countries where short-cycle tertiary programmes exist, less than 10% of first-time entrants into tertiary education enrol in them (Figure B4.1).

Master's programmes are the least common entry point into tertiary level. On average across OECD member and partner countries with available data, 7% of first-time entrants into tertiary education are in master's level programmes, but this exceeds 20% in Sweden and Switzerland. In most countries, the majority of first-time tertiary entrants at master's level enter through master's LFDs. The share of first-time tertiary entrants at master's level in countries where long first degrees are not available remains quite low: less than 2% in the United Kingdom (Figure B4.1).

Age of new entrants to each tertiary level

Various factors can influence the age distribution of new entrants to each tertiary level. A wide age distribution may reflect the existence of second chance and lifelong learning programmes characteristic of flexible pathways allowing for re-entry into the education system. Delayed entry can indicate difficulties in access to tertiary

education, either through selective entry requirements (see Indicator D6), *numerus clausus* (a fixed maximum number of entrants admissible to an academic institution), or financial challenges in affording the private costs associated with higher education (see Indicator C5). From an economic point of view, delayed entry into tertiary education can be costly to the public purse as adults postpone their entry into the labour market and hence the time when they are typically able to start contributing financially to society (see Indicator A5).

Box B4.1. Transition between upper secondary and tertiary education

The growing flexibility of tertiary educational systems is reflected in the increasing availability of new learning pathways and modalities. Part-time studies, online courses and allowing students to collect credits without the intention of completing a degree are some examples of how tertiary programmes have been adapting to a vision of education as lifelong learning. In this context, students in many countries may not be expected, or even encouraged, to follow a direct path from upper secondary to tertiary education.

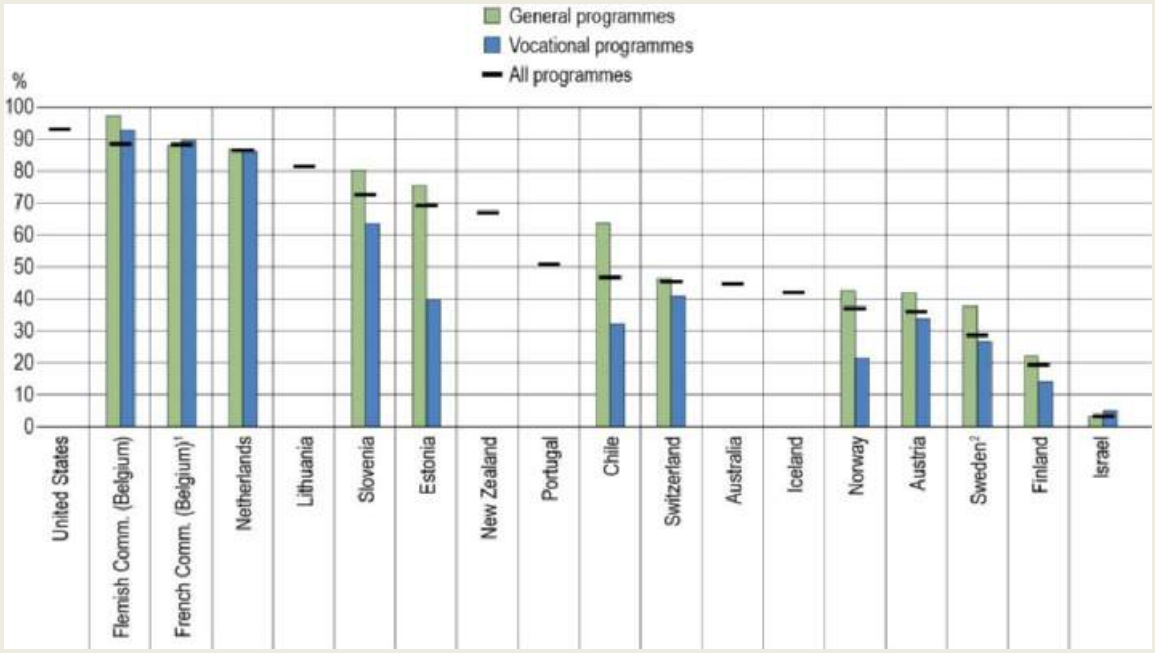
Figure B4.a shows the share of entrants to bachelor's programmes who did not take at least one gap year between upper secondary and tertiary education. In other words, it shows the share of entrants who moved directly from upper secondary to tertiary education without any significant break. The share varies considerably across countries, which highlights the diversity in the pool of tertiary entrants. While over 90% of those who enter bachelor's programmes in the United States do so right after upper secondary education, the same is true for only 20% of entrants in Finland and 3% of entrants in Israel.

This variation reflects important differences in institutional and social factors that are specific to each country. In many countries, it is common for students to enter military or civil service after upper secondary education. Students may also be led to take gap years because of highly selective tertiary entrance systems. In Finland, for example, it is common for students to apply several times before being accepted by some tertiary programmes (see Indicator D6), and the Finnish government has been actively trying to reduce the number of years between graduation from upper secondary and entry to tertiary education. In other countries, however, policies were put in place to actually encourage students to take gap years as a way to value students' experiences (e.g. work and civil or military service), before entering higher education. In Lithuania and Norway, students who have taken a gap year gain some advantage in the tertiary admission systems (e.g. bonus points are added to their competition score).

Entry into tertiary education can also be influenced by students' upper secondary programme orientation. In some countries, such as Estonia, Norway and Slovenia, entrants coming from vocational upper secondary programmes are considerably more likely to have taken at least one gap year before entering tertiary education than their peers with a general upper secondary degree. This could reflect the fact that students who complete a vocational upper secondary programme may choose to enter the labour market before pursuing a bachelor's programme. It may also be because some vocational upper secondary qualifications require students to take specific exams or supplementary courses before they can access tertiary education. In other countries, however, bachelor's students from general and vocational upper secondary education are equally likely to have taken gap years before entering the programme. This is the case, for example, in the Flemish and French communities of Belgium and in the Netherlands.

It is important, however, to look beyond averages when analysing students' transition from upper secondary to tertiary education. While flexibility and permeability may be important characteristics of education systems, country averages could mask underlying problems faced by disadvantaged students or at-risk groups during this transition period. It is also important to examine students' pathways after entering tertiary education, and how their educational and social background may influence their ability to succeed at this level (see Indicator B5).

Figure B4.a. Share of entrants to bachelor's programmes who entered directly from upper secondary education, by upper secondary programme orientation



How to read this figure: In Estonia, about 76% of entrants to bachelor's or equivalent programmes with a general upper secondary degree entered directly from upper secondary education. The same is true for about 40% of entrants with a vocational upper secondary education and 70% of all entrants (with general or vocational upper secondary degrees).

Note: Data in the figure come from an ad-hoc survey on tertiary completion rates, which followed a cohort of students from entry into bachelor's programmes until three years after the end of the programme's theoretical duration. The reference year for the completion rate survey is 2017, but the year of entry into bachelor's level depends on the theoretical duration of programmes available in each country. For nearly every country presented in the figure, the data refer to students who entered bachelor's programmes in the period between 2010 and 2012. For the United States, it refers to students who entered bachelor's programmes in 2003.

1. Data refer only to the *Hautes Écoles* (HE) and the *Écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes

2. Data disaggregated by programme orientation is based on an entry cohort that excludes students with unknown upper secondary qualification and is therefore smaller than the total for "All programmes".

Countries are ranked in descending order of the share of students who entered tertiary education directly from upper secondary education, all programmes

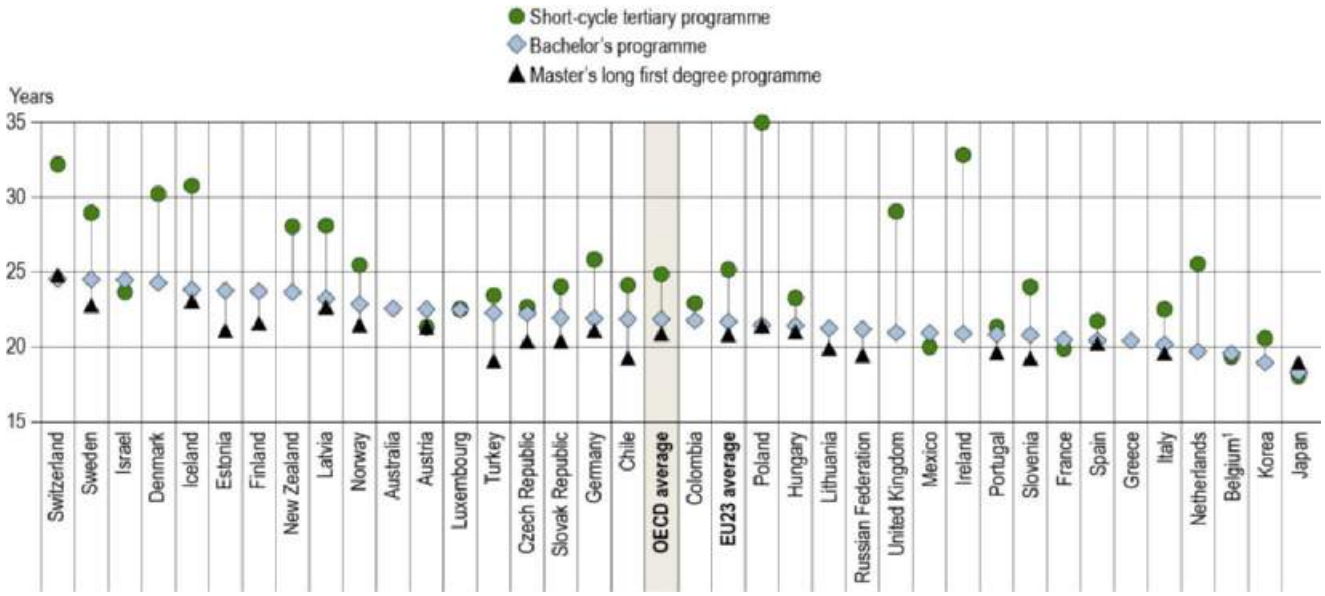
Source: Ad-hoc survey on tertiary completion rates OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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The average age at entry to tertiary programmes also varies depending on the entry-level programme and the student profile each programme tends to attract. Students tend to think about enrolling in bachelor's or master's LFDs shortly after upper secondary school, while short-cycle tertiary programmes tend to attract older adults, potentially with some employment experience. On average across OECD countries, the average age of new entrants is 25 years for short-cycle tertiary programmes, 22 for bachelor's programmes and 21 for master's long first degrees. However, there are large disparities among countries. The average age of new entrants to bachelor's programmes varies from 18-19 in Japan and Korea to 24 and over in Sweden and Switzerland. The average age of new entrants to short-cycle tertiary programmes varies from 18 in Japan to 30 or older in Denmark, Iceland, Ireland, Poland and Switzerland (Figure B4.2).

Structural factors, such as admission procedures, the typical age at which students graduate from upper secondary education, or cultural perceptions of the value of professional or personal experiences outside of education may explain the differences in the average age of entry to tertiary education across countries. Traditionally, students entered tertiary programmes immediately after completing upper secondary education, and this remains true in many cases. However, in a few countries, less than 25% of entrants to bachelor's programmes enrol straight after upper secondary (Box B4.1). This is the case in Israel, for example, where military service is compulsory. In Finland and Sweden, admissions are also restricted for many programmes and fields of study resulting in more than 60% of applicants being rejected (see Indicator D6). Countries with lower average entry ages are also those where enrolment into tertiary programmes is more likely to follow directly after graduation from upper secondary level. In some cases, this is facilitated by tertiary systems with open admissions, such as in the Netherlands. In others, direct entry following upper secondary has also been fuelled by tertiary expansion policies and a strong culture valuing academic achievement and educational attainment. For instance in Japan, an increase in tertiary capacity since the 1970s, combined with specific policies to promote tertiary attainment following the Japan Revitalisation Strategy, have led to higher enrolment rates in spite of selective admission systems (OECD, 2009[2]).

Figure B4.2. Average age of new entrants by level of education (2017)



Note: Data for master's long first degree may rely on small sample sizes.
1. Short-cycle tertiary: data refers to the Flemish Community of Belgium only.
Countries are ranked in descending order of the average age for new entrants into bachelor's programmes in 2017.
Source: OECD/UIS/Eurostat (2019), Table B4.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Upper secondary programme orientation and the tertiary programme students enter also strongly influence the average age of entry to tertiary level. In some countries, these programmes are specifically designed for adults with work experience and may have specific entry requirements. For instance in Denmark, the *Akademiuddannelser,* requires two years relevant work experience. Furthermore, these programmes tend to appeal more to upper secondary vocational students who are more likely to delay entrance to tertiary education because of their strong employment prospects from their upper secondary qualification.

Share of international students among new entrants at tertiary level

International students provide an additional income stream for educational institutions and contribute to the economy of their host country (García, De and Villarreal, 2014[3]). Beyond the economic benefits, interaction between domestic and international students promotes cultural understanding (culture, politics, religion, ethnicity and worldview), and dialogue, all essential to navigating an increasingly globalised economy. On average across OECD countries, international students make up 5% of new entrants to short-cycle tertiary programmes, rising to 8% for bachelor's programmes and 15% for master's LFDs. The more limited share of international students in short-cycle tertiary programmes could be due to the smaller number of countries providing such qualifications. In contrast, bachelor's and master's programmes are recognised qualifications with good employment prospects in all OECD countries.

Some countries are better than others at attracting international students. The share of international students among new entrants to short-cycle tertiary programmes ranges from close to zero in Chile, Colombia, Sweden and Turkey to 24% in New Zealand and 35% in Iceland. The share of international students among new entrants to bachelor's programme ranges from 2% or less in Chile, Colombia, Korea, Mexico and Spain to more than 30% in New Zealand. The total share of international students entering a master's LFD programme ranges from 3% or less in Chile, Finland, Iceland, Norway and Sweden to 27% or more in the Czech Republic, Germany, Hungary, Latvia and the Slovak Republic.

Distribution of new entrants by level of education and gender

Equal opportunities for both men and women to enter tertiary education can contribute to stronger, better and fairer growth by raising the overall level of human capital and labour productivity (OECD, 2011[4]). However, the expansion of tertiary education in OECD countries over the past decades has benefited women more than men: 51% of 25-34 year-old women now have a tertiary degree on average across OECD countries, up from 40% in 2008. In contrast, 38% of 25-34 year-old men were tertiary educated in 2018, an increase of 7 percentage points since 2008 (see Indicator A1).

The gender divide is set to keep on growing as women also outnumber men among new entrants to each tertiary level. On average across OECD countries, women represent 53% of new entrants at short-cycle tertiary level, 54% at bachelor's level, and 61% at master's level. At bachelor's and master's level in all countries, the share of women is close to 50% or above. In some countries, men are particularly under-represented even at bachelor's level, which represents the most common entry route into tertiary education. In Iceland and Sweden, they make up less than 40% of new entrants at this level. Short-cycle tertiary or master's LFD levels are more influenced by gender due to their specific focus on certain fields of study which tend to be associated with male or female occupations. Master's LFDs, which generally cover health or science programmes, tend to have a lower enrolment rate among men, who make up 30% or less of the new entrants to the level in Slovenia, and Switzerland. In contrast, men represent 60% or more of new entrants into short-cycle tertiary programmes in Slovenia. These programmes are also strongly dominated by men in Italy, Mexico, Norway and Portugal although they account for less than 10% of all first-time tertiary entrants (Table B4.1).

While many countries have promoted higher educational attainment for men and provided incentives to pursue higher education, men have not responded. This may be partly due to the critical years before tertiary education, when boys are more likely to struggle academically, repeat a grade, or drop out of school (OECD, 2017[5]; OECD, 2018[6]). This may also reflect differences in educational pathways at lower levels; for example, vocational training tends to appeal to men more than women in some countries (see Indicator B3). Students from vocational upper secondary programmes are indeed less likely to enter tertiary education, particularly at bachelor's level: only 28% of entrants to a bachelor's programme graduated from an upper secondary vocational programme on average across countries with available data (see Indicator B5). Short-cycle tertiary programmes provide more educational opportunities at tertiary level for students from vocational tracks, but the availability of such programmes is limited in a number of countries.

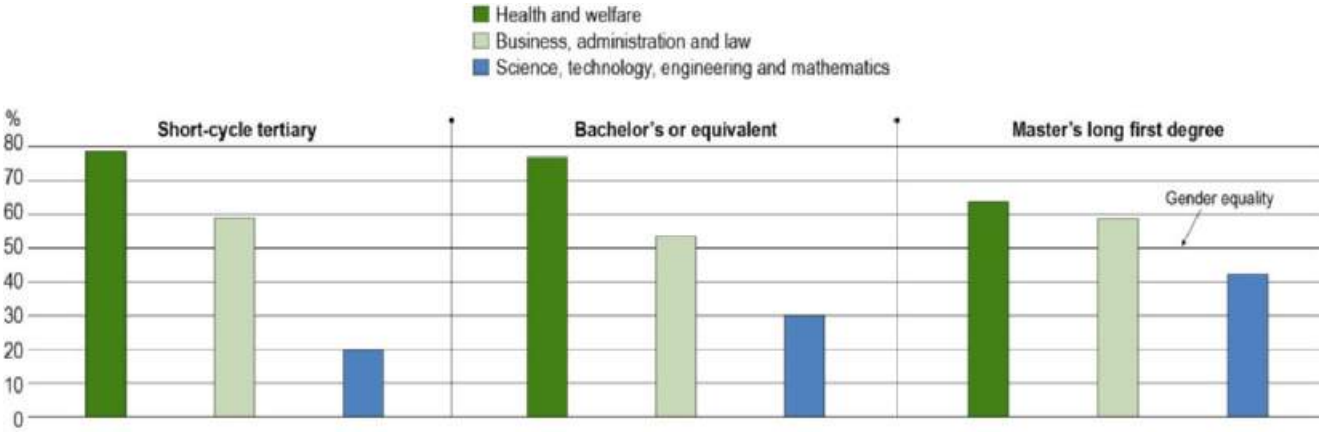
Fields of study of new entrants to each tertiary level

Students' choice of field of study is guided by career opportunities and their aspirations after education. The largest share of new entrants, one in four on average across OECD countries and across all tertiary levels, entered the broad field of business, administration and law in 2017 (OECD, 2019[7]). In only six OECD countries were different field of study more popular among new entrants: Belgium and Finland (health and welfare), Israel (education), Italy (arts and humanities), and Korea and Sweden (engineering, manufacturing and construction).

Promoting the broad field of science, technology, engineering and mathematics (STEM) has become a priority in many countries (OECD, 2017[8]). In addition to building the skills to drive innovation in technology and research, science-related competencies such as problem solving and quantitative analysis are considered essential in today's unpredictable and data-driven economy and are in high demand in the labour market. On average across OECD and partner countries, 27% of new entrants into bachelor's programmes enrol in a STEM field, with the largest shares in Germany (40%), the Russian Federation (35%), and Austria, Greece and Korea (34%) (Table B4.2). Of those, adults who studied information and communication technologies (ICT) and engineering, construction and manufacturing reap the greatest benefits in terms of employment (see Indicator A3) and earnings (see Indicator A4). In spite of these strong labour-market outcomes, these fields still attract a smaller share of students. On average across OECD countries and across all tertiary levels, 16% of new entrants enrol in engineering, manufacturing and construction and 5% in ICT (OECD, 2019[7]).

Figure B4.3. Share of women first-time new entrants by level of education and field of study (2017)

OECD average



Source: OECD / UIS / Eurostat (2019), Table B4.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Entry patterns by field of study reveal a strong gender bias. While the share of women new entrants has now overtaken that of men, women are still under-represented in STEM fields of study and over-represented in health and welfare across all tertiary levels. However, the gender difference varies across educational pathways and tends towards greater gender equality among new entrants into master's LFDs in both these fields (Figure B4.3).

On average across OECD countries in 2017, 20% of new entrants to short-cycle tertiary programmes and 30% of new entrants to bachelor's programmes in STEM fields were women. Only master's LFD programmes achieved anything approaching gender parity in STEM fields, with 42% of women on average across OECD countries, although this ranges from 33% in Sweden to 58% in Hungary and Italy (Table B4.2).

At the other end of the spectrum, women dominate in other fields of study such as health and welfare, although their share tends to decrease with each additional educational level: women represent 79% of new entrants to

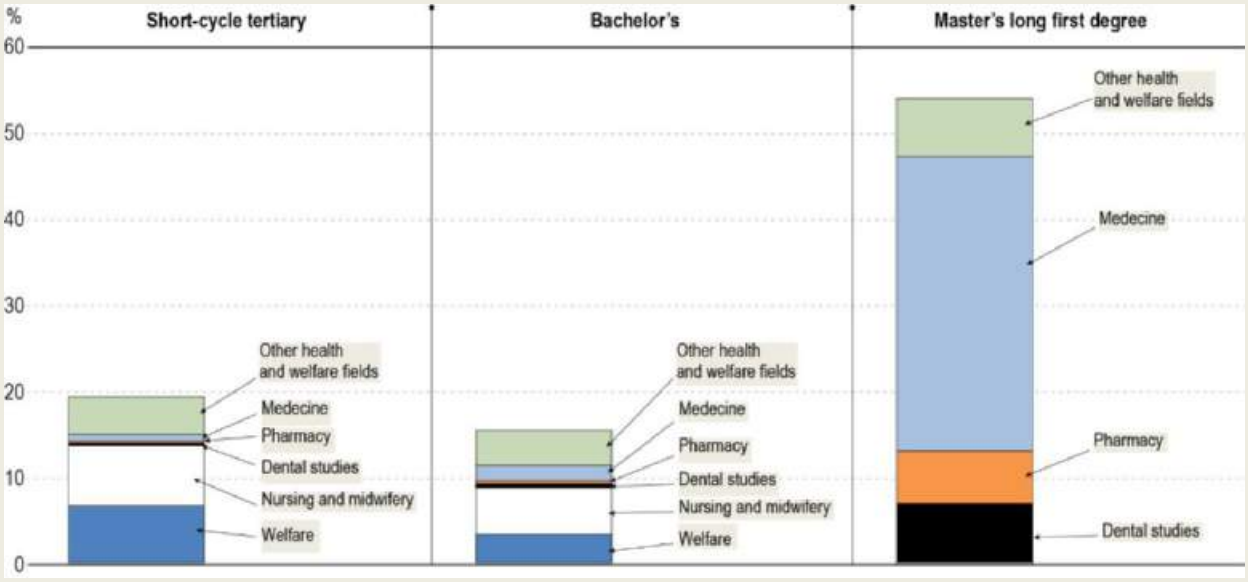
health and welfare short-cycle tertiary programmes, compared to 77% at bachelor's level and 64% for master's long first degrees. Health and welfare mainly includes nursing and welfare in short-cycle tertiary or bachelor's programmes but mainly medical studies in master's LFD programmes (Box B4.2).

Box B4.2. Graduates in health and welfare

The fields of study aggregated under health and welfare include a wide range of programmes: dental studies, medicine, nursing and midwifery, medical diagnostic and treatment technology, therapy and rehabilitation, pharmacy, etc. Some of these programmes require extensive studies, such as dental studies and medicine, while others are more variable in length, such as nursing or welfare. Therefore, some of these programmes are offered at short-cycle or bachelor's level while others are exclusively offered through master's long first degrees. However, there are large differences among countries on the programmes offered to students at various levels.

Figure B4.b Share of health and welfare graduates among all tertiary graduates, by field of study and tertiary level (2017)

On average across OECD countries



Note: Other health and welfare includes: medical diagnostic and treatment technology, therapy and rehabilitation, traditional and complementary medicine and therapy, health and welfare not further defined, and health and welfare not elsewhere classified.
Source: OECD/UIS/Eurostat (2019) and OECD/ILO/UIS (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978189

On average across OECD countries, health and welfare represents 19% of graduates from short-cycle tertiary of which half come from nursing and midwifery programmes (Figure B4.b). Some countries offer programmes at this level for only a few subjects. This is the case in Belgium and Poland where short-cycle programmes are exclusively dedicated to nursing (in Belgium) and welfare (in Poland). Medicine and dental studies, which are often considered longer studies, are offered as short-cycle tertiary programmes in some countries: the

field of medicine accounted for 10% of short-cycle tertiary graduates in Latvia and 2-3% in Colombia and Spain, while 2-3% of short-cycle tertiary graduates specialised in dental studies in Korea and Sweden.

Medicine and dental studies make up the largest share of graduates from master's long first degree programmes: 34% for medicine and 7% for dental studies. Pharmacy, the third most prevalent field of study contributes 6% of graduates (Figure B4.b). Again, there are large variations among countries. In Chile, Finland and Iceland, all master's long first degrees are in health but few students attend these programmes. In Japan, Latvia, the Slovak Republic and Turkey, more than 80% of graduates from master's long first degrees studied health.

Health and welfare fields are less commonly pursued through bachelor's programmes although this may differ by country: 15% of bachelor's graduates earned a degree in health and welfare on average across OECD countries, rising to 30% or more Belgium and Denmark.

Entry rates into tertiary education

If current entry patterns continue, it is estimated that 65% of young adults will enter tertiary education for the first time in their life on average across OECD countries. Chile (85%), New Zealand (89%), the Russian Federation (88%), Saudi Arabia (87%) and Switzerland (82%) have the highest first-time tertiary entry rates among OECD and partner countries with available data. The rates in these countries are typically inflated by a larger population of older students and international students or a high rate of entry into short-cycle tertiary education (Table B4.3).

Comparing the first-time entry rate of adults under the age of 25 with total first-time entry rates for a population (excluding international students) provides a sense of general accessibility versus delayed entrance into tertiary education. For example, first-time entry rates for adults under 25 are similar in Austria and Switzerland (47%, compared to the OECD average of 49%), but the total first-time entry rate in Switzerland is 14 percentage points higher than in Austria, suggesting that the lower entry rate for those under 25 is more a question of deferred entrance in Switzerland and of access in Austria. This is also corroborated by the average age of new entrants to each tertiary level shown in Figure B4.2.

International students can significantly affect tertiary entry rates. For example in Australia, an attractive destination country for international students, the entry rate for bachelor's programmes falls from 94% to 77% when international students are excluded, although it still has the highest entry rate in bachelor's programmes across OECD countries. Conversely, Luxembourg has the lowest entry rate across OECD countries (12% when international students are removed), due to the large proportion of its citizens studying abroad.

Definitions

Entry rate is the sum of age-specific entry rates, calculated by dividing the number of entrants of a certain age in a certain education level by the total population of that age.

Entry rate adjusted for international students is the entry rate calculated when excluding international students in the numerator of each age-specific entry rate.

First-time tertiary-level entry rate is an estimated probability, based on current entry patterns, that a young adult will enter tertiary education for the first time.

First-time entrants into tertiary education are students who are enrolling in tertiary education for the first time, without previous education at any other tertiary level. They may enter tertiary education at different levels through short-cycle tertiary (ISCED 5), bachelor programmes (ISCED 6) or master's programmes. **First-time entrants to a master's programme** can include entrants to a master's long first degree (ISCED 7-LFD); entrants to a stage of a programme at ISCED level 7 insufficient for level or partial level completion; foreign students entering a master's programme (programme normally following a bachelor's) but without having completed a bachelor's

degree in the host country; and students authorised to enter a master's programme after validation of acquired experience (VAE).

International students are those students who left their country of origin and moved to another country for the purpose of study. International students enrolling for the first time in a programme are often considered first-time entrants in that country.

Master's long first degree (LFD) is a master's programme (ISCED 7-LFD) of 5 to 7 years that prepares for a first degree or qualification that is equivalent to master's level programme in terms of their complexity of content. This includes highly specialised fields such as medicine, dentistry or, in some cases, law and engineering.

New entrants to a tertiary level of education are students who are enrolling for the first time at that tertiary level but may have previously entered and completed a degree in another tertiary level of education.

Tertiary-level entry rate is an estimated probability, based on current entry patterns, that a young adult will enter tertiary education during his or her lifetime.

Methodology

Compared to enrolment, entry rates measure the inflow to education during a specific period and represent the percentage of an age cohort who are expected to enter a tertiary programme during their lifetime. The net entry rate for a specific age is obtained by dividing the number of new entrants of that age for each type of tertiary education by the total population in the corresponding age group. The sum of net entry rates is calculated by adding the rates for each year of age. The result represents an estimate of the probability that a young person will enter tertiary education in his or her lifetime if current age-specific entry rates continue.

International students are a significant share of the total student population in some countries, and their numbers can artificially inflate the proportion of today's young adults who are expected to enter a tertiary programme. When international students are excluded from the calculation, the percentage of expected new entrants into tertiary programmes can change significantly.

For more information, please see the *OECD Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classification* (OECD, 2018[9]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the academic year 2016/17 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018. Data on the share of entrants to bachelor's programmes who entered directly from upper secondary education, by upper secondary programme orientation refer to the academic year 2016/17 and were collected through a special survey undertaken in 2018. Data for some countries may have a different reference year. For details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator B4 Tables

Table B4.1 Profile of first-time entrants into tertiary education (2017)

Table B4.2 Distribution of new entrants by field of study, gender and tertiary level (2017)

Table B4.3 First-time entry rates, by tertiary level (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933980982

Table B4.1. Profile of first-time entrants into tertiary education (2017)

		Distribution of first-time entrants into tertiary education at:			Profile of first-time entrants into:								
					Short-cycle tertiary programmes			Bachelor's programmes			Master's long first degree (LFD) programmes		
		Short-cycle tertiary level	Bachelor's level	Master's level	Average age	Share of women	Share of international students	Average age	Share of women	Share of international students	Average age	Share of women	Share of international students
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	m	m	m	m	m	m	23	57	19	a	a	a
	Austria	45	40	15	21	53	2	23	55	22	21	59	20
	Belgium[1]	1	99	a	19	87	5	20	55	8	a	a	a
	Canada	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	45	53	2	24	54	1	22	52	1	19	61	1
	Colombia	40	60	a	23	48	0	22	54	0	a	a	a
	Czech Republic	1	89	10	23	62	5	22	58	12	20	63	28
	Denmark	26	74	0	30	47	11	24	57	8	m	m	m
	Estonia	m	m	m	a	a	a	24	57	6	21	60	9
	Finland	a	93	7	a	a	a	24	54	7	22	55	0
	France	m	m	m	20	50	m	20	57	m	m	m	m
	Germany	0	82	18	26	67	0	22	49	6	21	62	39
	Greece	a	100	a	a	a	a	20	52	3	a	a	a
	Hungary	12	71	17	23	65	1	21	54	8	21	57	28
	Iceland	9	91	1	31	54	35	24	61	11	23	62	0
	Ireland	m	m	m	33	56	4	21	51	5	m	m	m
	Israel	26	74	a	24	50	m	24	59	4	a	a	a
	Italy	2	86	12	23	28	7	20	53	6	20	65	5
	Japan	35	63	2	18	61	m	18	45	m	19	49	m
	Korea	m	m	m	21	51	0	19	50	2	a	a	a
	Latvia	m	m	m	28	59	2	23	51	9	23	65	44
	Lithuania	a	94	6	a	a	a	21	52	4	20	67	18
	Luxembourg	20	80	a	23	52	12	22	49	29	a	a	a
	Mexico	9	92	a	20	40	0	21	51	0	a	a	a
	Netherlands	2	98	a	26	50	0	20	53	14	a	a	a
	New Zealand	25	75	a	28	55	24	24	58	30	a	a	a
	Norway	6	84	10	25	21	1	23	57	4	21	56	2
	Poland	a	m	m	35	76	a	21	53	m	21	65	m
	Portugal	9	76	14	21	36	3	21	57	5	20	51	6
	Slovak Republic	3	91	6	24	67	1	22	56	6	20	65	34
	Slovenia	18	77	5	24	39	3	21	56	5	19	70	8
	Spain	36	53	11	22	45	1	20	56	2	20	67	12
	Sweden	14	59	27	29	49	0	24	61	5	23	52	3
	Switzerland	2	69	29	32	65	a	25	49	10	25	80	17
	Turkey	48	50	2	23	50	0	22	50	3	19	53	7
	United Kingdom	22	77	1	29	58	3	21	56	16	a	a	a
	United States	47	53	a	23	54	3	m	m	m	a	a	a
	OECD average	17	76	7	25	53	5	22	54	8	21	61	15
	EU23 average	12	80	9	25	55	4	22	54	9	21	62	18
Partners	Argentina	m	m	m	m	m	m	m	m	m	a	a	a
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m
	China	60	40	a	m	50	m	m	55	m	m	m	m
	Costa Rica	m	m	m	m	60	m	m	53	m	a	a	a
	India	a	100	0	a	a	a	m	47	m	m	36	m
	Indonesia	m	m	m	m	63	m	m	m	m	a	a	a
	Russian Federation	54	37	9	m	52	2	21	53	7	19	50	10
	Saudi Arabia	24	76	1	m	23	m	m	50	m	m	45	m
	South Africa	m	m	m	m	m	m	m	m	m	a	a	a
	G20 average	28	67	5	m	49	m	m	52	m	m	53	m

Note: Columns 1 to 3 refer to first-time entrants into tertiary education by level attended. Columns 4 to 12 refer to new entrants in each ISCED level. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Short-cycle tertiary: data refers to the Flemish Community of Belgium only.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B4.2. Distribution of new entrants by field of study, gender and tertiary level (2017)

		Short-cycle tertiary						Bachelor's or equivalent						Master's long first degree (LFD)					
		Health and welfare		Business, administration and law		Science, technology, engineering and mathematics		Health and welfare		Business, administration and law		Science, technology, engineering and mathematics		Health and welfare		Business, administration and law		Science, technology, engineering and mathematics	
		Share of new entrants	Share of women	Share of new entrants	Share of women	Share of new entrants	Share of women	Share of new entrants	Share of women	Share of new entrants	Share of women	Share of new entrants	Share of women	Share of new entrants	Share of women	Share of new entrants	Share of women	Share of new entrants	Share of women
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Countries																		
	Australia	m	m	m	m	m	m	21	75	25	50	21	33	a	a	a	a	a	a
	Austria	4	68	25	61	34	17	6	78	15	56	34	35	23	53	64	60	0	a
	Belgium[1]	100	87	0	a	0	a	26	74	23	49	19	20	a	a	a	a	a	a
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	22	83	22	62	28	12	18	77	23	56	30	22	100	61	0	a	0	a
	Colombia	4	66	48	62	33	27	8	75	34	59	26	32	a	a	a	a	a	a
	Czech Republic	0	a	0	a	0	a	14	86	19	62	30	33	53	64	22	50	0.2	0
	Denmark	3	86	55	47	14	23	28	79	22	49	20	31	m	m	m	m	m	m
	Estonia	a	a	a	a	a	a	11	90	21	64	32	34	41	67	0	a	36	32
	Finland	a	a	a	a	a	a	22	83	21	52	31	22	100	55	0	a	0	a
	France	13	85	39	56	28	20	9	80	25	59	25	36	m	m	m	m	m	m
	Germany	0	a	0	a	28	33	5	80	23	54	40	26	16	65	25	59	19	47
	Greece	a	a	a	a	a	a	8	71	20	50	34	33	a	a	a	a	a	a
	Hungary	6	84	49	70	10	14	7	82	19	59	31	26	41	56	20	58	3	58
	Iceland	0	a	6	42	16	43	12	86	17	58	28	37	100	62	0	a	0	a
	Ireland	11	68	25	52	32	29	14	80	19	48	31	29	m	m	m	m	m	m
	Israel	3	82	2	82	59	26	7	81	15	58	28	36	a	a	a	a	a	a
	Italy	0	a	17	36	52	14	9	57	16	45	30	36	37	64	46	62	7	58
	Japan[2]	25[d]	69[d]	12[d]	61[d]	15[d]	16[d]	9[d]	71[d]	28[d]	31[d]	19[d]	17[d]	96[d]	48[d]	0	a	0	a
	Korea	22	72	11	62	28	14	12	69	14	50	34	31	a	a	a	a	a	a
	Latvia	24	89	34	63	19	14	6	84	25	54	32	25	94	65	0	a	0	a
	Lithuania	a	a	a	a	a	a	14	87	25	57	33	23	59	70	22	62	7	55
	Luxembourg	28	74	36	55	22	12	12	47	20	63	20	24	a	a	a	a	a	a
	Mexico	7	60	34	60	53	24	11	69	36	54	29	30	a	a	a	a	a	a
	Netherlands	10	80	51	47	12	5	17	78	28	44	20	26	a	a	a	a	a	a
	New Zealand	8	85	25	56	21	26	12	79	22	54	28	42	a	a	a	a	a	a
	Norway	0	100	0	56	66	5	16	84	19	51	16	31	13	75	17	67	34	40
	Poland	100	76	0	a	0	a	8	74	19	57	32	33	33	64	34	58	0	42
	Portugal	9	86	19	55	44	13	14	81	27	58	21	33	30	72	0	a	55	36
	Slovak Republic	32	83	14	69	12	39	13	77	18	59	27	29	86	66	0	a	0	a
	Slovenia	2	79	18	70	45	16	11	77	17	60	29	29	63	75	0	a	20	56
	Spain	15	74	20	56	31	11	11	74	22	54	24	31	74	70	0	a	16	51
	Sweden	4	82	30	78	46	23	17	82	14	59	21	35	12	67	15	53	37	33
	Switzerland	26	86	48	69	11	12	16	77	30	44	27	22	0	a	0	a	0	a
	Turkey	11	67	32	46	18	29	11	67	32	46	18	29	89	55	0	a	0	a
	United Kingdom	31	76	32	56	14	18	11	78	20	51	32	39	a	a	a	a	a	a
	United States	m	m	m	m	m	m	m	m	m	m	m	m	a	a	a	a	a	a
	OECD average	17	79	24	59	26	20	13	77	22	54	27	30	55	64	13	59	11	42
	EU23 average	21	80	24	58	23	19	13	77	21	55	28	30	51	65	17	58	13	43
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	a	a	a	a	a	a
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	1	75	31	70	31	39	11	67	30	58	28	31	a	a	a	a	a	a
	India	a	a	a	a	a	a	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	a	a	a	a	a	a
	Russian Federation	14	84	24	68	35	25	1	80	25	55	35	29	36	65	11	56	25	21
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	a	a	a	a	a	a
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Short-cycle tertiary: data refers to the Flemish Community of Belgium only.
2. All fields of study include the field Information and Communication Technologies (ICTs).
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B4.3. First-time entry rates, by tertiary level (2017)

		Short-cycle tertiary			Bachelor's level			Master's level			Doctoral level			First-time tertiary		
			Excluding international students			Excluding international students			Excluding international students			Excluding international students			Excluding international students	
		Total	Total	Younger than 25 years	Total	Total	Younger than 25 years	Total	Total	Younger than 30 years	Total	Total	Younger than 30 years	Total	Total	Younger than 25 years
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Countries															
	Australia	m	m	m	94	77	61	33	15	8	3.3	2.0	0.8	m	m	m
	Austria	34	34	29	43	34	29	24	16	14	3.1	1.9	1.3	68	54	47
	Belgium[1]	1	1	1	81	74	72	30	26	25	0.9	0.5	0.4	76	69	67
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	46	45	31	58	58	48	11	11	5	0.4	0.4	0.2	85	85	70
	Colombia	21	21	14	31	31	23	8	8	3	0.1	0.1	0.0	51	51	37
	Czech Republic	1	0	0	58	51	45	29	23	22	3.3	0.3	m	64	54	48
	Denmark	29	26	10	68	63	47	36	28	24	3.1	1.9	1.1	79	72	53
	Estonia	a	a	a	64	60	47	30	25	18	2.0	1.5	0.9	m	m	m
	Finland	a	a	a	57	53	42	14	10	5	2.2	1.6	0.6	59	52	43
	France	29	m	m	55	m	m	42	m	m	2.5	m	m	m	m	m
	Germany	0	0	0	49	46	39	30	22	20	3.8	3.2	2.7	60	53	45
	Greece	a	a	a	72	70	64	22	22	12	2.8	2.8	1.3	47	45	40
	Hungary	5	5	4	31	28	26	16	13	11	1.7	1.4	1.0	43	39	35
	Iceland	9	6	2	61	54	42	32	28	14	2.6	1.6	0.4	65	56	43
	Ireland	14	13	5	73	69	61	33	25	14	3.2	2.1	1.2	m	m	m
	Israel	20	m	m	54	52	35	24	22	9	1.9	1.8	0.6	67	m	m
	Italy	1	1	1	43	41	37	26	24	22	1.4	1.2	0.9	50	48	43
	Japan	28	m	m	49	m	m	8	m	m	1.2	1.0	m	79	m	m
	Korea	32	32	29	58	57	56	13	12	6	3.4	3.0	1.2	m	m	m
	Latvia	28	27	15	77	70	56	29	23	18	2.1	1.9	1.0	m	m	m
	Lithuania	a	a	a	72	70	62	23	20	17	1.5	1.4	0.8	77	74	66
	Luxembourg	4	4	3	17	12	11	15	3	3	1.8	0.3	0.2	21	17	15
	Mexico	4	4	4	47	46	39	6	6	3	0.6	0.6	0.2	51	51	43
	Netherlands	2	2	1	61	53	51	23	16	15	1.4	0.7	0.6	62	54	52
	New Zealand	31	24	11	76	54	41	12	8	4	3.1	1.4	0.6	89	61	48
	Norway	5	5	3	65	62	52	29	28	22	2.8	2.0	0.8	70	68	58
	Poland	0	0	0	71	m	m	34	m	m	1.9	m	m	77	73	66
	Portugal	6	6	5	49	46	42	36	32	27	3.8	2.6	1.2	62	59	55
	Slovak Republic	1	1	1	48	46	41	33	31	28	2.2	2.0	1.4	53	49	44
	Slovenia	25	24	19	73	69	65	29	28	25	3.0	2.8	1.6	74	70	67
	Spain	31	31	27	49	48	44	19	15	13	3.8	3.1	1.8	79	74	68
	Sweden	9	9	3	44	41	30	31	25	20	2.2	1.3	0.6	63	56	41
	Switzerland	2	2	1	62	55	40	23	15	13	4.7	2.0	1.5	82	68	47
	Turkey	50	49	35	51	49	39	11	10	9	1.0	0.9	0.5	m	m	m
	United Kingdom	16	15	8	66	56	49	29	17	11	4.0	2.3	1.5	74	66	53
	United States	39	38	29	m	m	m	14	12	7	1.3	0.9	0.5	49	47	44
	OECD average	17	15	10	58	53	45	24	19	14	2.3	1.6	0.9	65	58	50
	EU23 average	12	11	7	57	52	46	27	21	17	2.5	1.7	1.1	63	57	50
Partners	Argentina	m	m	m	m	m	m	5	m	m	0.6	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	40	m	m	38	m	m	4	m	m	0.4	m	m	67	m	m
	Costa Rica	6	m	m	44	m	m	m	m	m	m	m	m	m	m	m
	India	a	a	a	46	m	m	10	m	m	m	m	m	42	m	m
	Indonesia	5	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	48	47	m	52	48	47	25	23	23	2.0	1.8	m	88	m	m
	Saudi Arabia	20	m	m	66	m	m	2	m	m	0.3	m	m	87	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	24	m	m	55	m	m	17	m	m	2	m	m	66	m	m

1. Short-cycle tertiary: data refers to the Flemish Community of Belgium only.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

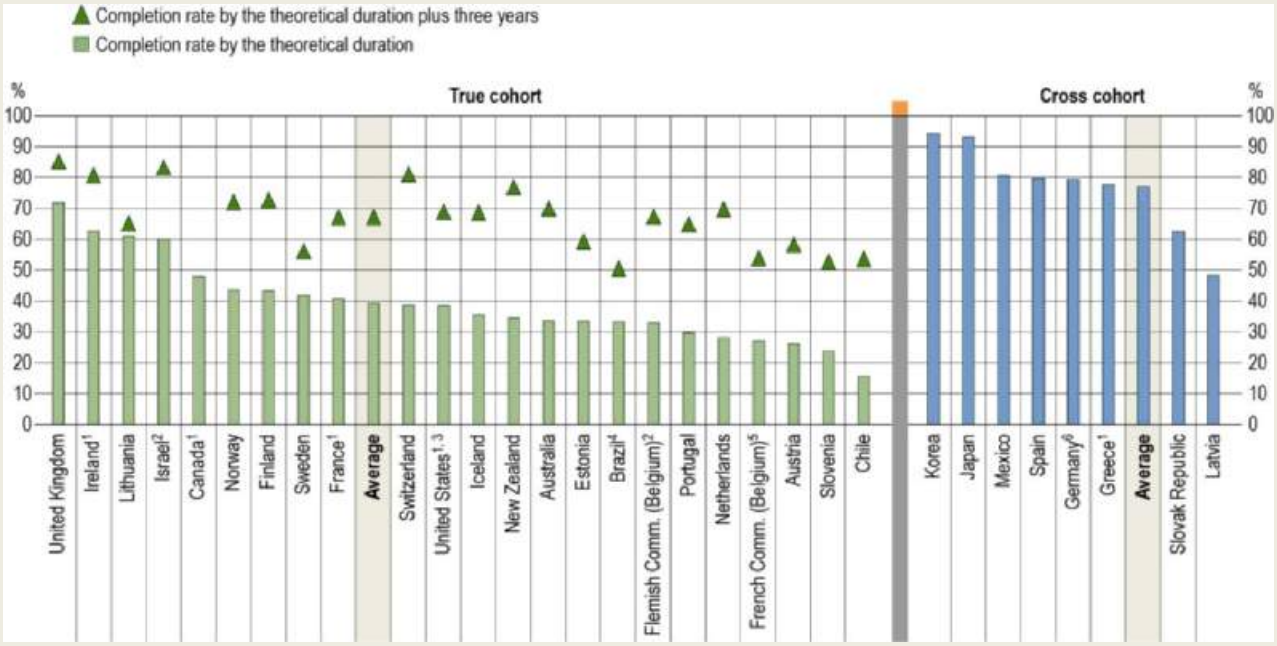
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Indicator B5. How many students complete tertiary education?

Highlights

- On average across countries with true cohort data (data on individual students), 39% of full-time students who enter a bachelor's programme graduate within the theoretical duration of the programme. The average completion rate after three additional years increases to 67%.
- The completion rate (within the theoretical duration of the programme plus three years) of students with a general upper secondary degree (70%) is higher than that of students with a vocational upper secondary degree (58%), on average across countries.
- On average, 12% of students who enter a bachelor's programme full time leave the tertiary system before the beginning of their second year of study. This share increases to 20% by the end of the programme's theoretical duration and to 24% three years later.

Figure B5.1. Completion rate of full-time students who entered a bachelor's or equivalent programme (2017)



Note: For countries with true cohort data, the completion includes students who transferred and graduated from another tertiary level.
1. Year of reference differs from 2017. Refer to the source table for details.
2. Completion rate of students who entered a bachelor's programme does not include students who transferred to and graduated from short-cycle programmes.
3. The theoretical duration plus 3 years refers to the theoretical duration plus 2 years.
4. Data do not include entrants to 6-year bachelor's programmes, which correspond to about 2% of total entrants at this level.
5. Data refer only to the *hautes écoles* (HE) and the *écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes.
6. Data refer to estimated completion rates based on a modelled relationship between future graduates and students still enrolled.
Countries and economies are ranked in descending order of completion rate by theoretical duration (true cohort) or cross cohort.
Source: OECD (2019), Table B5.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978284

Context

Tertiary completion rates can indicate the efficiency of tertiary education systems, as they show what proportion of the students who enter a tertiary programme ultimately graduate from it. However, low completion rates do not necessarily imply an inadequate tertiary system, as students may leave a programme for a variety of reasons. They may realise that they have chosen a subject or educational programme that is not a good fit for them, or they may find attractive employment opportunities before completing the programme. In some educational systems, it may also be common for students to enrol without intending to graduate from a specific programme, but rather to pursue a few courses as part of lifelong learning or upskilling.

A variety of factors can influence completion rates, including students' prior educational background and social and economic characteristics. This indicator analyses the completion rate of tertiary students by gender and by their upper secondary programme orientation (general or vocational). It also analyses the extent to which students' immigration background and their parents' educational attainment can influence their likelihood of succeeding in tertiary education (Box B5.2).

Completion of a programme may be defined differently across countries. This indicator focuses on full-time students and just two specific timeframes for completion: 1) the share of students who graduate from any tertiary programme within the theoretical duration of the programme they entered; and 2) the share of students who graduate within three years after the end of the theoretical duration. The difference between these two timeframes can shed light on the extent to which students graduate "on time" (within the amount of time expected given the theoretical duration of the programme) or after some delay. This indicator also examines the share of students who transfer between tertiary levels and who leave the education system without graduating.

Other findings

- In all countries with available data, women have higher completion rates than men in bachelor's programmes. The gender gap in completion within the programme's theoretical duration reaches over 27 percentage points in Finland.
- On average across countries and economies with available data, 45% of students who entered a short-cycle tertiary programme graduated from any tertiary programme by the end of the theoretical duration of the programme in which they entered.
- In some countries, students transfer to different tertiary levels during their studies. In France, 13% of students who entered a bachelor's programme had transferred to a short-cycle or a master's long first degree by the beginning of their second year of study.

Note

Completion, graduation and attainment rates are three different measures. Completion rates describe the percentage of students who enter a tertiary programme and who graduate from it a given number of years later. Graduation rates represent the estimated percentage of people from a certain age cohort who are expected to graduate at some point during their lifetime. They measure the number of graduates from a level of education relative to the country's population (Education at a Glance Database). The third indicator, attainment rates, measure the percentage of a population that has reached a certain level of education (see Indicator A1). They represent the relationship between all graduates (of the given year and previous years) and the total population.

This indicator only covers full-time students. On average across OECD countries, about 26% of short-cycle tertiary students and 16% of bachelor's students are enrolled part time. Please see Indicator B1 for more information on the share of part-time students enrolled in each tertiary level of education.

The theoretical duration of tertiary programmes may vary across countries. Therefore, despite having the same reference year for graduates (2017 unless specified otherwise), the year used for entry cohorts will differ depending on the duration of the programmes.

Analysis

Completion rate by level of educational attainment

Completion rates in this indicator are calculated using two different methods, depending on countries' data availability: true cohort and cross cohort. The results from these two methodologies are analysed separately as they are not comparable (see Box B5.1).

True cohort completion

On average across countries and economies that submitted true cohort data, 39% of students who entered a bachelor's programme graduated within the theoretical duration of the programme. This includes all students who graduated from a tertiary programme, even if at a different level. Three years after the end of the theoretical duration, the average completion level increases to 67% (Table B5.1).

There is a wide variation among countries and economies in completion rates within the theoretical duration, ranging from less than 30% in Austria, Chile, the French Community of Belgium, the Netherlands and Slovenia, to 60% or more in Ireland, Israel, Lithuania and the United Kingdom (Figure B5.1). The completion rate after three additional years increases for all countries and economies, but it tends to increase by more where the completion rate by the theoretical duration is lower. As a result, the range of completion rates after three additional years is narrower, ranging from 50% in Brazil to 85% in the United Kingdom. Notably, the completion rate within the three additional years increases by over 40 percentage points in the Netherlands, New Zealand and Switzerland.

A variety of institutional factors and country-specific characteristics can help explain the different levels of "delayed" graduation across countries. For example, in some countries it is common for students to take remedial or prerequisite courses that may not be included in the official curriculum (Scrivener et al., 2018[1]). In some countries, remedial courses are counted as years spent in tertiary education, as is the case in United States. In other countries, such as Norway, students are only considered to have started the level of education after they have completed any remedial courses, thus not affecting the completion rate.

Nevertheless, a large difference in completion rates between the shorter and longer periods is not necessarily a negative outcome. In the Flemish Community of Belgium, for example, higher education programmes are very flexible and are not divided into years of study. Students are required to take a certain number of credits to graduate, but the years of study, even if full time, may not be consecutive. This type of flexible system tends to increase the number of students who do not graduate "on time", but could be beneficial to students in many other ways. In countries that provide relatively broad access to tertiary education, as is the case in the Flemish Community of Belgium, flexibility may be particularly important, giving students more time to meet the standards set by their educational institution.

Only ten countries have data available for short-cycle tertiary programmes and, as with bachelor's programmes, completion rates at this level vary widely. In the United States, only about 9% of students who enter a short-cycle programme full-time graduate from any tertiary programme within two years, the theoretical duration of their programmes. In Austria, nearly 70% of students graduate within this time. Three years after the end of the theoretical duration, the completion rates increase in all countries, but especially so in countries which saw lower rates within the theoretical duration. The completion rate doubles in Chile (from 23% to 46%) and more than triples in the United States (from 9% to 31%).

The completion rate of short-cycle tertiary programmes is higher than that of bachelor's programmes in about half of the countries with available data. The difference between the two levels is highest in Austria, where the completion rate of short-cycle tertiary programmes is 43 percentage points higher than at the bachelor's level (both within their respective theoretical durations). In order to put these differences into context, it is important to examine the share of students enrolled in each tertiary level. Austria, for example, is the only OECD country

where more first-time entrants to tertiary education enrol in short-cycle programmes than in bachelor's programmes (see Indicator B4).

Only seven countries have data available for master's long first degrees and, in every country, the completion rate of these programmes is higher than that of bachelor's programmes. Completion by the theoretical duration of programmes varies from 32% in Chile to 53% in Norway and Switzerland. Completion within the theoretical duration plus three years increases considerably in all countries, and ranges from 65% in Austria and Slovenia to 89% in Norway.

In recent years, many countries have implemented a variety of policies aimed at increasing tertiary completion rates. A common approach is to make the financing of institutions conditional to some extent on student completion rate. This is the case in Austria, Brazil, Estonia, Finland and Israel. In other countries, completion rates are taken into account in the financing provided directly to students. In Chile, the government only provides tuition-free education for the theoretical duration of the programme. In Norway, student loans can be partly converted into scholarships if students advance without delays. In some countries, such as Brazil, specific financing is provided to institutions in order to help ensure that students from disadvantaged backgrounds complete the degree without excessive delays. Other policies focus on helping students make better study choices and ensuring that teachers have the necessary tools to help students succeed.

Cross cohort completion

Cross cohort completion rates take into account all graduates in a given academic year, regardless of the time it took them to complete the programme. As a result, cross cohort completion rates tend to be considerably higher than true cohort completion rates (see Box B5.1 for more information on the comparison between two methodologies).

On average across the seven countries that submitted cross cohort data, 77% of students who enter a bachelor's programme complete it. This rate ranges from 48% in Latvia to over 90% in Japan and Korea. At short-cycle tertiary level, completion rates range from 55% in the Slovak Republic to 89% in Japan. The difference in completion rates between bachelor's and short-cycle programmes varies across countries. In Mexico, completion at short-cycle tertiary level is over 20 percentage points lower than at bachelor's level. The opposite is true in Latvia, where the completion rate of short-cycle tertiary programmes is 13 percentage points higher than that of bachelor's programmes.

Box B5.1. Difference between true cohort and cross cohort completion rates

This indicator presents completion rates calculated using two different methods: true cohort and cross cohort. The true cohort method follows an entry cohort through a specific timeframe which in the case of this survey corresponds to the theoretical duration of the programme and an additional three years. This method is the preferred methodology for analysing completion rates, but only countries with longitudinal surveys or registers are able to provide such information. Panel data can be available in the form of an individual student registry (a system including unique personal identification numbers for students) or a cohort of students used for conducting a longitudinal survey. Using the true cohort method, the completion rate corresponds to the share of students from a specific cohort who graduate within each timeframe.

The cross cohort method is used to calculate completion rates in countries where true cohort data are not available. This method only requires the number of new entrants to a given ISCED level and the number of graduates from the level N years later, where N corresponds to the theoretical duration of the programme. Under the assumption of constant student flows (constant increases or decreases in the number of students entering a given education level over these years), cross cohort completion rates are closer to true cohort

completion rates over longer timeframes. This is because cross cohort completion rates take into account all graduates in a given academic year, regardless of the time it took them to graduate.

Any comparison between the two methodologies should be avoided. Table B5.a exemplifies the difference in completion rate results between the two methodologies in a few countries that provided both true cohort and cross cohort data. As expected, the cross cohort completion is considerably higher than the true cohort completion, even when taking into account rates three years after the end of the theoretical duration.

Table B5.a. Difference in the completion rate of students who entered a bachelor's or equivalent programme when calculated using the true cohort and cross cohort methodologies (2017)

	True cohort		
	By the theoretical duration	By the theoretical duration plus 3 years	Cross-cohort (using the theoretical duration)
Flemish Comm. (Belgium)	33	67	82
French Comm. (Belgium)[1]	27	54	64
Finland	43	73	93
Israel	60	83	92

1. Data refer only to the *hautes écoles* (HE) and the *écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Completion rate by gender

In every country with available data (both true cohort and cross cohort), women have higher completion rates than men in bachelor's programmes (Table B5.1). On average across countries and economies with true cohort data, 44% of female entrants and 33% of male entrants to bachelor's programmes graduate within the theoretical duration. The average gap remains similar when taking three additional years into account: the completion rate among women increases to 72% and among men to 61%.

Some countries have a narrower gender gap than others. The difference in bachelor's programme completion rates between women and men within the theoretical duration is below 7 percentage points in Switzerland and the United Kingdom and 27 percentage points in Finland. In most countries, the gender gap does not change considerably three years after the end of the theoretical programme duration. Only in Finland does the gap change by more than 10 percentage points, with the gender gap narrowing to 16 percentage points.

Completion rate by upper secondary programme orientation

Another factor that may influence students' tertiary completion rate is their upper secondary programme orientation. On average across countries and economies with available data, 38% of bachelor's students with a general upper secondary qualification graduate within the theoretical duration of the programme in which they entered. The same is true for 35% of bachelor's students with a vocational upper secondary degree. This 3 percentage-point gap increases to 12 percentage points within the three years following the end of the theoretical duration of programmes.

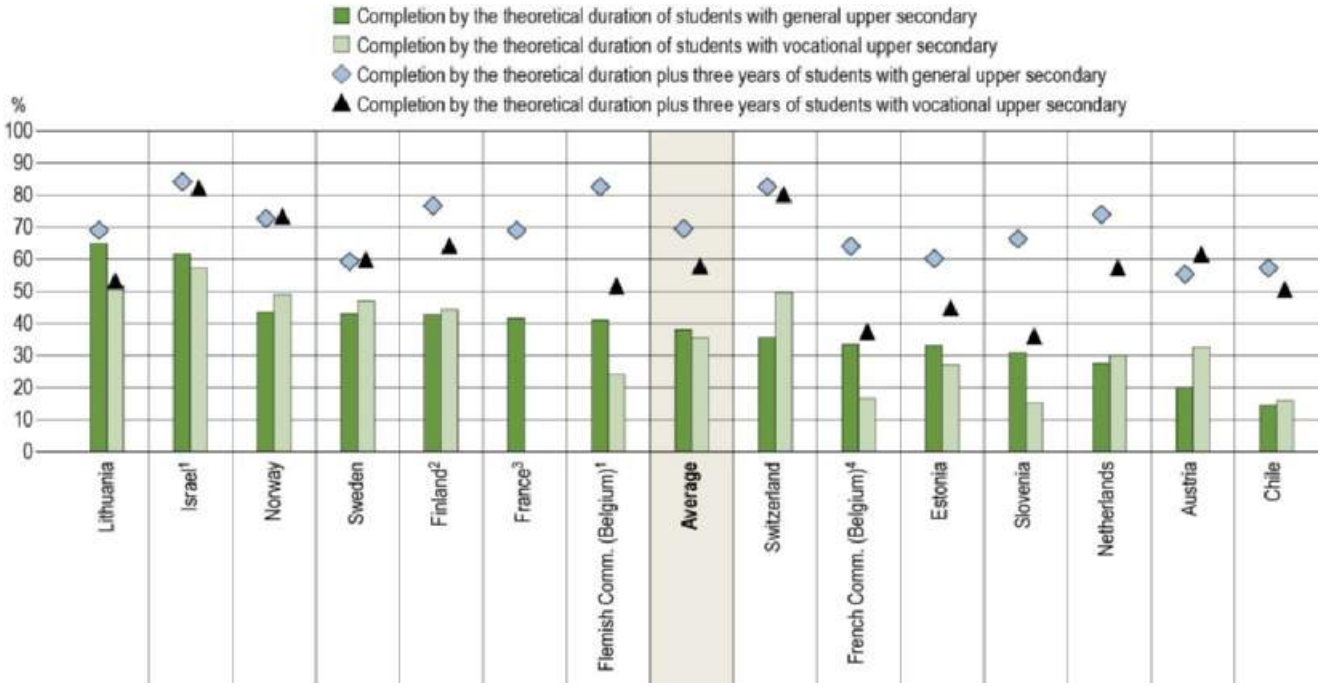
The pattern of completion rates within the theoretical duration varies widely across countries: students from general programmes have a higher completion rate than students from vocational programme in exactly half of the countries with available data. However, the pattern becomes clearer when looking at completion rates after three additional years. Within this longer timeframe, the completion rate of students with general upper secondary

qualifications is either higher or very similar to students with vocational qualifications in nearly all countries. In fact, only in one country – Austria – are bachelor's students from vocational upper secondary programmes more likely to graduate than their peers who attended general programmes (Figure B5.2).

To understand the context behind these results, it is important to assess the representativeness of these students among entrants to bachelor's programmes (Table B5.2). For example, in Lithuania, 53% of students from vocational upper secondary programmes graduate within the theoretical duration of the programme in which they entered. However, these students represent less than 1% of entrants into bachelor's programmes. In nearly all countries with available data, the share of bachelor's entrants with a general upper secondary degree is higher than the share of entrants with a vocational upper secondary degree. On average across countries and economics with available data, students from vocational programmes make up 28% of entrants. The share ranges from less than 15% in Estonia, Lithuania and Norway to 51% in Austria – the only country where they make up the majority of entrants.

Figure B5.2. Completion rate of full-time students who entered a bachelor's or equivalent programme, by students' upper secondary programme orientation (2017)

True cohort only



1. Completion rate of students who entered a bachelor's programme does not include students who transferred to and graduated from short-cycle programmes.
2. If the student has completed both upper secondary general and vocational education or if the data on previous education is missing, the student is reported under upper secondary vocational.
3. Year of reference differs from 2017. Refer to the source table for details. Data on students from vocational upper secondary programmes have been withdrawn due to small sample size.
4. Data refer only to the *hautes écoles* (HE) and the *écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes
Countries and economies are ranked in descending order of completion rate by the theoretical duration of students with general upper secondary education.
Source: OECD (2019), Table B5.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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It is important to note that in many countries, such as Belgium and Estonia, some upper secondary vocational programmes do not grant access to bachelor's programmes. Depending on the share of students enrolled in these programmes, this may help explain the lower share of bachelor's entrants with vocational degrees.

Relative to bachelor's level, students from vocational programmes make up a considerably larger share of entrants to short-cycle tertiary programmes, but a considerably lower share of entrants to master's long first degree programmes in the few countries with data available at these levels (Table B5.2, Panels B and C). In Chile and Norway, students from vocational programmes who enter short-cycle programmes have a higher completion rate than those from general programmes. Indeed, in some countries it is common for short-cycle tertiary programmes to be specifically geared towards students from an upper secondary vocational track.

Pathways through tertiary education

In addition to students' completion rates, it is important to examine their different paths once they enter tertiary education. This helps understand the flexibility and effectiveness of education systems. It can also shed light on the other portion of students – those who have not graduated. Are they still in education? Have they transferred to a different tertiary level? Or have they left the system without graduating?

Where are students after their first year of study?

Examining students' status right after their first year of study can be very relevant to understanding what happens during their first contact with tertiary education. This could reflect, among other things, the effectiveness of student orientation or preparedness for tertiary education. On average across countries and economies with available data some 12% of students who entered a bachelor's programme were no longer enrolled in any tertiary programme by their second year of study, more than 2% had transferred to another tertiary level and 85% were still enrolled in the same or another bachelor's programme (Table B5.3).

In some countries, students enter one tertiary level but transfer and graduate instead from a different level. In fact, a large portion of the transfers between tertiary levels actually takes place very soon after students have entered a programme. In France, 11% of students who entered a bachelor's programme had transferred to a short-cycle programme by the beginning of their second year of study. The same is true for over 3% of students in Chile and Slovenia (Table B5.3).

The share of students who are no longer enrolled after their first year of studies ranges from 6% in the United Sates to at least 20% in Slovenia and the French Community of Belgium. High levels after just one year could be particularly concerning given that the share of students who leave the system without graduating tends to increase considerably with time. Indeed, by three years after the end of theoretical duration the share has nearly doubled – and even tripled in some cases – in most countries and economies with available data (Figure B5 3).

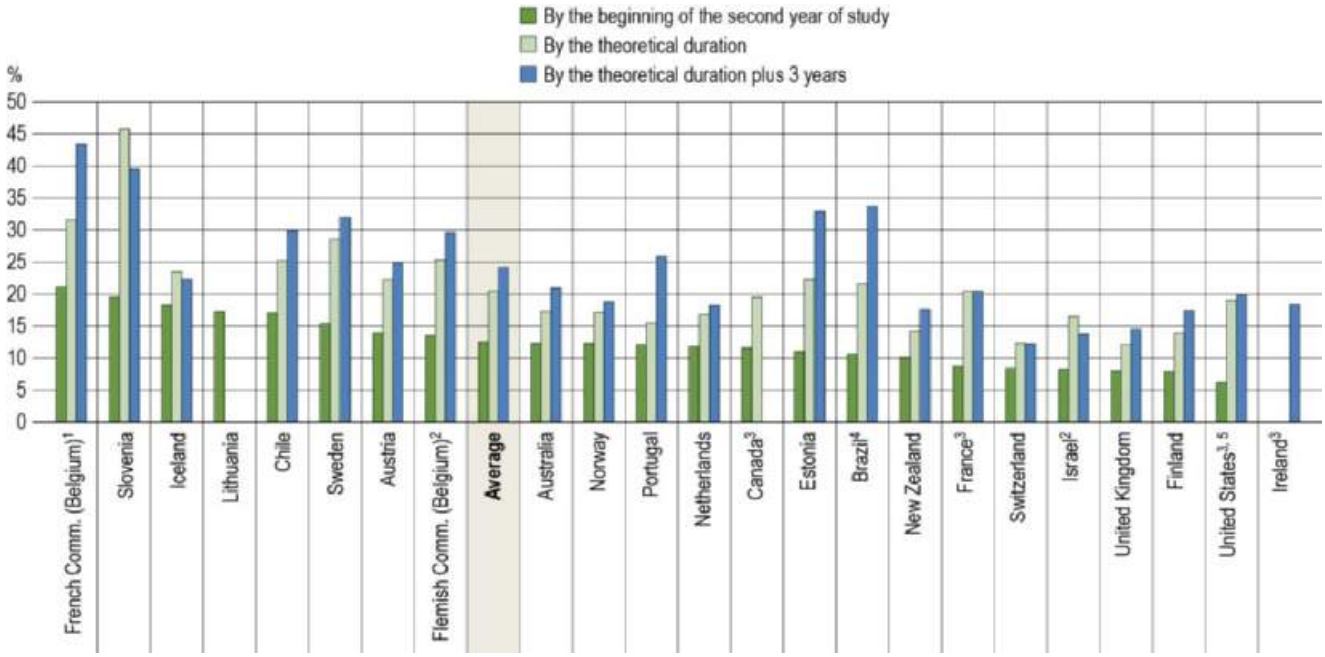
Where are students by the end of their programmes' theoretical duration? And three years later?

The two timeframes this indicator uses to measure students' status are: 1) by the end the theoretical duration of the programme in which they entered; and 2) by three years after the end of the theoretical duration of the programme.

On average across countries and economies with available data, 39% of students who entered a bachelor's programme graduated from that or another bachelor's programme by the end of the theoretical duration. About 1% had transferred and graduated instead from a short-cycle tertiary programme, 41% were still in tertiary education (even if at a different level) and 20% no longer enrolled in any tertiary programme. The picture evolves quite considerably within the three years after the end of the theoretical duration of the programme, as many of those who were still in education either graduate or leave the system. At this point, on average, 64% of students have graduated from a bachelor's programme, 2% have graduated from a short-cycle tertiary programme and 1% from a master's long first degree programme. Some 9% are still in education and 24% are no longer enrolled (Figure B5.4).

Figure B5.3. Share of full-time bachelor's students who are no longer enrolled in tertiary education (and have not graduated) at various timeframes after entry (2017)

True cohort only



Note: The share of students "not graduated and not enrolled in tertiary education" may include students who left the country before graduation.
1. Data refer only to the *hautes écoles* (HE) and the *écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes.
2. Includes students who transferred to short-cycle tertiary programmes.
3. Year of reference differs from 2017. Refer to the source table for details.
4. Data do not include entrants to 6-year bachelor's programmes, which correspond to about 2% of total entrants at this level.
5. The theoretical duration plus 3 years refers to the theoretical duration plus 2 years.
Countries and economies are ranked in descending order of share of students not enrolled by the beginning of the second year of study.
Source: OECD (2019), Table B5.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

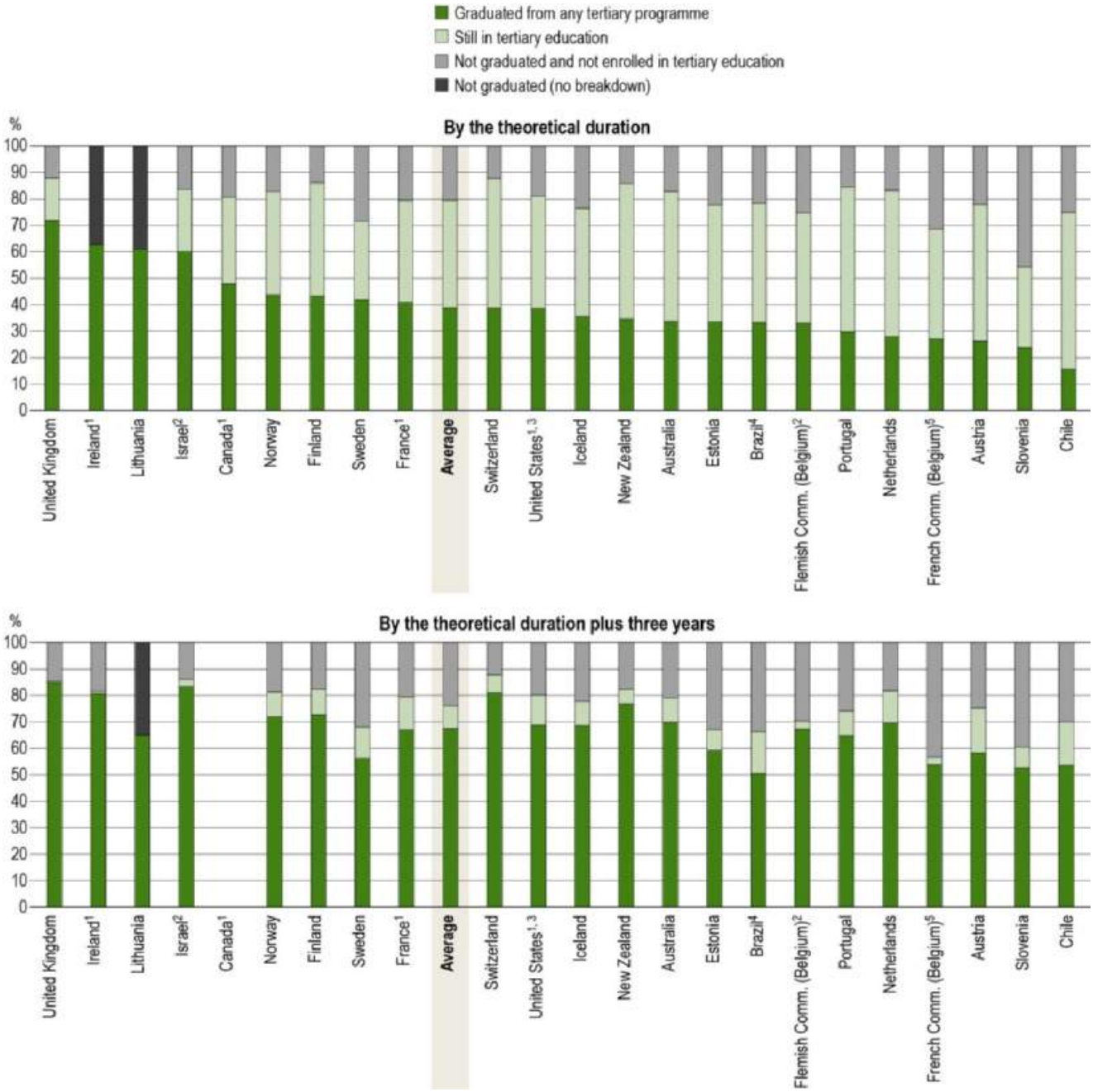
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A high transfer rate between tertiary levels can help explain some delays in students' graduations. Delays are expected to occur if there are difficulties in transferring credits, or if students transfer to a programme with a longer theoretical duration (students' status is always measured within the timeframe of their original programme's theoretical duration). Transfer rates among students who enter a bachelor's programme are highest in France, where about 8% graduate from a short-cycle tertiary programme, and in Slovenia, where about 2% graduate from a short-cycle tertiary programme and 6% graduate from a master's long first degree programme (all within the theoretical duration of the original programmes plus three years).

The overall evolution in the status of students between the end of the theoretical duration of programmes and three years later differs across countries. Whereas completion increases by over 40 percentage points in the Netherlands, New Zealand and Switzerland, the increase is only 4 percentage points in Lithuania. There are also important differences in what happens to students who are still in education by the end of the theoretical duration of the programme. In some countries, like Israel and Slovenia, over 90% of these students will graduate within the following three years. In other countries and economies, like the French Community of Belgium, Brazil and Estonia, at least 20% of the students still in education by the end of the theoretical duration leave the system without graduating over the following three years.

Figure B5.4. Status of full-time bachelor's students by the theoretical duration and by the theoretical duration plus three years (2017)

True cohort only



Note: The share of students "not graduated and not enrolled in tertiary education" may include students who left the country before graduation.
1. Year of reference differs from 2017. Refer to the source table for details.
2. Share of students who graduated does not include students who transferred to and graduated from short-cycle programmes.
3. The theoretical duration plus 3 years refers to the theoretical duration plus 2 years.
4. Data do not include entrants to 6-year bachelor's programmes, which correspond to about 2% of total entrants at this level.
5. Data refer only to the *hautes écoles* (HE) and the *écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes.
Countries and economies are ranked in descending order of the share of students who graduated by the theoretical duration
Source: OECD (2019), Table B5.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Delayed completion, or even non-completion, can be costly to both governments and individuals. The cost of tertiary education is high, and students and governments may not reap the full benefits until the degree is completed. Data show that individuals with a tertiary qualification tend to have higher earnings and higher employment rates, which in turn translate into higher taxes and higher social contributions for the government (see Indicator A5). Nevertheless, delaying graduation or dropping out are not necessarily symptoms of student or institutional failure. In some countries, the labour market recognises the partial completion of tertiary degrees, either formally or informally, which may encourage students to work part time (and potentially delay graduation) or to drop out and join the labour market full time. In Sweden, for example, the strong labour market demand in some fields such as engineering leads many students to start working before attaining their degree.

Box B5.2. Completion rate by parents' educational attainment and by students' immigration background

Studies have shown that coming from a disadvantaged socio-economic background has a strong impact on tertiary completion (Vossensteyn et al., 2015[2]; Thomas and Quinn, 2006[3]). Even among highly qualified students, those from disadvantaged backgrounds tend to be more at risk of dropping out because of financial constraints, family problems or peer pressure (Quinn, 2013[4]). This box examines the extent to which completion rates differ for individuals from potentially disadvantaged backgrounds, identified through two proxy measures: parents' highest level of educational attainment and immigrant background.

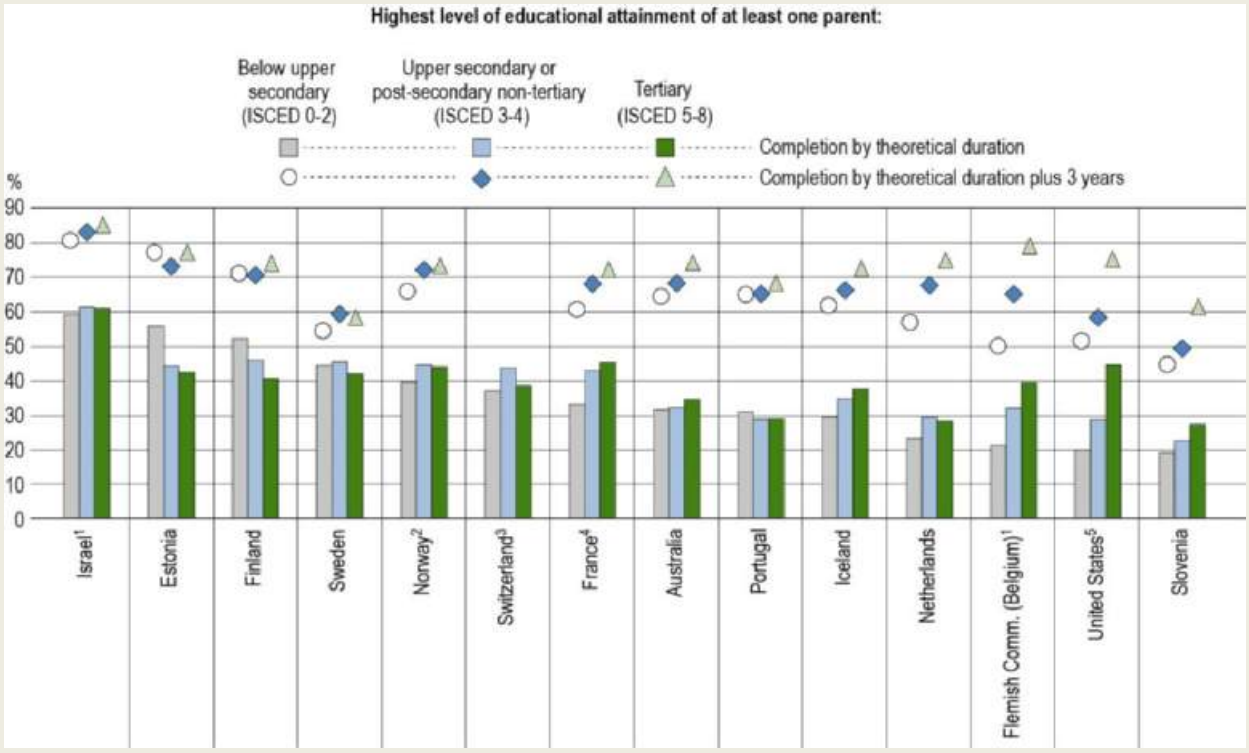
Completion by parents' educational attainment

Parental education is linked to income and wealth, and evidence shows that it is highly correlated with a variety of educational outcomes, such as attainment levels (see Indicator A1), choice of programme orientation (see Indicator B3) and skills acquisition (OECD, 2013[5]). Figure B5.a shows the completion rate of students who entered a bachelor's programme full time disaggregated by the highest level of educational attainment of at least one parent. There is no clear pattern across countries between parental education and completion within the theoretical duration. However, in nearly every country with available data, the completion rate within the theoretical duration plus three years is highest for students with at least one tertiary-educated parent and lowest for students whose parents did not complete upper secondary education.

The gap between students is considerably wider in some countries than in others. The difference in completion within the theoretical duration plus three years between a student with a tertiary-educated parent and one whose parents did not complete upper secondary ranges from less than 5 percentage points in Estonia, Finland, Portugal and Sweden to over 20 percentage points in the Flemish Community of Belgium and the United States (Figure B5.a). In order to address some of the equity issues at this level of education, the Flemish government has recently set a target to have at least 60% of upper secondary graduates whose mother's' educational attainment is below tertiary participate in a tertiary programme by 2020 (Cabinet of Prime Minister of the Flemish Government and Flemish Minister for Economy, Foreign Policy, Agriculture and Rural Policy, 2009[6]).

The gap in completion rates between these students indicates that entrants from disadvantaged backgrounds may face particular challenges in completing tertiary education. However, this measure alone is not enough to assess the equitability of education systems. At least two other factors must be taken into account: 1) the share of students from each group in the entry cohort; and 2) the representativeness of the entry cohort in the population as a whole. Table B5.b (available on line) shows the distribution of entrants to bachelor's programmes by parents' education attainment. In Estonia, for example, students whose parents did not complete upper secondary education are more likely to graduate within the theoretical duration than their peers, but they only represent 2% of bachelor's entrants. In Portugal, they represent 44% of entrants.

Figure B5.a. Completion rate of full-time students who entered bachelor's or equivalent level, by parents' educational attainment (2017)



1. Completion rate of students who entered a bachelor's programme does not include students who transferred to and graduated from short-cycle programmes.
2. Upper secondary and post-secondary non-tertiary attainment includes short-cycle tertiary; and tertiary attainment includes only bachelors, master's and doctoral or equivalent levels.
3. Year of reference 2018.
4. Year of reference for entrance cohort is 2008. Graduation years vary depending on the theoretical duration of programmes.
5. Year of reference for entrance cohort is 2003. Graduation years vary depending on the theoretical duration of programmes. The theoretical duration plus 3 years for bachelor's or equivalent programmes refers to the theoretical duration plus 2 years.

Countries and economies are ranked in descending order of completion rate by the theoretical duration for students whose parents have not attained upper secondary education.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978360

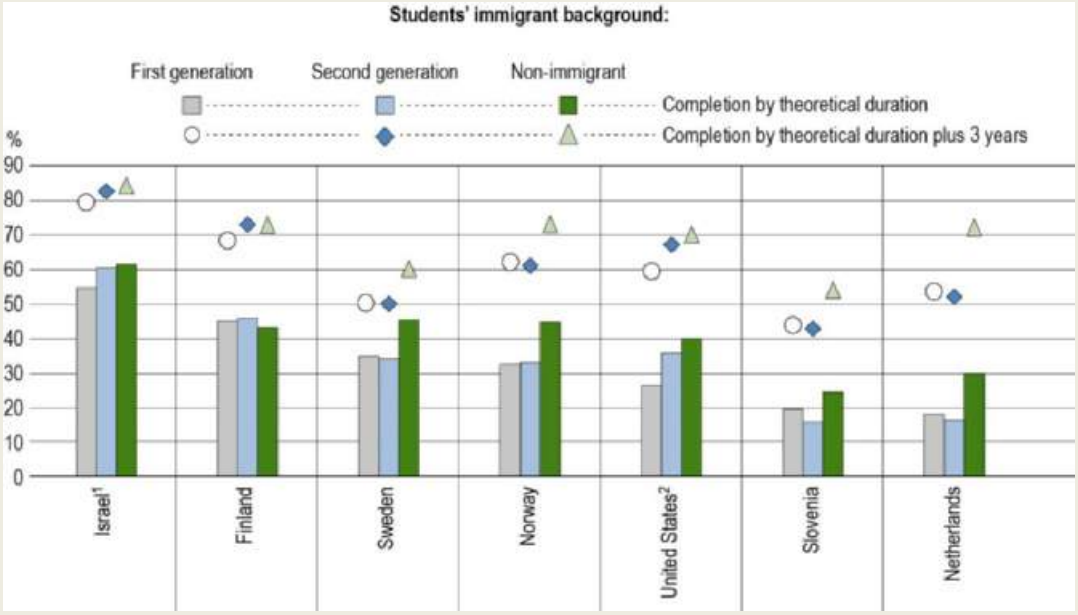
It is also important to assess the representativeness of the entry cohort in the population. A system is not equitable if most of a country's youth do not have tertiary-educated parents, but they make up only a minority of the entrants to bachelor's programmes. Please see Indicator B7 in (OECD, 2018[7]) for further information on the representativeness of potentially disadvantaged groups among tertiary students.

Finally, it must be noted that students from disadvantaged backgrounds may be more likely to enrol part time in some countries, which is not captured by this indicator.

Completion by students' immigration background

Immigrant background, although not always indicative of a disadvantage, is also correlated with lower student performance (OECD, 2018[7]). Students with an immigrant background must often overcome adversities associated with displacement, socio-economic disadvantage and language barriers.

Figure B5.b. Completion rate of full-time students who entered bachelor's or equivalent level, by students' immigration background (2017)



1. Completion rate of students who entered a bachelor's programme does not include students who transferred to and graduated from short-cycle programmes.
2. Year of reference for entrance cohort is 2003. Graduation years vary depending on the theoretical duration of programmes. The theoretical duration plus 3 years for bachelor's or equivalent programmes refers to the theoretical duration plus 2 years
Countries are ranked in descending order of completion rate by the theoretical duration for first-generation immigrant students
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978379

Figure B5.b shows the completion rate of students who entered a bachelor's programme full time disaggregated by their immigration status. In nearly every country with available data, non-immigrant students (i.e. students who were born in the country and who have at least one parent also born in the country) have a higher completion rate than students with an immigration background, both within the theoretical duration and three years later. The difference between first- and second-generation immigrants varies across countries, but the difference between them tends to be smaller (in absolute terms) than the difference between non-immigrants and either first- or second-generation immigrants.

As with parental education, it is important to take into account the share of each group in the entry cohort (Table B5.c, available on line) and in the population (OECD, 2018[7]). Finland, for example, is the only country where the completion rate of non-immigrant students is below that of both first- and second-generation immigrants. However, Finland is also the country with the lowest share of students with an immigration background among entrants to bachelor's programmes: 4% are first-generation immigrants and 0.1% are second-generation immigrants. Students with an immigration background make up a considerably higher share of bachelor's entrants in other countries such as Israel (25%) and Sweden (18%).

Box B5.3. Using student surveys to measure quality in higher education

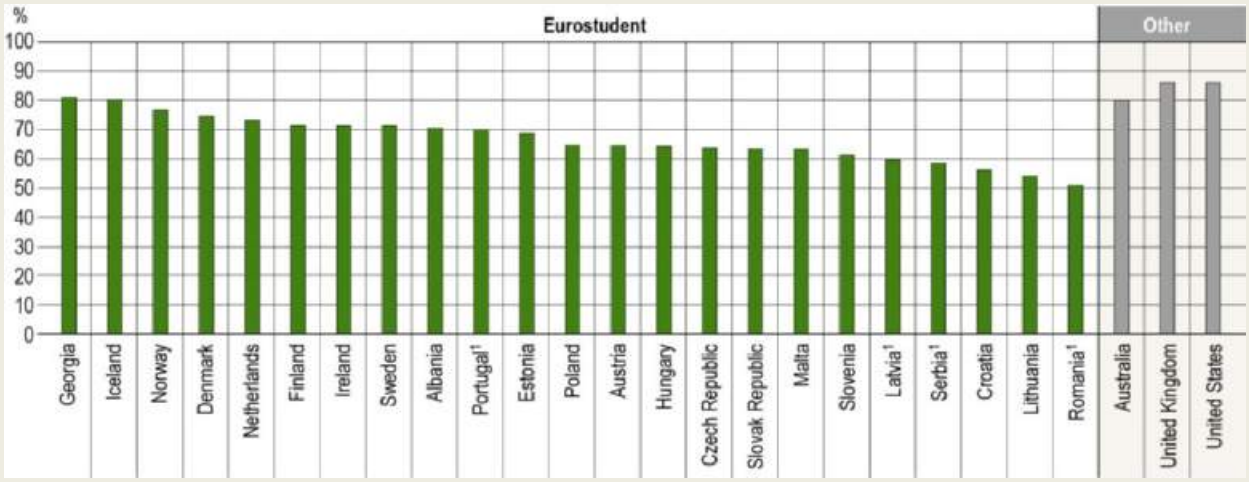
This box shows how surveys of student experiences can inform policies for quality improvements in post-secondary education and provide international comparisons of higher education outcomes.

Measurement of the quality of higher education teaching and learning, either at the institutional or national/systemic level, suffers from a lack of appropriate data. Direct measurement of student learning outcomes is expensive and time consuming, and difficult to scale up to the national level.

An alternative approach to measuring teaching quality are surveys of students or graduates. These surveys measure aspects of the student experience with the education they have received and provide valuable information on a wide range of contextual and personal factors that impact learning. Examples of student surveys include the National Survey of Student Engagement (NSSE) in the United States and Canada, the National Student Survey (NSS) in the United Kingdom, the Student Experience Survey (SES) in Australia, and the Eurostudent survey, conducted by 25 to 30 participating European countries.

Focusing on the quality of student experiences can assist institutions in raising retention rates, by identifying factors such as teaching practices, support services and academic resources which encourage engagement and success for each student. Areas of relative weakness can be isolated at institutional or discipline levels, or conversely, models of best practice can be identified. The student experience can also be improved through policy responses to specific survey items, such as those dealing with retention. For example, the Australian SES asks respondents whether they have considered leaving their studies in the past year, and if so why.

Figure B5.c. Overall assessment of study programme (% positive rating), all students (2016)



1. Year of reference 2017.

Source: National Survey of Student Engagement (NSSE) for the United States, the Student Experience Survey (SES) for Australia, the National Student Survey (NSS) for the United Kingdom and the Eurostudent survey for the other European countries.

Another potential use for student survey data is for international comparisons of higher education systems. Figure B5.c shows an example of international comparisons using publicly available survey data from Eurostudent participant nations, Australia, the United States and the United Kingdom.

Student surveys have limitations as measures of teaching quality and learning outcomes. They do not provide a direct, objective measure of learning outcomes, but instead aggregate individual students' subjective assessments of learning outcomes, or of proxies or factors believed to be important for achieving learning

outcomes. As such, student survey results need to be analysed in the context of the educational and demographic characteristics of the students themselves.

Absolute levels of performance recorded in surveys are of less importance than relationships between population sub-groups (for instance institutions or student demographics) and changes in performance over time. Such analyses are supported by the scalability and repeatability of survey instruments.

Results from student surveys should not be interpreted simplistically. Although measuring similar concepts, it is important to acknowledge that differences in survey methodologies and the precise wording of survey items can have a substantial impact on results. For example, Figure B5.c is based on a Eurostudent survey item asking whether students would recommend their study programme to others, whereas survey items for Australia, the United Kingdom and the United States relate to overall student experience/satisfaction. In addition, survey results can be affected by differences in the demographic makeup of the student cohorts, or differences in national cultures and expectations of education.

Given these limitations, changing relationships between national system measures over time are likely to be more meaningful than absolute scores at any one point in time. An example of a time series comparison is presented in Figure B5.d.

Further work in developing comparable items and in understanding cultural differences in responding to survey items would assist in interpreting these results and serve to increase the value of international comparisons.

Figure B5.d. Student/graduate overall rating of study experience (% rating positively), selected countries, 2008 to 2018



Source: National Survey of Student Engagement (NSSE) for the United States, the National Student Survey (NSS) for the United Kingdom, the Student Experience Survey (SES) for Australia.

Definitions

The **true cohort** method requires following an entry cohort through a specific time frame, which in the case of this survey corresponds to the theoretical duration of the programme and the theoretical duration plus three years. Only countries with longitudinal surveys or student registers are able to provide such information.

The **cross cohort** method only requires the number of new entrants to a given ISCED level and the number of graduates N years later, where N corresponds to the theoretical duration of the programme.

Full-time students in this indicator refer to students who entered the given tertiary programme with full-time status. They may have switched status during their studies.

The **theoretical duration** of programmes is the regulatory or common-practice time it takes a full-time student to complete a level of education.

Immigration status:

- **First-generation immigrants** refer to those born outside the country and whose parents were also both born in another country. This excludes international students.
- **Second-generation immigrants** refer to those born in the country but whose parents were both born in another country.
- **Non-immigrants** refer to those with at least one parent born in the country.

Parents' educational attainment:

- **Below upper secondary** means that both parents have attained ISCED 2011 levels 0, 1 or 2 and includes recognised qualifications from ISCED 2011 level 3 programmes (see *Reader's Guide*), which are not considered as sufficient for ISCED 2011 level 3 completion, and do not provide direct access to post-secondary non-tertiary education or tertiary education.
- **Upper secondary or post-secondary non-tertiary** means that at least one parent has attained ISCED 2011 levels 3 and 4.
- **Tertiary** means that at least one parent has attained ISCED 2011 levels 5, 6, 7 or 8.

Methodology

For countries that submitted data using the true cohort method, it is possible to calculate two different completion rates (described below) which are computed for two different timeframes (theoretical duration N and three years later, N+3):

- completion rate of students who graduate at the same ISCED level which they entered: number of graduates in a given calendar year and ISCED level divided by the number of entrants to that same ISCED level N/N+3 calendar years before
- completion rate of students who graduate at any tertiary ISCED level: the sum of graduates from all tertiary ISCED levels in a given calendar year who entered a given ISCED level N/N+3 calendar years before.

Countries that submitted true cohort data either used first-time entrants to tertiary education (which considers only students who entered tertiary education for the first time) or new entrants to the tertiary level (which considers all first-time entrants to each tertiary level, regardless of whether they have pursued a different tertiary level before). Please see Annex 3 for the list of countries using each methodology (https://doi.org/10.1787/f8d7880d-en).

For cross cohort data, only one completion rate is calculated: the number of graduates in a given calendar year and ISCED level divided by the number of entrants to that same ISCED level N calendar years before.

If countries offer programmes of different theoretical durations within the same ISCED level, the completion rate of each programme is weighted by the number of new entrants to each programme.

Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[8]) for more information and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data on completion rates refer to the academic year 2016/17 and were collected through a special survey undertaken in 2018. Data for some countries may have a different reference year, please refer to Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en). Countries submitted data using either the true cohort or cross cohort methodology.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator B5 Tables

Table B5.1 Completion rate of full-time tertiary students, by level of education and gender (2017)

Table B5.2 Completion rate of full-time tertiary students, by level of education and students' upper secondary programme orientation (2017)

Table B5.3 Status of full-time bachelor's students at various timeframes after entry (2017)

Table B5.a Difference in the completion rate of students who entered a bachelor's or equivalent programme when calculated using the true cohort and cross cohort methodologies (2017)

WEB Table B5.b. Distribution of entrants to bachelor's or equivalent programmes, by parents' education attainment (2017)

WEB Table B5.c Distribution of entrants to bachelor's or equivalent programmes, by students' immigration background (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981001

Table B5.1. Completion rate of full-time tertiary students, by level of education and gender (2017)

Panel A. True cohort completion

Countries	Entered a short-cycle tertiary programme and completed any tertiary programme by…							Entered a bachelor's programme and completed any tertiary programme by…						
	Theoretical duration of programmes	The theoretical duration of the programme in which they entered			The theoretical duration of the programme in which they entered plus 3 years			Theoretical duration of programmes	The theoretical duration of the programme in which they entered			The theoretical duration of the programme in which they entered plus 3 years		
		Men	Women	Total	Men	Women	Total		Men	Women	Total	Men	Women	Total
		(1)	(2)	(3)	(4)	(5)	(6)		(7)	(8)	(9)	(10)	(11)	(12)
Australia	m	m	m	m	m	m	m	3-5	29	37	34	66	73	70
Austria	2	64	73	69	81	87	84	3	22	30	26	53	63	58
Flemish Comm. (Belgium)[1]	m	m	m	m	m	m	m	3	27	38	33	61	72	67
French Comm. (Belgium)[2]	m	m	m	m	m	m	m	3-4	19	33	27	46	60	54
Brazil[3]	m	m	m	m	m	m	m	4-5	28	37	33	45	55	50
Canada[4]	m	m	m	m	m	m	m	4	41	53	48	m	m	m
Chile	2-3	15	31	23	38	54	46	4-5	11	19	16	45	60	54
Estonia	a	a	a	a	a	a	a	3-4	23	42	34	47	68	59
Finland	a	a	a	a	a	a	a	4	28	55	43	64	79	73
France[5]	2	62	60	61	78	75	77	3	34	44	41	61	70	67
Iceland	m	m	m	m	m	m	m	3-4	33	37	36	64	72	69
Ireland[6]	2-3	41	55	47	56	67	60	3-6	56	67	63	77	83	81
Israel[7]	m	m	m	m	m	m	m	3-4	55	64	60	79	87	83
Lithuania	m	m	m	m	m	m	m	3-4	52	68	61	57	72	65
Netherlands	m	m	m	m	m	m	m	3-4	20	35	28	62	77	70
New Zealand	2	59	69	65	68	76	73	3	27	40	35	73	79	77
Norway	2	61	41	55	68	57	65	3-4	38	47	44	65	77	72
Portugal	m	m	m	m	m	m	m	3	23	35	30	55	73	65
Slovenia	3	17	27	22	33	45	39	4	18	28	24	42	60	53
Sweden	2	30	45	37	39	57	48	3	32	48	42	45	63	56
Switzerland	m	m	m	m	m	m	m	3	35	42	39	78	84	81
United Kingdom[8]	2	57	62	59	71	79	75	3-4	70	74	72	83	87	85
United States[7]	2	9	8	9	30	32	31	4	33	43	38	65	72	69
Average		41	47	45	56	63	60		33	44	39	61	72	67

Panel B. Cross cohort completion

Countries	Entered a short-cycle tertiary programme				Entered a bachelor's or equivalent programme			
	Theoretical duration of programmes	Men	Women	Total	Theoretical duration of programmes	Men	Women	Total
		(1)	(2)	(3)		(4)	(5)	(6)
Germany[4]	m	m	m	m	m	76	83	80
Greece[4]	m	m	m	m	4-5	74	81	78
Japan	2	86	90	89	4	91	96	93
Korea	2-3	71	84	78	4	89	101	94
Latvia	2	51	69	61	3-4	33	53	48
Mexico	2	55	62	58	5	74	87	81
Slovak Republic	2-3	51	57	55	3-4	53	70	62
Spain	2	77	87	82	4	71	87	80
Average		65	75	70		70	82	77

Note: True cohort (individual-level data) and cross cohort (aggregate data) completion rates are not comparable with each other. Please refer to *Methodology* section for an explanation of the true cohort and cross cohort methodologies. The year of reference for the data (2017) corresponds to the graduation year three years after the theoretical duration of the programme. The reference year for the entrance cohort changes depending on the duration of programmes.

1. Completion rate of students who entered a bachelor's programme does not include students who transferred to and graduated from short-cycle programmes.
2. Data refer only to the *hautes écoles* (HE) and the *écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes.
3. Data do not include entrants to 6-year bachelor's programmes, which correspond to about 2% of total entrants at this level.
4. Year of reference 2015.
5. Year of reference for entrance cohort is 2008. Graduation years vary depending on the theoretical duration of programmes.
6. Data for short-cycle tertiary refer only to the higher education provided in universities.
7. Year of reference for entrance cohort is 2003. Graduation years vary depending on the theoretical duration of programmes. The theoretical duration plus 3 years for bachelor's or equivalent programmes refers to the theoretical duration plus 2 years.
8. Data refer to estimated completion rates based on a modelled relationship between future graduates and students still enrolled.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933978208

Table B5.2. Completion rate of full-time tertiary students, by level of education and students' upper secondary programme orientation (2017)

True cohort only

	Panel A. Completion rate of students who entered a bachelor's or equivalent programme and completed any tertiary level														
	By the theoretical duration of the programme						By the theoretical duration of the programme plus 3 years						Share of students from vocational programmes in the entrance cohort		
	General upper secondary programmes			Vocational upper secondary programmes			General upper secondary programmes			Vocational upper secondary programmes					
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Countries															
Austria	15	24	20	28	37	33	49	60	55	58	66	62	54	48	51
Flemish Comm. (Belgium)[1]	33	47	41	22	26	24	76	87	83	48	55	52	46	40	43
French Comm. (Belgium)[2]	24	41	33	12	20	17	55	71	64	30	43	38	37	38	38
Chile	10	18	14	12	19	16	49	64	57	44	56	51	30	27	29
Estonia	23	41	33	18	41	27	49	69	60	34	60	45	14	8	11
Finland[3]	26	55	43	30	55	44	68	83	77	55	71	64	33	32	33
France[4]	35	45	42	c	c	c	64	72	69	c	c	c	c	c	c
Israel[1]	56	66	62	53	61	57	79	88	84	79	85	82	35	28	31
Lithuania	56	72	65	48	57	52	60	76	69	49	59	53	1	1	1
Netherlands	19	35	28	26	34	30	65	82	74	53	61	57	23	24	24
Norway	37	48	44	50	49	49	65	78	73	69	77	73	14	12	13
Slovenia	25	34	31	12	18	15	55	73	66	30	42	36	52	41	45
Sweden	34	49	43	33	55	47	49	67	59	44	69	60	24	29	27
Switzerland	29	40	36	50	50	50	78	85	83	80	81	80	34	17	25
Average	30	44	38	30	40	35	62	75	70	52	64	58	31	26	28

	Panel B. Completion rate of students who entered a short-cycle tertiary programme and completed any tertiary level														
Countries															
Chile	13	29	21	14	30	22	34	53	44	40	54	47	50	48	49
France[4]	65	67	66	48	32	40	83	84	84	59	42	51	21	21	21
Norway	44	43	43	71	39	67	57	64	61	77	55	74	84	31	69
Slovenia	26	36	32	14	19	16	44	54	50	28	38	32	69	51	60
Sweden	31	44	38	30	47	38	40	56	48	39	60	48	47	38	43

	Panel C. Completion rate of students who entered a master's long first degree programme and completed any tertiary level														
Countries															
Austria	33	44	40	42	44	43	61	72	68	59	64	62	35	37	36
Chile	32	33	33	12	9	10	76	81	78	41	50	46	1	1	1
Estonia	22	54	39	30	0	21	62	78	70	40	25	36	4	1	2
France[4]	52	50	51	m	m	m	m	m	m	m	m	m	m	m	m
Norway	54	52	53	61	50	56	88	91	90	90	91	90	4	3	4
Slovenia	31	39	36	31	26	29	57	70	65	47	57	51	7	3	5
Sweden	45	60	52	41	66	57	65	80	73	57	75	69	14	22	18

Note: The year of reference for the data (2017) corresponds to the graduation year three years after the theoretical end of the programme. The reference year for the entrance cohort changes depending on the duration of programmes.

1. Completion rate of students who entered a bachelor's programme does not include students who transferred to and graduated from short-cycle programmes.
2. Data refer only to the *hautes écoles* (HE) and the *écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes
3. If the student has completed both upper secondary general and vocational education or if the data on previous education is missing, the student is reported under upper secondary vocational.
4. Year of reference for entrance cohort is 2008. Graduation years vary depending on the theoretical duration of programmes.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933978227

Table B5.3. Status of full-time bachelor's students at various timeframes after entry (2017)

True cohort only

	By the beginning of the second year of study				By the end of the theoretical duration of the programme					By the end of the theoretical duration of the programme plus 3 years				
		Transferred			Graduated					Graduated				
	Still enrolled in bachelor's or equivalent	To short-cycle tertiary	To a master's long first degree	Not enrolled in tertiary education[1]	From bachelor's or equivalent	From short-cycle tertiary or equivalent	From master's long first degree or equivalent	Still in tertiary education	Not graduated and not enrolled in tertiary education[1]	From bachelor's or equivalent	From short-cycle tertiary or equivalent	From master's long first degree or equivalent	Still in tertiary education	Not graduated and not enrolled in tertiary education[1]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Countries														
Australia[2]	87	0.5[d]	a	12	33	0.2[d]	a	49	17	69	0.6[d]	a	9	21
Austria	82	0.8	3.3	14	25	0.5	0.6	52	22	55	1.2	1.9	17	25
Flemish Comm. (Belgium)	86	m	a	14	33	m	a	42	25	67	m	a	3	30
French Comm. (Belgium)[3]	79	0.0	a	21	27	0.0	a	41	32	54	0.0	a	3	43
Brazil[4]	89	0.0	a	11	33	0.0	a	45	22	50	0.1	a	16	34
Canada[5]	86	2.7	0.0	12	45	3.1	0.0	33	19	m	m	m	m	m
Chile	80	3.2	0.2	17	13	2.3	0.1	59	25	47	6.5	0.3	17	30
Estonia	88	0.0	0.6	11	34	0.0	0.0	44	22	59	0.0	0.1	8	33
Finland	91	a	1.0	8	43	a	0.7	43	14	70	a	2.6	10	18
France[6]	79	11.0	1.7	9	34	7.2	0.0	39	20	59	8.0	0.4	12	21
Iceland	81	0.2	0.2	18	35	0.6	0.0	41	24	68	0.6	0.0	9	22
Ireland[6]	m	m	m	m	63[d]	x(5)	x(5)	m	m	81[d]	x(10)	x(10)	1	18
Israel	91	0.3	a	8	60	m	a	23	17	83	m	a	3	14
Lithuania	83[d]	x(1)	x(1)	17	61[d]	x(5)	x(5)	m	m	65[d]	x(10)	x(10)	m	m
Netherlands	88	0.2	a	12	28	0.1	a	55	17	69	0.3	a	12	18
New Zealand	89	1.3	a	10	32	2.6	a	51	14	74	2.9	a	6	18
Norway	86	0.3	1.3	12	43	0.2	0.2	39	17	70	0.4	1.7	9	19
Portugal	87	0.0	1.2	12	30	0.0	0.1	55	16	64	0.1	0.7	9	26
Slovenia	76	4.0	0.9	20	23	0.7	0.3	30	46	44	2.4	6.3	8	40
Sweden	82	0.5	1.8	15	41	0.5	0.6	30	29	54	0.6	1.8	12	32
Switzerland	92	0.0	0.0	8	39	0.0	0.0	49	12	81	0.0	0.0	7	12
United Kingdom	92	0.1	0.0	8	68	3.5	0.0	16	12	80	4.7	0.0	0	14
United States[7]	91	2.5	a	6	36	2.5	a	42	19	66	2.9	a	11	20
Average	85	1.5	0.9	12	37	1.3	0.2	41	20	64	1.8	1.3	9	24

Note: The year of reference for the data (2017) corresponds to the graduation year three years after the theoretical end of the programme. The reference year for the entrance cohort changes depending on the duration of programmes.

1. The columns for "not enrolled in tertiary education" or "not graduated and not enrolled in tertiary education" may include students who left the country before graduation.
2. Short-cycle tertiary includes students who transferred to/graduated from master's or doctoral programmes within the timeframe.
3. Data refer only to the *hautes écoles* (HE) and the *écoles des arts* (ESA), representing about 60% of entrants to bachelor's or equivalent programmes
4. Data do not include entrants to 6-year bachelor's programmes, which correspond to about 2% of total entrants at this level.
5. Year of reference is 2015.
6. Year of reference for entrance cohort is 2008. Graduation years vary depending on the theoretical duration of programmes.
7. Year of reference for entrance cohort is 2003. Graduation years vary depending on the theoretical duration of programmes. The theoretical duration plus 3 years refers to the theoretical duration plus 2 years.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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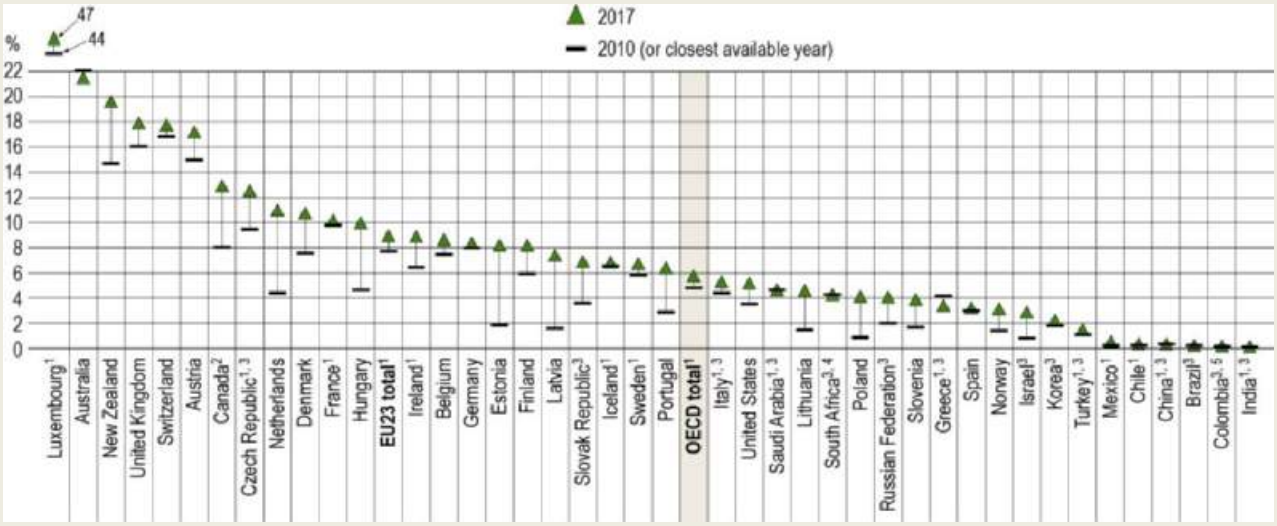
Indicator B6. What is the profile of internationally mobile students?

Highlights

- Overall, the share of internationally mobile students across the OECD increased by 2 percentage points between 2010 and 2017. Over this time period, the share of incoming students increased in nearly all the countries with data available and particularly in Estonia, Hungary, Latvia, the Netherlands and New Zealand.
- English-speaking countries are the most attractive to international students. Australia, Canada, the United Kingdom and the United States together receive more than 40% of all mobile students in OECD and partner countries. Other main destination areas include France, Germany and the Russian Federation.
- Students from Asia form the largest group of international students enrolled in tertiary education programmes at all levels, representing 56% of all mobile students across the OECD in 2017. Two-thirds of Asian students converge on only five countries: Australia, Canada, Japan, the United Kingdom and the United States. European students prefer to stay in the European Union (EU); they account for 24% of mobile students in all OECD destination countries but 42% in the OECD countries within the EU.

Figure B6.1. Incoming student mobility in tertiary education in 2010 and 2017

International or foreign student enrolment as a percentage of total enrolment in tertiary education



1. Years of reference 2013 and 2017.
2. Years of reference 2012 and 2017.
3. Share of foreign rather than international students.
4. Years of reference 2013 and 2016.
5. Years of reference 2014 and 2017.

Countries are ranked in descending order of the percentage of international or foreign students in 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Studying abroad has become a key differentiating experience for young adults enrolled in tertiary education, and international student mobility has received increasing policy attention in recent years. Studying abroad is an opportunity to access high-quality education, acquire skills that may not be taught at home and get closer to labour markets that offer higher returns on education. Studying abroad is also seen as a way to improve employability in increasingly globalised labour markets. Other motivations include the desire to expand knowledge of other societies and to improve language skills, particularly English.

For host countries, mobile students may be an important source of income and have a disproportionate impact on economic and innovation systems. International students often pay higher tuition fees than domestic students (see Indicator C5) and, in some countries, incur higher registration fees. They also contribute to the local economy through their living expenses. In the longer run, highly educated mobile students are likely to integrate into domestic labour markets, contributing to innovation and economic performance.

Attracting mobile students, especially if they stay permanently, is therefore a way to tap into a global pool of talent, compensate for weaker capacity at lower educational levels, support the development of innovation and production systems and, in many countries, to mitigate the impact of an ageing population on future skills supply (OECD, 2016[1]). There is, however, a risk of squeezing out qualified national students from domestic tertiary educational institutions that differentiate tuition fees by student origin, as they may tend to give preference to international students who generate higher revenues through higher tuition fees.

For their countries of origin, mobile students might be viewed as lost talent (or “brain drain”). However, mobile students can contribute to knowledge absorption, technology upgrading and capacity building in their home country, provided they return home after their studies or maintain strong links with nationals at home. Mobile students gain tacit knowledge that is often shared through direct personal interactions and can enable their home country to integrate into global knowledge networks. Some research suggests that students overseas are a good predictor of future scientist flows in the opposite direction, providing evidence of a significant movement of skilled labour across nations, which can also be referred to as “brain circulation” effect (Appelt et al., 2015[2]). In addition, student mobility appears to shape international scientific co-operation networks more deeply than either a common language or geographical or scientific proximity.

Competition for talent has become more intense and global, prompting educational institutions to access a wider pool of high-potential students, with a view to increasing their reputation and revenues (Hénard, Diamond and Roseveare, 2012[3]). The popularity of university league tables and other institutional rankings has reinforced a perception of quality differences across institutions (Perkins and Neumayer, 2014[4]). As part of their internationalisation strategy, more institutions are creating offshore satellite campuses or double degrees, changing admission rules for foreign students, revising curricula to encourage teaching in foreign languages, or offering online courses and international internships. As a consequence, the international activities of educational institutions have not only expanded in volume and scope, but also in complexity.

Other findings

- The number of foreign students engaged in tertiary education programmes worldwide has expanded massively in past few decades, rising from 2 million in 1998 to 5.3 million in 2017. In the OECD area, there were 3.7 million international or foreign students in 2017, 6% more than in 2016.
- Students become more mobile as they reach more advanced levels of education. International students account for only 3% of total enrolment in short-cycle tertiary programmes and 4% of total enrolment in bachelor's programmes, but they represent 22% of enrolment in doctoral programmes.

Analysis

Trends in the number of international students

Student migration into the OECD area remains dynamic, but international student mobility is also consolidating in developing economies (Box B6.1). Mobile students refer to both international students (those who cross borders for the sole purpose of study) and foreign students (students who do not hold the same nationality as the host country), whose number is used in some countries as a proxy measure for the number of international (cross-border) students (see *Definitions* section).

The relative concentration of international and foreign students in different levels of tertiary education gives a fair indication of the attractiveness of educational programmes across countries. Incoming student mobility in tertiary education in a country is determined by the number of mobile students as a share of the overall number of students in tertiary education. The level of incoming mobility is 6% on average across OECD countries but in about one-third of the OECD countries, it equals or exceeds 10%. Incoming international students made up at least 15% of tertiary students in Australia, Austria, Luxembourg, New Zealand, Switzerland and the United Kingdom, peaking at 47% for Luxembourg and 21% for Australia. The Czech Republic (13%) and the Slovak Republic (7%) have the largest shares of foreign students at tertiary level.

Overall, the total share of mobile students across the OECD increased by 0.4 percentage points between 2010 and 2013 and another 1.6 percentage points over the period 2013-17, but the growth in international student mobility varies significantly across countries. Between 2010 and 2017, the share of incoming mobile students increased in nearly all countries with data available. In Australia, the share fell slightly, by 1 percentage point, while still remaining high. More than half of these countries observed an increase of at least 3 percentage points over the same period (Figure B6.1), especially the Netherlands (7 percentage points), Estonia, Latvia (both with a 6-percentage-point increase), Hungary and New Zealand (both with 5 percentage points). Among the countries for which data were only available for a shorter time period, the share of international students increased the most in the Czech Republic, Ireland and Luxembourg, by more than 2 percentage points over the period 2013-17.

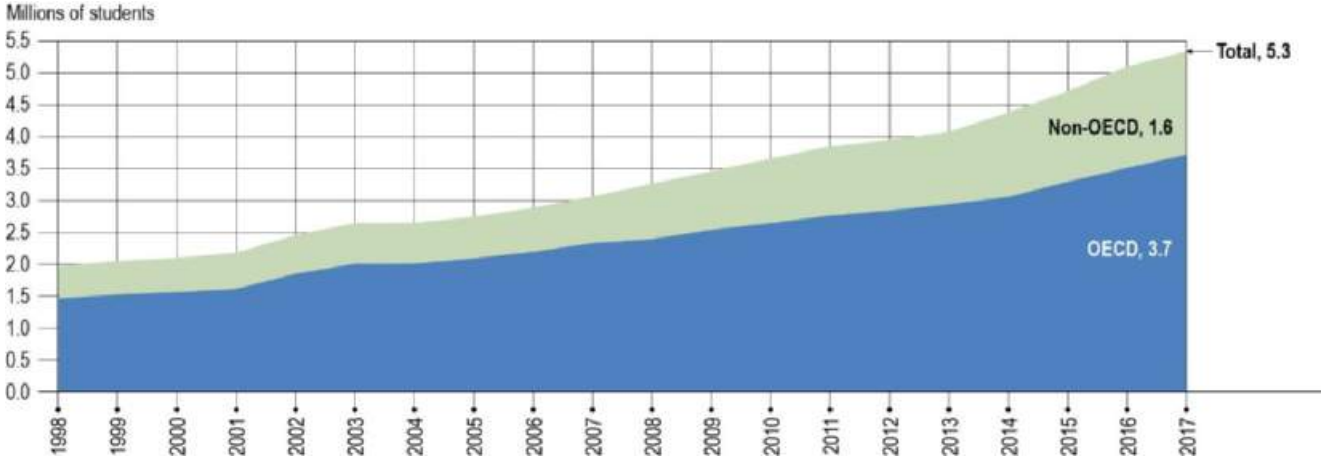
Looking at longer-term trends, the number of mobile students enrolled in tertiary education programmes worldwide has expanded massively over the last two decades. It rose from 2 million in 1998 to 5.3 million in 2017, growing at an average annual rate of 5% among OECD countries and 6% among non-OECD countries. This increase was constant with peaks in 2002-03 and 2014-16 and a slight levelling off in long-term trends in 1999, 2004 and 2012 (Figure B6.2). However, the number of international students began increasing strongly again in 2014 (an increase of 7% over 2013) and the years that followed, with annual increases of 8% in both 2015 and 2016. In the last year with available data, the growth was slightly more moderate, returning to 5% between 2016 and 2017.

The increase in foreign enrolment is being driven by a variety of domestic and external factors, both push (encouraging outward mobility) and pull (encouraging inward mobility) (UNESCO, 2013[5]). The skills needs of increasingly knowledge-based and innovation-driven economies have spurred demand for tertiary education worldwide, while local education capacities have not always evolved fast enough to meet growing domestic demand. Rising wealth in emerging economies has further prompted children of the growing middle classes to seek educational opportunities abroad. At the same time, economic factors (e.g. costs of international flights), technological factors (e.g. the spread of the Internet and social media to maintain contacts across borders) and cultural factors (e.g. use of English as a common working and teaching language) have contributed to making international mobility substantially more affordable and less irreversible than in the past.

Most countries have implemented reforms aiming to lower the barriers to migration of highly skilled individuals, beyond education purposes, and most countries operate funding programmes to support inward, outward or return mobility. While the conditions of migration differ (e.g. short-term vs. long-term settlement), the most common target populations of these programmes are pre-doctoral students and early stage researchers (both doctoral and postdoctoral).

Figure B6.2. Growth in international or foreign enrolment in tertiary education worldwide (1998 to 2017)

Number of international or foreign students enrolled in OECD and non-OECD countries



Note: The data sources use similar definitions, thus making their combination possible. Missing data were imputed with the closest data reports to ensure that breaks in data coverage do not result in breaks in time series.
Source: OECD/UIS/Eurostat (2019). Other non-OECD countries and years prior to 2013: UNESCO Institute for Statistics. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Profiles of internationally mobile students

Students are more likely to travel abroad for more advanced education programmes. In all but a few countries, the share of international students enrolled in tertiary programmes increases gradually with education level. On average across OECD countries, international students account for 6% of total enrolment in tertiary programmes, but 22% of all enrolments at doctoral level.

International enrolment in bachelor's programmes remains relatively low (below 5% in nearly half of the countries for which data are available). However, a few countries have a more international profile at this level. In Austria, Luxembourg and New Zealand, more than 15% of students at bachelor's level are international (Figure B6.3).

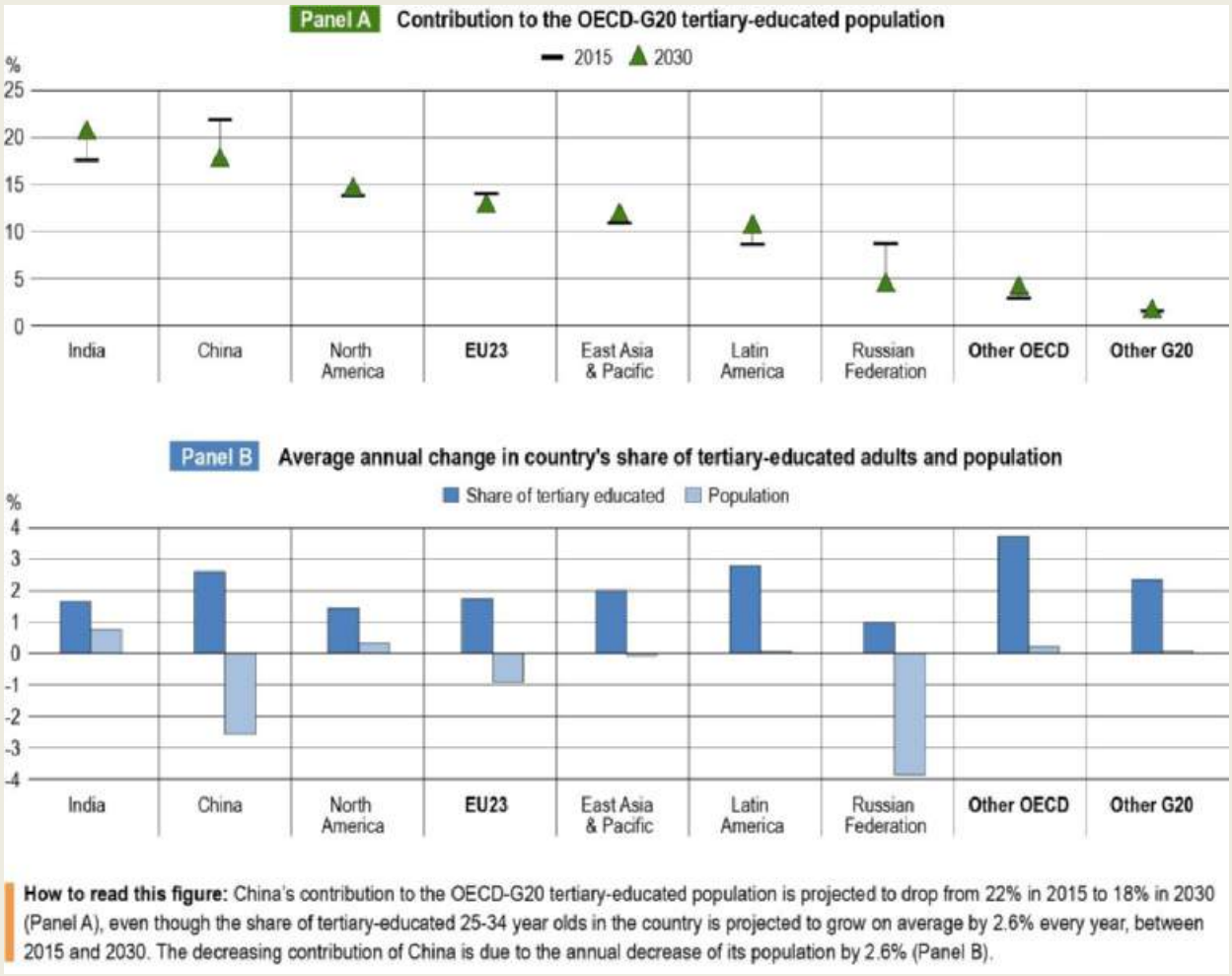
Box B6.1. How is the international pool of graduates evolving?

The share of tertiary-educated young adults (aged 25-34) has been increasing in OECD-G20 countries over the past decade, and it is expected to keep growing in the next 15 years. Countries that were lagging behind should experience the fastest increases and catch up, while countries with initially larger shares of tertiary-educated adults should face slower growth. If trends remain constant, the People's Republic of China and India could account for a particularly large share of the OECD-G20 pool of tertiary-educated young adults, despite the projected drop in China's young adult population.

As Figure B6.a shows, it is possible to project regional contributions to OECD-G20 pool of tertiary-educated young adults in 2030 based on the expected educational attainment and population changes. China and India, which together accounted for 40% of tertiary-educated young adults in 2015, should keep their overall rank. While China's contribution is likely to fall by 4 percentage points in the next decade, mainly due to its decreasing population, India's will significantly increase. Latin American countries, in which 20% of young adults in 2015 had attained tertiary education, are likely to experience a particularly fast increase (more than

2.5% growth per year). In contrast, the North American countries and the Russian Federation are expected to witness the slowest increases.

Figure B6.a. Regions' projected contributions to the global tertiary-educated population of 25-34 year-olds (2015 to 2030)



Countries and regions are ranked in descending order of their projected regions contribution to the OECD-G20 tertiary-educated population of 25-34 year-olds in 2030.

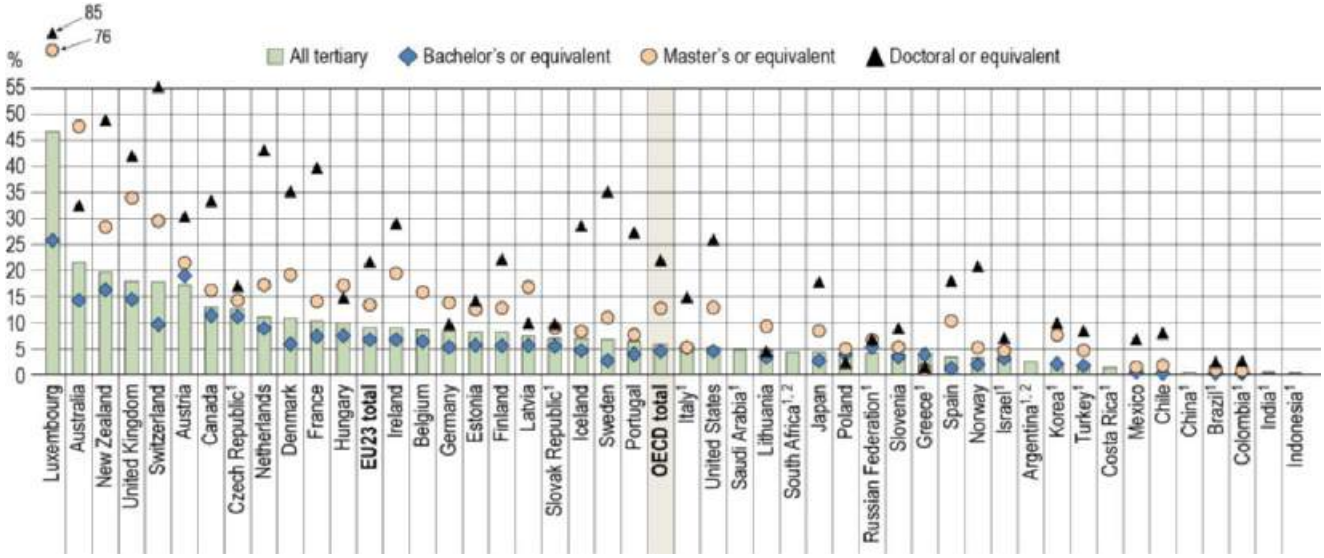
Source: OECD (2018[6]), "How is the tertiary-educated population evolving?", Education Indicators in Focus, No. 61 (https://doi.org/10.1787/a17e95dc-en).

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International enrolment increases significantly at master's level. On average across the OECD, 13% of students are international or foreign at this level. The proportion of incoming students at least doubles between bachelor's and master's levels in nearly two-thirds of OECD countries. The share of international students in Chile, Spain and Sweden is at least four times higher at master's than at bachelor's level. Greece, on the other hand, seems relatively less attractive to master's students, as its inflows of foreign students are slightly lower than at bachelor's level (Figure B6.3).

Figure B6.3. Incoming student mobility in tertiary education, by level of study (2017)

International or foreign student enrolment as a percentage of total enrolment in tertiary education



Note: All tertiary education includes short-cycle tertiary programmes, which are not presented separately in the figure.
1. Share of foreign rather than international students.
2. Year of reference 2016.
Countries are ranked in descending order of the percentage of international or foreign students in tertiary education.
Source: OECD (2019), Table B6.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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International enrolment is much higher at doctoral level in the OECD area, particularly in France, Luxembourg, the Netherlands New Zealand, Switzerland and the United Kingdom, where 40% or more tertiary students come from abroad. In Luxembourg and Switzerland, there are more international students in doctoral programmes than national students (85% of enrolments in Luxembourg and 55% of enrolments in Switzerland come from overseas at this level). While most countries have higher shares of international students at doctoral than at master's level, a number of countries show the opposite pattern. This is particularly striking in Australia (decreasing from 48% at master's level to 32% at doctoral level), Germany (from 14% to 10%), Hungary (from 17% to 15%), Latvia (from 17 to 10%), Lithuania (from 9% to 4%) and Poland (from 5% to 2%) (Figure B6.3).

International student flows in tertiary education

In 2017, there were 3.7 million international students enrolled in tertiary education programmes across OECD countries. The pools and flows of this mobile talent remain very concentrated worldwide, and mobility pathways are deeply rooted in historical patterns.

Identifying the determinants of international student mobility is key to designing efficient policies to encourage the movement of skilled labour. Student migration is mainly driven by differentials in education capacity (i.e. a lack of educational facilities in the country of origin or the prestige of educational institutions in the country of destination). It is also driven by differentials between origin and destination countries in the returns to or rewards for education and skills. Economic factors include better economic performance by the host country, exchange rates, more affordable mobility (due to lower tuition fees or higher education subsidies, for instance) and higher-quality education in the host country. In addition, the decision to study abroad may be determined by non-economic factors, such as political stability or cultural and religious proximity between origin and destination countries (Guha, 1977[7]; UNESCO, 2013[8]; Weisser, 2016[9]).

Setting appropriate tuition fees remains one of the most debated topics in education policy, in a context where policy makers aim to increase participation in higher education and achieve greater equity in education. The cost of education for individuals varies substantially across countries. These result from different funding models across tertiary institutions, combined with different levels of public financial support allocated to tertiary students (see Indicator C5).

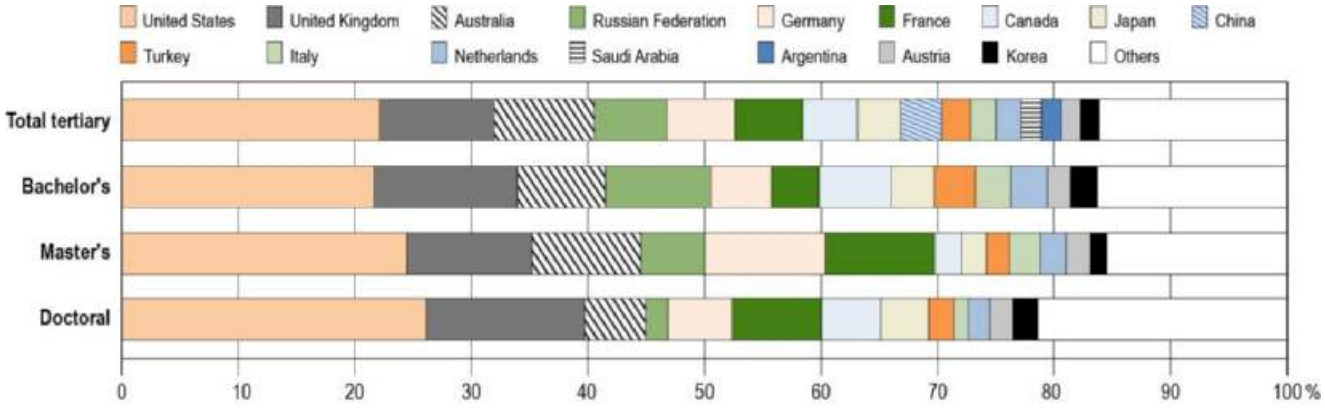
The perceived quality of instruction abroad and the perceived value of host institutions are key criteria for international students when selecting their country of destination (Abbott and Silles, 2016[10]). Top destinations for internationally mobile students include a large number of top-ranked higher education institutions. Students worldwide are increasingly aware of differences in quality among tertiary education systems, as university league tables and other international university rankings are widely disseminated. At the same time, the ability to attract international students has become a criterion in assessing the performance and quality of institutions. As governments seek to encourage the internationalisation of higher education, they have revised performance agreements with domestic institutions, for example by taking into account the inflows of international students in university funding formulas.

Main destination countries of mobile students studying in OECD countries

English is the *lingua franca* of the globalised world, with one in four people using it worldwide (Sharifian, 2013[11]). Not surprisingly, English-speaking countries are the most attractive student destinations overall, with four countries receiving more than 40% of all mobile students in OECD and partner countries. The United States is the top OECD destination country for mobile tertiary students. Of the 3.7 million international students in the OECD area, 985 000 enrol in programmes in the United States. Among English-speaking countries, after the United States, the United Kingdom accounts for 436 000 international students, Australia 381 000 and Canada 210 000 (Figure B6.4). As a destination country, the United States alone accounts for 22% of the total international education market share in OECD and partner countries (about 18% of the number of mobile students globally). Australia and the United Kingdom each have between 9% and 10% of the market share for OECD and partner countries, while Canada has 5%. The United States has an even higher share at doctoral level, hosting 26% of the internationally mobile doctoral students in OECD and partner countries.

Figure B6.4. International education market shares (2017)

International or foreign students enrolled in each destination country as a share of all mobile students in OECD and partner countries



Note: All tertiary education includes short-cycle tertiary programmes, which are not presented separately in the figure. Year of reference 2016 for Argentina and South Africa.

Countries are ranked in descending order of the incoming international or foreign students as a share of all mobile students in OECD and partner countries.

Source: OECD (2019), Table B6.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Box B6.2. Credit mobility in European OECD member countries

Initiatives at national, regional, local, supranational or institutional level have also contributed to cross-border mobility. In 2011, the European Union (EU) set the ambitious goal of increasing the proportion of EU graduates from higher education who completed a period of their studies or training abroad to 20% by 2020 (Council of the European Union, 2011[12]).

Table B6.a. Credit mobility in European OECD member countries (2017)

		Share of national graduates with credit mobility	Share of credit-mobile graduates by length of their stay		Credit-mobile graduates (at least 3 months or 15 ECTS credits)					
					Distribution by type of credit mobility		Distribution by credit mobility scheme			Share of master's and doctoral graduates among credit-mobile graduates
			Less than 3 months (or 15 ECTS credits)	At least 3 months (or 15 ECTS credits)	Study period or study period combined with work placement	Work placement	Under EU programmes (i.e. ERASMUS or other EU programmes)	Under other international/ national programmes	Other programmes	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	Countries									
	Austria	17	19	81	77	23	58	19	23	55
	Czech Republic	10	16	84	m	m	85	1	14	67
	Denmark	12	m	m	m	m	21	39	40	40
	Finland	22	11	89	85	15	57	9	35	36
	France	m	m	m	m	m	29	16	55	65
	Germany	13	m	m	81	19	47	7	47	43
	Greece	2	m	m	m	m	99	1	0	3
	Hungary	4	m	m	m	m	95	4	1	52
	Italy	10	m	m	m	m	76	20	4	61
	Latvia	9	4	96	100	a	96	3	1	20
	Lithuania	9	15	85	85	15	83	16	0	24
	Luxembourg	36	a	100	100	a	81	19	0	12
	Netherlands	28	m	m	70	30	37	12	50	27
	Norway	10	a	100	m	m	3	83	14	44
	Portugal	8	m	m	87	13	90	9	1	33
	Slovak Republic	5	54	46	91	9	93	5	3	69
	Slovenia	3	16	84	66	34	95	4	1	40
	Spain	9	7	93	m	m	86	14	0	23
	Sweden	14	6	94	m	m	28	35	37	50
	Switzerland	14	23	77	80	20	40	31	29	48
	United Kingdom	7	38	62	76	24	50	0	50	8
	Economy									
	Flemish Comm. (Belgium)	9	18	82	m	m	65	5	30	31
	Average	12	16	84	m	m	64	16	20	39

Note: The ECTS (European Credit Transfer and Accumulation System) credits are based on the workload students need in order to achieve expected learning outcomes. Sixty credits are the equivalent of a full year of study or work. In a standard academic year, 60 credits would be usually broken down into several smaller components.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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The EU had already started to make European higher education more homogeneous and comparable across countries and more attractive to international students in 1999 with the Bologna process, which set in motion a series of reforms. Its main objectives were the introduction and standardisation of a three-cycle degree system (bachelor's, master's and doctoral degrees), and the recognition of qualifications from foreign institutions and of periods of study. One of the underlying objectives of the process was to stimulate mobility across Europe of students, teachers and researchers.

The Erasmus+ programme (and its predecessor Erasmus) gives students and teaching staff the opportunity to develop their skills and boost their employment prospects. Students can study abroad for up to 12 months

(during each cycle of tertiary education). Over the period 2014-20, around 2 million students are expected to have benefited from Erasmus+ (EUROSTAT, 2018[13]).

Students who are temporarily studying abroad to gain academic credit within the framework of a tertiary education programme at their home institutions are defined as credit mobile students (UNESCO-UIS / OECD / EUROSTAT, 2018[14]). **Credit mobility** is distinct from **degree mobility** as degree mobile students – the subject of the rest of this indicator – are enrolled as regular students with the objective of graduating in the country of destination. On average across the European countries that are members of the OECD, 12% of 2017 graduates had benefited from credit mobility, ranging from less than 5% in Greece and Slovenia to 36% in Luxembourg. With the exception of the Slovak Republic, graduates from most countries spent at least three months abroad (84% of all credit-mobile graduates on average) or a similar period in terms of study or workload (Table B6.a). Of these, 38% had studied at master's or doctoral levels.

Erasmus+ and other EU programmes account for the great majority (64%) of credit-mobile graduates who studied abroad at least three months, ranging from 3% in Norway (which is not a member of the EU) and 21% in Denmark to 95% or more in Greece, Hungary, Latvia and Slovenia. In addition, students may benefit from credit mobility through other international or national programmes, including other bi- or multilateral programmes such as partnerships between universities, or other programmes involving students organising their own mobility, which is then credited by their home institution. The Nordic and Baltic countries, for example, operate the Nordplus Higher Education Programme, a broad mobility and network programme that aims to reinforce collaboration, joint curriculum planning, student and teacher mobility and the sharing of best practices between institutions.

Credit mobility mostly involves participation in academic study, but it can also take other forms, such as work placements, internships or traineeships. In all the countries with available data, most graduates who had travelled abroad for at least three months did so to benefit from a study period abroad (with or without a work placement), but in 10 countries students are also allowed to benefit from credit mobility for a standalone work placement without a study component.

The European Union is another key geographical area for inward mobility, with 1.7 million mobile students enrolled in the 23 OECD countries that are also members of the EU (EU23). After the United Kingdom, France and Germany (both with nearly 260 000 students) are major host countries for international students, far ahead of Italy (98 000), the Netherlands (96 000) and Austria (74 000). As destination countries, France and Germany each account for 6% of the international students in OECD and partner countries (about 5% of the global share). Their shares increase at master's level where they hosted between 9% and 10% of mobile master's students in OECD and partner countries in 2017 (Table B1.3). The Russian Federation is also a major destination country, with 278 000 students enrolled from abroad, accounting for 6% of mobile students in OECD and partner countries in all tertiary programmes and 9% at bachelor's level.

Japan is the preferred Asian destination among OECD and partner countries, with 164 000 international students, just above China with 157 000 foreign students: they each have a share of 4% in the international education market in OECD and partner countries and about 3% globally. Finally, Argentina is the most popular destination for mobile students among Latin American countries with a 2% share of the number of mobile students in OECD and partner countries (Figure B6.4).

Regions of origin

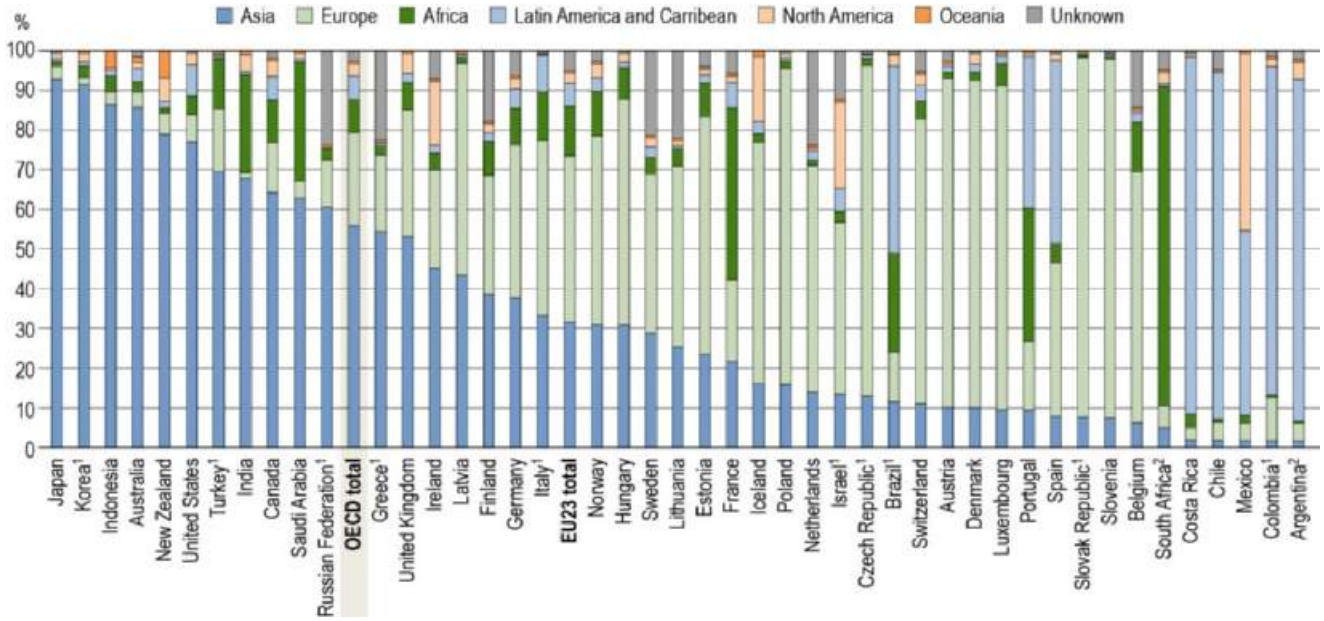
Data on international student flows illustrate the strength of proximity factors, such as language, historical ties, geographical distance, bilateral relationships and political framework conditions (e.g. the European Higher Education Area) as key determinants for mobility.

Students from Asia form the largest group of international students enrolled in tertiary education programmes at all levels, totalling 2.1 million and 56% of all mobile students across the OECD in 2017 (Figure B6.5). Of these,

over 860 000 come from China. Two-thirds of Asian students converge on only five countries: Australia, Canada, Japan, the United Kingdom and the United States.

The second major region of origin of international students is Europe, who make up 24% of all mobile students enrolled in OECD countries. European students prefer to stay in Europe, as their share reaches 42% of mobile students enrolled in the EU23 countries (Box B6.2). At least 8 out of 10 mobile students in Austria, Denmark, Luxembourg, Poland, Portugal, the Slovak Republic and Slovenia come from European countries. Students from Luxembourg are the most mobile in tertiary education as 3 out of 4 enrol in a tertiary programme abroad (this leads to the underestimation of tertiary enrolment rates in Luxembourg, see Indicator B1). Students from Iceland and the Slovak Republic are also more likely to study abroad than nationals from other OECD and partner countries: 14%-18% of their national students are enrolled in a tertiary programme abroad (Table B1.3). Demonstrating the importance of proximity, in Austria, the Czech Republic, Luxembourg, the Slovak Republic and Switzerland more than 50% of international or mobile students in 2017 came from neighbouring countries.

Figure B6.5. Distribution of international and foreign students by region of origin (2017)



1. Share of foreign rather than international students.
2. Year of reference 2016.

Countries are ranked in descending order of the percentage of international or foreign students from Asia.

Source: OECD (2019), Table B6.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Students from African countries make up the majority of foreign students only in South Africa (81% of students are mobile) among OECD and partner countries, although at least 3 out of 10 mobile students are from Africa in France, Portugal and Saudi Arabia. International student flows from Latin America and the Caribbean highlight proximity patterns, as they represent the majority of mobile students in Argentina, Brazil, Chile, Colombia, Costa Rica and Mexico, but also the importance of the language of studies: between 4 and 5 in every 10 mobile students in Portugal and Spain come from this region. Finally, North American students represent more than 10% of international enrolment only in Iceland, Ireland, Israel and Mexico, while students from Oceania are a minority of international students in all OECD and partner countries, making up only 1% of mobile students in OECD destination countries (Figure B6.5).

Definitions

There are two types of mobility: degree mobility and credit mobility. **Degree-mobile students** are enrolled as regular students in any semester/term of a programme taught in the country of destination with the intention of graduating from it in the country of destination (distance learners are not considered as mobile). **Credit mobility** is defined as temporary tertiary education or study-related traineeships abroad within the framework of enrolment in a tertiary education programme at a home institution, usually for the purpose of gaining academic credit. Credit-mobile students do not obtain their qualifications from the host institution abroad.

Foreign students are those who are not citizens of the country in which they are enrolled and where the data are collected. Although they are counted as internationally mobile, they may be long-term residents or even be born in the "host" country. While pragmatic and operational, this classification may be inappropriate for capturing student mobility because of differing national policies regarding the naturalisation of immigrants. For instance, Australia has a greater propensity than Switzerland to grant permanent residence to its immigrant populations. This implies that even when the proportion of foreign students in tertiary enrolment is similar for both countries, the proportion of international students in tertiary education will be smaller in Switzerland than in Australia. Therefore, for student mobility and bilateral comparisons, interpretations of data based on the concept of foreign students should be made with caution. In general, international students are a subset of foreign students.

International students are those who left their country of origin and moved to another country for the purpose of study. The country of origin of a tertiary student is defined according to the criterion of "country of upper secondary education", "country of prior education" or "country of usual residence" (see below). Depending on country-specific immigration legislation, mobility arrangements (such as the free mobility of individuals within the European Union and the European Economic Area) and data availability, international students may be defined as students who are not permanent or usual residents of their country of study, or alternatively as students who obtained their prior education in a different country.

The **country of prior education** is the country in which students obtained their upper secondary qualification (upper secondary or post-secondary non-tertiary completion with access to tertiary education programmes) or the qualification required to enrol in their current level of education. Where countries are unable to operationalise this definition, it is recommended that they use the country of usual or permanent residence to determine the country of origin. Where this too is not possible and no other suitable measure exists, the country of citizenship may be used.

Permanent or usual residence in the reporting country is defined according to national legislation. In practice, this means holding a student visa or permit, or electing a foreign country of domicile in the year prior to entering the education system of the country reporting the data.

Country-specific operational definitions of international students are indicated in the tables as well as in Annex 3 (https://doi.org/10.1787/f8d7880d-en).

Methodology

Defining and identifying mobile students, as well as their types of learning mobility, are a key challenge for developing international education statistics, since current international and national statistical systems only report domestic educational activities undertaken within national boundaries (OECD, 2018[15]).

Data on international and foreign students are therefore obtained from enrolments in their countries of destination. This is the same method used for collecting data on total enrolments, i.e. records of regularly enrolled students in an education programme. Students enrolled in countries that did not report to the OECD or to the UNESCO Institute for Statistics are not included and, for their countries of origin, the total number of national students enrolled abroad may be underestimated.

The total number of students enrolled abroad refers to the count of international students, unless data are not available and the count of foreign students is used instead. Enrolment numbers are computed using a snapshot method, i.e. counting enrolled students at a given period of time (e.g. a specific day or period of the year).

This methodology has some limits. OECD international statistics on education tend to overlook the impact of distance and e-learning, especially fast-developing massively online open courses (MOOCs), students who commute from one country to another on a daily basis and short-term exchange programmes that take place within an academic year and are therefore under the radar. Other concerns arise from the classification of students enrolled in foreign campuses and European schools in host countries' student cohorts.

Current data for international students can only help track student flows involving OECD and partner countries as receiving countries. It is not possible to assess extra-OECD flows and, in particular, the contributions of South-South exchanges to global brain circulation.

For more information, please see the OECD *Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications* (OECD, 2018[15]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the academic year 2016/17 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018 (for details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en). Data on credit mobility, based on the UNESCO-UIS/OECD/EUROSTAT data collection, were administered by Eurostat in 2018.

The UNESCO Institute of Statistics (UIS) provided data 1) for Argentina, China, India, Indonesia, Saudi Arabia and South Africa; 2) for all countries beyond the OECD and partner countries; and 3) for OECD countries for the period not covered by OECD statistics (2005 and 2010-17).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator B6 Tables

Table B6.1 International and foreign student mobility in tertiary education (2010, 2013 and 2017)

Table B6.2 Distribution of international or foreign students by field of study and by region of origin (2017)

Table B6.3 Mobility patterns of foreign and international students (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

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Table B6.1. International and foreign student mobility in tertiary education (2010, 2013 and 2017)

International or foreign student enrolment as a percentage of total tertiary enrolment

Reading the sixth column of the upper section of the table (international): 21% of all students in tertiary education in Australia are international students and 18% of all students in tertiary education in Switzerland are international students.

Reading the sixth column of the lower section of the table (foreign): 3% of all students in tertiary education in Greece are not Greek citizens, and 2% of all students in tertiary education in Korea are not Korean citizens.

		Number of international or foreign students (in thousands)	Share of international or foreign students by level of tertiary education						
			Short-cycle tertiary	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent	All tertiary		
			2017				2017	2013	2010
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		International students							
OECD	Countries								
	Australia	381	20	14	48	32	21	18	22
	Austria	74	1	19	21	30	17	17	15
	Belgium[1]	46	8	6	16	m	9	10	7
	Canada	210	13	11	16	33	13	10	m
	Chile	5	0	0	2	8	0	0	m
	Denmark	34	15	6	19	35	11	10	8
	Estonia	4	a	6	12	14	8	3	2
	Finland	24	a	6	13	22	8	7	6
	France	258	5	7	14	40	10	10	m
	Germany	259	0	5	14	10	8	7	8
	Hungary	29	1	7	17	15	10	6	5
	Iceland	1	28	5	8	29	7	7	m
	Ireland	20	3	7	19	29	9	6	m
	Japan	164	7	3	8	18	4	3	m
	Latvia	6	2	6	17	10	7	4	2
	Lithuania	6	a	3	9	4	5	2	1
	Luxembourg	3	9	26	76	85	47	44	m
	Mexico	25	0	0	1	7	1	0	m
	Netherlands	96	3	9	17	43	11	10	4
	New Zealand	53	23	16	28	49	20	16	15
	Norway	9	1	2	5	21	3	4	1
	Poland	64	0	4	5	2	4	1	1
	Portugal	22	3	4	8	27	6	4	3
	Slovenia	3	2	3	5	9	4	3	2
	Spain	65	1	1	10	18	3	3	3
	Sweden	29	0	3	11	35	7	6	m
	Switzerland	53	0	10	29	55	18	17	17
	United Kingdom	436	4	14	34	42	18	17	16
	United States	985	2	4	13	26	5	4	4
		Foreign students							
	Colombia	5	0	0	1	3	0	m	m
	Czech Republic	44	6	11	14	17	13	9	m
	Greece	25	a	4	1	1	3	4	m
	Israel	11	m	3	4	7	3	3	1
	Italy	98	7	5	5	15	5	4	m
	Korea	71	0	2	8	10	2	2	2
	Slovak Republic	11	1	5	9	10	7	5	4
	Turkey	108	0	2	5	8	2	1	m
	OECD total	3 736	3	4	13	22	6	5	m
	Average for countries with available data for all reference years						7	6	5
	EU23 total	1 655	4	7	13	22	9	8	m
		Foreign students							
Partners	Argentina[2]	76	x(6)	x(6)	x(6)	x(6)	2	m	m
	Brazil	21	0	0	1	2	0	m	0
	China	157	x(6)	x(6)	x(6)	x(6)	0	m	m
	Costa Rica	3	x(6)	x(6)	x(6)	x(6)	1	1	m
	India	47	x(6)	x(6)	x(6)	x(6)	0	0	m
	Indonesia	6	x(6)	x(6)	x(6)	x(6)	0	m	m
	Russian Federation	278	1	5	7	7	4	2	2
	Saudi Arabia	78	x(6)	x(6)	x(6)	x(6)	5	5	m
	South Africa[2]	45	x(6)	x(6)	x(6)	x(6)	4	4	m

1. Data on short-cycle tertiary programmes are based on nationality and refer to the Flemish community only.
2. Year of reference 2016.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2019-36-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B6.2. Distribution of international or foreign students by field of study and by region of origin (2017)

All tertiary programmes

		Distribution of international and foreign students by field of study										Distribution of international and foreign students by region of origin					
		Education	Arts and humanities	Social sciences, journalism and information	Business, administration and law	Natural sciences, mathematics and statistics	Information and communication technologies	Engineering, manufacturing and construction	Agriculture, forestry, fisheries and veterinary	Health and welfare	Services	Africa	North America	Latin America and Carribean	Asia	Europe	Oceania
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		International students															
OECD	Countries																
	Australia	2	7	3	51	5	10	12	1	9	1	3	1	3	86	4	1
	Austria	6	15	20	16	10	5	16	2	9	1	1	1	2	10	83	0
	Belgium	3	14	11	12	4	2	11	5	36	2	13	1	2	6	63	0
	Canada	1	10	12	29	12	7	19	2	5	1	11	4	6	64	12	0
	Chile	10	5	7	33	6	3	15	2	13	6	1	1	88	2	5	0
	Denmark	2	12	8	28	6	7	20	2	8	5	2	3	2	10	83	1
	Estonia	1	13	11	39	5	10	13	5	4	0	8	2	2	23	60	0
	Finland	3	10	5	23	6	17	20	2	10	5	8	3	2	39	30	0
	France[1]	2	16	11	30	12	5	16	0	6	1	43	2	6	22	20	0
	Germany	2	17	8	18	9	9	30	2	6	1	9	3	5	38	39	0
	Hungary	3	10	12	9	3	4	10	8	41	2	8	3	1	31	57	0
	Iceland	6	46	7	10	17	1	6	2	3	1	2	16	3	16	61	1
	Ireland	3	10	6	21	8	9	11	1	28	2	4	16	2	45	25	1
	Japan[2]	2[d]	26[d]	43[d]	x(3)	2[d]	x	19[d]	2[d]	3[d]	3[d]	1	2	1	93	3	0
	Latvia	1	4	7	31	1	8	9	0	32	8	2	1	0	44	53	0
	Lithuania	2	12	18	26	1	3	15	1	19	1	4	2	1	25	46	0
	Luxembourg	5	7	12	45	8	7	7	2	5	3	5	1	2	9	82	0
	Mexico	m	m	m	m	m	m	m	m	m	m	2	45	47	2	4	0
	Netherlands	2	12	18	30	7	3	12	2	8	6	1	1	2	14	57	0
	New Zealand	4	7	8	37	8	10	12	2	5	7	1	6	2	79	5	7
	Norway	5	19	11	13	16	6	13	2	12	3	11	3	3	31	47	1
	Poland	3	9	20	28	2	7	7	1	14	9	2	2	0	16	80	0
	Portugal	7	12	12	23	6	2	21	1	11	5	34	1	38	9	17	0
	Slovenia	5	11	16	16	7	6	22	3	8	5	1	0	1	7	91	0
	Spain	6	8	10	24	5	2	12	2	25	4	5	2	46	8	39	0
	Sweden	3	12	13	12	14	7	25	1	12	1	4	2	3	29	40	0
	Switzerland	5	14	12	21	17	3	18	1	8	2	5	3	4	11	72	0
	United Kingdom	2	13	12	33	12	5	15	1	7	0	7	5	2	53	32	1
	United States[3]	3	14[d]	10	24	9	11	20	1	7[d]	2	5	3	8	77	7	1
		Foreign students															
	Colombia	8	10	13	28	2	4	15	2	17	3	1	2	83	2	11	0
	Czech Republic	2	9	10	20	7	10	14	3	19	4	2	1	1	13	83	0
	Greece	5	19	14	14	10	3	16	2	11	4	3	1	0	54	19	0
	Israel	7	19	18	16	12	5	9	1	12	0	3	22	6	13	43	1
	Italy	2	26	11	19	5	2	21	2	11	0	12	1	9	33	44	0
	Korea	2	20	14	30	3	3	14	1	4	7	3	2	1	91	2	0
	Slovak Republic	8	7	4	10	2	2	6	3	56	2	1	0	0	8	91	0
	Turkey	6	13	14	19	6	1	25	2	12	3	13	1	0	69	16	0
	OECD total	3	14	11	27	8	7	18	1	9	2	8	3	6	56	24	1
	EU23 total	3	14	12	25	9	6	17	1	11	2	13	3	6	32	42	0
		Foreign students															
Partners	Argentina[4]	m	m	m	m	m	m	m	m	m	m	1	5	86	2	4	0
	Brazil	10	8	8	18	8	4	22	5	13	4	25	3	47	12	12	0
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	m	m	m	m	m	m	m	3	1	90	2	3	0
	India	m	m	m	m	m	m	m	m	m	m	25	4	0	68	1	1
	Indonesia	m	m	m	m	m	m	m	m	m	m	4	0	2	86	3	4
	Russian Federation	m	m	m	m	m	m	m	m	m	m	3	0	0	61	12	0
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	30	2	0	63	4	0
	South Africa[4]	m	m	m	m	m	m	m	m	m	m	81	3	1	5	6	0

Note: This table does not present the shares of students enrolled in generic programmes and those whose region of origin is not known.
1 The share of students by country of origin is based on citizenship criteria.
2. Data on information and communication technologies are included in other fields.
3. Column 2 includes all interdisciplinary programmes, Column 9 includes public administration programmes.
4. Year of reference 2016.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2019-36-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B6.3. Mobility patterns of foreign and international students (2017)

		Percentage of national tertiary students enrolled abroad	Number of international or foreign students per national student abroad	Number of international or foreign students for every hundred national students home and abroad	Percentage of international or foreign students coming from neighbouring countries	International education market shares	International education market shares (OECD reporting countries only)			
		Total tertiary					Total tertiary	Bachelor's	Master's	Doctorate
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	Countries									
	Australia	1	28	27	4	7	9	7	9	5
	Austria	5	4	20	58	1	2	2	2	2
	Belgium	3	3	9	41	1	1	1	1	1
	Canada	3	4	14	4	4	5	6	2	5
	Chile	1	0	0	35	0	0	0	0	0
	Colombia	2	0	0	57	0	0	0	0	0
	Czech Republic[1]	4	3	14	53	1	1	1	1	1
	Denmark	2	6	12	37	1	1	1	1	1
	Estonia	8	1	8	45	0	0	0	0	0
	Finland	4	2	9	15	0	1	1	1	1
	France	4	3	11	16	5	6	4	9	8
	Germany	4	2	9	14	5	6	5	10	6
	Greece[1]	5	1	3	57	0	1	1	0	0
	Hungary	5	2	11	26	1	1	1	1	0
	Iceland	14	0	6	7	0	0	0	0	0
	Ireland	7	1	9	7	0	0	1	0	1
	Israel[1, 2]	4	1	3	4	0	0	0	0	0
	Italy[1]	4	1	5	20	2	2	3	3	1
	Japan	1	5	4	57	3	4	4	2	4
	Korea[1]	3	1	2	64	1	2	2	1	2
	Latvia	6	1	7	20	0	0	0	0	0
	Lithuania	8	1	4	29	0	0	0	0	0
	Luxembourg	75	0	22	58	0	0	0	0	0
	Mexico	1	1	1	44	0	1	1	0	1
	Netherlands	2	5	12	30	2	2	3	2	2
	New Zealand	2	11	24	6	1	1	2	0	1
	Norway	6	1	3	20	0	0	0	0	0
	Poland	2	3	4	72	1	1	2	2	0
	Portugal	4	2	7	4	0	0	0	1	2
	Slovak Republic[1]	18	0	6	57	0	0	0	0	0
	Slovenia	4	1	4	31	0	0	0	0	0
	Spain	2	2	3	28	1	1	1	2	4
	Sweden	4	2	7	21	1	1	0	1	2
	Switzerland	5	4	20	54	1	1	1	1	4
	Turkey[1]	1	2	2	46	2	2	4	2	2
	United Kingdom	2	12	21	11	8	10	12	11	14
	United States	0	11	5	5	18	22	22	24	26
	OECD total	2	4	6		70	84	90	94	97
	EU23 total	3	3	10		31	37	41	50	45
Partners	Argentina[3]	0	8	3	48	1	2	x(6)	x(6)	x(6)
	Brazil[1]	1	0	0	37	0	0	1	0	1
	China	2	0	0	m	3	4	x(6)	x(6)	x(6)
	Costa Rica	1	1	1	50	0	0	x(6)	x(6)	x(6)
	India	1	0	0	45	1	1	x(6)	x(6)	x(6)
	Indonesia	1	0	0	76	0	0	x(6)	x(6)	x(6)
	Russian Federation[1]	1	5	4	43	5	6	9	5	2
	Saudi Arabia	5	1	5	32	1	2	x(6)	x(6)	x(6)
	South Africa[3]	1	6	4	45	1	1	x(6)	x(6)	x(6)

Note: Neighbouring countries are considered to be those with land or maritime borders with the host country. International education market shares refer to the number of mobile students enrolled in each destination country as a share of all mobile students (Column 5) or of all mobile students in OECD and partner countries (Columns 6-10).
1. National tertiary students are calculated as total enrolment minus foreign students instead of total enrolment minus international students.
2. Excluding internationally mobile students enrolled in short-cycle tertiary programmes.
3. Year of reference 2016.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (http://dx.doi.org/10.1787/eag-2019-36-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

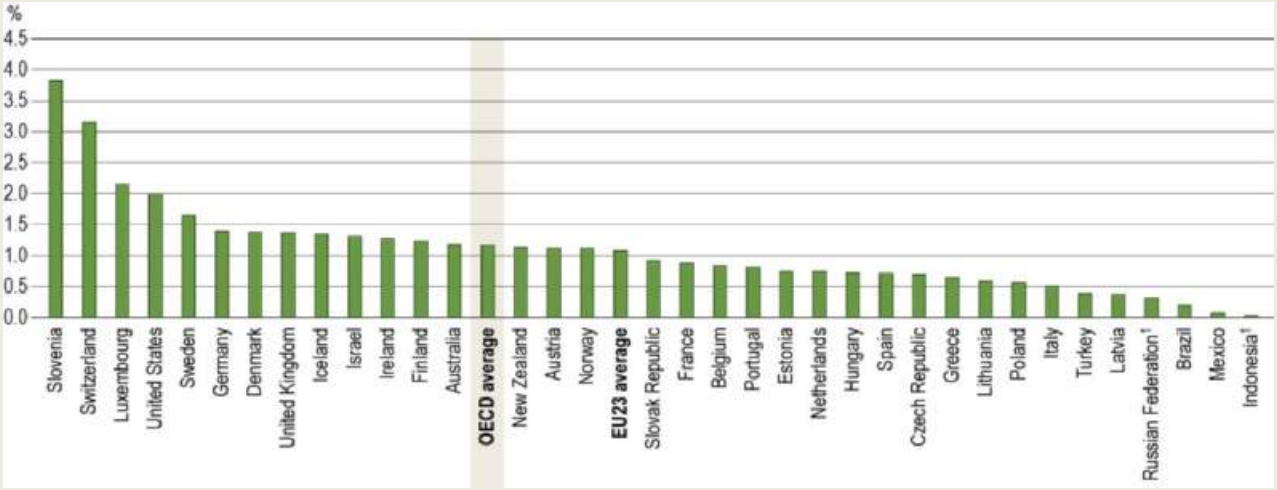
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Indicator B7. What are the characteristics and outcomes of doctoral graduates?

Highlights

- Doctorate holders represent 1.1% of 25-64 year-olds on average across OECD countries, though this varies from 0.1% or less in Indonesia and Mexico to more than 3% in Slovenia and Switzerland.
- Women tend to be under-represented in certain fields at doctoral level even where they are over-represented at master's level. While 54% of graduates in natural science, mathematics and statistics at master's level were women, they represented only 46% of doctoral graduates on average across OECD countries in 2017.
- The relative employment advantage of adults with a doctoral degree compared to those with a master's varies across OECD countries from 10% in Finland, Hungary and Italy to 1% in Iceland and Sweden.

Figure B7.1. Share of 25-64 year-olds with a doctorate (2018)



1. Year of reference differs from 2018.
Countries are ranked in descending order of the share of 25-64 year-olds with a doctorate.
Source: OECD (2019), Table B7.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

A doctorate is the highest degree awarded in academia. Doctoral study plays an important role in developing future innovations by training the researchers needed to advance knowledge and explore new research areas relevant for the economy and society of tomorrow. Doctorate holders can develop a unique set of quantitative and qualitative skills in both research methodology and statistical analysis, which are valuable in both an academic and an industrial setting. Doctorate holders are attractive in the labour market and have on average a high employment rate even during economic downturns. Doctorate holders also enjoy high relative earnings, especially those who enter the private sector (European Commission, 2016[1]).

This has led many countries to implement reforms to develop and support doctoral studies and postdoctoral research, stressing the crucial role of doctoral students and doctorate holders in terms of economic growth, innovation and scientific research. Given the high investment in personal and financial resources and the pivotal role of doctorate holders in pushing back the frontiers of knowledge, there has been growing policy interest in attracting talented young people into careers in research, ensuring equitable access to doctoral programmes for both men and women, and providing rewarding employment opportunities to its graduates (OECD, 2019[2]).

Other findings

- The median age at entry to doctoral programmes is 29 on average across OECD countries with 60% of entrants aged between 26 and 37 years old.
- On average across OECD countries, 25% of enrolled doctoral graduates are international students. In some countries, international students make up the majority of graduates at doctoral level: more than half are international students in Luxembourg and Switzerland.
- On average across OECD countries, the employment rate of women with a doctorate is 5% higher than that of women with a master's, and is 15% or higher in Greece and Hungary. In contrast, men with a doctorate have an employment rate that is 3% higher than men with a master's, on average across OECD countries, and this advantage does not exceed 8% in any OECD or partner country.

Analysis

Graduation and entry patterns at doctoral level

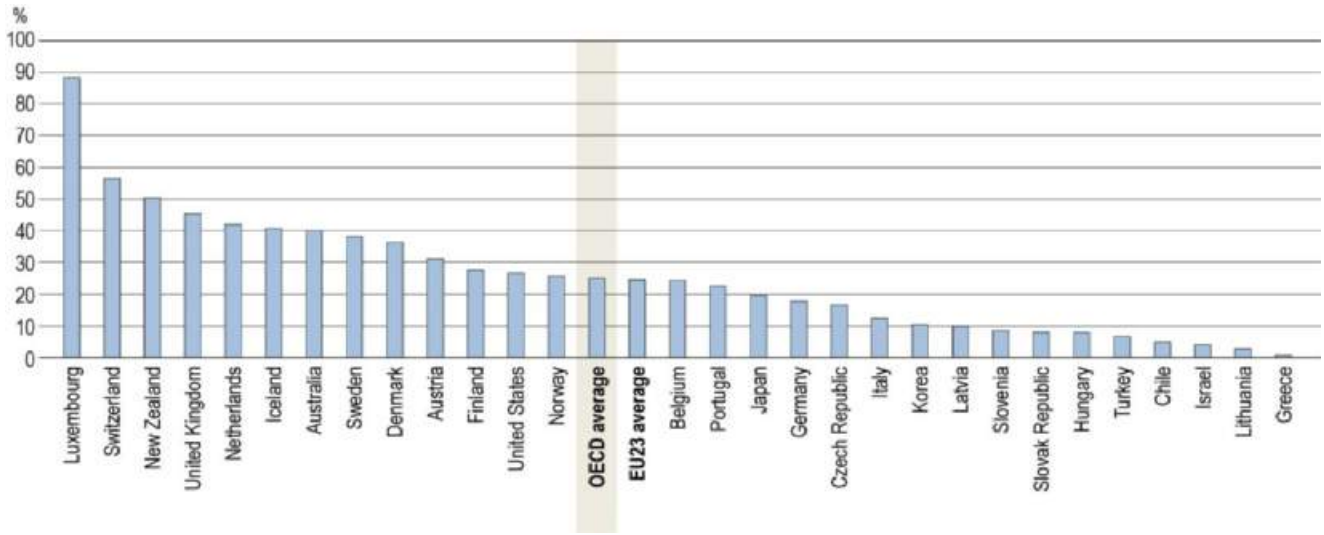
If current entry patterns continue, 2.3% of today's young adults across OECD countries will enter a doctoral programme in their lifetime. This varies from 4% and more in Switzerland and the United Kingdom – mostly due to a large share of international students in these countries – to less than 0.5% in Chile, China, Colombia and Saudi Arabia. Excluding international students, the countries with the highest entry rates at doctoral level are Germany (3.2%), Spain (3.1%) and Korea (3.0%).

Doctorate holders account for a small proportion of the adult population. In 2018, just 1.1% of 25-64 year-olds held a doctorate on average across OECD countries, though this varies from less than 0.1% in Indonesia and Mexico to more than 3% in Slovenia and Switzerland (Figure B7.1). In spite of these low levels, the number of doctorate holders has been increasing. Between 2013 and 2017, the number of students graduating with a doctorate increased by approximately 8% across OECD countries, reaching 276 800 students in 2017. This growth is primarily driven by the increase in doctoral graduates in Mexico, Spain and the United States over this period. The United States remains the top supplier of doctoral graduates among OECD countries with about 71 000 graduates in 2017, followed by Germany and the United Kingdom (around 28 000 each).

Doctoral students are more likely than other tertiary students to study abroad. On average across OECD countries, 22% of enrolled doctoral students are international or foreign students, compared to 13% at master's level and 4% at bachelor's. In some countries, international students make up the majority of graduates at doctoral level: more than half are international students in Luxembourg and Switzerland (Figure B7.2).

Figure B7.2. Share of international doctoral graduates (2017)

As a percentage of total doctoral graduates



Countries are ranked in descending order of the share of international doctoral graduates among total doctoral graduates.
Source: OECD (2019), Table B7.1. See Source section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Attracting the best doctoral students from around the world enables countries to build a leading role in research and innovation, and some countries have implemented policies to nurture an attractive research environment for potential students. Some countries, such as Australia, Italy, and Switzerland, charge lower fees for doctoral programmes than at lower levels of education (see Indicator C5). Others recognise doctoral candidates as

employees rather than students, such as in Norway or Switzerland (European Commission/EACEA/Eurydice, 2017[3]). The language of instruction also plays an important role for doctoral students when they select their institution and country of study. English-speaking countries tend to have a larger share of the international pool of doctoral candidates: the share of international students among doctoral graduates is 40% or above in Australia, New Zealand and the United Kingdom. Some non-English speaking countries, such as Denmark, the Netherlands and Sweden, also offer a large share of programmes in English with the aim of attracting more foreign talent (Wächter and Maiworm, 2014[4]). In all three countries, the share of international doctoral graduates in 2017 was above the OECD average (Figure B7.2).

Career prospects and the availability of a strong funding stream for research and development (R&D) both play an important role in supporting the progress of doctoral students both during and after study. Spending by higher education institutions provides an indication of the emphasis placed on R&D within the national system and can be indicative of future research opportunities. In 2015, spending on research and development in tertiary institutions represented on average 0.5% of GDP across OECD countries, but exceeded 0.8% in Denmark, Sweden and Switzerland (OECD, 2018[5]). While R&D within tertiary institutions is largely financed by the public sector in most OECD countries, some systems are also able to raise funding from the business enterprise sector, such as in Germany (14% of overall funding) or Korea (13% of overall funding). In both countries, funding by business and enterprises represents more than 60% of gross domestic expenditure on total R&D (OECD, 2019[2]). The strong financial input of enterprises into R&D demonstrates the engagement of the private sector in advancing frontier research and indicates that doctoral graduates could benefit from a wider range of research career opportunities beyond academia. This contributes to the attractiveness of doctoral programmes: both Germany and Korea have comparatively high entry rates to doctoral programmes among OECD countries.

Age distribution of new entrants at doctoral level

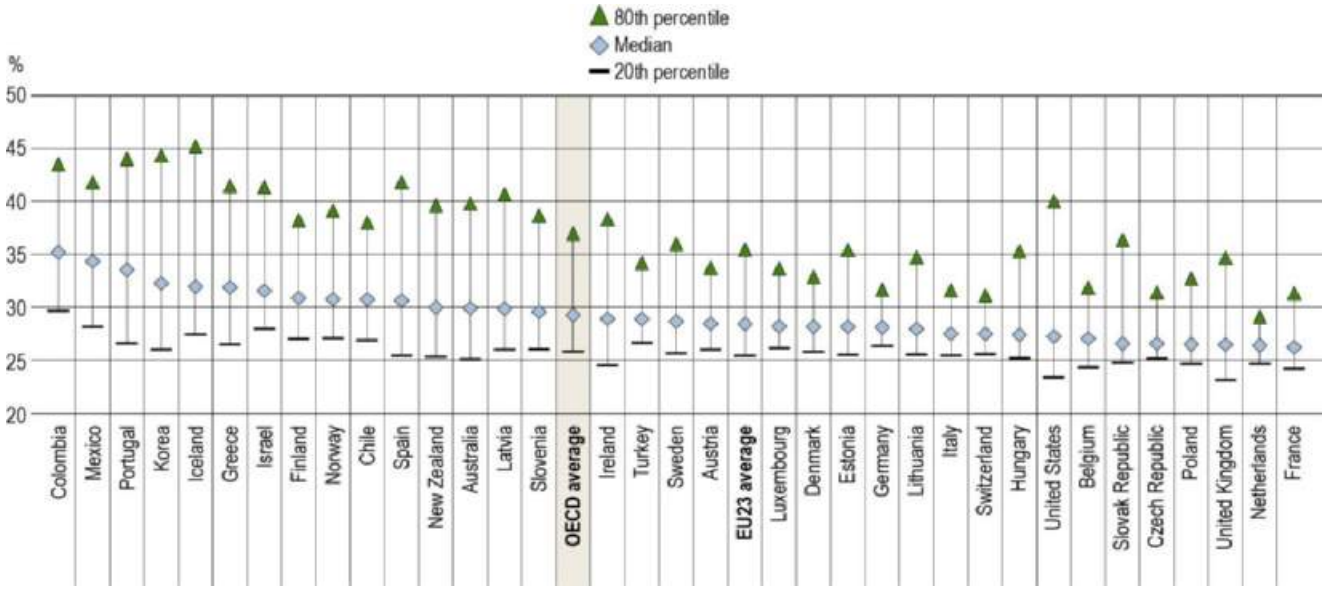
Admission to doctoral studies is generally on the basis of a master's degree or an equivalent qualification in most countries. However, in some countries, such as Australia and the United States, students may enter a doctoral degree following the completion of a bachelor's programme, although in Australia an honours component is additionally required (Class I or IIA) (OECD, 2019[2]). The median age at entry to doctoral programmes is 29 on average across OECD countries with 60% of entrants between the ages of 26 and 37. However, the median age varies markedly across countries, ranging from 26 in France and the Netherlands to 35 in Colombia (Figure B7.3).

The age of entry to a doctoral programme depends largely on the first-time entry and graduation ages to tertiary education, and the extent to which students are likely to have started to work between tertiary degrees. Countries where students typically first enter tertiary education at a young age are also likely to see students start their doctoral degrees earlier. This is the case in Belgium, France, Hungary, Italy, Lithuania, the Netherlands, Poland and the United Kingdom, where both the average age at entry to bachelor's programmes and the median age at entry to doctoral levels are below the OECD average. Similarly, countries where students first enter a bachelor's programme at an older age, such as Australia, Finland, Iceland, Israel, Latvia, New Zealand and Norway, also have a higher median age at entry to doctoral programmes. However, there are some exceptions to this pattern: while students in Greece, Korea, Mexico, Portugal and Spain enter a bachelor's degree for the first time aged 21 or younger, those pursuing a doctorate tend not to enrol in their degree before the age of 30. Students in these countries may value opportunities to work first to gain industry or sector experience, which they can leverage in their doctoral research. In contrast, first-time tertiary entrants to bachelor programmes in Denmark, Estonia and Switzerland are among the oldest across OECD countries, but the median age of entry to doctoral programmes is below the OECD average of 29. This may be due to the higher prevalence of master's long-first degrees in some of these countries (Estonia and Sweden), or to the high share of international doctoral students, who are often younger than national ones.

The age distribution of new entrants to doctoral programmes provides insights into the diversity of entrants' ages, compared to the median value. In some countries, the age distribution is closely centred on the median, implying a relatively small age difference among doctoral students. This is the case in Germany and the Netherlands, where less than 6 years separate the 80th and 20th percentile age groups. In other countries, the age distribution

is much wider. For example in Iceland, Korea and Portugal, new entrants in the 80th percentile are at least 17 years older than those in the 20th percentile. However in all OECD countries, the median age is closer to the 20th percentile, indicating the age distribution skews more towards the younger than the older age group (Figure B7.3).

Figure B7.3. Age distribution of new entrants to doctoral level (2017)



Countries are ranked in descending order of the median age of new entrants to doctoral level.
Source: OECD (2019),Table B7.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978683

Fields studied by doctoral graduates

Students entering a doctoral programme are expected to contribute to and expand the knowledge base in their selected field of study. In contrast to lower levels of tertiary education, doctoral candidates tend to specialise more heavily in the science and technology-related fields of study. The broad field of natural sciences, mathematics and statistics attracts the largest share of doctoral graduates, 23% on average across OECD countries, followed by engineering, manufacturing and construction, and health and welfare, both at 17% (Table B7.2). In contrast, business, administration and law, which accounted for the largest share of graduates at bachelor's level, represents less than 10% at doctoral level.

There are marked differences among countries in the distribution of the fields studied by doctoral graduates. Although most graduate from natural sciences, mathematics and statistics on average across OECD countries, this varies from almost none in Colombia to 43% in France. Health and welfare is a common field of study in Denmark, Japan, the Netherlands and Norway, representing more than 30% of graduates at doctoral level. In Canada, 18% of doctoral students graduated from the broad field of social science, journalism and information, although the share of doctoral graduates from this field does not exceed 13% in three-quarters of countries with available data. Finally, more than 22% of doctoral students graduated from the field of information and communication technologies (ICT) in Luxembourg, compared to an OECD average of 4% (Table B7.2).

Fields of study are a key part of students' decisions to pursue a doctoral degree abroad. Some countries devote more resources to research in certain fields and therefore benefit from strong international recognition. On average across OECD countries, the distribution of fields among international doctoral graduates mirrors the distribution among all doctoral students. However, there are also notable exceptions. The field of engineering,

manufacturing and construction attracts 22% of international doctoral students compared to 17% of all students on average. There are also striking differences within countries, highlighting potential specialisations and the attractiveness of research in some countries for a given field of study. For instance in Chile and the United States, the share of international doctoral graduates having studied engineering, manufacturing or construction was double that of national students. In Iceland, 65% of international doctoral graduates in 2017 had studied natural sciences, mathematics and statistics, compared to 34% of all doctoral graduates (Table B7.2).

Gender distribution of doctoral graduates

While the share of women has overtaken that of men at bachelor's and master's level, women are still slightly under-represented at doctoral level. Women represented 47% of doctoral graduates in 2017, a 4 percentage-points increase on 2005 levels. Gender parity (where women represent between 48-52% of all graduates) is observed in less than one-third of OECD member and partner countries with available data. Moreover, some strong gender imbalances exist: more than 60% of those graduating from doctoral programmes in Iceland and Latvia were women in 2017, compared to less than 40% in the People's Republic of China, Indonesia, Japan, Korea and Saudi Arabia.

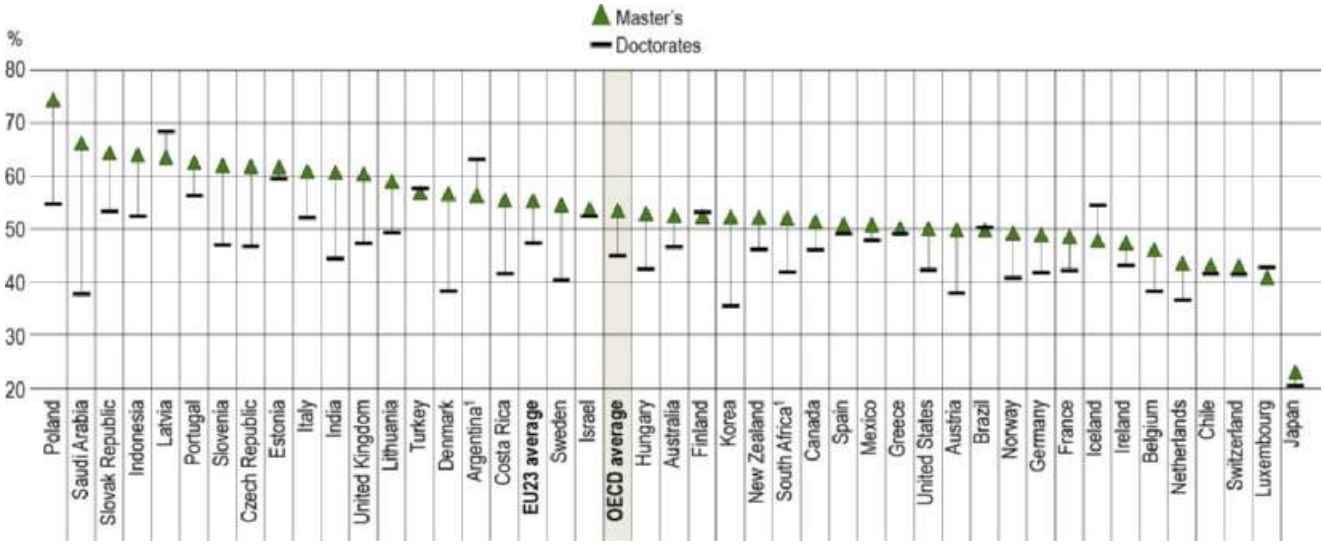
Given the high share of international students in doctoral programmes, the gender distribution among graduates can also be affected by the characteristics of incoming students at this level who are predominantly male. In 2017, only 40% of international doctoral graduates were women compared to 53% among nationals on average across OECD countries. However, the difference between the share of women among international and national doctoral graduates exceeds 30 percentage points in Iceland, Latvia, and Lithuania – a combination of a high share of women among national graduates and a low share of women among international ones. In New Zealand, Switzerland and the United Kingdom, where international students make up more than 45% of doctoral graduates, the difference in the share of women between international and national students is much lower and below 10 percentage points.

Gender imbalances are more evident when analysing graduation patterns across fields of study. Women tend to be under-represented at doctoral level even in some fields where they are over-represented at master's level. While 54% of graduates in natural science, mathematics and statistics at master's level were women, they made up only 46% of doctoral graduates in this field on average across OECD countries in 2017 (Figure B7.4). A similar pattern is observed for business, administration and law. In other fields like education, health and welfare, and social sciences, arts, and humanities, the share of women decreases between master's and doctoral levels, but women still represent the majority of recent doctoral graduates. In contrast, although women are under-represented in engineering, manufacturing, and construction at master's level, their share remains very similar at doctoral level (Table B7.1).

Beyond these general trends, there is strong variability across countries. The strongest declines in the share of women in the field of natural sciences, mathematics and statistics are observed in the Czech Republic, Denmark, India, Korea, Poland, Saudi Arabia and Slovenia where the share of women graduates falls by 15 percentage points or more between master's and doctoral level. While this creates greater gender parity in Poland and Slovenia at the doctoral level (as women are strongly over-represented at master's level), it creates a greater gender imbalance, to the disadvantage of women, in Denmark and Korea (Figure B7.4).

The picture is slightly different for the fields of engineering, manufacturing and construction, even though on average across OECD countries the share of women remains the same across master's and doctoral graduates. About half of OECD member and partner countries have improved their gender balance in this field of study at doctoral level compared to master's. This is most striking in Israel and in Latvia where the share of women increased by 12 and 20 percentage points respectively between doctoral and master's graduates. In contrast, the share of women in engineering, manufacturing and construction declines by 10 or more percentage points in Colombia, the Czech Republic, Iceland, India, New Zealand and South Africa (Table B7.1).

Figure B7.4. Share of women graduates in natural sciences, mathematics and statistics at master's and doctoral levels (2017)



1. Year of reference 2016.
Countries are ranked in descending order of the share of women with master's degrees in natural sciences, mathematics and statistics.
Source: OECD (2019), Table B7.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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The smaller share of women in science fields is reflected through their contribution to research outputs and innovation. Only 22% of scientific authors are women, and the proportion of patents featuring women inventors ranges between about 4% in Austria to over 15% in Portugal (OECD, 2017[6]). This has prompted some countries to initiate policy action to promote women in science, technology, engineering and mathematics (STEM) fields and in research more generally. Across the European Union (EU), the European Charter for Researchers and Code of Conduct places an emphasis on gender balance in all staff categories (European Commission, 2016[7]). In addition, the research programme Horizon 2020 includes gender equity in research and innovation among its work programme and, among other goals, aims to reinforce women's presence and progression in STEM fields of study among EU members. Some countries have implemented financial incentives and support mechanisms to encourage higher participation of women in science-related fields. For example, the National Science Foundation in the United States awards grants to support the ADVANCE programme which aims at increasing the participation and advancement of women in academic science and engineering careers. In Korea, a dedicated fund supports female student research teams in architecture, materials and machinery, as well as computers (Borgonovi et al., 2018[8])

Doctorate holders and labour-market outcomes

Rewarding work opportunities can act as an incentive for students to enter and complete a doctoral degree and are essential for prospective candidates in evaluating the attractiveness of doctoral programmes. Doctorate holders have a range of employment opportunities available to them, most of which are outside the higher education system (see Indicator A3).

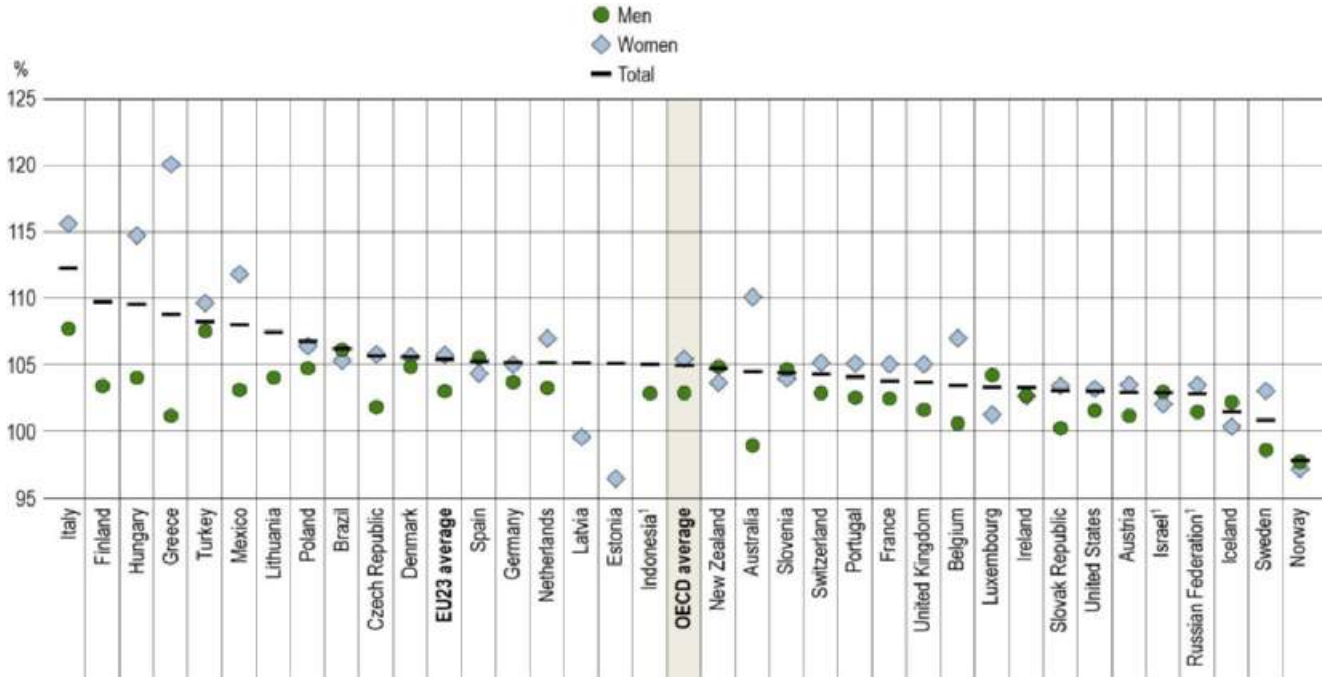
On average across OECD countries, 25-64 year-olds with a doctorate have the highest employment rate of all attainment levels, at 92% compared to 88% for those with a master's degree. However, the relative employment advantage over a master's degree varies across countries, ranging from 10% in Finland, Hungary and Italy to 1% in Iceland and Sweden (Table B7.3).

Young doctorate holders, those aged 25-34, have similarly strong prospects although their employment rates tend to be lower than for 25-64 year-olds and their comparative advantage over their peers with a master's degree tends to be more variable (see Indicator A3).

Both women and men with a doctorate benefit from higher employment rates than those with a master's degree, and the gender gap narrows with higher educational attainment. On average across OECD countries, the employment rate of 25-64 year-old men with a doctoral degree is 5 percentage points higher than that of similarly educated women. Among those with a master's degree, the employment difference is 6 percentage points in favour of men (Table B7.3). However, some countries have small or non-significant differences between the employment rate of adults with a master's degree and those with a doctorate and these results should be interpreted with caution.

This reduction in the employment gap between men and women with a doctorate is due to the stronger increase in the employment rate among women compared to men at this level of educational attainment. Whereas the employment rate of women with a master's degree is lower than that of similarly educated men in every OECD country, the picture tends to shift at doctoral level. Women with a doctoral degree have a higher employment rate than their male counterparts in Australia, Belgium, Greece, Portugal and Sweden. In many other countries, the increase in employment rates for those attaining a doctorate compared to a master's is stronger for women than for men. On average across OECD countries, the employment rate of women with a doctorate is 5% higher than that of women with a master's, and is 15% or higher in Greece and Hungary. In contrast, men with a doctorate have an employment rate that is 3% higher than men with a master's on average across OECD countries, and this advantage does not exceed 8% in any OECD or partner country (Figure B7.5).

Figure B7.5. Relative employment rate of 25-64 year-old doctorate holders compared to master's holders (2018)



How to read this figure: A relative employment rate above 100% indicates that doctorate holders have a higher employment rate than adults with a master's degree. A relative employment rate below 100% indicates the opposite.
1. Year of reference differs from 2018.
Countries are ranked in descending order of the relative employment rate of doctorate holders compared to master's holders.
Source: OECD (2019), Table B7.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978721

In some countries, adults with doctorates still have lower employment rates than those with a master's: this is the case for women in Estonia and Norway and for men in Australia, Norway and Sweden.

As well as the likelihood of finding employment, students also consider their career prospects and expected earnings when deciding to enter a doctoral programme and pursue a career in research. Career options for doctorate holders can be diverse, and range from academia to business and industry, public administration or self-employment (see Box A3.1 in Indicator A3).

While the higher education sector has been the traditional career destination for doctorates, many doctoral graduates are turning towards businesses and industry, where they are typically better paid. The business sector represents the greatest share of researchers – over 70% – in Israel, Japan, Korea, and the United States (OECD, 2017[6]). However, the opportunities available for the different fields of study can be unequal, reflecting variable labour-market demands for specialised skills and knowledge. For instance, earnings in agricultural sciences and the humanities are below the overall median for doctorate holders in most countries, whereas earnings in medical and health sciences tend to be above median levels (Auriol, Misu and Freeman, 2013[9])

Definitions

Doctoral level corresponds to ISCED-2011 level 8, which leads directly to the award of an advanced research qualification, e.g. a PhD. In most countries, the theoretical duration of these programmes is three years full time (leading to a cumulative total of at least seven years of full-time equivalent tertiary education), although the actual enrolment time is typically longer. Programmes at this ISCED level are devoted to advanced studies and original research and are typically offered by research-oriented tertiary educational institutions such as universities. Doctoral programmes may exist in both academic and professional fields (OECD/Eurostat/UNESCO Institute for Statistics, 2015[10]).

Doctoral students refers to all individuals pursuing a degree at doctoral level irrespective of their legal status in their country (student or employee).

Doctorate holders refers to the adult population between 25-64 years of age with a doctorate degree.

Graduates refer to those graduating in the reference year. They can be either first-time graduates or repeat graduates. A first-time graduate is a student who has graduated for the first time at a given level of education, whereas a repeat graduate may have already obtained an earlier degree at the same level.

International students are those students who left their country of origin and moved to another country for the purpose of study. International students enrolling for the first time in a programme are often considered first-time entrants in that country

The average age of students is calculated from 1 January for countries where the academic year starts in the second semester of the calendar year and 1 July for countries where the academic year starts in the first semester of the calendar year. Therefore, the average age of first-time graduates may be underestimated by up to six months.

Methodology

See the *Methodology* section in indicators A1, A3 and B4.

Please see the *OECD Handbook for Internationally Comparative Education Statistics* (OECD, 2018[11]) for more information and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

For information on sources for attainment and employment data, see Indicator A1 and A3.

Data on entrants and graduates refer to the academic year 2016/17 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018 (for details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator B7 Tables

Table B7.1 Profile of doctoral graduates (2017)

Table B7.2 Distribution of graduates from doctoral programmes, by field of study (2017)

Table B7.3 Educational attainment and employment rates of 25-64 year-olds at master's and doctoral levels (2018)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981039

Table B7.1. Profile of doctoral graduates (2017)

Age distribution, international graduates, share of women master's and doctoral graduates by field, and number of doctoral graduates

		Age distribution of new entrants to doctoral programmes			Share of international doctoral graduates	Share of women master's and doctoral graduates by field						Number of doctoral graduates (in thousands)		
						Natural sciences, mathematics and statistics		Buisness, admnistration and law		Engineering, manufacturing and construction				
		20th percentile	Median	80th percentile	Total	Master	Doctorate	Master	Doctorate	Master	Doctorate	Total	Women	Men
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
OECD	Countries													
	Australia	25	30	40	40	53	47	51	50	29	29	9.2	4.6	4.6
	Austria	26	28	34	31	50	38	54	46	29	32	2.6	1.2	1.4
	Belgium	24	27	32	24	46	38	54	48	27	29	2.9	1.3	1.6
	Canada	m	m	m	m	51	46	52	52	29	24	8.0	3.8	4.2
	Chile	27	31	38	5	43	42	46	40	35	34	0.7	0.3	0.4
	Colombia	30	35	44	m	79	a	55	36	59	48	0.8	0.3	0.5
	Czech Republic	25	27	31	17	62	47	62	43	34	23	2.4	1.0	1.5
	Denmark	26	28	33	36	57	38	50	a	35	32	2.2	1.1	1.2
	Estonia	26	28	35	m	62	60	71	62	35	43	0.3	0.1	0.1
	Finland	27	31	38	28	52	53	60	56	27	30	1.9	1.0	0.9
	France	24	26	31	m	49	42	57	51	32	35	13.6	6.1	7.4
	Germany	26	28	32	18	49	42	50	36	25	20	28.4	12.7	15.7
	Greece	27	32	41	1	50	49	59	48	42	37	1.9	0.8	1.0
	Hungary	25	27	35	8	53	43	61	45	35	30	1.2	0.6	0.6
	Iceland	27	32	45	41	48	55	63	a	35	25	0.1	0.0	0.0
	Ireland	25	29	38	m	47	43	47	55	32	31	1.4	0.7	0.7
	Israel	28	32	41	4	54	52	53	49	25	37	1.6	0.9	0.8
	Italy	26	28	32	12	61	52	55	53	35	36	9.4	4.8	4.6
	Japan[1]	m	m	m	20	23[d]	21[d]	33[d]	34[d]	12[d]	15[d]	15.7	4.8	10.9
	Korea	26	32	44	10	52	36	39	28	22	14	14.3	5.4	8.9
	Latvia	26	30	41	10	64	68	69	36	30	50	0.2	0.1	0.1
	Lithuania	26	28	35	3	59	49	69	67	32	39	0.3	0.2	0.1
	Luxembourg	26	28	34	88	41	43	46	65	24	29	0.2	0.1	0.1
	Mexico	28	34	42	m	51	48	49	43	34	39	9.3	4.8	4.6
	Netherlands	25	26	29	42	44	37	51	45	29	28	4.7	2.3	2.5
	New Zealand	25	30	40	50	52	46	54	44	36	26	1.5	0.7	0.7
	Norway	27	31	39	26	49	41	57	43	33	27	1.5	0.7	0.8
	Poland	25	27	33	m	74	55	70	52	45	42	3.2	1.8	1.4
	Portugal	27	34	44	23	63	56	61	44	36	43	2.1	1.2	1.0
	Slovak Republic	25	27	36	8	64	53	67	44	29	28	1.7	0.8	0.8
	Slovenia	26	30	39	9	62	47	66	47	28	30	0.5	0.2	0.3
	Spain	25	31	42	m	51	49	52	43	37	37	20.0	10.1	9.9
	Sweden	26	29	36	38	55	41	58	55	34	30	3.6	1.6	2.0
	Switzerland	26	28	31	57	43	42	43	38	23	29	4.2	1.9	2.3
	Turkey	27	29	34	7	57	58	42	45	36	39	6.0	3.0	3.1
	United Kingdom	23	27	35	46	60	47	56	44	33	27	28.1	13.2	15.0
	United States	23	27	40	27	50	42	49	46	28	24	71.0	35.7	35.4
	OECD average[2]	26	29	37	25	54	46	55	47	32	32	276.8	129.8	146.9
	EU23 average[2]	25	28	36	24	55	47	58	49	32	33	132.9	63.0	69.8
Partners	Argentina[3]	m	m	m	m	56	63	50	44	36	42	2.3	1.3	1.0
	Brazil	m	m	m	m	50	50	45	43	44	45	21.6	11.8	9.9
	China	m	m	m	m	m	m	m	m	m	m	56.5	22.2	34.3
	Costa Rica	m	m	m	m	56	42	51	18	30	a	0.1	0.0	0.1
	India	m	m	m	m	61	44	48	46	41	29	28.8	12.5	16.3
	Indonesia	m	m	m	m	64	52	43	36	31	32	4.3	1.6	2.7
	Russian Federation	m	m	m	m	53	m	61	m	27	m	27.3	12.4	14.9
	Saudi Arabia	m	m	m	m	66	38	34	a	3	a	0.5	0.1	0.4
	South Africa[3]	m	m	m	m	52	42	46	37	32	17	2.8	1.2	1.6
	G20 average[2]	m	m	m	m	53	46	48	43	30	30	377.3	172.0	205.3

Note: Data reported in this table concern total graduates except for the share of international doctoral graduates which refers to first-time graduates.
1. All fields of study include the field Information and Communication Technologies (ICTs).
2. Columns 11,12 and 13 display the sum of all OECD, EU23 and G20 countries instead of an average.
3. Year of reference 2016.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B7.2. Distribution of graduates from doctoral programmes, by field of study (2017)

		Share of graduates by field of study							Share of international graduates by field of study						
		Arts and humanities	Social sciences, journalism and information	Business, administration and law	Natural sciences, mathematics and statistics	Information and communication technologies	Engineering, manufacturing and construction	Health and welfare	Arts and humanities	Social sciences, journalism and information	Business, administration and law	Natural sciences, mathematics and statistics	Information and communication technologies	Engineering, manufacturing and construction	Health and welfare
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	Countries														
	Australia	11	12	8	23	4	17	16	6	7	10	27	6	23	11
	Austria	15	10	14	18	4	21	11	15	8	9	23	4	20	13
	Belgium	11	12	8	23	1	16	25	13	12	8	24	0	19	21
	Canada	9	18	4	26	3	21	9	7	10	4	30	4	32	6
	Chile	15	10	3	37	2	12	7	12	0	0	39	6	24	0
	Colombia	0	2	42	0	2	29	19	25	31	6	6	6	13	6
	Czech Republic	11	7	9	24	3	24	10	10	7	7	29	2	18	11
	Denmark	9	12	0	17	0	24	31	7	10	0	21	0	37	15
	Estonia	14	13	5	33	8	14	6	10	18	5	18	13	21	3
	Finland	12	12	7	17	7	18	19	7	8	7	23	11	24	13
	France	14	9	9	43	5	14	3	m	m	m	m	m	m	m
	Germany	7	6	9	29	3	13	26	8	6	5	42	5	16	12
	Greece	13	6	4	14	4	23	25	35	6	0	35	0	18	0
	Hungary	16	14	4	24	4	9	23	23	5	7	15	8	8	23
	Iceland	8	9	5	34	0	6	28	0	4	8	65	0	12	4
	Ireland	12	14	7	22	4	15	19	13	9	6	23	8	23	13
	Israel	13	12	4	40	6	11	5	16	12	0	40	6	21	0
	Italy	12	7	11	24	2	22	16	7	9	10	24	6	30	10
	Japan[1]	8[d]	3[d]	4[d]	14[d]	x	23[d]	39[d]	10[d]	11[d]	x(9)	8[d]	x	44[d]	15[d]
	Korea	10	5	12	13	3	24	19	12	6	10	17	5	30	10
	Latvia	8	11	22	13	5	20	15	7	13	60	0	0	13	7
	Lithuania	12	10	7	25	2	23	12	33	11	11	11	0	11	0
	Luxembourg	9	15	13	23	22	11	0	4	13	14	24	25	13	0
	Mexico	3	9	25	10	1	8	2	m	m	m	m	m	m	m
	Netherlands	8	10	8	16	2	11	36	m	m	m	m	m	m	m
	New Zealand	9	14	8	24	4	15	15	9	12	8	27	4	17	11
	Norway	9	11	4	27	2	10	31	4	4	6	44	4	16	20
	Poland	19	9	9	22	2	16	14	m	m	m	m	m	m	m
	Portugal	13	12	5	18	3	20	13	14	13	8	16	5	19	3
	Slovak Republic	14	10	13	17	2	18	15	20	8	26	6	0	13	19
	Slovenia	21	4	10	13	3	24	19	20	11	5	25	7	25	5
	Spain	16	12	7	29	5	8	16	m	m	m	m	m	m	m
	Sweden	5	8	3	20	5	25	28	2	6	2	27	8	32	20
	Switzerland	8	8	9	32	3	15	20	6	7	8	38	5	20	12
	Turkey	15	9	14	19	0	19	9	14	7	9	19	0	34	7
	United Kingdom	16	9	6	29	4	15	16	14	11	9	25	5	20	12
	United States	11	14	6	24	3	15	9	7	9	5	29	6	32	4
	OECD average	11	10	9	23	4	17	17	12	10	9	25	5	22	10
	EU23 average	12	10	8	22	4	18	17	14	10	10	22	6	20	10
Partners	Argentina[2]	10	17	9	40	1	7	7	m	m	m	m	m	m	m
	Brazil	11	7	5	15	2	14	19	7	4	2	31	2	23	9
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	1	7	10	11	0	0	0	m	m	m	m	m	m	m
	India	14	14	9	29	1	12	6	m	m	m	m	m	m	m
	Indonesia	8	28	14	5	1	5	9	m	m	m	m	m	m	m
	Russian Federation	11	8	16	17	7	21	10	m	m	m	m	m	m	m
	Saudi Arabia	39	3	4	16	1	3	20	m	m	m	m	m	m	m
	South Africa[2]	10	13	17	23	2	9	11	m	m	m	m	m	m	m
	G20 average	12	11	10	22	3	14	14	m	m	m	m	m	m	m

Note: The distribution excludes the fields of Agriculture, forestry, fisheries and veterinary; Education; and Services, which tend to represent a lower share of graduates at doctoral level.

1. All fields of study include the field Information and Communication Technologies (ICTs)..
2. Year of reference 2016.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table B7.3. Educational attainment and employment rates of 25-64 year-olds at master's and doctoral levels (2018)

		Percentage of 25-64 year-olds with a doctoral degree			Employment rate of 25-64 year-olds with a master's degree			Employment rate of 25-64 year-olds with a doctoral degree			Relative employment rate of doctorate holders compared to master's holders		
		Total	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	1.2	1.1	1.2	86	82	90	89	90	89	105	110	99
	Austria	1.1	0.9	1.3	88	84	91	90	87	92	103	104	101
	Belgium	0.8	0.7	1.0	87	85	89	90	91	90	103	107	101
	Canada	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	0.7	0.5	0.9	88	81	96	93	86	97	106	106	102
	Denmark	1.4	1.1	1.5	90	87	92	96	92	97	106	106	105
	Estonia	0.7	0.7	0.8	87	85	90	91	82	c	105	96	c
	Finland	1.2	1.0	1.4	88	86	92	97	c	95	110	c	103
	France	0.9	0.8	1.0	88	86	90	91	90	92	104	105	102
	Germany	1.4	1.1	1.7	89	85	92	93	90	96	105	105	104
	Greece	0.6	0.4	0.9	82	78	87	90	93	88	109	120	101
	Hungary	0.7	0.6	0.9	87	81	94	96	93	98	110	115	104
	Iceland	1.3	1.4	1.3	95	94	96	96	94	98	101	100	102
	Ireland	1.3	1.2	1.4	88	86	92	91	88	94	103	103	103
	Israel[1]	1.3	1.1	1.5	90	89	92	93	91	94	103	102	103
	Italy	0.5	0.5	0.5	83	79	88	93	92	95	112	116	108
	Japan	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m	m	m	m	m
	Latvia	0.4	0.4	0.4	90	90	90	95	89[1]	c	105	100[1]	c
	Lithuania	0.6	0.5	0.7	92	91	95	99	c	99[1]	107	c	104[1]
	Luxembourg	2.2	1.8	2.5	89	86	92	92	87	96	103	101	104
	Mexico	0.1	0.1	0.1	84	77	91	91	87	94	108	112	103
	Netherlands	0.7	0.6	0.9	91	89	94	96	95	97	105	107	103
	New Zealand	1.1	1.0	1.2	88	85	91	92	88	95	105	104	105
	Norway	1.1	0.9	1.3	94	92	95	91	89	93	98	97	98
	Poland	0.6	0.5	0.6	90	87	94	96	93	98	107	106	105
	Portugal	0.8	0.8	0.8	90	90	92	94	94	94	104	105	103
	Slovak Republic	0.9	0.9	1.0	83	78	91	86	80	91	103	103	100
	Slovenia	3.8	4.5	3.2	89	88	91	93	92	96	104	104	105
	Spain	0.7	0.7	0.7	84	81	87	89	85	92	105	104	106
	Sweden	1.6	1.5	1.8	92	91	94	93	94	92	101	103	99
	Switzerland	3.2	2.5	3.8	88	84	92	92	88	95	104	105	103
	Turkey	0.4	0.4	0.4	85	80	89	92	88	95	108	110	108
	United Kingdom	1.4	1.2	1.5	87	84	90	90	88	92	104	105	102
	United States	2.0	1.8	2.2	85	82	89	88	85	90	103	103	102
	OECD average	1.1	1.0	1.3	88	85	91	92	89	94	105	105	103
	EU23 average	1.1	1.0	1.2	88	85	91	93	90	94	105	106	103
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	0.2	0.2	0.2	85	81	89	90	86	94	106	105	106
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[1]	0.0	0.0	0.1	94	91	95	98	c	98	105	c	103
	Russian Federation[1]	0.3	0.3	0.3	86	83	91	89	85	92	103	104	101
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

1. Year of reference differs from 2018; for more details, please refer to Table A1.1 for Columns 1 to 3, and Table A3.1. for Columns 4 to 9.
Source: OECD/ILO/UIS (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Chapter C. Financial resources invested in education



Indicator C1 How much is spent per student on educational institutions?
StatLink https://doi.org/10.1787/888933981058
Indicator C2 What proportion of national wealth is spent on educational institutions?
StatLink https://doi.org/10.1787/888933981077
Indicator C3 How much public and private investment on educational institutions is there?
StatLink https://doi.org/10.1787/888933981096
Indicator C4 What is the total public spending on education?
StatLink https://doi.org/10.1787/888933981115
Indicator C5 How much do tertiary students pay and what public support do they receive?
StatLink https://doi.org/10.1787/888933981134
Indicator C6 On what resources and services is education funding spent?
StatLink https://doi.org/10.1787/888933981153
Indicator C7 Which factors influence teachers' salary cost?
StatLink https://doi.org/10.1787/888933981172

The framework for educational finance indicators

International indicators on education finance are defined in terms of the educational goods and services purchased in relation to the educational programmes. In practice, educational institutions are most commonly used as defining units rather than educational goods and services, reflecting the traditional interest in how much schools, colleges and universities cost. But while an institutional dimension is important, spending, particularly from public sources, outside of educational institutions helps support the learning and access to education within institutions. Differentiating the spending devoted to educational and non-educational goods and services offered by institutions also provides for an analysis of the expenditure devoted to core educational purposes. Finally the source of funds dedicated to education spending assesses who the major contributors are and the impact this may have on the access and provision of education.

It is therefore important to consider a framework for educational expenditure that is built around three dimensions:

- the location of service providers (within or outside of institutions)
- the goods and services provided or purchased (core and peripheral goods)
- the source of funds that finance the provision or purchase of these goods and services (from public, private and international sources).

Classification of educational expenditure

Educational expenditure in this chapter is classified through three dimensions:

The first dimension – represented by the horizontal axis in the diagram below – relates to the location where spending occurs. Spending on educational institutions includes spending on teaching institutions such as schools and universities, and non-teaching institutions such as education ministries and other agencies directly involved in providing and supporting education. Spending on education outside these institutions covers expenditure on educational good and services purchased outside institutions, such as books, computers and fees for private tutoring. It also deals with student living costs and costs of student transport not provided by educational institutions.

The second dimension – represented by the vertical axis in the diagram below – classifies the goods and services that are purchased. Educational core goods and services include all expenditure directly related to instruction and education. It covers all expenditure on teachers, maintenance of school buildings, teaching materials, books, tuition outside schools and administration of schools. However, not all expenditure on educational institutions can be classified as direct educational or instructional expenditure. Educational institutions in many OECD countries offer various ancillary services – such as meals, transport, housing, etc. – in addition to teaching services to support students and their families. At the tertiary level, spending on research and development can be significant. Additionally, not all spending on educational goods and services occurs within educational institutions. For example, families may purchase textbooks and materials themselves or seek private tutoring for their children. In this sense, "non-instruction" expenditure covers all expenditure broadly related to student living costs or services provided by institutions for the general public.

The third dimension – represented by the colours in the diagram below – distinguishes among the sources from which funding originates. These include the public sector and international agencies (indicated by light blue), and households and other private entities (indicated by medium-blue). Where private expenditure on education is subsidised by public funds, this is indicated by cells in the grey colour. The uncoloured cells indicate the parts of the framework that are excluded from the coverage of the finance indicators in Education at a Glance.

Public and international funds
Private funds
Publicly subsidised private funds

Types of goods and services		Location of service providers: Spending on educational institutions (e.g. schools, universities, educational administration and student welfare services)	Location of service providers: Spending on education outside educational institutions (e.g. private purchases of educational goods and services, including private tutoring)
Spending on core educational goods and services		Public and international funds *e.g. public spending on instructional services in educational institutions*	Publicly subsidised private funds *e.g. subsidised private spending on books, materials or fees for private tutoring*
		Publicly subsidised private funds *e.g. subsidised private spending on instructional services in educational institutions*	Private funds *e.g. private spending on books and other school materials or private tutoring*
		Private funds *e.g. private spending on tuition fees*	
Educational peripheral goods and services	Spending on research and development	Public and international funds *e.g. public spending on university research*	
		Private funds *e.g. funds from private industry for research and development in educational institutions*	
	Spending on educational services other than instruction	Public and international funds *e.g. public spending on ancillary services such as meals, transport to schools, or housing on the campus*	Publicly subsidised private funds *e.g. subsidised private spending on student living costs or reduced prices for transport*
		Publicly subsidised private funds *e.g. public subsidies for lodging, meals, health services, or other welfare services furnished to students by the educational institutions*	
		Private funds *e.g. private spending on fees for ancillary services*	Private funds *e.g. private spending on student living costs or transport*

Educational finance indicators

This chapter provides a comprehensive and comparative analysis on education expenditure across OECD countries, focusing on seven aspects of educational spending:

- Financial resources invested on educational institutions, relative to the number of students (Indicator C1), and relative to national wealth (Indicator C2).
- The source of funds devoted on educational institutions (Indicator C3).
- Total public resources invested on education, both inside and outside of educational institutions, relative to total government spending (Indicator C4).
- The students' cost and the financial support of tertiary studies (Indicator C5).
- The distribution of educational expenditure across resource categories (Indicator C6).
- The contribution of various factors to the salary cost of teachers per student in public institutions (Indicator C7).

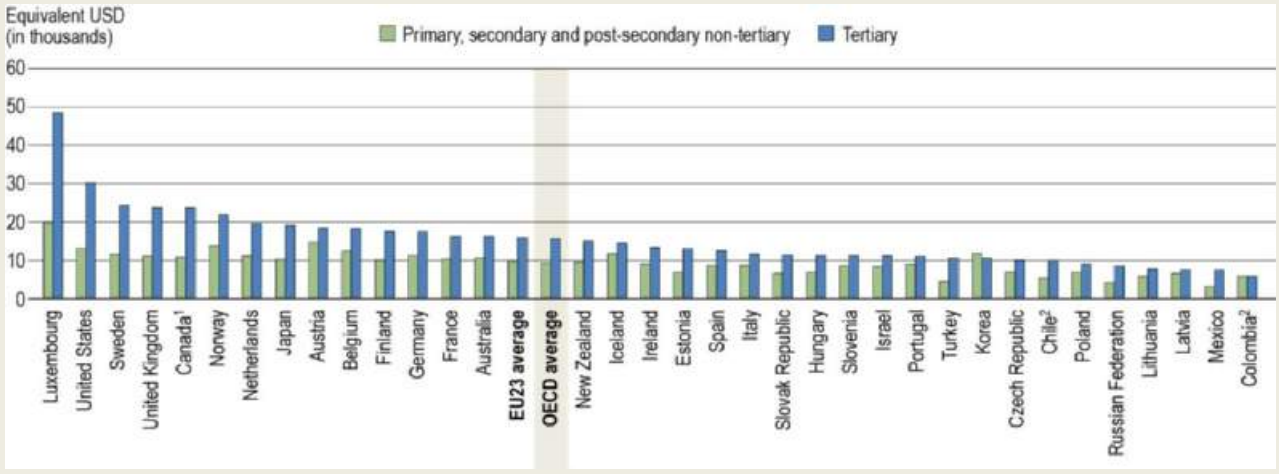
Indicator C1. How much is spent per student on educational institutions?

Highlights

- On average, OECD countries spend 1.7 times more per student at the tertiary level than in non-tertiary education (primary, secondary and post-secondary non-tertiary levels). OECD countries spend on average USD 10 500 per student on primary to tertiary educational institutions. This represents about USD 9 400 per student at primary, secondary and post-secondary non-tertiary level, and USD 15 600 at tertiary level.
- In non-tertiary education, spending on core educational services represents 93% of institutions' expenditure per student. At the tertiary level, a much lower share of institutional expenditure goes to core services (67%), while roughly 30% of total educational expenditure per student goes on research and development (R&D).
- The cumulative expenditure per student from the age of 6 to 15 amounts to about USD 93 000 on average across OECD countries.

Figure C1.1. Total expenditure on educational institutions per full-time equivalent student, by level of education (2016)

In equivalent USD converted using PPPs



1. Primary education includes pre-primary programmes. Post-secondary non-tertiary figures are treated as negligible.
2. Year of reference 2017.

Countries are ranked in descending order of the total expenditure per student on tertiary education.

Source: OECD/UIS/Eurostat (2019), Table C1.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

The willingness of policy makers to expand access to educational opportunities and to provide high-quality education can translate into higher costs per student and must be balanced against other demands on public expenditure and the overall tax burden. As a result, the question of whether the resources devoted to education yield adequate returns features prominently in public debate. Although it is difficult to assess the optimal volume of resources needed to prepare each student for life and work in modern societies, international comparisons of spending on educational institutions per student can provide useful reference points (see *Definitions* and *Methodology* sections).

This indicator provides an assessment of the investment in each student. Expenditure per student on educational institutions is influenced by teachers' salaries (see Indicators C7 and D3), pension systems, instructional and teaching hours (see Indicators C7, D1 and D4), the cost of teaching materials and facilities (see Indicator C6), the programme provided (e.g. general or vocational) and the number of students enrolled in the education system (see Indicator B1). Policies to attract new teachers, reduce average class sizes or change staffing patterns (see Indicator D2) have also affected per-student expenditure. Ancillary services and R&D activities also influence the level of expenditure per student.

At primary and secondary levels, educational expenditure is dominated by spending on instructional services. At the tertiary level, other services, particularly those related to ancillary services or R&D activities, can account for a significant proportion of educational spending.

Other findings

- On average, total expenditure per student is higher in private institutions than in public ones. Total expenditure in primary to tertiary public institutions amounts to over USD 10 300 per student, compared to USD 10 800 in private ones (Table C1.5, available on line).
- From 2010 to 2016, expenditure on non-tertiary educational institutions increased by 5% on average across OECD countries, while the number of students remained stable over this period. This resulted in an increase of 5% in expenditure per student over the same period.
- Annual expenditure per student on educational institutions as a share of gross domestic product (GDP) per capita amounts to 23% at primary, secondary and post-secondary non-tertiary levels on average across OECD countries. The figure is much higher at tertiary level, where countries spend on average 38% of GDP per capita on funding short-cycle, bachelor's, master's and doctoral students.

Analysis

Expenditure per student on educational institutions at different levels of education

Annual expenditure per student on educational institutions between primary and tertiary education provides an assessment of the investment made in each student. In 2016, annual spending per student from primary to tertiary education ranged from around USD 3 600 or slightly more in Colombia and Mexico to more than USD 15 000 in Austria, Norway and the United States and nearly USD 22 000 in Luxembourg (Table C1.1 and Figure C1.1). Across the OECD, countries spend on average USD 10 500 per student on primary to tertiary educational institutions.

The way resources are allocated across the different levels of education vary widely and largely reflect the mode of educational provision. Education still essentially takes place in settings with generally similar organisation, curricula, teaching style and management. These shared features have tended to result in similar patterns of expenditure per student from primary to post-secondary non-tertiary levels. In recent decades, however, greater use of private funds for tertiary education has modified the allocation of expenditure at this level compared to lower ones (see Indicator C3, and Table C1.5, available on line). In 2016, OECD countries on average spent around USD 9 400 per student at the primary, secondary and post-secondary non-tertiary levels and USD 15 600 at the tertiary level, although at this level, the average is affected by high expenditure in a few countries, most notably Canada, Luxembourg, Norway, Sweden, the United Kingdom and the United States (Table C1.1 and Figure C1.1). These differences lead to large differences in the cumulative expenditure per student over the theoretical duration of studies (Table C1.6, available on line). Significant differences are also observed at the subnational level (Box C1.1).

Box C1.1. Subnational variation in annual expenditure per student on educational institutions

Annual expenditure per student can be quite heterogeneous across countries with large differences across regions. Among the three countries with available data at subnational level, Canada has the highest variation in annual expenditure per student on educational institutions at primary and secondary levels combined: the region with the highest value (USD 23 000) spends almost three times as much per student as the region with the lowest value (USD 8 000). Regional differences were the smallest in Belgium and Germany (OECD, 2019[1]).

An examination of regional differences in spending on primary and secondary education presents contrasting patterns. In Germany, 8 of the 12 *Länder* that spent less than the national average per student were located in the western part of the country. This may be explained by the sharp demographic downturn in the eastern *Länder* that led to a reduction in the number of students enrolled (OECD, 2019[1]).

To ensure comparability across countries, expenditure figures were converted into common currency (USD) using national purchasing power parities (PPPs). However, differences in the cost of living within countries were not taken into account.

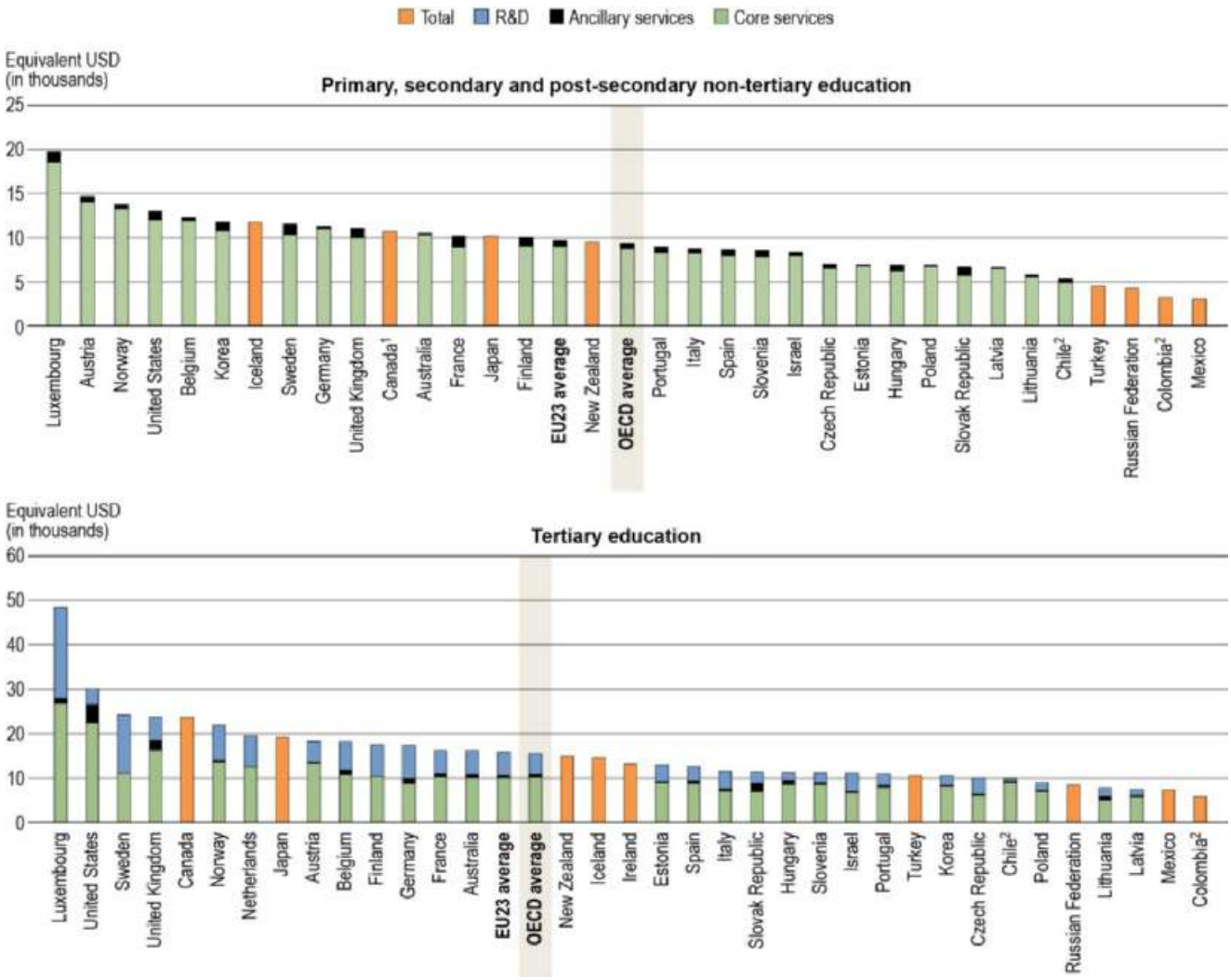
The distribution of expenditure at different levels of education reflects governments' priorities and the relative costs of education provision. Expenditure per student on educational institutions rises with the level of education in almost all countries, but the range varies markedly across countries (Table C1.1). OECD countries spend on average 18% more per secondary student than they do per primary student. This percentage is 50% or above in Canada, the Czech Republic, France and the Netherlands, but countries invest more per primary student than they do per secondary student in Chile, Colombia, Iceland, Israel, Lithuania, the Slovak Republic, Slovenia and the United Kingdom, despite the fact that teacher's salaries tend to increase with higher levels of education. Similarly, educational institutions in OECD countries spend an average of 31% more on each tertiary student (excluding R&D) than on each primary student. Turkey and the United States spend twice as much on a tertiary student (excluding R&D) than on a primary student (Table C1.1).

Expenditure per student on core education services, ancillary services and R&D

On average across OECD countries, expenditure on core education services (such as teaching costs and other expenditure related to education) represents 87% of total expenditure per student from primary to tertiary educational institutions and it exceeds 90% in Chile, Latvia and Poland. In about a third of OECD and partner countries with available data, annual expenditure on research and development (R&D) and ancillary services per student accounts for around 15% or more of the total annual expenditure per student on primary to tertiary institutions. In the Slovak Republic and Sweden, this reaches 20%.

Figure C1.2. Total expenditure on educational institutions per full-time equivalent student, by type of service (2016)

In equivalent USD converted using PPPs



1. Primary education includes pre-primary programmes. Post-secondary non-tertiary figures are treated as negligible.
2. Year of reference 2017.

Countries are ranked in descending order of total expenditure on educational institutions per full-time equivalent student.

Source: OECD/UIS/Eurostat (2019), Table C1.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978816

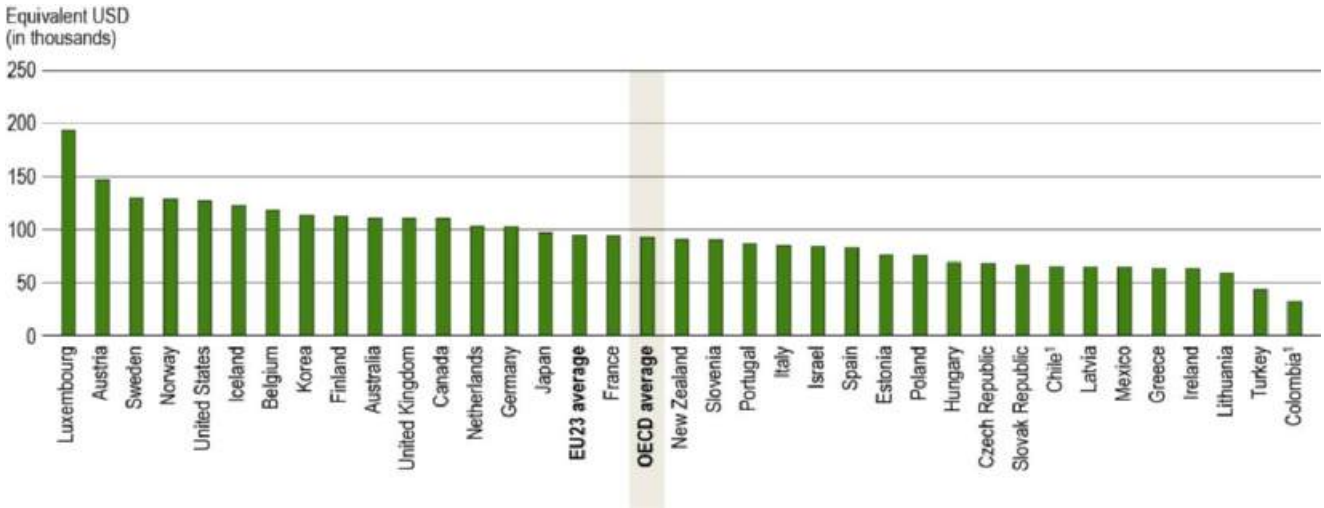
However, this overall picture masks large variations across levels of education (Table C1.2 and Figure C1.2). At non-tertiary levels (primary, secondary and post-secondary non-tertiary), expenditure is dominated by spending on core education services. On average, OECD countries spend 93% of their total per-student expenditure (about USD 8 700) on core educational services at this level. However, in Finland, France, the Slovak Republic and Sweden, ancillary services account for 10% or slightly more of the expenditure per student (Table C1.2).

The share of total expenditure on educational institutions per student devoted to core services differs more across countries at tertiary level, as R&D expenditure can account for a significant proportion of educational spending (Table C1.2). On average across OECD countries, 67% of total expenditure on educational institutions at tertiary level goes to core services, while around 30% is spent on research and development. OECD countries in which R&D is mostly conducted in tertiary education institutions tend to report higher levels of expenditure per student than those where a large proportion of R&D is performed in other public institutions or in industry. Excluding R&D activities, average expenditure per student on average across OECD countries amounts to over USD 11 000, ranging from less than USD 6 000 in Lithuania and Mexico to more than USD 25 000 in Luxembourg and the United States.

On average across OECD countries, expenditure on R&D and ancillary services at the tertiary level represents 33% of all tertiary expenditure on educational institutions per student. In five of the OECD and partner countries for which data are available, expenditure on R&D and ancillary services in tertiary institutions is at least 40% of total expenditure on educational institutions per student, with Sweden (54%) the country with the highest share. However, the share of expenditure on ancillary services tends to be lower in tertiary education than at lower levels of education. On average, only 5% of expenditure on tertiary institutions goes towards ancillary services, and the amount is negligible (below USD 100 per student) in Austria, Chile, the Czech Republic, Estonia, Finland, Israel, Korea, Poland and Sweden. The United Kingdom and the United States spend the most in ancillary services per student at tertiary level among OECD countries, over USD 2 000 per student.

Figure C1.3. Cumulative expenditure on educational institutions per full-time equivalent student between the age of 6 and 15 (2016)

In equivalent USD converted using PPPs



1. Year of reference 2017.

Countries are ranked in descending order of the total expenditure on educational institutions per student over the theoretical duration of primary and secondary studies between the age of 6 and 15.

Source: OECD/UIS/Eurostat (2019), Table C1.6, available on line. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Policy makers are interested in the relationship between the resources devoted to education and the outcomes of their education systems (Box B1.1 in *Education at a Glance 2017* (OECD, 2017[2])). The cost of education across countries depends not only on the annual expenditure per student, but also on the total duration of studies at each level and the level of enrolment. High expenditure per student, for example, might be offset by short programmes or limited access to education at certain levels. On the other hand, a seemingly inexpensive education system in per student terms can prove to be costly overall, if enrolment is high and students spend more time in school.

Primary and secondary education are usually compulsory across the OECD, and the cumulative expenditure per student between the ages of 6 and 15 at these levels shows how much it costs to teach a student on average during the course of current compulsory education (Figure C1.3 and Table C1.6, available on line). On average across OECD countries, the total cumulative expenditure per student from the age of 6 to 15 amounts to around USD 92 700 per student. Theoretical cumulative expenditure on educational institutions per student varies considerably among countries. Austria, Iceland, Luxembourg, Norway, Sweden and the United States spend over USD 120 000 per student over this period, while the figure is below USD 50 000 in Colombia and Turkey.

Expenditure per student on educational institutions relative to per capita GDP

Expenditure on educational institutions per student relative to gross domestic product (GDP) per capita is a measure of spending that takes into account the relative wealth of OECD countries. Since access to education in most OECD countries is universal (and usually compulsory) at lower levels of schooling, the amount spent per student as a share of per capita GDP can indicate whether the resources spent per student are proportionate to the country's ability to pay. At higher levels of education, where student enrolment varies sharply among countries, the link is less clear. At tertiary level, for example, OECD countries may rank relatively high on this measure, even when a large proportion of their wealth is spent on educating a relatively small number of students.

In OECD countries, overall expenditure per student on educational institutions from primary to tertiary levels averages 26% of per capita GDP, which can be broken down into 23% at primary, secondary and post-secondary non-tertiary levels and 38% at the tertiary level (Table C1.4, available on line). Countries with low levels of expenditure per student may still be investing relatively large amounts as a share of per capita GDP. For example, although Portugal's expenditure per student for all educational levels and its per capita GDP are both below the OECD average, it spends an above-average share of its per capita GDP per student at each educational level.

The relationship between per capita GDP and expenditure per student on educational institutions is difficult to interpret. However, there is a clear positive relationship between the two at non-tertiary educational levels. In other words, less wealthy countries tend to spend less per student than richer countries. Although the relationship is generally positive at these levels, there are variations even between countries with similar levels of per capita GDP, especially among countries where per capita GDP exceeds USD 30 000. Austria and the Netherlands, for example, have similar levels of per capita GDP (around USD 50 000; see Table X2.1 in Annex 2) but they allocate very different shares of their wealth to primary, secondary and post-secondary non-tertiary education. Austria spends 28% of per capita GDP on non-tertiary institutions (above the OECD average of 23%) while the Netherlands spends 22% (Table C1.4, available on line).

At tertiary level, there is more variation in spending and in the relationship between countries' relative wealth and their level of tertiary expenditure. Spending on tertiary institutions in Canada, the United Kingdom and the United States represents more than 50% of per capita GDP for each student (Table C1.4, available on line). The high share for the United Kingdom is mostly the result of its high expenditure on R&D, which accounts for about one-fourth of total expenditure per student at this level (Table C1.2).

Changes in expenditure per student on educational institutions between 2010 and 2016

Changes in expenditure on educational institutions largely reflect changes in the size of the school-age population and in teachers' salaries. Teachers' salaries, the main component of educational costs, have increased in the

majority of countries over the past decade (see Indicator D3). The size of the school-age population influences both enrolment levels and the amount of resources and organisational effort a country must invest in its education system. The larger this population, the greater the potential demand for education services. Changes in expenditure per student over the years may also vary between levels of education within countries, as both enrolment and expenditure may follow different trends at different levels of education.

At non-tertiary levels, the number of students has remained fairly stable on average across OECD countries between 2010 and 2016. During the same period, expenditure by non-tertiary educational institutions increased by an average of 5% (Table C1.3). As a result, expenditure per student at these levels increased by 5% in 2016 compared to its 2010 level. Most OECD countries spent more per student in 2016 than they did in 2010, with the exception of some countries that were heavily hit by the economic crisis of 2008 such as Australia, Estonia, Ireland, Italy, Slovenia and Spain. Expenditure per student increased by over 20% in Chile, Israel, and Latvia. In Chile, Latvia, Poland and the Slovak Republic, decreases in enrolments of more than 5% coincided with significant increases in spending on educational institutions per student between 2010 and 2016. In contrast, the increase in number of students enrolled was accompanied by a reduction in spending on educational institutions per student in Ireland, Slovenia and Spain.

Expenditure at tertiary level increased at a higher rate than at lower levels of education, rising on average by 9% between 2010 and 2016. It also increased more than the number of students enrolled over this period (3%). As a result, OECD countries recorded an average increase of 8% in expenditure per student over this period. However, there are stark differences across countries. Among OECD and partner countries with available data, Australia, Finland, France, Germany, Italy, Lithuania, Mexico, Portugal and Spain recorded a decrease in expenditure on tertiary education per student. In most of these countries, the decline was mainly the result of a rapid increase in the number of tertiary students. In contrast, expenditure per tertiary student increased in Estonia, Iceland and the Slovak Republic due to an increase in total expenditure and a reduction in the number of students at tertiary level (Table C1.3). Changes in expenditure on tertiary educational institutions can affect the allocation of resources across types of service, and in particular, the investment in core educational goods and services (Box C1.2).

Box C1.2. Change in spending on educational core goods and services in tertiary institutions

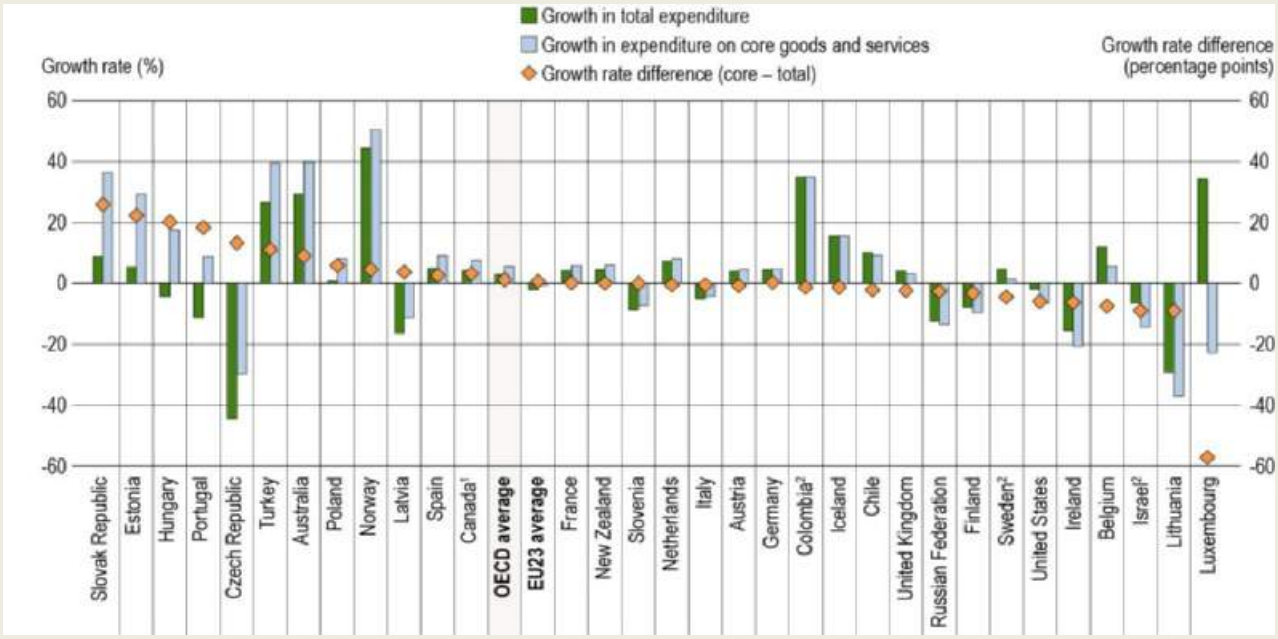
Spending on educational core goods and services provides educational institutions with the necessary resources to accomplish their main mission, developing the skills of students. Comparing the change in expenditure on core services with the change in expenditure on all services provides a better understanding of how changes in total expenditure on institutions affect the funds available for core educational goods and services. This is particularly relevant at tertiary levels of education, where a greater share of total spending is allocated to services other than core educational goods and services, such as ancillary services or research and development (R&D). While there may be reasons to prioritise spending in these areas, a reduction in investment in educational core services might affect the quality of learning and the material conditions under which instruction takes place, particularly in countries where enrolment in tertiary education has increased significantly.

Between 2012 and 2016, the rate of change of expenditure on core educational services and total expenditure on tertiary educational institutions has varied significantly across countries (Figure C1.a). Total expenditure on tertiary institutions increased in two-thirds of OECD and partner countries during this period. In most of these, spending on core educational goods and services also increased, although to differing extents. Spending on core educational goods and services increased by at least 24 percentage points more than total spending on tertiary institutions in Estonia and the Slovak Republic. In contrast, spending on core educational goods and services increased more slowly than total expenditure on tertiary institutions in Belgium, Finland, Chile, Ireland, Israel, Lithuania, the Russian Federation, Sweden, the United Kingdom, and the United States. Luxembourg is the only country to witness both an increase in total spending at tertiary level (+34%) and a

decrease in spending on core educational services (-24%). This difference suggests increased investment in ancillary services or R&D over this period at the expense of core educational service and is indicative of a research based higher education policy system.

The other third of countries saw their total investments on tertiary institutions decline between 2012 and 2016. However, Hungary and Portugal managed to increase total spending on core educational goods and services in spite of these budget cuts by reallocating funds from ancillary services or R&D. In contrast, spending on core educational goods and services fell in the Czech Republic, Italy, Latvia and Slovenia although to a lesser extent than total spending on tertiary institutions.

Figure C1.a. Growth of core and total expenditure on tertiary educational institutions between 2012 and 2016



Note: Core educational expenditure has been obtained by subtracting expenditure devoted on ancillary services and R&D from the total expenditure on educational institutions. A positive figure refers to a higher growth rate of the expenditure on core educational services compared to the growth rate of total expenditure on all services. See *Definitions* and *Methodology* sections for more information.
1. Reference period 2012-2015.
2. Reference period 2013-2016.
Countries are ranked in descending order of the percentage-point difference.
Source: OECD/UIS/Eurostat (2019), Education at a Glance Database http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Definitions

Ancillary services are services provided by educational institutions that are peripheral to their main educational mission. The main component of ancillary services is student welfare. In primary, secondary and post-secondary non-tertiary education, student welfare services include meals, school health services and transportation to and from school. At the tertiary level, they include residence halls (dormitories), dining halls and health care.

Core educational services include all expenditure that is directly related to instruction in educational institutions, including teachers' salaries, construction and maintenance of school buildings, teaching materials, books, and school administration.

Research and development includes research performed at universities and other tertiary educational institutions, regardless of whether the research is financed from general institutional funds or through separate grants or contracts from public or private sponsors.

Methodology

Expenditure per student on educational institutions at a particular level of education is calculated by dividing total expenditure on educational institutions at that level by the corresponding full-time equivalent enrolment. Only educational institutions and programmes for which both enrolment and expenditure data are available are taken into account. Expenditure in national currencies is converted into equivalent USD by dividing the national currency figure by the purchasing power parity (PPP) index for GDP. The PPP conversion factor is used because the market exchange rate is affected by many factors (interest rates, trade policies, expectations of economic growth, etc.) that have little to do with current relative domestic purchasing power in different OECD countries (see Annex 2 for further details).

Data on subnational regions on how much is spent per student are adjusted using national purchasing power parities (PPPs). Future work on the cost of living at subnational level is required to fully adjust expenditure per student used in this section.

Expenditure per student on educational institutions relative to per capita GDP is calculated by dividing expenditure per student on educational institutions by the per capita GDP. In cases where the educational expenditure data and the GDP data pertain to different reference periods, the expenditure data are adjusted to the same reference period as the GDP data, using inflation rates for the OECD country in question (see Annex 2).

Full-time equivalent student: The ranking of OECD countries by annual expenditure on educational services per student is affected by differences in how countries define full-time, part-time and full-time equivalent enrolment. Some OECD countries count every participant at the tertiary level as a full-time student, while others determine students' intensity of participation by the credits that they obtain for the successful completion of specific course units during a specified reference period. OECD countries that can accurately account for part-time enrolment have higher apparent expenditure per full-time equivalent student on educational institutions than OECD countries that cannot differentiate between the different types of student attendance.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[3]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the financial year 2016 (unless otherwise specified) and are based on the UNESCO, OECD and Eurostat (UOE) data collection on education statistics administered by the OECD in 2017 (for details see Annex 3 at https://doi.org/10.1787/f8d7880d-en). Data from Argentina, the People's Republic of China, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

The data on expenditure for 2005, 2011 to 2016 were updated based on a survey in 2018-19, and expenditure figures for 2005 to 2015 were adjusted to the methods and definitions used in the current UOE data collection.

Data on subnational regions are currently available for three countries: Belgium, Canada and Germany. Subnational estimates were provided by countries using national data sources. Subnational data are based on a special survey administrated by the OECD in 2019.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

References

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OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2017-en. [2]

Indicator C1 Tables

Table C1.1 Total expenditure on educational institutions per full-time equivalent student (2016)

Table C1.2 Total expenditure on educational institutions per full-time equivalent student for core educational services, ancillary services and R&D (2016)

Table C1.3 Index of change in total expenditure on educational institutions per full-time equivalent student (2005, 2011 and 2016)

WEB Table C1.4 Total expenditure on educational institutions per full-time equivalent student relative to GDP per capita (2016)

WEB Table C1.5 Total expenditure on educational institutions per full-time equivalent student, by type of institution (2016)

WEB Table C1.6 Cumulative expenditure on educational institutions per full-time equivalent student between the age of 6 and 15 (2016)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981058

Table C1.1. Total expenditure on educational institutions per full-time equivalent student (2016)

In equivalent USD converted using PPPs for GDP, direct expenditure within educational institutions, by level of education, based on full-time equivalents

		Secondary					Post-secondary non-tertiary	Primary, secondary and post-secondary non-tertiary	Tertiary					
			Upper secondary											
		Primary	Lower secondary	General programmes	Vocational programmes	All programmes	All secondary			Short-cycle tertiary	Long-cycle tertiary	All tertiary	All tertiary (excluding R&D)	Primary to tertiary	Primary to tertiary (excluding R&D)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	**Countries**														
	Australia	10 013	12 684	13 543	4 529	10 199	11 651	4 778	10 506	7 200	20 650	16 170	10 791	11 867	10 574
	Austria	12 299	16 282	14 190	17 827	16 351	16 313	5 436	14 679	17 837	18 424	18 332	13 596	15 806	14 345
	Belgium	10 646	13 409	13 451 d	13 881 d	13 704 d	13 603 d	x(3, 4, 5, 6)	12 324	12 833	18 366	18 169	11 848	13 446	12 233
	Canada[1]	9 207 d	x(1)	x(5)	x(5)	13 856	13 856	m	10 681 d	18 228	26 606	23 700	16 907	13 682 d	12 116 d
	Chile[2]	5 371	5 556	5 031	5 432	5 142	5 278	a	5 324	4 928	11 683	9 769	9 271	6 613	6 468
	Colombia[2]	3 323	3 091	x(5)	x(5)	3 001 d	3 066 d	x(5, 6)	3 184	x(11)	x(11)	5 787	m	3 661	m
	Czech Republic	5 104	8 598	7 236	8 629	8 257	8 425	2 759	6 980	16 908	9 990	10 009	6 389	7 612	6 857
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	6 872	7 047	6 548	7 031	6 742	6 887	7 719	6 914	a	12 909	12 909	9 237	8 243	7 429
	Finland	9 447	15 041	8 441	8 270 d	8 315 d	10 427 d	x(4, 5, 6)	10 045	a	17 541	17 541	10 314	11 531	10 099
	France	7 603	10 599	13 431	15 392	14 132	12 100	9 389	10 186	14 502	16 697	16 173	11 031	11 364	10 352
	Germany	8 960	11 159	11 893	16 323	14 094	12 268	11 211	11 294	10 783	17 429	17 429	9 863	12 583	10 994
	Greece	5 973	6 859	5 836 d	8 930 d	6 704 d	6 779 d	m	m	a	m	m	m	m	m
	Hungary	5 454	5 788	7 312	12 783	8 508	7 174	12 605	6 899	7 206	11 470	11 288	9 541	7 639	7 345
	Iceland	11 757	13 501	8 878	14 043	10 360	11 578	15 653	11 707	10 015	14 688	14 551	m	12 250	m
	Ireland	8 468	9 814	x(5)	x(5)	10 094	9 948	7 771	9 020	x(11)	x(11)	13 237	9 102	9 736	9 034
	Israel	8 498	x(3, 4, 5)	6 286 d	16 115 d	8 330 d	8 330	1 186	8 365	5 231	14 132	11 153	7 050	8 891	8 117
	Italy	7 991	8 893	x(5)	x(5)	9 377 d	9 193 d	x(5, 6)	8 736	6 318	11 616	11 589	7 577	9 298	8 507
	Japan	8 978	10 546	x(5)	x(5)	11 863 d	11 219 d	x(5, 6, 9, 10 ,11)	10 143	14 124 d	20 537 d	19 191 d	m	12 096	m
	Korea	11 029	11 477	x(5)	x(5)	13 113	12 370	a	11 762	5 770	11 781	10 486	8 385	11 318	10 586
	Latvia	6 453	6 504	6 816	7 295	7 006	6 761	7 816	6 625	9 322	7 143	7 449	6 110	6 814	6 508
	Lithuania	6 053	5 651	5 660	5 651	5 657	5 653	5 593	5 767	a	7 701	7 701	5 860	6 245	5 790
	Luxembourg	17 913	21 739	20 673	21 587	21 231	21 464	1 760	19 770	23 098	51 918	48 407	27 955	21 705	20 323
	Mexico	2 961	2 561	3 935	4 617	4 187	3 167	a	3 062	x(11)	x(11)	7 347	5 865	3 632	3 435
	Netherlands	8 609	12 831	10 593	14 530	13 196	13 006	a	11 121	10 815	19 552	19 513	12 517	12 926	11 422
	New Zealand	8 287	9 362	11 157	13 935	11 765	10 467	9 885	9 487	10 557	15 956	14 933	11 910	10 530	9 951
	Norway	12 619	13 532	16 242	15 565	15 901	14 860	17 381	13 758	17 361	22 135	21 993	14 050	15 459	13 819
	Poland	6 808	7 136	6 158	7 863	7 114	7 124	3 964	6 892	24 012	8 974	8 977	7 270	7 356	6 976
	Portugal	7 689	10 382	x(5)	x(5)	9 628 d	9 999 d	x(5, 6, 9, 10, 11, 12)	8 945	8 954 d	11 064 d	11 014 d	8 380 d	9 346	8 835
	Slovak Republic	6 922	6 426	5 890	7 148	6 698	6 551	7 377	6 686	6 827	11 493	11 413	8 816	7 530	7 067
	Slovenia	8 621	10 481	7 586	7 069	7 236	8 487	a	8 550	2 707	12 507	11 257	8 974	9 080	8 633
	Spain	7 653	9 056	9 108	11 772 d	9 946 d	9 502 d	x(4, 5, 6)	8 594	9 339	13 422	12 614	9 416	9 464	8 772
	Sweden	11 338	12 020	10 664	13 670	11 790	11 892	5 717	11 549	6 723	25 766	24 341	11 137	13 693	11 480
	Switzerland	m	m	x(5)	x(5)	18 990 d	m	x(5)	m	m	m	m	m	m	m
	Turkey	4 168	4 063	4 896	5 573	5 213	4 659	a	4 505	x(11)	x(11)	10 519	8 626	5 633	5 278
	United Kingdom	11 188	10 921	12 263	9 437	10 992	10 963	a	11 061	23 769	23 772	23 771	18 405	13 038	12 203
	United States	12 184	13 153	x(5)	x(5)	14 566	13 845	14 496	13 019	x(11)	x(11)	30 165	26 550	16 987	16 151
	OECD average	8 470	9 884	9 397	10 922	10 368	9 968	m	9 357	11 745	16 756	15 556	11 056	10 502	9 732
	EU23 average	8 548	10 302	9 671	11 320	10 308	10 205	m	9 649	12 468	16 388	15 863	10 635	10 688	9 772
Partners	Argentina	m	m	m	a	m	m	a	m	m	m	m	m	m	m
	Brazil[3]	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	a	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	a	m	m	m	m	m	m	m
	Russian Federation	x(8)	x(8)	x(8)	x(8)	x(8)	x(8)	x(8)	4 247	5 289	9 516	8 479	7 693	5 210	5 031
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Primary education includes pre-primary programmes. Post-secondary non-tertiary figures are treated as negligible.
2. Year of reference 2017.
3. Data on expenditure on public vs. private educational institutions are displayed in Table C1.5 available on line.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933978740

Table C1.2. Total expenditure on educational institutions per full-time equivalent student for core educational services, ancillary services and R&D (2016)

In equivalent USD converted using PPPs for GDP, direct expenditure within educational institutions, by level of education, based on full-time equivalents

		Primary, secondary and post-secondary non-tertiary			Tertiary				Primary to tertiary				
		Core services	Ancillary services	All services	Core services	Ancillary services	R&D	All services	All services excluding R&D	Core services	Ancillary services	R&D	All services	All services excluding R&D
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
OECD	Countries													
	Australia	10 298	208	10 506	10 031	760	5 379	16 170	10 791	10 234	340	1 293	11 867	10 574
	Austria	14 000	679	14 679	13 424	171	4 736	18 332	13 596	13 823	523	1 460	15 806	14 345
	Belgium	11 891	433	12 324	10 839	1 009	6 321	18 169	11 848	11 689	544	1 213	13 446	12 233
	Canada[1]	x(3)	x(3)	10 681	15 720	1 187	6 793	23 700	16 907	x(12)	x(12)	1 566	13 682[d]	12 116[d]
	Chile[2]	4 931	393	5 324	9 205	66	498	9 769	9 271	6 170	298	144	6 613	6 468
	Colombia[2]	x(3)	x(3)	3 184	x(7)	x(7)	x(7)	5 787	m	x(12)	x(12)	x(12)	3 661	m
	Czech Republic	6 508	472	6 980	6 307	81	3 621	10 009	6 389	6 466	391	756	7 612	6 857
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	6 810	104	6 914	9 236	1	3 672	12 909	9 237	7 347	81	814	8 243	7 429
	Finland	9 030	1 015	10 045	10 314	0	7 226	17 541	10 314	9 285	814	1 433	11 531	10 099
	France	8 901	1 285	10 186	10 255	776	5 143	16 173	11 031	9 167	1 185	1 011	11 364	10 352
	Germany	10 992	302	11 294	8 866	998	7 565	17 429	9 863	10 546	448	1 589	12 583	10 994
	Greece	m	m	m	m	m	m	m	m	m	m	m	m	m
	Hungary	6 229	670	6 899	8 577	964	1 747	11 288	9 541	6 625	720	295	7 639	7 345
	Iceland	x(3)	x(3)	11 707	x(7)	x(7)	x(7)	14 551	m	x(12)	x(12)	x(12)	12 250	m
	Ireland	9 020	a	9 020	x(7)	x(7)	4 135	13 237	9 102	x(12)	x(12)	702	9 736	9 034
	Israel	7 968	397	8 365	7 008	41	4 104	11 153	7 050	7 787	330	774	8 891	8 117
	Italy	8 267	468	8 736	7 160	417	4 012	11 589	7 577	8 049	458	791	9 298	8 507
	Japan	x(3, 7)	x(3, 7)	10 143	x(7)	x(7)	x(7)	19 191[d]	m	x(12)	x(12)	x(12)	12 096	m
	Korea	10 746	1 015	11 762	8 286	99	2 101	10 486	8 385	9 890	696	731	11 318	10 586
	Latvia	6 509	117	6 625	5 974	136	1 338	7 449	6 110	6 386	121	306	6 814	6 508
	Lithuania	5 507	260	5 767	5 079	781	1 841	7 701	5 860	5 401	389	455	6 245	5 790
	Luxembourg	18 542	1 228	19 770	26 841	1 114	20 452	48 407	27 955	19 102	1 220	1 382	21 705	20 323
	Mexico	x(3)	x(3)	3 062	x(7)	x(7)	1 483	7 347	5 865	x(12)	x(12)	197	3 632	3 435
	Netherlands	11 121	a	11 121	12 517	a	6 996	19 513	12 517	11 422	a	1 504	12 926	11 422
	New Zealand	x(3)	x(3)	9 487	x(7)	x(7)	3 024	14 933	11 910	x(12)	x(12)	579	10 530	9 951
	Norway	13 279	479	13 758	13 681	369	7 943	21 993	14 050	13 362	457	1 640	15 459	13 819
	Poland	6 729	163	6 892	7 222	48	1 707	8 977	7 270	6 839	137	380	7 356	6 976
	Portugal	8 356	589	8 945	7 956[d]	424[d]	2 633[d]	11 014[d]	8 380[d]	8 278	557	511	9 346	8 835
	Slovak Republic	5 733	953	6 686	7 004	1 812	2 597	11 413	8 816	5 960	1 107	464	7 530	7 067
	Slovenia	7 843	707	8 550	8 607	367	2 284	11 257	8 974	7 992	641	447	9 080	8 633
	Spain	7 950	645	8 594	8 891	525	3 198	12 614	9 416	8 153	619	692	9 464	8 772
	Sweden	10 356	1 192	11 549	11 137	0	13 204	24 341	11 137	10 487	992	2 213	13 693	11 480
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	x(3)	x(3)	4 505	x(7)	x(7)	1 893	10 519	8 626	x(12)	x(12)	355	5 633	5 278
	United Kingdom	10 014	1 047	11 061	16 297	2 107	5 367	23 771	18 405	10 991	1 212	835	13 038	12 203
	United States	11 975	1 044	13 019	22 474	4 076	3 616	30 165	26 550	14 405	1 746	837	16 987	16 151
	OECD average	8 722	635	9 357	10 351	705	4 500	15 556	11 056	9 091	641	770	10 502	9 732
	EU23 average	9 000	649	9 649	10 018	617	5 228	15 863	10 635	9 132	640	917	10 688	9 772
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	x(3)	x(3)	4 247	x(7)	x(7)	786	8 479	7 693	x(12)	x(12)	179	5 210	5 031
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Some levels of education are included with others. Refer to "x" code in Table C1.1 for details. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes. Post-secondary non-tertiary figures are treated as negligible.
2. Year of reference 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table C1.3. Index of change in total expenditure on educational institutions per full-time equivalent student (2005, 2011 and 2016)

GDP deflator 2010 = 100, constant prices

		Primary, secondary and post-secondary non-tertiary									Tertiary								
		Change in total expenditure (2010 = 100)			Change in number of students (2010 = 100)			Change in expenditure per student (2010 = 100)			Change in total expenditure (2010 = 100)			Change in number of students (2010 = 100)			Change in expenditure per student (2010 = 100)		
		2005	2011	2016	2005	2011	2016	2005	2011	2016	2005	2011	2016	2005	2011	2016	2005	2011	2016
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Countries																		
	Australia	76	98	104	99	102	112	76	96	93	79	102	136	80	103	150	99	99	91
	Austria	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Belgium	88	101	106	105	100	104	84	101	103	83	102	117	90	103	114	93	99	103
	Canada[1]	82	98	104	m	99	102	m	99	101	83	97	98	m	m	m	m	m	m
	Chile	88	104	130	108	98	94	82	106	138	70	111	133	67	107	125	104	103	106
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	91	103	104	113	98	99	81	105	105	72	117	90	76	101	82	95	116	109
	Denmark	92	92	m	95	105	m	97	88	m	90	102	m	93	94	m	97	109	m
	Estonia	92	93	95	118	98	97	78	95	98	74	114	122	100	100	73	75	113	168
	Finland	90	101	101	100	99	99	89	102	101	86	104	94	101	101	103	85	103	91
	France	94	99	101	100	100	100	94	99	101	85	101	105	98	101	111	86	100	95
	Germany	93	100	99	106	98	93	88	101	107	80	104	112	93	105	129	86	99	87
	Greece	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Hungary	m	m	m	107	99	90	m	m	m	m	m	m	114	107	85	m	m	m
	Iceland	109	103	117	99	100	100	110	103	117	100	97	137	86	103	96	117	94	143
	Ireland	71	101	90	93	101	111	76	101	82	73	99	82	m	m	m	m	m	m
	Israel	76	111	142	92	102	114	83	109	125	111	148	151	84	101	123	132	146	122
	Italy	103	96	91	98	101	99	105	95	92	89	102	91	102	99	92	88	103	99
	Japan	97	100	99	104	99	95	92	101	104	92	101	99	104	100	99	88	101	100
	Korea	m	m	m	108	97	81	m	m	m	m	m	m	98	101	96	m	m	m
	Latvia	100	96	113	129	96	92	78	100	123	105	116	93	119	95	83	89	123	112
	Lithuania	m	94	92	126	95	82	m	100	112	78	119	84	102	98	88	76	122	95
	Luxembourg	m	96	93	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	91	104	114	95	101	105	96	103	108	79	96	120	86	105	149	92	92	81
	Netherlands	88	99	99	98	100	97	89	99	102	84	103	112	84	103	112	100	101	101
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	91	95	113	98	101	103	93	94	109	m	97	141	94	103	118	m	94	120
	Poland	82	98	106	120	98	94	68	101	112	84	92	96	106	98	85	79	94	113
	Portugal	93	94	101	m	m	m	m	m	m	88	94	81	80	101	85	110	93	94
	Slovak Republic	74	93	105	118	97	88	63	96	119	78	111	129	81	98	87	97	113	149
	Slovenia	97	98	88	111	99	103	88	99	86	93	104	87	m	98	80	m	106	109
	Spain	84	98	98	95	101	107	88	96	92	79	98	97	90	103	114	88	95	85
	Sweden	98	100	115	110	99	110	89	101	105	86	102	110	97	103	102	89	99	108
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	m	m	m	m	110	115	m	m	m	m	m	m	m	m	m	m	m	m
	United Kingdom	92	102	114	100	101	107	92	101	106	m	m	m	95	105	115	m	m	m
	United States	91	98	103	101	101	103	91	97	100	86	104	104	85	104	98	101	100	107
	OECD average	90	99	105	105	100	100	87	99	105	85	105	109	93	101	103	94	105	108
	EU23 average	90	98	101	107	99	98	85	99	103	84	105	100	96	101	97	89	105	107
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	77	104	110	m	m	m	m	m	m	43	93	85	m	94	75	m	99	114
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Primary education includes data from pre-primary and lower secondary education.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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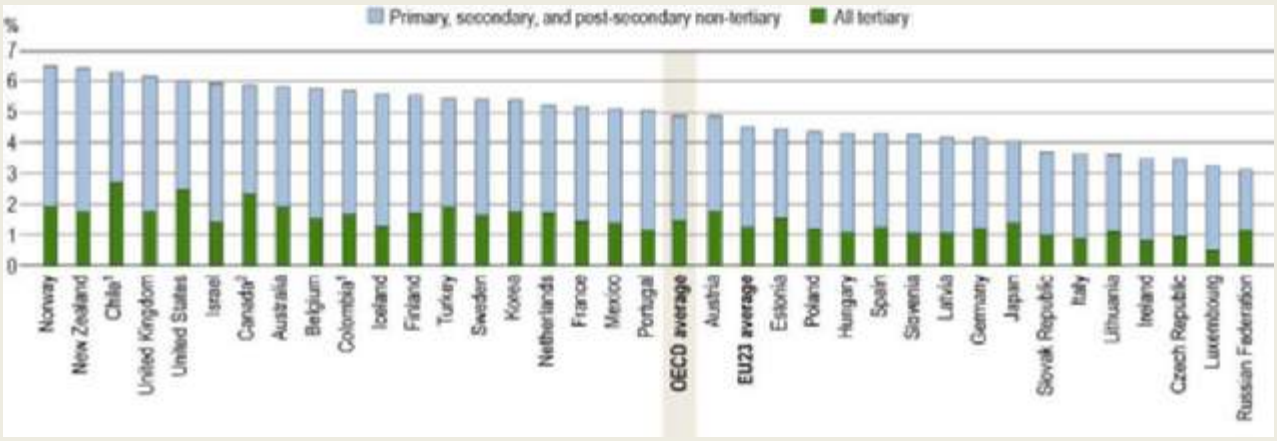
Indicator C2. What proportion of national wealth is spent on educational institutions?

Highlights

- In 2016, OECD countries spent an average of 5% of their gross domestic product (GDP) on educational institutions from primary to tertiary levels, with wide variations across OECD and partner countries. On average, the share of national resources devoted to educational institutions in non-tertiary education (primary, secondary and post-secondary non-tertiary levels) was 3.5% of GDP, much larger than the share devoted to tertiary education (1.5% of GDP).
- Private sources play a crucial role in financing tertiary education, accounting on average for around one-third of expenditure on educational institutions or 0.5% of GDP. At non-tertiary levels, private spending on education represents only one-tenth of the total expenditure on institutions, or 0.4% of GDP.
- Between 2010 and 2016, total expenditure on primary to tertiary educational institutions as a share of GDP decreased in more than two-thirds of OECD and partner countries, mainly due to public expenditure on educational institutions increasing more slowly than GDP.

Figure C2.1. Total expenditure on educational institutions as a percentage of GDP (2016)

From public, private and international sources, by level of education



1. Year of reference 2017.
2. Primary education includes pre-primary programmes.

Countries are ranked in descending order of total expenditure on educational institutions as a percentage of GDP.

Source: OECD/UIS/Eurostat (2019), Table C2.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en

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Context

Countries invest in educational institutions to help foster economic growth, enhance productivity, contribute to personal and social development, and reduce social inequality, among other reasons. The level of expenditure on educational institutions is affected by the size of a country's school-age population, enrolment rates, levels of teachers' salaries, and the organisation and delivery of instruction. At primary and lower secondary levels (which correspond broadly to the population aged 6 to 14), enrolment rates are close to 100% in most OECD countries. Changes in the number of students are therefore closely related to demographic changes. This is less the case in upper secondary and tertiary education, as part of the relevant population will have left the education system (see Indicator B1).

In order to account for these issues, this indicator measures expenditure on educational institutions relative to a nation's wealth and demonstrates the priority given to education as a function of countries' overall resources. National wealth is based on GDP, while expenditure on educational institutions includes spending by governments, enterprises, and individual students and their families. This indicator covers expenditure on schools, universities and other public and private institutions involved in delivering or supporting educational services.

Public budgets are heavily scrutinised by governments and during economic downturns even core sectors like education can be subject to budget cuts. This indicator provides a point of reference, by showing how the volume of spending on educational institutions, relative to national GDP, has evolved over time in OECD countries. In deciding how much to allocate to educational institutions, governments must balance demands for increased spending in areas such as teachers' salaries and educational facilities with other areas of investment.

Other findings

- The largest share of expenditure on educational institutions is devoted to primary and secondary levels (69% of all OECD educational expenditure or 3.4% of GDP), and is a function of the total number of students enrolled.
- Spending by the private sector on primary to tertiary educational institutions, represented 0.9% of GDP on average across OECD countries, after transfers between government and the private sector.
- Between 2010 and 2016, public expenditure on educational institutions as a share of GDP decreased slightly at tertiary levels (4% on average across OECD countries). However, for non-tertiary levels the reduction has been more significant, at just over 8% on average across OECD countries.

Analysis

Overall investment relative to GDP

The share of national wealth devoted to educational institutions is substantial in all OECD and partner countries. In 2016, OECD countries spent on average 5% of their GDP on educational institutions from primary to tertiary levels (Table C2.1).

Expenditure on primary to tertiary educational institutions relative to GDP varies between 6% or more in Chile, Israel, New Zealand, Norway, the United Kingdom and the United States, to 3%-4% in the Czech Republic, Ireland, Italy, Japan, Lithuania, Luxembourg, the Russian Federation and the Slovak Republic (Figure C2.1 and Table C2.1). Many factors influence the relative position of countries on this measure including the relative number of students enrolled, the duration of studies and the effective allocation of funds. At the tertiary level, spending may be influenced by the criteria for accessing higher levels of education, the number of students enrolled across sectors and fields of study as well as the scale of investments in research activities.

Expenditure on educational institutions by level of education

In all OECD and partner countries with available data, the share of national resources devoted to educational institutions in non-tertiary education (primary, secondary and post-secondary non-tertiary levels) is much larger than the share devoted to tertiary education (Table C2.1 and Figure C2.1). On average across OECD countries, 70% of expenditure on educational institutions, or 3.5% of GDP, is directed to non-tertiary levels, due to the high enrolment rates at these levels. The share of resources devoted to educational institutions at non-tertiary levels is around 4.5% of GDP in Israel, New Zealand and Norway while it accounts for 2% of GDP in the Russian Federation.

On average across OECD countries, expenditure on educational institutions amounts to 1.5% of GDP at the primary level and 1% at lower secondary level. However, the share of expenditure on educational institutions is strongly influenced by the demographic composition of the country. Another factor that affects expenditure by level of education is the duration of each level. Countries with relatively low fertility rates are more likely to spend a lower share of their wealth on primary and lower secondary education. Indeed, the countries where investment in primary education is below 1% of GDP also tend to be those with low birth rates (Austria, the Czech Republic, Germany, Hungary, Lithuania and the Slovak Republic; Table C2.1). At upper secondary level, expenditure on educational institutions accounts for 0.5% of GDP in vocational programmes and 0.6% of GDP in general programmes, on average across OECD countries. However, these figures vary widely between countries. Less than half of countries with available data spend more on vocational programmes than on general programmes, with the largest differences found in the Czech Republic, Finland and the Netherlands (0.5-0.6 percentage points).

Tertiary education accounts for 1.5% of GDP on average. At this level, the various pathways and programmes available to students, the duration of programmes, the organisation of teaching, and research and development (R&D) activity all influence the level of expenditure at this level. In 2016, Canada, Chile and the United States were the countries that spent the largest share of GDP on tertiary educational institutions (2%-3%). Unsurprisingly, these countries also have some of the highest levels of expenditure from private sources of educational funding after public-to-private transfers have been accounted for (1.1%-1.7% of GDP; Table C2.2 and Figure C2.2).

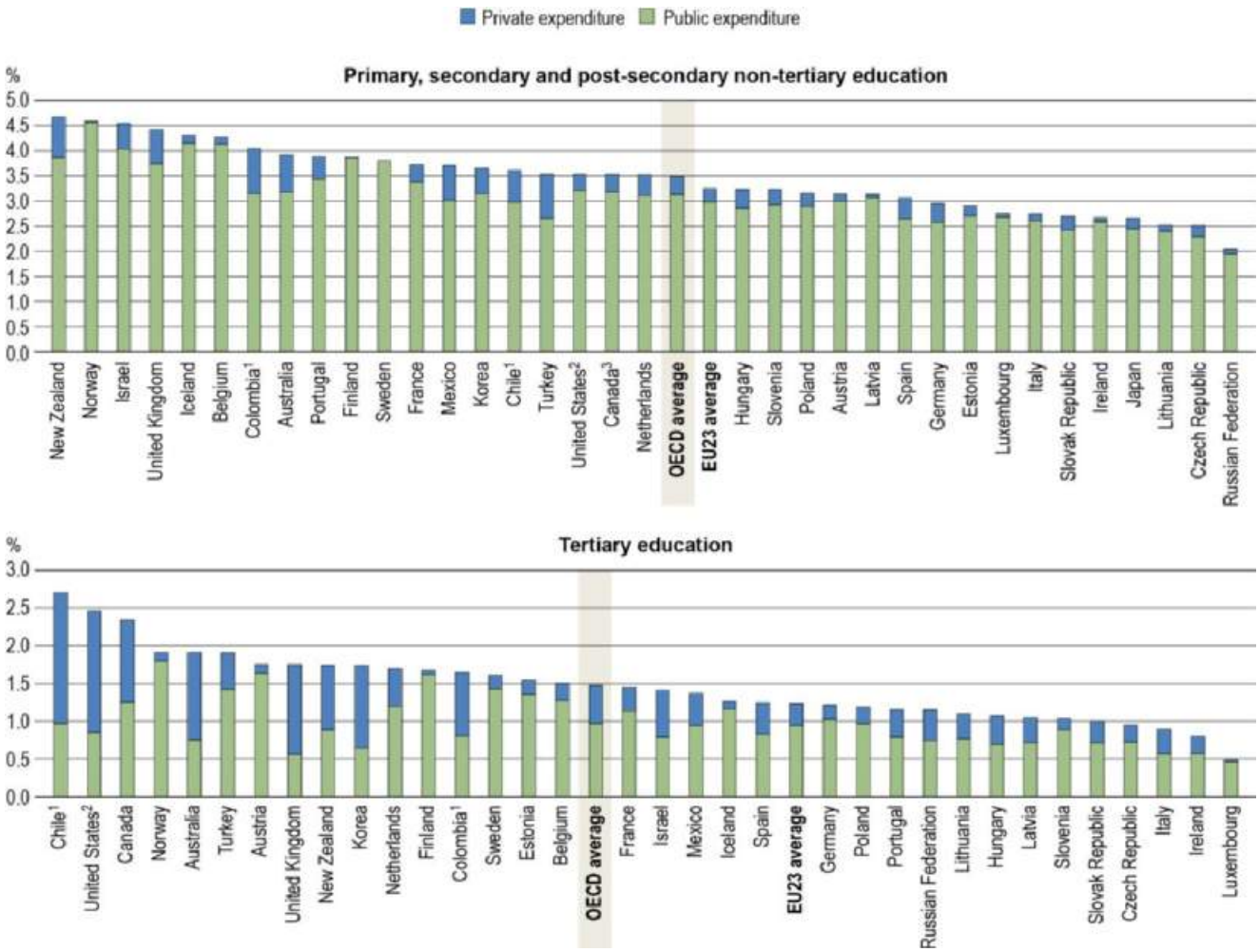
R&D spending in tertiary educational institutions can represent a significant share of total spending at this level and is a function of how the structure for publicly funded research is organises as well as the infrastructure and facilities available. Australia, Norway, Sweden and other OECD countries in which most publicly funded R&D is performed by tertiary educational institutions tend to report higher levels of expenditure on educational institutions as a share of GDP than countries where R&D is mostly performed in other institutions. If R&D activities are excluded, expenditure on tertiary educational institutions as a share of GDP decreases by 0.4 percentage points on average across OECD countries, though the difference is at least 0.7 percentage points in Finland, Norway, and Sweden (Table C2.1).

Expenditure on educational institutions by source of funds

Government spending remains the main source of educational funding in OECD countries. On average, public expenditure on educational institutions from primary to tertiary educational levels (after transfers to the private sector) accounts for 4% of GDP. However, large differences are observed across countries with available data. In the Czech Republic, Italy, Japan, Lithuania, Luxembourg, the Slovak Republic and the Russian Federation, public investment represents around 3% of GDP, while Belgium, Brazil, Finland, Iceland, Norway and Sweden devote around 5%-7% of their GDP to direct public expenditure on educational institutions (Figure C2.2).

Figure C2.2. Total expenditure on educational institutions as a percentage of GDP, by source of funds (2016)

After transfers; from public, private and international sources



Note: International expenditure is aggregated with public expenditure for display purposes.
1. Year of reference 2017.
2. The figures for the United States are for net student loans rather than gross, thereby underestimating public transfers.
3. Primary education includes pre-primary programmes.
Countries are ranked in descending order of total expenditure on educational institutions as a percentage of GDP.
Source: OECD/UIS/Eurostat (2019), Table C2.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

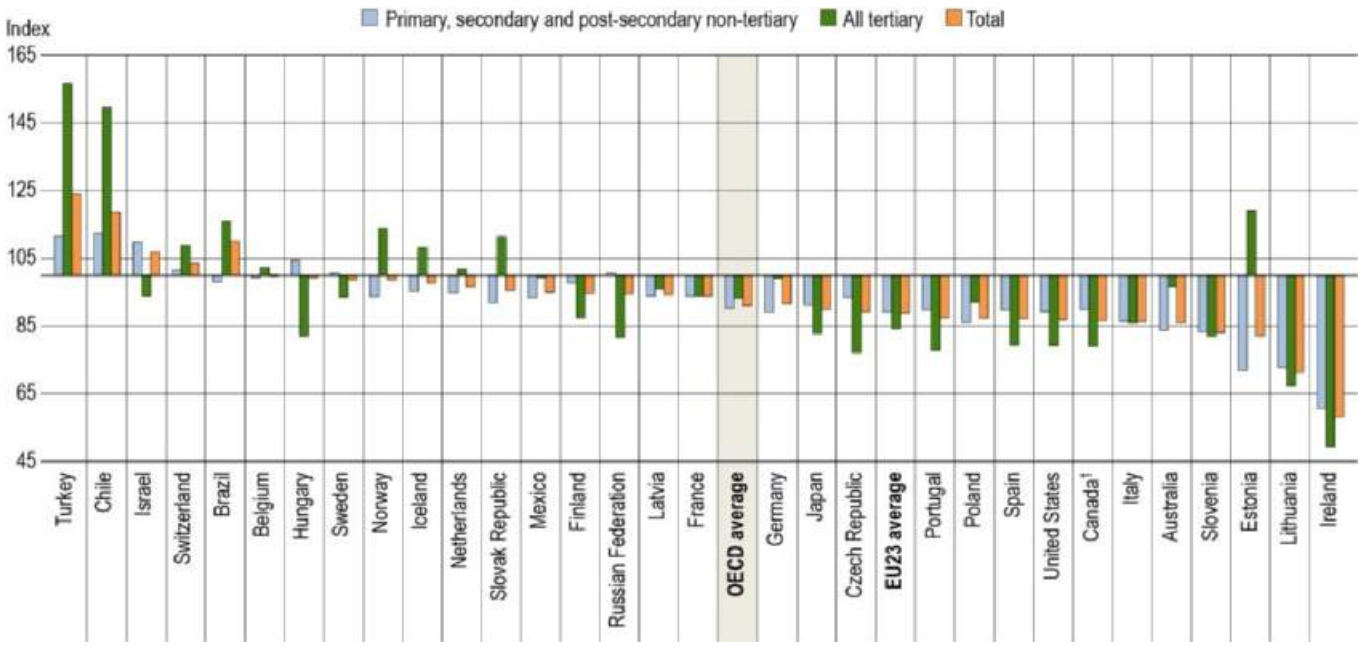
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With tightening public budgets, many educational systems are turning more towards the private sector for additional investment, particularly at tertiary level. After transfers, private sector expenditure on primary to tertiary educational institutions accounts for 0.9% of GDP on average. Countries nevertheless differ considerably in the importance of private expenditure on educational institutions, ranging from 0.1% of GDP or less in Finland, Luxembourg and Norway, to 1.9% or more in Australia, Chile, the United Kingdom and the United States (Figure C2.2).

At non-tertiary levels of education, private investment is low and accounts for 0.4% of GDP on average across OECD countries. However, it amounts to at least 0.7% of GDP in Australia, Colombia, Mexico, New Zealand, Turkey and the United Kingdom, the countries with the largest relative shares of private funding of non-tertiary education. At the tertiary level, private investment plays a more significant role, accounting on average for 0.5% of GDP. In some countries, private sources contribute a larger share: private spending on tertiary institutions in Chile and the United States accounts for more than 1.6% of GDP, the highest among OECD countries (Table C2.2 and Figure C2.2).

Figure C2.3. Index of change in public expenditure on educational institutions as a percentage of GDP (2010 and 2016)

Final sources of funds, by level of education, reference year 2010 = 100



1. Primary education includes pre-primary programmes.

Countries are ranked in descending order of the index of change in public expenditure on educational institutions as a percentage of GDP.

Source: OECD/UIS/Eurostat (2019), Table C2.4, available on line. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933978968

Changes in educational expenditure between 2010 and 2016

The effects of the global economic crisis that began in 2008 are still reflected in the adjustments of public budgets and, therefore, in the expenditure on educational institutions across all levels of education. Public expenditure on educational institutions started to increase back in 2010 but at a slower pace than GDP, as a result of the time needed to adjust public budgets (Table C2.4, available on line, and Figure C2.3). However, across

OECD countries, total average expenditure from all sources on primary to tertiary educational institutions as a percentage of GDP fell by 7% between 2010 and 2016, mainly as a result of a lower increase in spending compared to GDP (Table C2.3). Most countries with available data experienced a reduction in the total expenditure on educational institutions as a share of GDP with Ireland and Lithuania among the countries with the largest negative adjustments, all them with increases in GDP of over 20% over the same period. In contrast, Chile and Israel were two of the major exceptions, with an increase of 7% or more in the total expenditure on educational institutions despite also the significant increase of GDP.

Spending on the various levels of education evolved similarly between 2010 and 2016. Expenditure on educational institutions at the non-tertiary and tertiary levels decreased by 8% relative to GDP. However, this average masks significant changes in some countries. In Chile and Israel, for example, expenditure on non-tertiary education as a share of GDP increased by at least 5% over the six-year period. The reduction observed in Ireland (40%) can be mainly explained by a revision in its 2015 GDP data. Over the same period, Estonia, Lithuania and Luxembourg experienced some of the highest decreases in the share of expenditure on these educational levels (by over 20%).

At the tertiary level, about one-third of countries with available data increased their investments in tertiary education between 2010 and 2016, although their spending at non-tertiary levels declined or remained almost stable. Clear examples of this trend are Australia, Iceland, Israel, Norway and the Slovak Republic, which increased the share of GDP invested tertiary educational institutions by over 10% but reduced the share invested in non-tertiary educational institutions by at least 5% during this period. Israel's increase in total tertiary spending as a share of GDP, the largest across OECD and partner countries, was mainly driven by a substantial increase in both public and private investment in education.

Definitions

Expenditure on educational institutions refers to public, private and international expenditure on entities that provide instructional services to individuals or education-related services to individuals and other educational institutions (schools, universities and other public and private institutions).

Final public, private and international shares are the percentages of educational funds expended directly by public, private and international purchasers of educational services after the flow of transfers. **Final public spending** includes direct public purchases of educational resources and payments to educational institutions.

Final private spending includes all direct expenditure on educational institutions (tuition fees and other private payments to educational institutions), whether partially covered by public subsidies or not, after the flow of transfers. Private spending also includes expenditure by private companies on the work-based element of school- and work-based training of apprentices and students.

Final international spending includes direct international payments to educational instructions such as research grants or other funds from international sources paid directly to educational institutions, after the flow of transfers.

Direct public expenditure on educational institutions can take the form of either purchases by the government agency itself of educational resources to be used by educational institutions or payments by the government agency to educational institutions that have responsibility for purchasing educational resources.

Direct private (from households and other private entities) expenditure on educational institutions includes tuition fees and other private payments to educational institutions, whether partially covered by public subsidies or not.

Methodology

Expenditure on educational institutions as a percentage of GDP at a particular level of education is calculated by dividing total expenditure on educational institutions at that level by GDP. Expenditure and GDP values in national currency are converted into equivalent USD by dividing the national currency figure by the purchasing power parity (PPP) index for GDP. The PPP conversion factor is used because the market exchange rate is affected by many factors (interest rates, trade policies, expectations of economic growth, etc.) that have little to do with current relative domestic purchasing power in different OECD countries (see Annex 2 for further details).

All entities that provide funds for education, are classified as either governmental (public) sources, non-governmental (private) sources or international sources, such as international agencies and other foreign sources. The figures presented here group together public and international expenditure for display purposes. As the share of international expenditure is relatively small compared to other sources, its integration into the public sources does not affect the analysis of the share of public spending.

Not all spending on instructional goods and services occurs within educational institutions. For example, families may purchase commercial textbooks and materials or seek private tutoring for their children outside educational institutions. At the tertiary level, students' living expenses and foregone earnings can also account for a significant proportion of the costs of education. All expenditure outside educational institutions, even if publicly subsidised, is excluded from this indicator. Public subsidies for educational expenditure outside institutions are discussed in Indicators C4 and C5.

A portion of the budgets of educational institutions is related to ancillary services offered to students, including student welfare services (student meals, housing and transport). Part of the cost of these services is covered by fees collected from students and is included in the indicator.

Expenditure on educational institutions is calculated on a cash-accounting basis and, as such, represents a snapshot of expenditure in the reference year. Many countries operate a loan payment/repayment system at the tertiary level. While public loan payments are taken into account, loan repayments from private individuals are not, and so the private contribution to education costs may be under-represented.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[1]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the financial year 2016 (unless otherwise specified) and are based on the UNESCO, the OECD and Eurostat (UOE) data collection on education statistics administered by the OECD in 2018 (for details see Annex 3 at https://doi.org/10.1787/f8d7880d-en). Data from Argentina, the People's Republic of China, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

The data on expenditure for 2005, 2011 to 2016 were updated based on a survey in 2018-19, and expenditure for 2005 to 2015 were adjusted to the methods and definitions used in the current UOE data collection.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

References

OECD (2018), *OECD Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications*, OECD Publishing, Paris, https://doi.org/10.1787/9789264304444-en. [1]

Indicator C2 Tables

Table C2.1 Total expenditure on educational institutions as a percentage of GDP (2016)

Table C2.2 Total expenditure on educational institutions as a percentage of GDP, by final source of funds (2016)

Table C2.3 Index of change in total expenditure on educational institutions as a percentage of GDP (2005, 2011 and 2016)

WEB Table C2.4 Trends in public expenditure on educational institutions as a percentage of GDP (2005, 2011 and 2016)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink https://doi.org/10.1787/888933981077

Table C2.1. Total expenditure on educational institutions as a percentage of GDP (2016)

Direct expenditure within educational institutions, by level of education

		Primary	Secondary					Post-secondary non-tertiary	Primary, secondary and post-secondary non-tertiary	Tertiary				Primary to tertiary	Primary to tertiary (excluding R&D)
			Lower secondary	Upper secondary			All secondary			Short-cycle tertiary	Long-cycle tertiary	All tertiary	All tertiary (excluding R&D)		
				General programmes	Vocational programmes	All programmes									
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD	**Countries**														
	Australia	1.8	1.3	0.6	0.1	0.7	2.0	0.1	3.9	0.3	1.6	1.9	1.3	5.8	5.2
	Austria	0.9	1.2	0.3	0.6	1.0	2.2	0.0	3.1	0.3	1.5	1.8	1.3	4.9	4.4
	Belgium	1.6	0.9	0.7[d]	1.1[d]	1.8[d]	2.7[d]	x(3, 4, 5, 6)	4.3	0.0	1.5	1.5	1.0	5.8	5.2
	Canada[1]	2.1[d]	x(1)	x(5)	x(5)	1.5	1.5	m	3.5[d]	0.6	1.7	2.3	1.7	5.9[d]	5.2[d]
	Chile[2]	1.8	0.6	0.8	0.3	1.2	1.8	a	3.6	0.4	2.3	2.7	2.6	6.3	6.2
	Colombia[2]	2.0	1.5	x(5)	x(5)	0.6[d]	2.0[d]	x(5, 6)	4.0	x(11)	x(11)	1.6	m	5.7	m
	Czech Republic	0.8	0.9	0.2	0.7	0.9	1.7	0.0	2.5	0.0	0.9	0.9	0.6	3.5	3.1
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	1.4	0.7	0.4	0.3	0.7	1.4	0.1	2.9	a	1.5	1.5	1.1	4.4	4.0
	Finland	1.4	1.1	0.4	1.0[d]	1.3[d]	2.5[d]	x(4, 5, 6)	3.9	a	1.7	1.7	1.0	5.5	4.9
	France	1.2	1.3	0.8	0.5	1.3	2.5	0.0	3.7	0.3	1.1	1.4	1.0	5.2	4.7
	Germany	0.6	1.2	0.4	0.5	0.9	2.1	0.2	3.0	0.0	1.2	1.2	0.7	4.2	3.6
	Greece	1.3	0.7	0.5	0.3	0.8	1.5	m	m	a	m	m	m	m	m
	Hungary	0.8	0.8	0.9	0.4	1.3	2.1	0.3	3.2	0.0	1.0	1.1	0.9	4.3	4.1
	Iceland	2.1	1.0	0.7	0.5	1.2	2.1	0.1	4.3	0.0	1.2	1.3	m	5.6	m
	Ireland	1.4	0.6	x(5)	x(5)	0.6	1.2	0.1	2.7	x(11)	x(11)	0.8	0.6	3.5	3.2
	Israel	2.4	x(3, 4, 5)	1.3[d]	0.9[d]	2.1[d]	2.1	0.0	4.5	0.2	1.2	1.4	0.9	6.0	5.4
	Italy	1.0	0.7	x(5)	x(5)	1.1[d]	1.8[d]	x(5, 6)	2.7	0.0	0.9	0.9	0.6	3.6	3.3
	Japan	1.1	0.7	x(5)	x(5)	0.8[d]	1.5[d]	x(5, 6, 9, 10, 11)	2.7	0.2[d]	1.2[d]	1.4[d]	m	4.0	m
	Korea	1.6	0.9	x(5)	x(5)	1.2	2.1	a	3.7	0.2	1.5	1.7	1.4	5.4	5.0
	Latvia	1.5	0.7	0.5	0.3	0.8	1.5	0.1	3.1	0.2	0.9	1.0	0.9	4.2	4.0
	Lithuania	0.8	1.1	0.3	0.1	0.5	1.6	0.1	2.5	a	1.1	1.1	0.8	3.6	3.4
	Luxembourg	1.1	0.8	0.3	0.6	0.9	1.7	0.0	2.8	0.0	0.5	0.5	0.3	3.2	3.0
	Mexico	1.8	1.0	0.6	0.4	0.9	1.9	a	3.7	x(11)	x(11)	1.4	1.1	5.1	4.8
	Netherlands	1.2	1.2	0.3	0.8	1.1	2.4	0.0	3.5	0.0	1.7	1.7	1.1	5.2	4.6
	New Zealand	1.8	1.3	1.0	0.4	1.4	2.7	0.2	4.7	0.2	1.5	1.7	1.4	6.4	6.1
	Norway	2.1	1.0	0.7	0.7	1.5	2.5	0.0	4.6	0.0	1.9	1.9	1.2	6.5	5.8
	Poland	1.6	0.7	0.3	0.5	0.8	1.6	0.0	3.2	0.0	1.2	1.2	1.0	4.4	4.1
	Portugal	1.5	1.2	x(5)	x(5)	1.2[d]	2.4[d]	x(5, 6, 9, 10, 11, 12)	3.9	0.0[d]	1.1[d]	1.2[d]	0.9[d]	5.0	4.8
	Slovak Republic	0.9	0.9	0.3	0.6	0.8	1.7	0.0	2.7	0.0	1.0	1.0	0.8	3.7	3.5
	Slovenia	1.5	0.8	0.3	0.6	0.9	1.7	a	3.2	0.0	1.0	1.0	0.8	4.3	4.1
	Spain	1.3	0.8	0.6	0.3[d]	0.9[d]	1.7[d]	x(4, 5, 6)	3.1	0.2	1.1	1.2	0.9	4.3	4.0
	Sweden	1.8	0.9	0.6	0.5	1.1	1.9	0.0	3.8	0.0	1.6	1.6	0.7	5.4	4.5
	Switzerland	m	m	x(5)	x(5)	1.3	m	x(5)	m	m	m	m	m	m	m
	Turkey	1.0	1.1	0.7	0.7	1.5	2.5	a	3.5	x(11)	x(11)	1.9	1.6	5.4	5.1
	United Kingdom	2.0	1.0	0.9	0.6	1.5	2.5	a	4.4	0.2	1.6	1.7	1.4	6.2	5.8
	United States	1.7	0.9	x(5)	x(5)	1.0	1.9	0.0	3.5	x(11)	x(11)	2.5	2.2	6.0	5.7
	OECD average	1.5	0.9	0.6	0.5	1.1	2.0	m	3.5	0.1	1.3	1.5	1.1	5.0	4.5
	EU23 average	1.3	0.9	0.5	0.5	1.0	1.9	m	3.2	0.1	1.2	1.2	0.9	4.5	4.1
Partners	Argentina	m	m	m	a	m	m	a	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	a	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	a	m	m	m	m	m	m	m
	Russian Federation	x(8)	x(8)	x(8)	x(8)	x(8)	x(8)	x(8)	2.0	0.2	1.0	1.1	1.0	3.1	3.0
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Primary education includes pre-primary programmes. Post-secondary non-tertiary figures are treated as negligible.
2. Year of reference 2017.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933978873

Table C2.2. Total expenditure on educational institutions as a percentage of GDP, by final source of funds (2016)

Expenditure within educational institutions, by level of education

		Primary, secondary and post-secondary non-tertiary				Tertiary				Primary to tertiary			
		Public	Private	International	Total	Public	Private	International	Total	Public	Private	International	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	3.2	0.7	0.0	3.9	0.8	1.2 d	x(6)	1.9	3.9	1.9 d	x(10)	5.8
	Austria	3.0	0.1	a	3.1	1.6	0.1	a	1.8	4.6	0.3	a	4.9
	Belgium	4.1	0.1	0.0	4.3	1.2	0.2	0.0	1.5	5.3	0.4	0.1	5.8
	Canada[1]	3.2 d	0.3 d	0.0 d	3.5 d	1.2	1.1	0.0	2.3	4.4 d	1.4 d	0.0 d	5.9 d
	Chile[2]	3.0	0.6	a	3.6	1.0	1.7	a	2.7	4.0	2.4	a	6.3
	Colombia[2]	3.2	0.9	0.0	4.0	0.8	0.8	0.0	1.6	4.0	1.7	0.0	5.7
	Czech Republic	2.3	0.2	0.0	2.5	0.7	0.2	0.0	0.9	3.0	0.4	0.0	3.5
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	2.7	0.2	0.0	2.9	1.2	0.2	0.1	1.5	3.9	0.4	0.1	4.4
	Finland	3.8	0.0	0.0	3.9	1.5	0.1	0.1	1.7	5.4	0.1	0.1	5.5
	France	3.4	0.3	0.0	3.7	1.1	0.3	0.0	1.4	4.5	0.7	0.0	5.2
	Germany	2.6	0.4	0.0	3.0	1.0	0.2	0.0	1.2	3.6	0.6	0.0	4.2
	Greece	2.6	m	0.0	m	0.6	m	0.1	m	3.2	m	0.1	m
	Hungary	2.9	0.4	0.0	3.2	0.7	0.4	0.0	1.1	3.5	0.7	0.0	4.3
	Iceland	4.1	0.2	0.0	4.3	1.1	0.1	0.0	1.3	5.3	0.3	0.0	5.6
	Ireland	2.6	0.1	a	2.7	0.6	0.2	a	0.8	3.2	0.3	a	3.5
	Israel	4.0	0.5	0.0	4.5	0.8	0.6	0.0	1.4	4.8	1.1	0.0	6.0
	Italy	2.6	0.1	0.0	2.7	0.5	0.3	0.0	0.9	3.1	0.5	0.0	3.6
	Japan	2.4	0.2	0.0	2.7	0.4 d	1.0 d	0.0	1.4 d	2.9	1.2	0.0	4.0
	Korea	3.1	0.5	0.0	3.7	0.7	1.1	0.0	1.7	3.8	1.6	0.0	5.4
	Latvia	3.0	0.1	0.0	3.1	0.7	0.3	0.0	1.0	3.7	0.4	0.1	4.2
	Lithuania	2.4	0.1	0.0	2.5	0.7	0.3	0.0	1.1	3.1	0.5	0.1	3.6
	Luxembourg	2.6	0.1	0.1	2.8	0.4	0.0	0.0	0.5	3.0	0.1	0.1	3.2
	Mexico	3.0	0.7	0.0	3.7	0.9	0.4	0.0	1.4	4.0	1.1	0.0	5.1
	Netherlands	3.1	0.4	0.0	3.5	1.1	0.5	0.1	1.7	4.2	0.9	0.1	5.2
	New Zealand	3.9	0.8	0.0	4.7	0.9	0.9	0.0	1.7	4.7	1.7	0.0	6.4
	Norway	4.6	0.0	0.0	4.6	1.8	0.1	0.0	1.9	6.3	0.1	0.0	6.5
	Poland	2.9	0.3	0.0	3.2	0.9	0.2	0.0	1.2	3.8	0.5	0.1	4.4
	Portugal	3.4	0.4	0.1	3.9	0.7 d	0.4 d	0.1 d	1.2 d	4.1	0.8	0.2	5.0
	Slovak Republic	2.4	0.3	0.0	2.7	0.7	0.3	0.0	1.0	3.1	0.6	0.0	3.7
	Slovenia	2.9	0.3	0.0	3.2	0.8	0.1	0.0	1.0	3.8	0.4	0.1	4.3
	Spain	2.6	0.4	0.0	3.1	0.8	0.4	0.0	1.2	3.5	0.8	0.0	4.3
	Sweden	3.8	a	a	3.8	1.4	0.2	0.1	1.6	5.2	0.2	0.1	5.4
	Switzerland	m	m	m	m	1.3	m	0.0	m	m	m	m	m
	Turkey	2.7	0.9	0.0	3.5	1.4	0.5	0.0	1.9	4.1	1.4	0.0	5.4
	United Kingdom	3.7	0.7	0.0	4.4	0.5	1.2	0.1	1.7	4.2	1.9	0.1	6.2
	United States[3]	3.2	0.3	a	3.5	0.9	1.6	a	2.5	4.1	1.9	a	6.0
	OECD average	3.1	0.4	0.0	3.5	0.9	0.5	0.0	1.5	4.0	0.9	0.1	5.0
	EU23 average	3.0	0.3	0.0	3.2	0.9	0.3	0.0	1.2	3.9	0.5	0.1	4.5
Partners	Argentina	3.9	m	a	m	1.1	m	a	m	4.9	m	a	m
	Brazil	4.1	m	m	m	1.0	m	m	m	5.1	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	a	m	m	m	m	m
	Russian Federation	1.9	0.1	0.0	2.0	0.7	0.4	0.0	1.1	2.6	0.5	0.0	3.1
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	4.1	m	m	m	0.6	m	m	m	4.7	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

Note: Some levels of education are included with others. Refer to "x" code in Table C2.1 for details. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes. Post-secondary non-tertiary figures are treated as negligible.
2. Year of reference 2017.
3. The figures for the United States are for net student loans rather than gross, thereby underestimating public transfers.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table C2.3. Index of change in total expenditure on educational institutions as a percentage of GDP (2005, 2011 and 2016)

GDP deflator 2010 = 100, constant prices, by level of education

		Primary, secondary and post-secondary non-tertiary			Tertiary			Primary to tertiary			Change in GDP (2010 = 100)		
		2005	2011	2016	2005	2011	2016	2005	2011	2016	2005	2011	2016
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	86.4	93.2	87.4	90.7	97.2	113.7	87.6	94.3	94.6	87.5	105.3	119.2
	Austria	m	m	m	m	m	m	m	m	m	93.7	102.9	107.7
	Belgium	94.9	99.2	99.6	89.2	100.5	109.2	93.5	99.5	101.9	93.2	101.8	106.9
	Canada[1]	87.5	95.0	89.4	88.3	94.5	84.9	87.9	94.8	87.6	94.2	102.8	115.9
	Chile	106.3	98.2	105.7	84.2	104.2	108.2	97.4	100.6	106.7	83.1	106.1	123.1
	Colombia	m	m	m	m	m	m	m	m	m	80.4	107.4	128.4
	Czech Republic	102.4	100.7	93.1	81.0	115.3	80.6	95.9	105.2	89.3	88.6	101.8	111.3
	Denmark	93.4	91.2	m	90.7	101.0	m	92.6	93.9	m	99.0	101.3	109.2
	Estonia	90.3	86.2	76.2	72.7	105.6	98.1	85.1	91.9	82.6	102.0	107.6	124.1
	Finland	93.4	98.7	97.9	89.9	101.1	90.9	92.3	99.5	95.6	96.0	102.6	103.0
	France	98.4	96.6	94.5	88.1	98.8	98.5	95.6	97.2	95.6	96.0	102.2	106.5
	Germany	98.8	96.1	89.1	85.5	100.7	101.1	95.3	97.3	92.3	94.0	103.7	111.3
	Greece	m	m	m	m	m	m	m	m	m	101.7	90.9	81.6
	Hungary	m	m	m	m	m	m	m	m	m	101.1	101.7	112.7
	Iceland	114.8	101.0	95.3	105.5	95.2	111.6	112.9	99.8	98.6	94.6	101.9	122.5
	Ireland	72.9	97.6	60.0	74.8	95.7	54.6	73.4	97.1	58.7	97.7	103.7	150.5
	Israel	94.4	105.5	114.5	136.7	140.4	121.2	96.8	105.5	107.9	80.8	105.1	124.3
	Italy	101.8	95.5	92.7	88.1	100.9	93.2	98.4	96.8	92.8	101.6	100.6	98.1
	Japan	95.9	97.5	92.4	90.9[d]	98.2[d]	93.2[d]	94.2	97.7	92.6	100.7	102.9	106.7
	Korea	m	m	m	m	m	m	m	m	m	81.7	103.7	119.3
	Latvia	97.6	90.1	92.9	102.8	109.2	76.5	99.1	95.6	88.2	102.5	106.4	121.4
	Lithuania	m	88.9	74.8	82.7	112.1	67.8	m	96.4	72.5	94.3	106.0	123.2
	Luxembourg	m	93.2	79.3	m	m	m	m	m	m	88.6	102.5	117.6
	Mexico	98.2	99.9	95.4	85.0	93.0	101.2	94.8	98.1	96.9	92.9	103.7	119.0
	Netherlands	94.0	97.8	93.4	90.1	101.9	105.9	92.8	99.0	97.2	93.4	101.6	106.1
	New Zealand	m	m	m	m	m	m	m	m	m	92.3	102.6	118.9
	Norway	100.6	97.3	94.3	m	99.1	117.6	m	97.7	100.2	90.6	97.5	119.7
	Poland	103.5	93.7	88.7	106.1	87.2	80.1	104.6	92.1	86.5	79.2	105.0	119.6
	Portugal	95.6	95.3	104.1	91.0	95.5	82.7	94.4	95.4	98.2	97.0	98.2	97.5
	Slovak Republic	93.7	90.6	89.9	98.8	107.6	110.4	94.9	94.5	94.7	79.3	102.8	117.1
	Slovenia	105.6	97.3	84.1	101.1	103.5	82.9	104.5	98.8	83.8	91.8	100.6	105.1
	Spain	88.4	98.6	95.5	83.2	98.6	94.9	86.9	98.6	95.3	94.9	99.0	102.4
	Sweden	105.8	97.6	100.7	92.7	99.3	96.9	101.8	98.1	99.5	92.4	102.7	114.1
	Switzerland	m	m	m	m	m	m	m	m	m	89.8	101.7	110.3
	Turkey	m	m	m	m	m	m	m	m	m	85.3	111.1	145.4
	United Kingdom	95.5	100.9	101.4	m	m	m	m	m	m	96.2	101.4	112.4
	United States	97.0	96.8	90.6	90.7	102.0	91.8	94.5	98.9	91.1	94.3	101.6	113.8
	OECD average	96.6	96.2	91.9	91.6	102.2	94.9	94.7	97.6	92.3	92.5	102.7	114.8
	EU23 average	95.9	95.3	89.9	89.4	101.9	89.7	94.2	97.1	89.7	94.5	102.0	111.3
Partners	Argentina	m	m	m	m	m	m	m	m	m	78.8	106.0	105.4
	Brazil	m	m	m	m	m	m	m	m	m	80.3	104.0	102.3
	China	m	m	m	m	m	m	m	m	m	58.5	109.5	155.8
	Costa Rica	m	m	m	m	m	m	m	m	m	79.3	104.3	125.0
	India	m	m	m	m	m	m	m	m	m	67.1	106.6	148.9
	Indonesia	m	m	m	m	m	m	m	m	m	75.5	106.2	137.4
	Russian Federation	91.5	99.6	102.4	51.0	89.3	79.5	74.1	95.2	92.5	84.0	104.3	107.4
	Saudi Arabia	m	m	m	m	m	m	m	m	m	75.3	110.0	130.6
	South Africa	m	m	m	m	m	m	m	m	m	85.8	103.3	112.0
	G20 average	m	m	m	m	m	m	m	m	m	85.8	104.7	119.3

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Primary education includes pre-primary programmes. Post-secondary non-tertiary figures are treated as negligible.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
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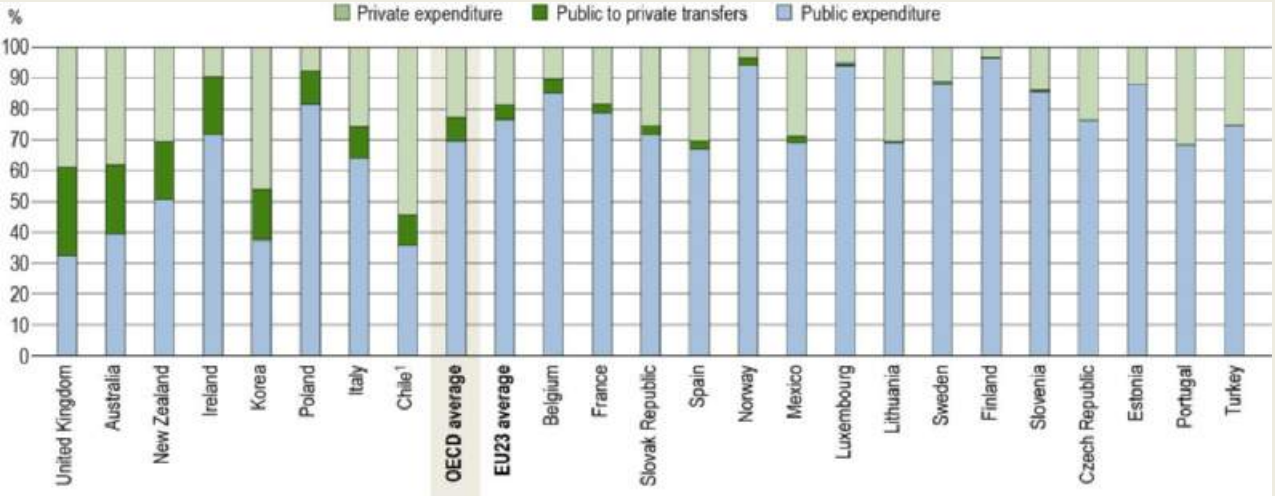
Indicator C3. How much public and private investment in educational institutions is there?

Highlights

- On average across OECD countries, public funds account for a larger share of total spending at primary, secondary and post-secondary non-tertiary level (90%) than at the tertiary level of education (66%).
- The share of private investment on tertiary educational institutions depends mostly on the tuition fees charged to students. More than 60% of total expenditure is privately sourced in Australia, Chile, Japan, Korea, the United Kingdom and the United States.
- Public-to-private transfers for tertiary education provide financial support to the private sector and represents 9% of total spending on tertiary institutions on average across OECD countries. However, they exceed 20% of spending in Australia and the United Kingdom.

Figure C3.1. Distribution of transfers and public and private expenditure on educational institutions (2016)

Tertiary educational levels



Note: International expenditure is aggregated with public expenditure for display purposes.
1. Year of reference 2017.
Countries are ranked in descending order of the proportion of public-to-private transfers.
Source: OECD/UIS/Eurostat (2019), Tables C3.1 and C3.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Today, more people than ever before are participating in a wide range of educational programmes offered by an increasing number of providers. As a result, there has been increasing focus on the balance between public and private funding of education. In the current economic environment, many governments are finding it difficult to provide the necessary resources to support this increased demand for education through public funds alone. In addition, some policy makers assert that those who benefit the most from education – the individuals who receive it – should bear at least some of the costs. While public funding still represents a large part of countries' investment in education, private sources of funding play an increasingly prominent role at some educational levels.

Public sources dominate much of the funding of non-tertiary education, which is usually compulsory in most countries. Across OECD countries, the balance between public and private financing varies mostly at pre-primary (see Indicator C2) and tertiary levels of education, where full or nearly full public funding is less common. At these levels, private funding comes mainly from households, raising concerns about equity in access to education. The debate is particularly intense over funding for tertiary education. Some stakeholders are concerned that the balance between public and private funding might discourage potential students from entering tertiary education. Others believe that countries should significantly increase public support to students such as student loans, while still others support efforts to increase the amount of funding to tertiary education provided by private enterprises. Student loans can reduce the barriers to education created by direct private spending and reduces the cost to taxpayers of direct government spending. In particular, student loans transfer the cost of education in time from when students have little or no income before graduation to when they generally have a larger income after graduation.

This indicator examines the proportion of public, private and international funding allocated to educational institutions at different levels of education. It also breaks down private funding by households and other private entities. It sheds some light on the widely debated issue of how the financing of educational institutions should be shared between public and private entities, particularly at the tertiary level. Finally, it looks at the relative share of public transfers provided to private institutions and individual students and their families to meet the costs of tertiary education.

Other findings

- Households account for the largest share of private expenditure devoted to tertiary educational institutions (74% on average across OECD countries).
- Between 2010 and 2016, the share of expenditure coming from private sources on educational institutions from primary to tertiary level increased by 3 percentage points, while the share from public sources decreased by the same amount on average across OECD countries.
- The share of private expenditure on educational institutions varies across non-tertiary education levels. At the primary and lower secondary levels, around 8% of expenditure on educational institutions comes from private sources. This share reaches 14% at upper secondary education.

Analysis

Share of public and private expenditure on educational institutions

The largest share of funding on educational institutions in OECD countries comes from public sources, although private funding at the tertiary level is substantial. Within this overall average, however, the share of public, private and international funding varies widely among countries.

On average across OECD countries, 83% of the funds for primary to tertiary educational institutions come directly from public sources and 17% from private sources (Table C3.1). However, there are many disparities across countries. In Finland, Luxembourg, Norway and Sweden, private funds constitute 3% or less of expenditure on educational institutions. In contrast, they make up around one-third of educational expenditure in Australia, Chile, Colombia, Japan, Korea, the United Kingdom and the United States. International sources provide a very low share of total expenditure on educational institutions. On average across OECD countries, they account for 1% of total expenditure, reaching around 3% in Estonia, Luxembourg and Portugal.

Non-tertiary educational institutions

Public funding dominates non-tertiary education in all countries. Private funding accounts for 10% of expenditure at these levels of education on average across OECD countries, although it exceeds 20% in Colombia and Turkey (Table C3.1 and Figure C3.2). In most countries, the largest share of private expenditure at these levels comes from households and goes mainly towards tuition fees.

The share of private expenditure on educational institutions varies across countries and according to the level of education. At the primary level, 8% of expenditure on educational institutions comes from private sources on average across OECD countries. However in Norway and Sweden, all educational funding on primary institutions is public, while in Chile, Colombia, Mexico, Spain and Turkey, more than 15% of funds come from private sources (OECD, 2018[1]).

The share of private funding at the lower secondary level is similar to the share at primary level. Around 8% of educational expenditure on lower secondary institutions is privately sourced on average across OECD countries. In three-quarters of OECD countries for which data are available, private expenditure accounts for less than 10% of total expenditure at this level compared to more than 20% in Australia, Colombia and Turkey (OECD, 2018[1]).

Upper secondary education relies more on private funding than the primary and lower secondary levels, reaching an average of 14% across OECD countries. Private sources contribute a similar share to the spending on vocational and general programmes, at 13% of spending on upper secondary institutions on average across OECD countries. However, in Germany, the Netherlands and New Zealand, the share of private funding in vocational upper secondary education is at least 35 percentage points higher than in general education. On the other hand, in Chile, Spain, Turkey and the United Kingdom the share of private funding of general programmes exceeds that of vocational programmes by 10 percentage points or more (OECD, 2018[1]).

The level of public funding in post-secondary non-tertiary education stands at only 72% on average across OECD countries. Unlike the three lower levels presented above, post-secondary non-tertiary education in Germany, Israel, New Zealand, Poland and the United States relies more heavily on private than public sources of funding (OECD, 2018[1]).

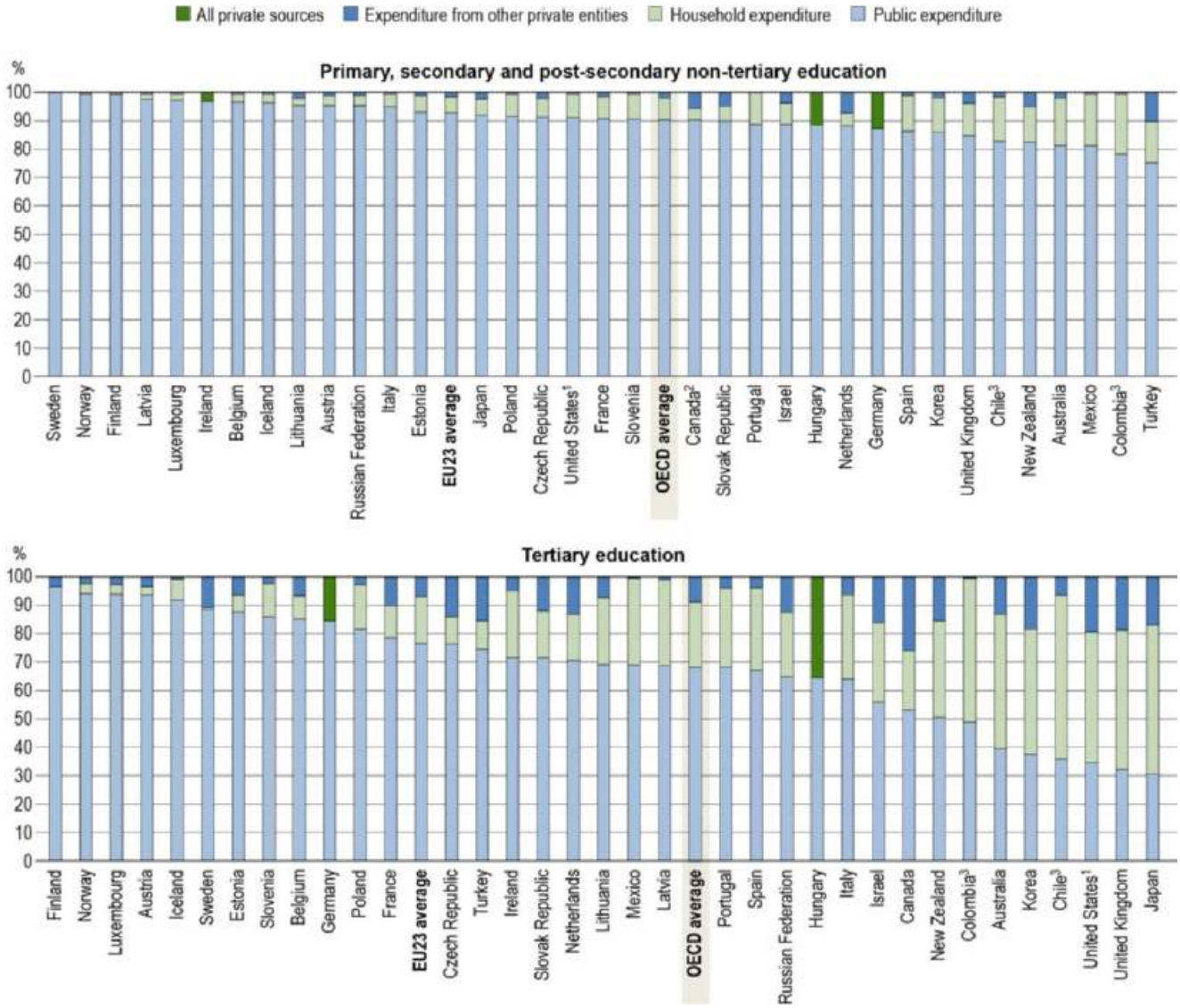
Tertiary educational institutions

The high private returns to tertiary education (see Indicator A5) have led a number of countries to expect a greater financial contribution from the private sector at tertiary level. Some countries have implemented financial support mechanisms to ease the burden on individuals when private contributions are expected, although this is not always the case (see Indicator C5). In all OECD and partner countries, the proportion of private expenditure on

education after transfers is far higher at tertiary than it is at lower levels of education. On average across OECD countries, nearly 32% of total expenditure on tertiary institutions is sourced from the private sector (Table C3.1 and Figure C3.2).

Figure C3.2. Distribution of public and private expenditure on educational institutions (2016)

Final source of funds, by level of education



Note: International expenditure is aggregated with public expenditure for display purposes.
1. The figures for the United States are for net student loans rather than gross, thereby underestimating public transfers.
2. Primary education includes pre-primary programmes.
3. Year of reference 2017.
Countries are ranked in descending order of the proportion of public and international expenditure on educational institutions.
Source: OECD/UIS/Eurostat (2019), Table C3.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

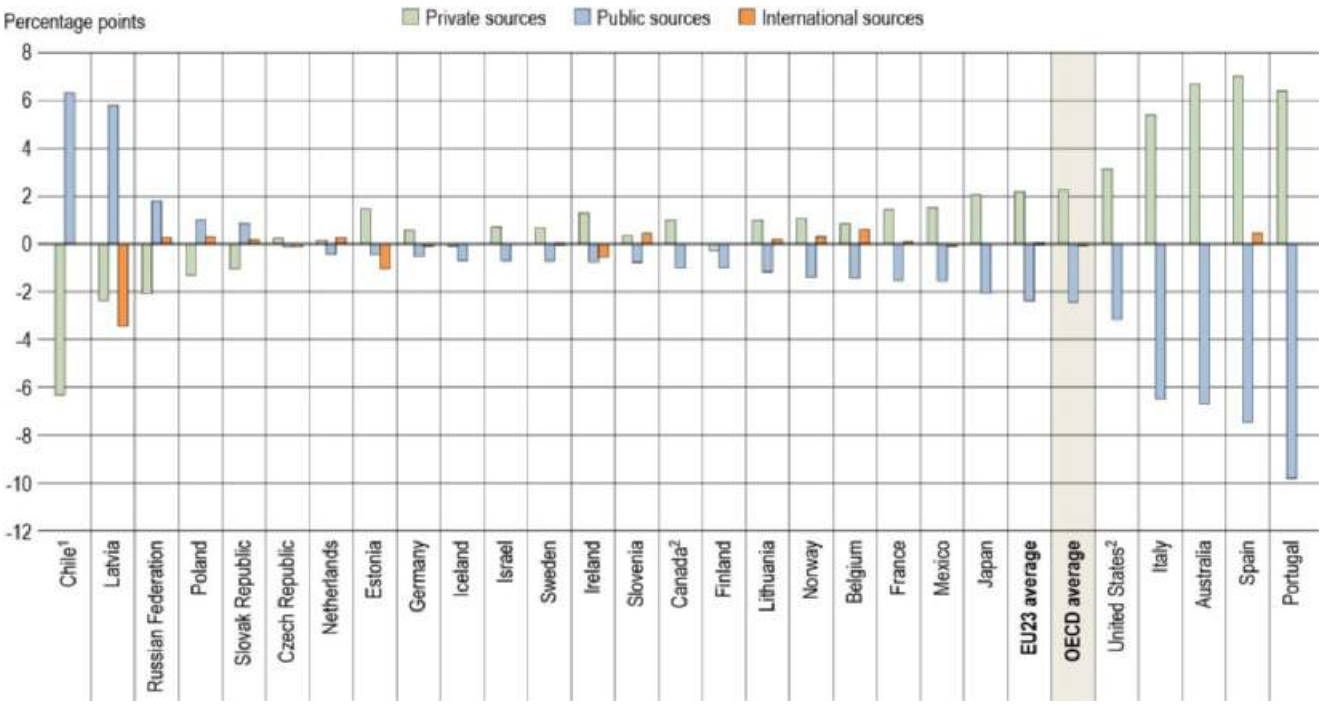
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The share of private funding is strongly related to the level of tuition fees charged by tertiary institutions (see Indicator C5). In countries where tuition fees tend to be low or negligible, such as Austria, Finland, Iceland, Luxembourg and Norway, the share of expenditure on tertiary institutions sourced through the private sector (including subsidised private payments such as tuition fee loans) is less than 10%. In contrast, more than 60% of funding on tertiary institutions is privately sourced in Australia, Chile, Japan, Korea, the United Kingdom and the United States, which also tend to charge students higher fees.

On average across OECD countries, households account for 74% of private expenditure on tertiary institutions. While household expenditure is the biggest source of private funds in the majority of OECD countries, almost all private funding comes from other private entities (mainly for research and development) in Finland and Sweden (Figure C3.2).

Figure C3.3. Change in relative share of public, private and international expenditure on educational institutions (2010 and 2016)

Final source of funds, primary to tertiary education



1. Year of reference 2017.
2. Primary education includes pre-primary programmes.
3. The figures for the United States are for net student loans rather than gross, thereby underestimating public transfers.

Countries are ranked in descending order of the percentage point change in the share of public expenditure on educational institutions.

Source: OECD/UIS/Eurostat (2019), Table C3.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Trends in the share of public and private expenditure on educational institutions

Although educational institutions from primary to tertiary level are still predominantly publicly funded, their reliance on private funding is growing (Table C3.3). Between 2010 and 2016, the share of private spending after transfers on primary to tertiary educational institutions increased by 3 percentage points on average across OECD countries, while the share of public spending fell by about the same amount. Increases in the share of

private funding were observed in about half of OECD and partner countries, with Australia and Spain showing the largest increase (7 percentage points). In contrast, Chile experienced the largest decrease in the share of private spending, balanced by an equivalent increase from the public sector (Figure C3.3).

In many OECD countries, greater student enrolment in non-tertiary education (see Indicator B1) reflects strong individual and social demand. Increases in enrolment have been accompanied by increased investment mainly from private sources and changes in the proportions of public and private expenditure. The increase in the share of funding from private sources between 2010 and 2016 was slightly stronger (3 percentage points) than for public sources (of 2.6 percentage points). These figures, however, are strongly influenced by outliers like Estonia, Portugal, Spain and the United Kingdom, where the share of private funding for non-tertiary education increased by more than 5 percentage points between 2010 and 2016. In addition, large increases were observed during the same period in the share of public funds, notably in Chile and the United Kingdom (around 5 percentage points increase).

At tertiary level, although the share of public funding on institutions increased in some countries, they have fallen below their 2010 levels in others. In many cases, these reductions have been reflected for by an equivalent increase in private funding. This is the case for example for Australia, Belgium, Ireland, Spain and the United States, where the share of public funds decreased by 5 percentage points in 2016 compared to 2010 but the share of private funds increased by the same amount (OECD, 2018[1]).

Public transfers to the private sector

A large share of government spending goes directly to educational institutions, but governments also transfer funds to educational institutions through various other allocation mechanisms (tuition subsidies or direct public funding of institutions based on student enrolments or credit hours) or by subsidising students, households and other private entities (through scholarships, grants or loans to cover tuition fees to educational institutions).

Governments use transfers to provide institutions with incentives to organise their educational programmes and teaching to better meet student requirements, as well as to increase access to education and reduce social inequalities. Channelling funding for institutions through students helps increase competition among institutions and results in greater efficiency in the funding of education.

Public transfers to the private sector play an important role in the financing of tertiary education in some countries (Figure C3.1). In countries where tertiary education is expanding, and particularly in those where students are charged tuition fees, public-to-private transfers of funds are often seen as a means of expanding access for lower-income students. However, there is no single allocation model across OECD countries (OECD, 2017[2]). Despite the considerable impact of public transfers on reducing the financial burden of access to tertiary education, government and international support seems to cover only a relatively small share of the private costs of tertiary education in some countries while in other countries private spending is largely covered by public transfers. This creates challenges for access and learning as higher private spending could deter students from participating in tertiary education, particularly in countries with high tuition fees and limited financial support mechanisms.

On average across OECD countries, 9% of the total funds devoted to tertiary institutions are transfers from the public to the private sector. The countries with the highest transfers are also those that tend to have the highest tuition fees. Transfers exceed 20% in Australia and the United Kingdom, all of which have high tuition fees. In contrast, public transfers were below 1% in countries with no or lower tuition, such as the Czech Republic, Estonia, Finland, Lithuania, Portugal, Slovenia, Sweden and Turkey. However, some countries have high levels of private spending without high levels of support from the government, such as Chile and Korea (OECD, 2017[2]).

Definitions

Initial public, private and international shares of educational expenditure are the percentages of total education spending originating in, or generated by, the public, private and international sectors before transfers

have been taken into account. **Initial public spending** includes both direct public expenditure for educational institutions and transfers to the private sector, and excludes transfers from the international sector. **Initial private spending** includes tuition fees and other student or household payments to educational institutions, minus the portion of such payments offset by public subsidies. **Initial international spending** includes both direct international expenditure for educational institutions (for example a research grant from a foreign corporation to a public university) and international transfers to governments.

Final public, private and international shares are the percentages of educational funds expended directly by public, private and international purchasers of educational services after the flow of transfers. **Final public spending** includes direct public purchases of educational resources and payments to educational institutions. **Final private spending** includes all direct expenditure on educational institutions (tuition fees and other private payments to educational institutions), whether partially covered by public subsidies or not. Private spending also includes expenditure by private companies on the work-based element of school- and work-based training of apprentices and students. **Final international spending** includes direct international payments to educational instructions such as research grants or other funds from international sources paid directly to educational institutions.

Households refer to students and their families.

Other private entities include private businesses and non-profit organisations (e.g. religious organisations, charitable organisations, business and labour associations, and other non-profit organisations).

Public subsidies include public and international transfers such as scholarships and other financial aid to students plus certain subsidies to other private entities.

Methodology

All entities that provide funds for education, either initially or as final payers, are classified as either government (public) sources, non-government (private) sources or international sources such as international agencies and other foreign sources. The figures presented here group together public and international expenditures for display purposes. As the share of international expenditure is relatively small compared to other sources, its integration into public sources does not affect the analysis of the share of public spending.

Not all spending on instructional goods and services occurs within educational institutions. For example, families may purchase commercial textbooks and materials or seek private tutoring for their children outside educational institutions. At the tertiary level, students' living expenses and foregone earnings can also account for a significant proportion of the costs of education. All expenditure outside educational institutions, even if publicly subsidised, are excluded from this indicator. Public subsidies for educational expenditure outside institutions are discussed in Indicators C4 and C5.

A portion of the budgets of educational institutions is related to ancillary services offered to students, including student welfare services (student meals, housing and transport). Part of the cost of these services is covered by fees collected from students and is included in the indicator.

Expenditure on educational institutions is calculated on a cash-accounting basis and, as such, represents a snapshot of expenditure in the reference year. Many countries operate a loan payment/repayment system at the tertiary level. While public loan payments are taken into account, loan repayments from private individuals are not, and so the private contribution to education costs may be under-represented.

Student loans provided by private financial institutions (rather than directly by a government) are counted as private expenditure, although any interest rate subsidies or government payments on account of loan defaults are captured as public funding.

All government to private transfers are considered from the final source of funds in the analysis of this indicator.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[3]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the financial year 2016 (unless otherwise specified) and are based on the UNESCO, OECD and Eurostat (UOE) data collection on education statistics administered by the OECD in 2018 (for details see Annex 3 at https://doi.org/10.1787/f8d7880d-en). Data from Argentina, the People's Republic of China, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

The data on expenditure for 2005, and 2010 to 2016 were updated based on a survey in 2018-19, and expenditure for 2005 to 2015 was adjusted to the methods and definitions used in the current UOE data collection.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator C3 Tables

Table C3.1 Relative share of public, private and international expenditure on educational institutions, final source of funds (2016)

Table C3.2 Relative share of public, private and international expenditure on educational institutions, initial source of funds (2016)

Table C3.3 Trends in the share of public, private and international expenditure on educational institutions (2005, 2010 and 2016)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981096

Table C3.1. Relative share of public, private and international expenditure on educational institutions, final source of funds (2016)

After transfers between public and private sectors, by level of education

		Primary, secondary and post-secondary non-tertiary					Tertiary					Primary to tertiary				
			Private sources					Private sources					Private sources			
		Public sources	Household expenditure	Expenditure by other private entities	All private sources	International sources	Public sources	Household expenditure	Expenditure by other private entities	All private sources	International sources	Public sources	Household expenditure	Expenditure by other private entities	All private sources	International sources
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Countries															
	Australia	81	17	2	19	0	40	47	13 d	60 d	x(8, 9)	68	27	6 d	32 d	x(13, 14)
	Austria	95	3	1	5	a	94	3	3	6	a	95	3	2	5	a
	Belgium	96	3	0	3	1	82	8	7	15	3	93	5	2	6	1
	Canada[1]	90 d	4 d	6 d	10 d	0 d	53	21	26	47	0	75 d	11 d	14 d	25 d	0 d
	Chile[2]	83	16	2	17	a	36	58	6	64	a	63	34	4	37	a
	Colombia[2]	78	22	0	22	0	49	51	0	51	0	70	30	0	30	0
	Czech Republic	91	7	2	9	0	73	10	14	24	4	86	7	5	13	1
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	93	6	1	7	0	81	6	6	12	7	89	6	3	9	3
	Finland	99	1	0	1	0	92	0	3	3	4	97	1	1	2	1
	France	91	8	1	9	0	77	11	10	21	2	87	9	4	13	0
	Germany	87	x(4)	x(4)	13	0	83	x(9)	x(9)	15	2	86	x(14)	x(14)	14	0
	Greece	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Hungary	89	x(4)	x(4)	11	0	63	x(9)	x(9)	35	2	82	x(14)	x(14)	17	0
	Iceland	96	3	0	4	0	89	7	1	8	3	95	4	0	5	1
	Ireland	97	3	a	3	a	72	24	5	28	a	91	8	1	9	a
	Israel	89	8	4	11	0	56	28	16	44	0	81	12	7	19	0
	Italy	95	5	0	5	0	61	30	6	36	3	86	11	2	13	1
	Japan	92	6	2	8	0	31 d	53 d	17 d	69 d	0 d	71	22	7	29	0
	Korea	86	12	2	14	0	38	44	18	62	0	70	22	7	30	0
	Latvia	97	2	0	2	1	65	30	1	31	4	89	9	0	10	1
	Lithuania	95	2	2	5	1	66	24	7	31	3	86	9	4	12	1
	Luxembourg	94	2	0	3	3	92	3	3	6	2	94	3	1	3	3
	Mexico	81	19	0	19	0	69	31	0	31	0	78	22	0	22	0
	Netherlands	88	4	7	12	0	67	16	13	29	3	81	8	9	18	1
	New Zealand	83	12	5	17	0	51	34	15	49	0	74	18	8	26	0
	Norway	100	0	0	0	0	93	3	2	6	1	98	1	1	2	0
	Poland	91	8	0	8	1	79	16	3	18	3	88	10	1	11	1
	Portugal	86	11	0	11	2	61 d	28 d	4 d	32 d	7 d	81	15	1	16	3
	Slovak Republic	90	5	5	10	0	70	16	12	28	2	84	8	7	15	1
	Slovenia	90	9	0	9	0	82	12	2	14	4	88	10	1	11	1
	Spain	86	13	1	14	0	66	29	4	33	2	80	17	2	19	0
	Sweden	100	a	a	a	a	84	1	11	12	4	95	0	3	3	1
	Switzerland	m	m	m	m	a	m	m	m	m	m	m	m	m	m	m
	Turkey	75	15	10	25	0	74	10	15	25	1	75	13	12	25	0
	United Kingdom	85	11	4	15	0	28	49	19	68	4	69	22	8	30	1
	United States[3]	91	9	0	9	a	35	46	19	65	a	68	24	8	32	a
	OECD average	90	8	2	10	0	66	23	9	32	2	83	13	4	17	1
	EU23 average	92	6	2	8	0	73	17	7	24	3	87	8	3	12	1
Partners	Argentina	m	m	m	m	a	m	m	m	m	a	m	m	m	m	a
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	95	4	1	5	0	64	23	12	35	1	84	11	5	16	0
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Some levels of education are included with others. Refer to "x" code in Table C1.1 for details. Private expenditure figures include tuition fee loans and scholarships (subsidies attributable to payments to educational institutions received from public sources). Loan repayments from private individuals are not taken into account, and so the private contribution to education costs may be under-represented. Public expenditure figures presented here exclude undistributed programmes. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes.
2. Year of reference 2017.
3. The figures for the United States are for net student loans rather than gross, thereby underestimating public transfers.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table C3.2. Relative share of public, private and international expenditure on educational institutions, initial source of funds (2016)

Before transfers between public and private sectors, by level of education

		Primary, secondary and post-secondary non-tertiary			Tertiary			Primary to tertiary		
		Public sources	Private sources	International sources	Public sources	Private sources	International sources	Public sources	Private sources	International sources
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	Countries									
	Australia	82	18	0	62	38 [4]	x(5)	75	25 [4]	x(8)
	Austria	m	m	a	m	m	m	m	m	m
	Belgium	98	2	1	87	10	3	95	4	1
	Canada [1]	m	m	m	m	m	m	m	m	m
	Chile [2]	83	17	0	46	54	0	67	33	0
	Colombia [2]	m	m	m	m	m	m	m	m	m
	Czech Republic	91	9	0	73	24	4	86	13	1
	Denmark	m	m	m	m	m	m	m	m	m
	Estonia	86	7	7	78	12	10	83	9	8
	Finland	99	1	0	93	3	4	97	1	1
	France	93	7	0	80	18	2	89	10	0
	Germany	m	m	m	m	m	m	m	m	m
	Greece	m	m	m	m	m	m	m	m	m
	Hungary	m	m	m	m	m	m	m	m	m
	Iceland	m	m	m	m	m	m	m	m	m
	Ireland	96	3	0	90	10	0	95	5	0
	Israel	90	10	0	m	m	m	m	m	m
	Italy	95	5	0	71	26	3	89	10	1
	Japan	m	m	m	m	m	m	m	m	m
	Korea	87	13	0	54	46	0	76	24	0
	Latvia	m	m	m	m	m	m	m	m	m
	Lithuania	94	4	2	61	31	8	84	12	4
	Luxembourg	94	3	3	93	5	2	94	3	3
	Mexico	83	17	0	71	29	0	80	20	0
	Netherlands	m	m	m	m	m	m	m	m	m
	New Zealand	85	15	0	69	31	0	81	19	0
	Norway	100	0	0	96	3	1	99	1	0
	Poland	91	8	1	88	8	4	90	8	2
	Portugal	86	11	2	60	32	8	80	16	4
	Slovak Republic	92	7	1	67	26	7	85	12	2
	Slovenia	90	9	1	81	14	5	88	10	2
	Spain	86	14	0	68	30	2	81	18	0
	Sweden	100	0	0	84	11	4	95	3	1
	Switzerland	m	m	m	m	m	m	m	m	m
	Turkey	75	25	0	74	25	1	75	25	0
	United Kingdom	86	14	0	57	39	4	78	21	1
	United States	m	m	m	m	m	m	m	m	m
	OECD average	90	9	1	74	23	3	85	13	2
	EU23 average	92	6	1	77	19	4	88	10	2
Partners	Argentina	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m
	Costa Rica [2]	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m
	Indonesia [2]	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m
	South Africa [2]	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Primary education includes pre-primary programmes.
2. Year of reference 2017.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table C3.3. Trends in the share of public, private and international expenditure on educational institutions (2005, 2010 and 2016)

Final source of funds

		Primary to tertiary											
		Share of public expenditure on educational institutions (%)				Share of private expenditure on educational institutions (%)				Share of international expenditure on educational institutions (%)			
		2005	2010	2016	Percentage-point difference between 2010 and 2016	2005	2010	2016	Percentage-point difference between 2010 and 2016	2005	2010	2016	Percentage-point difference between 2010 and 2016
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	73	74	68	-7	27	26	32	7	x(5)	x(6)	x(7)	x(8)
	Austria	m	m	95	m	m	m	5	m	a	a	a	m
	Belgium	93	94	93	-1	6	5	6	1	1	1	1	1
	Canada[2]	75	76	75	-1	24	24	25	1	0	0	0	0
	Chile	50	56	63	6	50	44	37	-6	a	a	a	0
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	88	86	86	0	12	13	13	0	0	1	1	0
	Denmark	98	96	m	m	2	3	m	m	0	1	m	m
	Estonia	91	89	89	0	8	7	9	1	1	4	3	-1
	Finland	98[d]	98[d]	97	-1	2	2	2	0	x(1)	x(2)	1	m
	France	89	88	87	-2	11	11	13	1	0	0	0	0
	Germany	86	86	86	-1	14	13	14	1	0	1	0	0
	Greece	94	m	m	m	6	m	m	m	m	m	m	m
	Hungary	99	m	82	m	1	m	17	m	0	m	0	m
	Iceland	95[d]	95[d]	95	-1	5	5	5	0	x(1)	x(2)	1	m
	Ireland	93	92	91	-1	6	8	9	1	1	1	0	-1
	Israel	82	82	81	-1	18	18	19	1	0	0	0	0
	Italy	94[d]	93[d]	86	-6	6	7	13	5	x(1)	x(2)	1	m
	Japan	72	73	71	-2	28	27	29	2	0	0	0	0
	Korea	m	m	70	m	m	m	30	m	m	m	0	m
	Latvia	83	83	89	6	15	12	10	-2	2	5	1	-3
	Lithuania	m	87	86	-1	m	12	12	1	m	1	1	0
	Luxembourg	m	m	94	m	m	m	3	m	m	m	3	m
	Mexico	80	79	78	-2	20	21	22	2	0	0	0	0
	Netherlands	83	82	81	0	17	17	18	0	0	1	1	0
	New Zealand	m	m	74	m	m	m	26	m	m	m	0	m
	Norway	m	99	98	-1	m	1	2	1	m	0	0	0
	Poland	91	87	88	1	9	12	11	-1	0	1	1	0
	Portugal	91[d]	91[d]	81	-10	9	9	16	6	x(1)	x(2)	3	m
	Slovak Republic	83	84	84	1	16	16	15	-1	1	0	1	0
	Slovenia	88	89	88	-1	12	10	11	0	1	1	1	0
	Spain	89	88	80	-7	11	12	19	7	0	0	0	0
	Sweden	96	96	95	-1	3	3	3	1	1	1	1	0
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	m	m	75	m	m	m	25	m	m	m	0	m
	United Kingdom	m	m	69	m	m	m	30	m	m	m	1	m
	United States[2]	72	71	68	-3	28	29	32	3	a	a	a	a
	OECD average	86	86	83	-3	14	14	16	3	0	1	1	0
	EU23 average	91	89	87	-2	9	10	12	2	1	1	1	0
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	100	82	84	2	0	18	16	-2	0	0	0	0
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

Note: Private expenditure figures include tuition fee loans and scholarships (subsidies attributable to payments to educational institutions received from public sources). Loan repayments from private individuals are not taken into account, and so the private contribution to education costs may be under-represented. Public expenditure figures presented here exclude undistributed programmes. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes.
2. The figures for the United States are for net student loans rather than gross, thereby underestimating public transfers.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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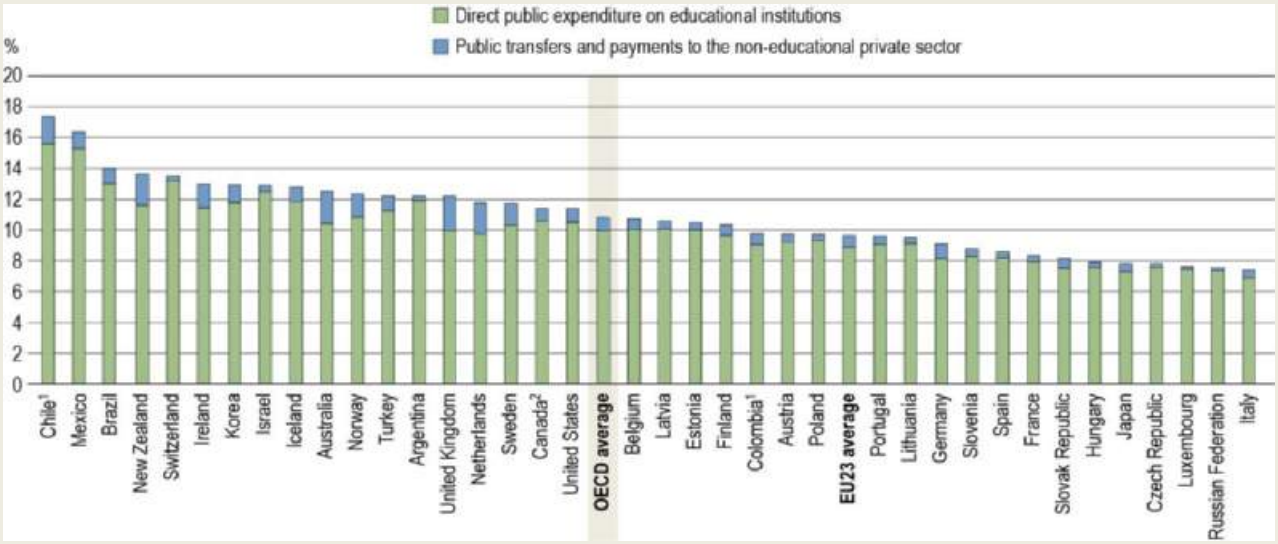
Indicator C4. What is the total public spending on education?

Highlights

- Total public spending on primary to tertiary education as a percentage of total government expenditure averages 11% across OECD countries, ranging from around 7% to around 17%.
- In 2016, public transfers and payments to the non-educational private sector for primary to tertiary education represented on average less than 1% of total government expenditure. This represents 8% of public expenditure on education, with the remaining 92% corresponding to direct public expenditure on education.
- Spending in non-tertiary education (primary, secondary and post-secondary non-tertiary levels) is mostly decentralised, with 57% of final funds (after transfers between levels of government) managed by regional and local governments. In contrast, spending at tertiary level is more centralised with only 17% of final public funds sourced from the regional and local level.

Figure C4.1. Composition of total public expenditure on education as a percentage of total government expenditure (2016)

Primary to tertiary education



1. Year of reference 2017.
2. Primary education includes pre-primary programmes.

Countries are ranked in descending order of total public expenditure on education as a percentage of total government expenditure.

Source: OECD/UIS/Eurostat (2019), Table C4.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Decisions concerning budget allocations to various sectors (including education, healthcare, social security and defence) depend on countries' priorities and the options for private provision of these services. Government funding is appropriate in situations where the public benefit is high but private costs are greater than private benefits. Education is one area in which all governments intervene to fund or direct the provision of services. As there is no guarantee that markets will provide equal access to educational opportunities, government funding of educational services is necessary to ensure that education is not beyond the reach of some members of society.

The economic crisis has put pressure on public budgets with the result that less public funding has been allocated to education in some countries. Budget cuts can represent improved allocation of government funds and may generate gains in efficiency and economic dynamism, but they can also affect the quality of government-provided education, particularly at a time when investment in education is important to support economic growth.

This indicator compares total public spending on education with total government expenditure across OECD and partner countries. It also includes data on the different sources of public funding in education (central, regional and local governments) and on transfers of funds between these levels of government.

Other findings

- Between 2010 and 2016, the average share of total government expenditure devoted to government expenditure on primary to tertiary education remained relatively stable across OECD countries, at around 11%. In half of OECD countries, the share decreased over the same period.
- OECD and partner countries spend more than twice as much on non-tertiary education (primary, secondary and post-secondary non-tertiary levels) as they do on tertiary education, mainly as a result of near-universal enrolment at lower levels.
- The proportion of government expenditure devoted to primary to tertiary education fell between 2005 and 2016 in more than 70% of the countries with available data for both years. It remained stable in most other countries and increased in a number of countries, most notably in Chile and Israel, where the increase was just over 2.7 percentage points.

Analysis

Overall level of public resources invested in education

Countries differ in the share of total public expenditure they devote to education. In 2016, total public expenditure on primary to tertiary education as a percentage of total government expenditure for all services averaged 11% in OECD countries. However, this share varies across OECD and partner countries, ranging from around 7% in Italy to around 17% in Chile (Table C4.1 and Figure C4.1).

Overall, significant government funding is devoted to non-tertiary levels of education. In most countries, and on average across OECD countries, roughly three-quarters of the total public expenditure on primary to tertiary education (about 8% of total government expenditure) was devoted to non-tertiary education (Table C4.1). This is largely explained by the near-universal enrolment rates at non-tertiary levels of education (see Indicator B1), the demographic structure of the population, and the fact that in OECD countries, on average, the funding structure for tertiary education is more private than non-tertiary levels.

The total public expenditure devoted to tertiary education varies widely among countries. On average across OECD countries, total public expenditure on tertiary education amounts to 27% of total public expenditure from primary to tertiary education. Percentages range from 15%-20% in Ireland, Israel, Japan, Latvia, Luxembourg and Portugal to around 35% or more in Austria, Canada, Estonia, the Netherlands, Norway and Turkey (Table C4.1).

Total public expenditure on education includes direct expenditure on institutions (such as the operating costs of public schools), transfers to the non-educational private sector that are attributable to educational institutions, and public subsidies to households for living costs that are not spent in educational institutions. Public transfers and payments to the non-educational private sector for primary to tertiary education (such as public student loans, grants, scholarships and subsidies to private student loans) represent a small share of total government expenditure in OECD and partner countries, but significant differences are observed across countries (Figure C4.1). In 2016, this public expenditure represented less than 1% of total government expenditure and accounted for 8% of public expenditure on education, with the remaining 92% corresponding to direct public expenditure on education. However, the percentage varies by country: public transfers and payments to the non-educational private sector represent between 2% and 3% of total government expenditure in countries such as Australia, the Netherlands, New Zealand and the United Kingdom, and less than 0.3% in the Czech Republic, Luxembourg and the Russian Federation.

The relative size of public budgets must be taken into account when considering public spending on education as a share of total government expenditure. The share of total government expenditure as a proportion of GDP varies greatly among countries (Table C4.1 – web columns). In 2016, around 13% of countries with available data reported that total government expenditure on all services was more than 50% of GDP. A high share of total government expenditure devoted to public expenditure on education does not necessarily translate into a high share when compared to a country's GDP. For example, Ireland allocates 13% of its total government expenditure to education (more than the OECD average of 11%), but total public expenditure on education as a share of GDP is relatively low (3.6% compared to the OECD average of 4.4%). This can be explained by Ireland's relatively low total government expenditure as a share of GDP (28%).

Trends in public expenditure on education as a percentage of total government expenditure, 2005-16

Total public spending on primary to tertiary education decreased slightly across OECD countries between 2005 and 2016 (Table C4.3), falling below 11% of total government expenditure. Over this period, the share of total government expenditure on primary to tertiary education within total government expenditure decreased by 0.7 percentage points on average across OECD countries, and in more than 70% of countries with available data for both 2005 and 2016. The fall was especially substantial (around 3 percentage points) in Estonia, Iceland,

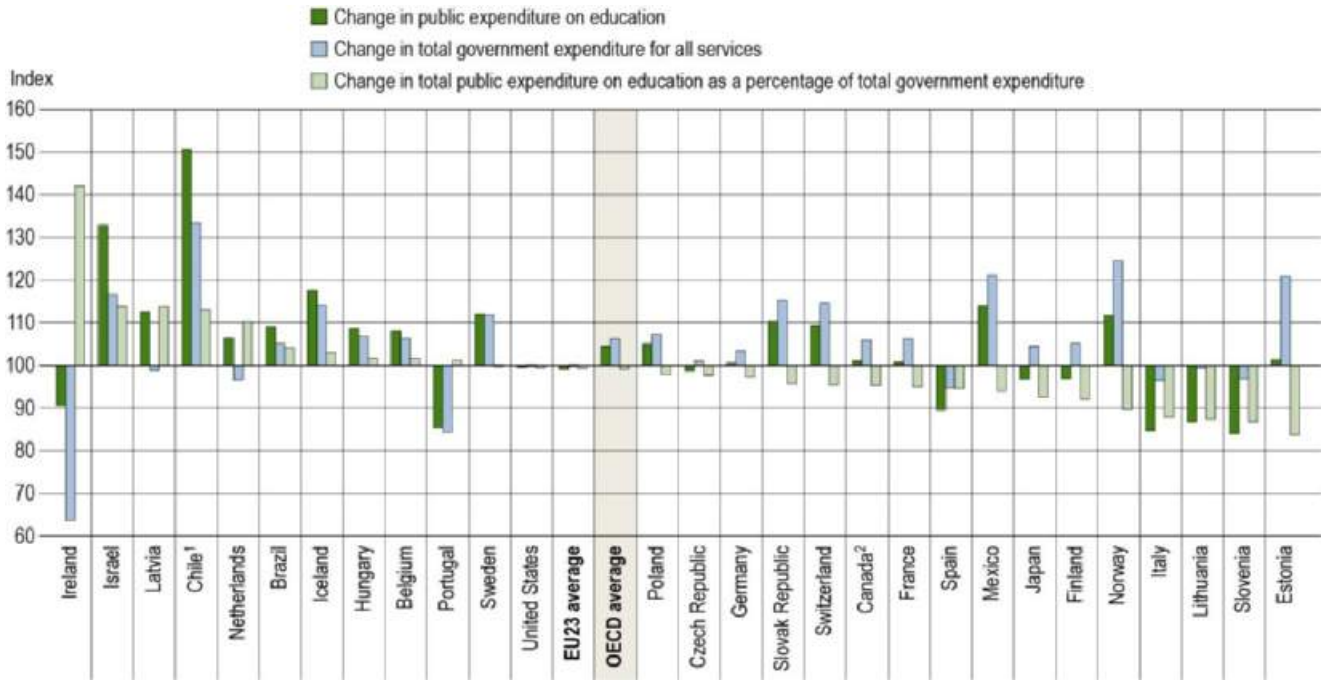
Lithuania, Mexico, Norway and Slovenia, while Chile experienced the largest increase (almost 3 percentage points).

Total expenditure dropped slightly between 2005 and 2010, mainly due to the 2008 financial crisis. During this period, total public expenditure on primary to tertiary education as a percentage of total government expenditure decreased in two-thirds of OECD countries, and by 0.6 percentage points on average. Countries such as Iceland, Ireland, Latvia and Mexico were severely hit during this period and total public expenditure on primary to tertiary education as a percentage of total public expenditure fell by just over 2 percentage points.(Table C4.3).

A different tendency has been observed in the years following the crisis, between 2010 and 2016, probably due in part to countries facing less pressure to pursue fiscal consolidation (Table C4.3 and Figure C4.2). Despite the fact that public expenditure on primary to tertiary education increased over that period in a large number of countries, large increases were also observed in total government expenditure. Over this six-year period, about 30% of countries with available data increased the public expenditure on education as a share of total government expenditure, with Ireland showing the greatest increase (around 4 percentage points) while 75% of countries with available data increased total government expenditure for all goods and services. However, in about half of OECD and partner countries, the increase in public expenditure on education was lower than the increase in government spending overall. Notable examples are Estonia and Norway, where the relative increase in total government expenditure was between 10 and 20 percentage points higher than the increase in public expenditure on education (Table C4.3 and Figure C4.2).

Figure C4.2. Index of change in total public expenditure on education as a share of total government expenditure (2010 and 2016)

Primary to tertiary education (2010 = 100, constant prices)



1. Year of reference 2017
2. Primary education includes pre-primary programmes.

Countries are ranked in descending order of the change in total public expenditure on education as a percentage of total government expenditure.

Source: OECD/UIS/Eurostat (2019), Table C4.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979177

Sources of public funding invested in education

The division of responsibility for education funding between levels of government (central, regional and local) is an important factor in education policy. Indeed, important decisions regarding education funding are made at both the level of government where the funds originate and the level of government at which they are ultimately spent. At the initial level, decisions are made about the volume of resources allocated and any restrictions on how that money can be spent (see Box C4.1). At the final level of government education funding, additional restrictions may be attached to the funds, or this level of government may even pay directly for educational resources (e.g. teachers' salaries).

Box C4.1. How is funding allocated to schools?

There are generally four main approaches to the allocation of funds to schools:

1. **Administrative discretion** is based on an individual assessment of the amount of resources that each school needs.
2. **Incremental costs** takes into consideration historical expenditure to calculate the allocation for the following year. This can incorporate minor modifications to take into account specific changes (e.g. numbers, school facilities or input prices).
3. **Bidding and bargaining** involves schools responding to open competitions for additional funding offered via participation in a particular programme or making a case for additional resources.
4. **Formula funding** involves the use of objective criteria with universally applied rules to establish the amount of resources that each school is entitled to.

The distribution of funding on a discretional or incremental basis is rarely efficient or equitable and tends to be associated with low levels of budget transparency. Schools do not have any incentive to increase their efficiency nor reduce their expenditure. Both approaches are often combined, and mainly used in centralised systems. In contrast, the use of formula funding provides a high degree of transparency to the allocation system. Traditionally, formula funding relies on a mathematical formula taking into account four main groups of variables: 1) student numbers and grade levels; 2) needs; 3) curriculum or educational programmes; and 4) school characteristics (OECD, 2017[1]).

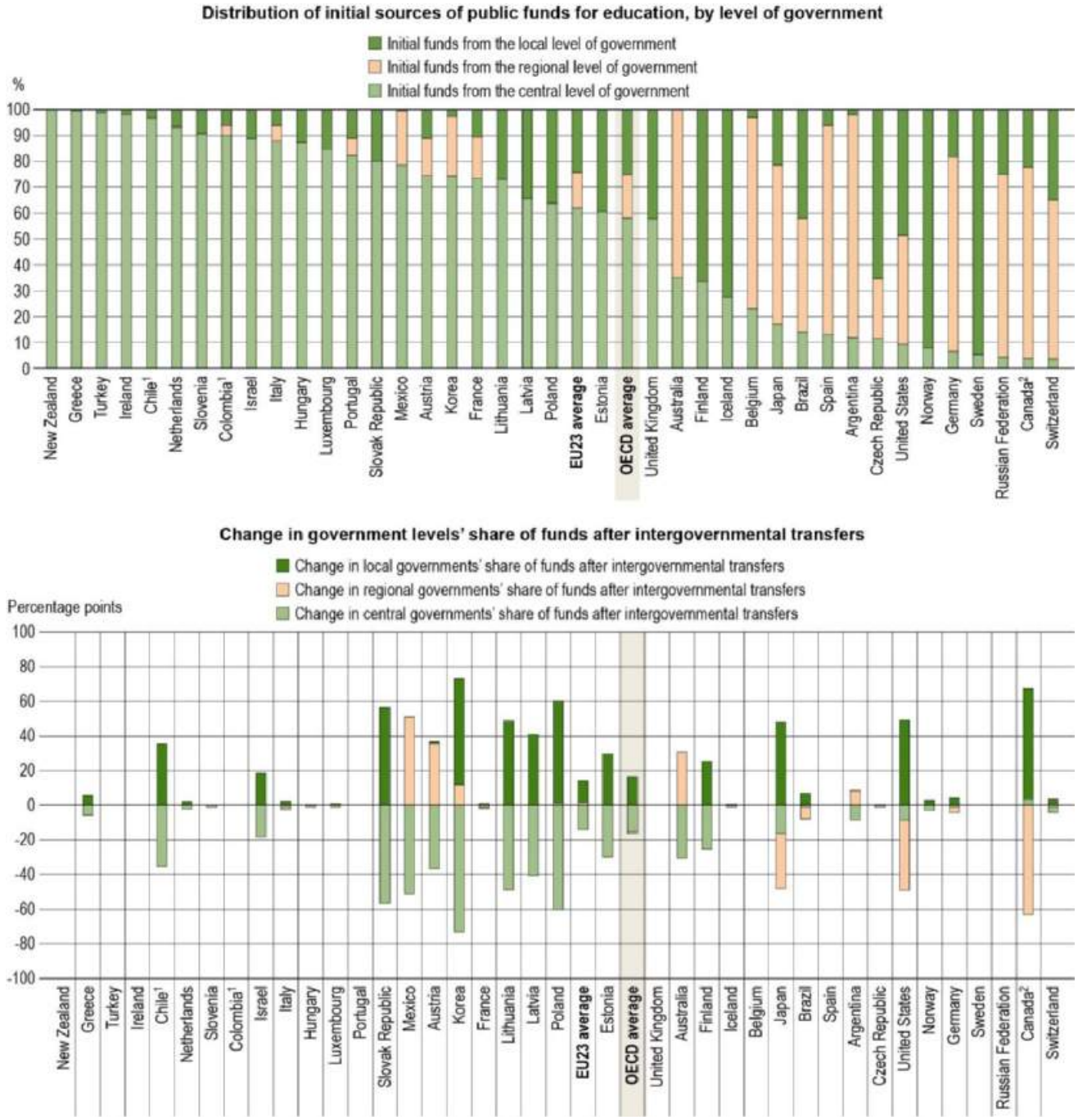
In some countries, education funding is centralised, while in others it is decentralised with funds transferred between levels of government. Complete centralisation can cause delays in decision-making. Decisions that are far removed from those affected also can fail to address changes in local needs and desired practices. Under complete decentralisation, however, units of government may differ in the level of educational resources they spend on students, due to either differences in priorities related to education or differences in their ability to raise education funds. Wide variations in education standards and resources can also lead to inequality of educational opportunities and insufficient attention being paid to long-term national requirements.

In recent years, many schools have become more autonomous and decentralised, as well as more accountable to students, parents and the wider public for their outcomes. The results of the OECD Programme for International Student Assessment (PISA) suggest that when autonomy and accountability are intelligently combined, they tend to be associated with better student performance (OECD, 2016[2]).

The levels of government responsible for funding education differ between levels of education. Typically, public funding is more centralised at the tertiary level than at lower levels of education. In 2016, on average across OECD countries, 58% of the public funds for non-tertiary education came from the central government before transfers to the various levels of government, compared to 87% of the funds for tertiary education (Table C4.2).

Figure C4.3. Distribution of initial sources of public funds for education and change in government levels' share of funds after intergovernmental transfers (2016)

Primary, secondary and post-secondary non-tertiary education



1. Year of reference 2017
2. Primary education includes pre-primary programmes.

Countries are ranked in descending order of the share of initial sources of funds from the central level of government.

Source: OECD/UIS/Eurostat (2019), Table C4.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979196

The division of responsibility for public funding in non-tertiary levels of education varies greatly among countries (Table C4.2 and Figure C4.3):

- On average, central and regional governments are the main initial and final sources of funds in non-tertiary education. However, the central government is the only main initial source of funds and the only final purchaser of educational services in New Zealand. In countries such as Chile, Colombia, France, Greece, Hungary, Ireland, Israel, Italy, Luxembourg, the Netherlands, Portugal, Slovenia, Turkey and the United Kingdom, central government is the source of the majority of initial funds and the main final purchaser of educational goods and services.
- In Austria, Estonia, Korea, Latvia, Lithuania, Mexico, Poland and the Slovak Republic, central government is the main initial source of funds, but regional and local authorities are the main final purchasers of educational services in non-tertiary education.
- Regional governments are both the main initial source and the main final spender of education funds in Australia, Belgium, Germany, Spain and Switzerland. In Canada and Japan, regional governments are the predominant source of initial funds, but local authorities are the main final purchasers of educational services.
- In Finland and Norway, local authorities are both the main initial source of funds and the main final purchasers of educational services. In the United States, both regional and local governments are the main initial sources of funds, but the local governments are the main final purchasers.

On average across OECD countries, more funds are transferred from central to regional and local levels of government for non-tertiary education than for tertiary education. This extends the scope for decentralisation at non-tertiary levels of education. On average across OECD countries, the share of public funds for non-tertiary education provided by the central government falls from 58% to 43% after transfers to other levels of government have been accounted for, while the share of local funds rises as a result from 25% to 42%. There is a great deal of variation in the sources of funds before and after transfers from central to lower levels of government. In Korea, Mexico, Poland and the Slovak Republic, the difference is more than 50 percentage points after transfers to regional and local governments, while in Australia, Austria, Chile, Estonia and Finland, the difference is between 25 and 40 percentage points. In Canada and the United States, where the regional level is mostly responsible for transferring funds to schools, the share of regional funding falls by 40 percentage points or more after transfers to local levels of government (Table C4.2 and Figure C4.3).

Tertiary education, however, is much more centralised than non-tertiary education, as the proportion of public funds coming from the central government is relatively large, both before and after transfers to lower levels of government (Table C4.2). On average across the OECD, the central government manages 87% of funds before transfers and this barely changes when intergovernmental transfers are taken into account. In most OECD and partner countries with data available, central government directly provides more than 60% of public funds in tertiary education; in 15 countries, central government is the only source of initial funding and there are no transfers to regional or local governments. In contrast, countries such as Belgium, Germany, Spain and Switzerland source over 60% of tertiary-level funding from regional governments with little or nothing transferred down to local governments. Local authorities typically do not have an important role in financing tertiary education, with the exception of the United States, where it generates and spend more than 10% of the funds.

Definitions

Intergovernmental transfers are transfers of funds designated for education from one level of government to another. They are defined as net transfers from a higher to a lower level of government. **Initial funds** refer to the funds before transfers between levels of government, while **final funds** refer to the funds after such transfers.

Public expenditure on education covers expenditure on educational institutions and expenditure outside educational institutions such as support for students' living costs and other private expenditure outside

institutions, in contrast to Indicators C1, C2 and C3, which focus only on spending on educational institutions. Public expenditure on education includes expenditure by all public entities, including the education ministry and other ministries, local and regional governments, and other public agencies. OECD countries differ in the ways in which they use public money for education. Public funds may flow directly to institutions or may be channelled to institutions via government programmes or via households. Public funds may be restricted to the purchase of educational services or may be used to support students' living costs.

All government sources of expenditure on education, apart from international sources, can be classified under three levels of government: 1) central (national) government; 2) regional government (province, state, *Bundesland*, etc.); and 3) local government (municipality, district, commune, etc.). The terms "regional" and "local" apply to governments with responsibilities exercised within certain geographical subdivisions of a country. They do not apply to government bodies with roles defined in terms of responsibility for particular services, functions or categories of students that are not geographically circumscribed.

Total government expenditure corresponds to non-repayable current and capital expenditure on all functions (including education) of all levels of government (central, regional and local), including non-market producers (e.g. providing services and goods free of charge, or at prices that are not economically significant) that are controlled by government units, and social security funds. It does not include expenditure derived from public corporations, such as publicly owned banks, harbours and airports. It includes direct public expenditure on educational institutions (as defined above), as well as public support to households (e.g. scholarships and loans to students for tuition fees and student living costs) and to other private entities for education (e.g. subsidies to companies or labour organisations that operate apprenticeship programmes).

Methodology

Figures for total government expenditure and GDP have been taken from the OECD National Accounts Database (see Annex 2).

Public expenditure on education is expressed as a percentage of a country's total government expenditure. The statistical concept of total government expenditure by function is defined by the National Accounts' Classification of the Functions of Government (COFOG). There are strong links between the COFOG classification and the UNESCO, OECD and Eurostat (UOE) data collection, although the underlying statistical concepts differ to some extent (Eurostat (European Commission), 2011[3]).

Expenditure on debt servicing (e.g. interest payments) is included in total government expenditure, but it is excluded from public expenditure on education, because some countries cannot separate interest payments for education from those for other services. This means that public expenditure on education as a percentage of total government expenditure may be underestimated in countries in which interest payments represent a large proportion of total government expenditure on all services.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[4]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the financial year 2016 (unless otherwise specified) and are based on the UOE data collection on education statistics administered by the OECD in 2018 (for details see Annex 3 at https://doi.org/10.1787/f8d7880d-en). Data from Argentina, the People's Republic of China, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator C4 Tables

Table C4.1 Total public expenditure on education as a percentage of total government expenditure (2016)

Table C4.2 Share of sources of total public funds devoted to education (2016)

Table C4.3 Trends in total public expenditure on education as a percentage of total government expenditure (2005, 2010 and 2016)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

Statlink: https://doi.org/10.1787/888933981115

Table C4.1. Total public expenditure on education as a percentage of total government expenditure (2016)

By level of education

		Secondary							Tertiary				Primary to tertiary (including R&D)		
				Upper secondary											
		Primary	Lower secondary	General programmes	Vocational programmes	All programmes	All secondary	Post-secondary non-tertiary	Primary, secondary and post-secondary non-tertiary	Short-cycle tertiary	Long-cycle tertiary	All tertiary	All tertiary (excluding R&D)	Total	Of which: public transfers and payments to the non-educational private sector	Primary to tertiary (excluding R&D)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Countries															
	Australia	4.5	2.7	1.2	0.3	1.6	4.2	0.2	8.9	0.7	2.9	3.6	2.1	12.5	2.1	11.0
	Austria	1.8	2.4	0.7	1.3	1.9	4.3	0.0	6.2	0.6	3.0	3.6	2.7	9.7	0.5	8.8
	Belgium	2.9	1.7	1.3[d]	2.1[d]	3.4[d]	5.1[d]	x(3, 4, 5, 6)	8.0	0.1	2.7	2.7	2.0	10.8	0.7	10.0
	Canada[1]	4.5[d]	x(5)	x(5)	x(5)	3.1	3.1	m	7.6[d]	1.2	2.6	3.8	2.8	11.4[d]	0.9[d]	10.4
	Chile[1]	5.9	2.2	2.6	1.3	3.9	6.1	a	12.0	0.7	4.7	5.4	5.0	17.4	1.8	17.0
	Colombia[2]	3.6	2.8	x(5)	x(5)	1.0[d]	3.8[d]	x(5,6)	7.4	x(11)	x(11)	2.3	m	9.8	0.7	m
	Czech Republic	1.9	2.1	0.5	1.5	2.0	4.1	0.0	6.0	0.0	1.8	1.8	1.0	7.8	0.2	7.0
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	3.3	1.6	1.0	0.8	1.7	3.3	0.4	6.9	a	3.6	3.6	2.8	10.5	0.5	9.7
	Finland	2.5	2.0	0.7	1.9[d]	2.6[d]	4.6[d]	x(4, 5, 6)	7.1	a	3.3	3.3	2.3	10.4	0.7	9.3
	France	2.0	2.1	1.3	0.8	2.0	4.2	0.0	6.2	0.5	1.7	2.2	1.5	8.4	0.4	7.7
	Germany	1.4	2.6	0.9	0.9	1.9	4.5	0.3	6.3	0.0	2.8	2.8	1.9	9.1	1.0	8.1
	Greece	2.5	1.4	0.9	0.6	1.5	2.9	0.0	5.4	a	m	m	m	m	m	m
	Hungary	1.6	1.7	1.5	0.8	2.3	4.0	0.6	6.3	0.0	1.6	1.6	1.3	7.9	0.3	7.6
	Iceland	4.7	2.1	1.5	1.0	2.4	4.6	0.1	9.4	0.1	3.3	3.4	m	12.8	0.9	m
	Ireland	5.0	2.3	x(5)	x(5)	2.5	4.8	0.6	10.4	x(11)	x(11)	2.6	1.9	13.0	1.5	12.2
	Israel	5.9	x(3, 4, 5)	2.9[d]	1.7[d]	4.7[d]	4.7	0.0	10.6	0.5	1.8	2.3	m	12.9	0.4	m
	Italy	1.9	1.3	x(5)	x(5)	2.2[d]	3.5[d]	x(5, 6)	5.4	0.0	1.5	1.5	0.9	6.9	0.5	6.3
	Japan	2.8	1.7	x(5)	x(5)	1.7[d]	3.4[d]	x(5, 6, 9, 10, 11)	6.2	0.2[d]	1.4[d]	1.6[d]	m	7.8	0.5	m
	Korea	4.5	2.6	x(5)	x(5)	2.9	5.5	a	10.0	0.3	2.6	2.9	2.1	12.9	1.2	12.1
	Latvia	4.1	1.9	1.4	1.0	2.4	4.3	0.2	8.5	0.4	1.7	2.0	1.6	10.6	0.5	10.1
	Lithuania	2.2	3.2	1.0	0.4	1.3	4.5	0.4	7.1	a	2.4	2.4	1.8	9.5	0.4	8.9
	Luxembourg	2.4	1.8	0.7	1.4	2.1	3.9	0.0	6.3	0.1	1.1	1.1	0.7	7.4	0.2	7.0
	Mexico	6.2	3.3	1.8	1.1	3.0	6.2	a	12.4	x(11)	x(11)	4.0	2.9	16.4	1.1	15.3
	Netherlands	2.7	2.7	0.7	1.7	2.4	5.1	0.0	7.8	0.0	4.0	4.0	2.9	11.8	2.0	10.7
	New Zealand	4.1	2.7	2.1	0.8	2.8	5.5	0.3	9.9	0.5	3.2	3.7	3.2	13.6	2.0	13.1
	Norway	3.6	1.7	1.4	1.4	2.8	4.5	0.1	8.1	0.1	4.1	4.2	3.1	12.3	1.5	11.3
	Poland	3.6	1.7	0.7	1.2	1.8	3.5	0.0	7.2	0.0	2.6	2.6	2.1	9.7	0.4	9.3
	Portugal	3.1	2.5	x(5)	x(5)	2.2[d]	4.7[d]	x(5, 6, 9, 10, 11, 12)	7.8	0.0[d]	1.8[d]	1.8[d]	1.4[d]	9.6	0.5	9.2
	Slovak Republic	2.1	2.1	0.6	1.3	1.9	4.0	0.1	6.2	0.0	2.0	2.0	1.5	8.2	0.6	7.6
	Slovenia	3.0	1.6	0.6	1.2	2.0	3.7	a	6.7	0.1	2.0	2.1	1.8	8.8	0.5	8.5
	Spain	2.7	1.7	1.2	0.8[d]	2.0[d]	3.7[d]	x(4, 5, 6)	6.4	0.4	1.8	2.2	1.5	8.6	0.4	7.9
	Sweden	3.7	1.8	1.4	1.0	2.5	4.2	0.1	8.0	0.1	3.6	3.7	2.4	11.7	1.4	10.4
	Switzerland	4.3	2.7	1.0[d]	1.6[d]	2.6[d]	5.3[d]	x(3, 4, 5, 6)	9.6	x(11)	x(11)	3.9	2.2	13.5	0.3	11.9
	Turkey	2.3	2.3	1.1	1.8	2.9	5.3	a	7.6	x(11)	x(11)	4.6	3.8	12.2	1.0	11.4
	United Kingdom	4.1	2.0	1.6	1.3	2.9	4.8	a	9.0	0.3	3.0	3.3	2.7	12.2	2.3	11.7
	United States	3.9	2.1	x(5)	x(5)	2.2	4.3	0.0	8.3	x(11)	x(11)	3.1	2.6	11.4	0.9	11.0
	OECD average	3.4	2.1	1.2	1.2	2.4	4.4	m	7.9	0.3	2.6	2.9	2.2	10.8	0.9	10.1
	EU23 average	2.8	2.0	1.0	1.1	2.2	4.2	m	7.0	0.2	2.4	2.5	1.8	9.6	0.7	9.0
Partners	Argentina	4.0	3.2	x(5)	a	2.2	5.5	a	9.5	x(11)	x(11)	2.7	m	12.2	0.3	m
	Brazil	4.1	3.5	x(5)	x(5)	3.0[d]	6.5[d]	x(5,6)	10.5	x(11)	x(11)	3.5	m	14.0	1.2	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	a	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	a	m	m	m	m	m	m	m	m
	Russian Federation	x(8)	x(8)	x(8)	x(8)	x(8)	x(8)	x(8)	5.1	0.4	1.8	2.2	2.1	7.3	0.2	7.2
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	m	m	m	m	m	m	0.6	m	m	m	2.5	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Public expenditure presented in this table includes both public transfers/payments to the non-educational private sector which are attributable to educational institutions and those to households for living costs, which are not spent in educational institutions. Therefore, the data presented here (before transfers) exceed those from public spending on institutions found in Indicators C1, C2 and C3. Data on public expenditure as a share of GDP (i.e. Columns 16 to 19) are available for consultation on line (see StatLink below). See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes.
2. Year of reference 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933979101

Table C4.2. Share of sources of total public funds devoted to education (2016)

Before and after transfers, by level of education

		Primary, secondary and post-secondary non-tertiary						Tertiary						Primary to tertiary					
		Initial funds (before transfers between levels of government)			Final funds (after transfers between levels of government)			Initial funds (before transfers between levels of government)			Final funds (after transfers between levels of government)			Initial funds (before transfers between levels of government)			Final funds (after transfers between levels of government)		
		Central	Regional	Local	Central	Regional	Local	Central	Regional	Local	Central	Regional	Local	Central	Regional	Local	Central	Regional	Local
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Countries																		
	Australia	35	65 d	x(2)	4	96 d	x(5)	91	9 d	x(8)	88	12 d	x(11)	51	49 d	x(14)	29	71 d	x(17)
	Austria	74	14	11	38	50	12	97	3	0	97	3	0	83	10	7	59	33	8
	Belgium	23	74	3	23	74	3	15	84	1	13	85	1	21	77	3	21	77	3
	Canada[1]	4 d	74 d	22 d	3 d	11 d	86 d	m	m	m	m	m	m	m	m	m	m	m	m
	Chile[2]	97	a	3	61	a	39	100	a	0	100	a	0	98	a	2	73	a	27
	Colombia[2]	90	4	6	90	4	6	97	3	0	97	3	0	92	4	4	92	4	4
	Czech Republic	12	23	65	11	23	65	97	1	3	97	1	3	31	18	51	31	18	51
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	61	a	39	31	a	69	100	a	0	100	a	0	74	a	26	54	a	46
	Finland	34	a	66	8	a	92	99	a	1	99	a	1	54	a	46	37	a	63
	France	73	16	10	73	16	11	85	10	5	85	10	5	76	15	9	76	14	10
	Germany	7	75	18	6	72	22	28	70	2	20	78	2	13	74	13	10	74	16
	Greece	100	a	0	94	a	6	m	a	m	m	a	m	m	a	m	m	a	m
	Hungary	87	a	13	87	a	13	100	a	0	100	a	0	90	a	10	90	a	10
	Iceland	28	a	72	27	a	73	100	a	0	100	a	a	47	a	53	46	a	54
	Ireland	98	a	2	98	a	2	100	a	0	100	a	0	99	a	1	99	a	1
	Israel	89	a	11	70	a	30	98	a	2	97	a	3	90	a	10	75	a	25
	Italy	88	6	6	87	5	8	84	16	0	82	18	0	87	8	5	86	8	7
	Japan	17	61	21	1	30	70	91 d	9 d	0 d	90 d	9 d	0 d	32	51	17	19	25	55
	Korea	74	23	3	1	35	64	96	2	2	96	2	2	79	18	3	22	28	50
	Latvia	66	a	34	25	a	75	100	a	0	100	a	0	72	a	28	39	a	61
	Lithuania	73	a	27	24	a	76	99	a	1	99	a	1	79	a	21	43	a	57
	Luxembourg	85	a	15	84	a	16	100	a	0	100	a	0	87	a	13	87	a	13
	Mexico	79	21	0	28	72	0	81	19	0	79	21	0	79	21	0	40	60	0
	Netherlands	94	0	6	91	0	9	100	0	a	100	0	a	96	0	4	94	0	6
	New Zealand	100	a	a	100	a	a	100	a	a	100	a	a	100	a	a	100	a	a
	Norway	8	a	92	5	a	95	98	a	2	98	a	2	39	a	61	37	a	63
	Poland	64	0	36	4	1	95	100	0	0	100	0	0	73	0	26	29	1	70
	Portugal	82	7	11	82	7	11	100 d	0 d	0 d	100 d	0 d	0 d	86	5	9	86	5	9
	Slovak Republic	80	a	20	24	a	76	100	a	0	99	a	1	85	a	15	42	a	58
	Slovenia	91	a	9	91	a	9	99	a	1	99	a	1	93	a	7	93	a	7
	Spain	13	81	6	13	81	6	18	81	1	18	81	1	14	81	5	14	81	5
	Sweden	5	a	95	5	a	95	98	2	0	98	2	0	35	1	65	35	1	65
	Switzerland	4	61	35	0	61	39	34	66	0	17	83	0	12	63	25	5	67	28
	Turkey	99	a	1	99	a	1	100	a	0	100	a	0	99	a	1	99	a	1
	United Kingdom	58	a	42	58	a	42	100	a	0	100	a	0	69	a	31	69	a	31
	United States	9	42	49	1	2	98	46	41	13	46	41	13	19	42	39	13	12	75
	OECD average	58	17	25	43	16	42	87	12	1	83	16	1	64	17	19	53	16	31
	EU23 average	62	14	24	48	15	37	87	13	1	86	13	1	67	14	19	57	15	28
Partners	Argentina	12	86	2	3	94	2	76	24	0	74	m	m	26	72	2	19	m	m
	Brazil	14	44	42	7	44	49	80	19	1	80	19	1	30	38	32	25	38	37
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	4	71	25	4	71	25	80	19	0	80	19	0	27	55	17	27	55	17
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	m	m	m	m	94	m	100	0	0	100	0	0	m	m	m	m	78	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Some levels of education are included with others. Refer to "x" code in Table C4.1 for details. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes.
2. Year of reference 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table C4.3. Trends in total public expenditure on education as a percentage of total government expenditure (2005, 2010 and 2016)

Initial sources of funds, by level of education and by year

		Primary, secondary and post-secondary non-tertiary						Tertiary						Primary to tertiary					
		Public expenditure as a percentage of total government expenditure			Index of change between 2010 and 2016			Public expenditure as a percentage of total government expenditure			Index of change between 2010 and 2016			Public expenditure as a percentage of total government expenditure			Index of change between 2010 and 2016		
		2005	2010	2016	Public expenditure on education	Total government expenditure	Total public expenditure on education as a percentage of total government expenditure	2005	2010	2016	Public expenditure on education	Total government expenditure	Total public expenditure on education as a percentage of total government expenditure	2005	2010	2016	Public expenditure on education	Total government expenditure	Total public expenditure on education as a percentage of total government expenditure
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	Countries																		
	Australia	9.9	10.4	8.9	100.1	117.2	85.4	2.9	3.1	3.6	137.9	117.2	117.7	12.8	13.5	12.5	108.8	117.2	92.8
	Austria	m	m	6.2	m	102.5	m	m	m	3.6	m	102.5	m	m	m	9.7	m	102.5	m
	Belgium	7.7	8.0	8.0	106.9	106.4	100.5	2.5	2.6	2.7	111.5	106.4	104.8	10.2	10.6	10.8	108.0	106.4	101.6
	Canada[1]	m	m	7.6	m	106.0	m	m	m	3.8	m	106.0	m	11.4	12.0	11.4	101.0	106.0	95.4
	Chile	12.4	11.5	12.1	140.5	133.3	105.4	2.3	4.0	5.4	179.7	133.3	134.8	14.6	15.5	17.5	150.6	133.3	113.0
	Colombia	m	m	7.3	m	m	m	m	m	2.4	m	m	m	m	m	9.7	m	m	m
	Czech Republic	m	m	6.0	m	101.0	m	m	m	1.8	m	101.0	m	8.1	8.0	7.8	98.7	101.0	97.7
	Denmark	m	m	m	m	101.5	m	m	m	m	m	101.5	m	14.1	13.1	m	m	101.5	m
	Estonia	m	m	6.9	m	120.9	m	m	m	3.6	m	120.9	m	13.1	12.5	10.5	101.3	120.9	83.8
	Finland	7.7	7.4	7.1	100.1	105.2	95.2	3.9	3.8	3.3	90.5	105.2	86.1	11.6	11.3	10.4	96.8	105.2	92.1
	France	6.9	6.5	6.2	100.7	106.2	94.8	2.2	2.3	2.2	101.3	106.2	95.4	9.1	8.8	8.4	100.9	106.2	95.0
	Germany	6.5	6.7	6.3	97.3	103.3	94.1	2.4	2.7	2.8	108.7	103.3	105.2	8.8	9.4	9.1	100.6	103.3	97.3
	Greece	m	m	5.4	m	76.0	m	m	m	m	m	76.0	m	8.7	m	m	m	76.0	m
	Hungary	6.8	5.8	6.3	115.3	106.9	107.8	2.0	1.9	1.6	89.0	106.9	83.2	8.9	7.8	7.9	108.7	106.9	101.7
	Iceland	m	m	9.4	m	114.1	m	m	m	3.4	m	114.1	m	15.6	12.4	12.8	117.5	114.1	103.0
	Ireland	m	m	10.4	m	63.8	m	m	m	2.6	m	63.8	m	13.5	9.1	13.0	90.6	63.8	142.1
	Israel	8.1	9.0	10.6	136.7	116.7	117.2	2.2	1.7	2.3	157.3	116.7	134.8	10.2	11.3	12.9	132.9	116.7	113.9
	Italy	m	m	5.4	m	96.5	m	m	m	1.5	m	96.5	m	8.1	7.9	6.9	84.8	96.5	87.9
	Japan	m	m	6.2	m	104.4	m	m	m	1.6[4]	m	104.4	m	8.6	8.4	7.8	96.7	104.4	92.6
	Korea	m	m	10.0	m	124.2	m	m	m	2.9	m	124.2	m	m	m	12.9	m	124.2	m
	Latvia	9.8	7.5	8.5	112.1	98.8	113.5	2.4	1.8	2.0	113.8	98.8	115.2	12.3	9.3	10.6	112.5	98.8	113.8
	Lithuania	9.6	8.0	7.1	89.0	99.4	89.5	3.0	3.0	2.4	81.2	99.4	81.7	12.6	10.9	9.5	86.9	99.4	87.4
	Luxembourg	m	m	6.3	m	111.7	m	m	m	1.1	m	111.7	m	m	m	7.4	m	111.7	m
	Mexico	15.9	13.4	12.4	111.8	121.2	92.3	4.0	4.0	4.0	121.5	121.2	100.3	19.9	17.4	16.4	114.0	121.2	94.1
	Netherlands	8.0	7.5	7.8	100.4	96.6	104.0	3.3	3.2	4.0	120.5	96.6	124.8	11.3	10.7	11.8	106.5	96.6	110.2
	New Zealand	m	m	9.9	m	98.9	m	m	m	3.7	m	98.9	m	m	m	13.6	m	98.9	m
	Norway	m	m	8.1	m	124.6	m	m	m	4.2	m	124.6	m	15.0	13.8	12.3	111.8	124.6	89.7
	Poland	8.4	7.4	7.2	103.4	107.4	96.3	2.7	2.5	2.6	109.8	107.4	102.3	11.0	10.0	9.7	105.0	107.4	97.8
	Portugal	m	m	7.8	m	84.4	m	m	m	1.8	m	84.4	m	9.7	9.5	9.6	85.4	84.4	101.2
	Slovak Republic	m	m	6.2	m	115.2	m	m	m	2.0	m	115.2	m	8.2	8.5	8.2	110.3	115.2	95.8
	Slovenia	8.8	7.4	6.7	87.6	96.7	90.5	2.7	2.7	2.1	74.5	96.7	77.0	11.5	10.1	8.8	84.1	96.7	86.9
	Spain	m	m	6.4	m	94.7	m	m	m	2.2	m	94.7	m	9.4	9.1	8.6	89.5	94.7	94.5
	Sweden	8.1	7.9	8.0	113.2	111.9	101.2	3.4	3.8	3.7	109.8	111.9	98.1	11.5	11.7	11.7	112.1	111.9	100.2
	Switzerland	10.4	9.8	9.6	112.1	114.5	97.9	m	m	3.9	m	114.5	m	14.5	14.1	13.5	109.4	114.5	95.5
	Turkey	m	m	7.6	m	143.9	m	m	m	4.6	m	143.9	m	m	m	12.2	m	143.9	m
	United Kingdom	m	m	9.0	m	98.2	m	m	m	3.3	m	98.2	m	m	m	12.2	m	98.2	m
	United States	9.1	8.2	8.3	102.0	100.2	101.8	3.5	3.3	3.1	93.6	100.2	93.4	12.6	11.5	11.4	99.6	100.2	99.4
	OECD average	m	m	7.9	m	106.2	m	m	m	2.9	m	106.2	m	11.6	11.0	10.8	104.5	106.2	99.2
	EU23 average	m	m	7.0	m	100.2	m	m	m	2.5	m	100.2	m	10.6	9.9	9.6	99.0	100.2	99.3
Partners	Argentina	m	m	9.5	m	130.9	m	m	m	2.7	m	130.9	m	m	m	12.2	m	130.9	m
	Brazil	8.2	11.1	10.5	99.9	105.1	95.1	2.1	2.4	3.5	153.0	105.1	145.6	10.3	13.5	14.0	109.4	105.1	104.1
	China	m	m	m	m	201.0	m	m	m	m	m	201.0	m	m	m	m	m	201.0	m
	Costa Rica	m	m	14.0	m	107.2	m	m	m	4.9	m	107.2	m	m	m	m	m	107.2	m
	India	m	m	m	m	144.5	m	m	m	m	m	144.5	m	m	m	m	m	144.5	m
	Indonesia	m	m	m	m	136.9	m	m	m	m	m	136.9	m	m	m	m	m	136.9	m
	Russian Federation	m	m	5.1	m	110.7	m	m	m	2.2	m	110.7	m	m	m	7.3	m	110.7	m
	Saudi Arabia	m	m	m	m	153.1	m	m	m	m	m	153.1	m	m	m	m	m	153.1	m
	South Africa	m	m	m	m	116.3	m	m	m	m	m	116.3	m	m	m	m	m	116.3	m
	G20 average	m	m	m	m	122.1	m	m	m	m	m	122.1	m	m	m	m	m	122.1	m

Note: Public expenditure presented in this table includes both public transfers/payments to the non-educational private sector which are attributable to educational institutions and those to households for living costs, which are not spent in educational institutions. Therefore, the data presented here (before transfers) exceed those from public spending on institutions found in Indicators C1, C2 and C3. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Indicator C5. How much do tertiary students pay and what public support do they receive?

Highlights

- Tuition fees charged by institutions vary significantly across countries. In about one-third of countries, public institutions do not charge any tuition fees for national students enrolled in bachelor's or equivalent programmes. In another third of countries, tuition fees are low or moderate (below USD 2 600 per year). In the remaining countries, they are high and range from USD 3 000 to over USD 9 000 per year.
- Annual tuition fees vary not only across countries, but also within countries for a given level of education. At bachelor's or equivalent level, the countries with the highest average tuition fees also tend to have wide ranges of tuition fees. In contrast, in countries with the lowest average tuition fees, the range of tuition fees tends be very narrow – with the difference between the minimum and maximum annual fees not exceeding USD 200.
- Financial mechanisms to support students enrolled in tertiary education such as grants, scholarships and loans tend to be more developed in countries that charge either relatively high tuition fees or no tuition fees at all.

Context

OECD and partner countries have different approaches to providing financial support to students and to sharing the costs of tertiary education among governments, students and their families, and other private entities.

Tuition fees bridge the gap between the costs incurred by tertiary educational institutions and the revenues they receive from sources other than students and their families. Many factors may influence the level of costs, including: salaries of teachers and researchers; development of digital learning and non-teaching services; changes in demand for tertiary education; investments to support internationalisation; and amount and type of research activities undertaken by faculty and staff. Tertiary institutions partly cover their costs through internal resources (endowments) or revenue from private sources other than students and their families (see Indicator C3). The remainder is covered by student tuition fees and public sources.

Public support to students and their families can be a way to encourage participation in education, while also indirectly funding tertiary institutions. Channelling funding to institutions through students may also help to increase competition among institutions and encourage them to better respond to student needs. Student support comes in many forms, including means-based subsidies, family allowances for students, tax allowances for students or their parents, or other household transfers. Governments strive to strike the right balance among these different subsidies, especially in periods of financial crisis. Based on a given amount of subsidies, public support such as tax reductions may provide less support for low-income students than means-tested subsidies, as tax reductions are not targeted specifically at low-income students. However, such measures may still help to reduce the financial disparities between households with and without children in education.

Other findings

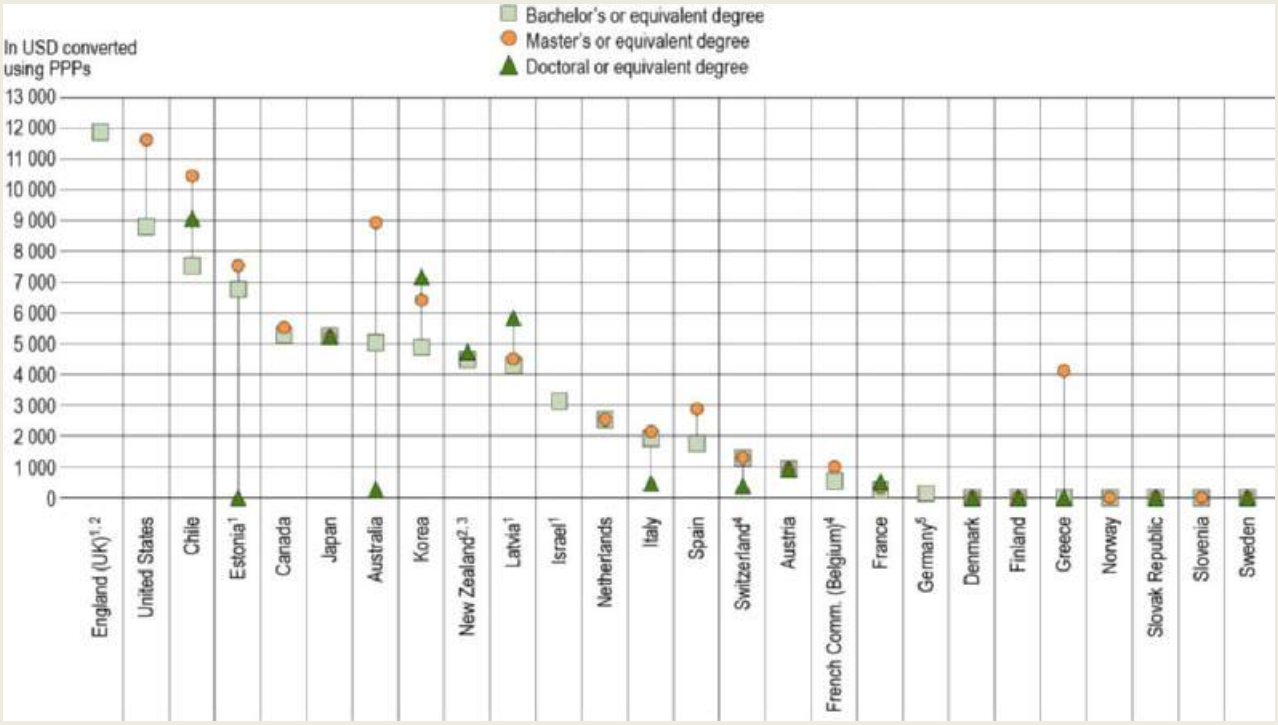
- The level of tuition fees charged by institutions rarely reflects labour-market opportunities. In most countries, the earnings advantage for completing a master's programme or a doctorate is greater than

for attaining tertiary education at bachelor's level. Nonetheless, in more than half of OECD countries, public institutions charge similar tuition fees regardless of the level of education.

- At the bachelors' level, public institutions charge higher tuition fees for foreign students than for national students in around one-third of countries with available data. Australia, Canada and Sweden show the largest differences. In these three countries, public institutions charge foreign students on average over USD 13 900 more per year than national students.
- OECD governments support students' living or educational costs through various combinations of loans, grants or scholarships. In most countries with no tuition fees at the bachelor's level, students tend to receive financial support in the form of both loans and scholarships or grants. In countries with low or moderate tuition fees (below USD 2 600 per year), less than half of students receive financial support, and those who do mainly receive it in the form of grants or scholarships only. There is more variation among countries with high tuition fees, but one common pattern is that students tend to rely to some extent on income-contingent loans.

Figure C5.1. Tuition fees charged by public tertiary educational institutions to national students, by level of education (2017/18)

Annual average (or most common) tuition fees charged to full-time national students, in equivalent USD converted using PPPs for GDP



1. Data is presented for government-dependent institutions instead of public institutions.
2. Short-cycle tertiary programmes are included in bachelor's or equivalent programmes.
3. Estimates include universities only and exclude ISCED 6, such as postgraduate certificates and diplomas.
4. Government-dependent private institutions are included in public institutions.
5. Tuition fees are presented for total tertiary education instead of bachelor's or equivalent level. Tuition fees correspond to national and foreign students. Only academic programmes are included.

Countries and economies are ranked in descending order of annual average (or most common) tuition fees at the bachelor's or equivalent level.

Source: OECD (2019), Table C5.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Analysis

Differentiation of tuition fees between tertiary degrees

Entry into tertiary education often implies costs for students and their families, in terms of both tuition fees and living expenses, although they may also receive financial support to be able to afford tertiary education. Tuition fees vary significantly across countries. This is true for instance at the bachelor's level, which accounts for most national entrants into tertiary programmes in OECD countries (see Indicator B4). Students in public institutions paid no tuition fees in about one-third of the countries – including the Nordic countries (Denmark, Finland, Norway and Sweden), and other countries such as Greece, the Slovak Republic and Slovenia. In another third of countries (mostly European countries), tuition fees are low or moderate, with an average cost for students of below USD 2 600 per year. In the remaining countries with available data (Australia, Canada, Chile, England (United Kingdom), Israel, Japan, Latvia, Korea, New Zealand and the United States), tuition fees range from USD 3 000 to over USD 9 000 per year. For instance, tuition fees exceed USD 10 000 in England (United Kingdom), where the majority of students enrol in government-dependent private institutions. Finally, a particular case is found in Estonia, where public institutions charge no tuition fees for bachelor's degrees, but government-dependent private institutions (which account for 65% of students enrolled at that level) charge fees of USD 6 700 (Figure C5.1).

Attaining a higher tertiary qualification than a bachelor's degree leads to better employment opportunities and earnings prospects (see Indicator A4). If tuition fees reflected labour-market opportunities, they would therefore tend to increase with the level of education. However, in the majority of OECD countries, public institutions charge similar tuition fees for full-time national students in master's and doctoral programmes than for students in bachelor's programmes (Figure C5.1). The additional costs that master's and doctoral students face are thus limited to the forgone earnings from the additional years of education and their delayed entry into the labour market. For instance, in all countries with no tuition fees at bachelor's level (except Greece for a number of master's programmes), tuition is also free of charge at master's and doctoral levels. Similarly, several countries with low, moderate or high tuition fees (such as Austria, Canada, France, Japan, the Netherlands and New Zealand) also charge similar fees across all tertiary educational levels.

In contrast, in some countries, average tuition fees reflect labour-market opportunities more closely, as they increase between the bachelor's and master's level. This is the case for instance in Chile, Korea and the United States, where average tuition fees for master's programmes in public institutions are about 30% higher than for bachelor's programmes. In Australia, the French Community of Belgium and Spain, they are over 50% higher (Figure C5.1).

In a few countries, tuition fees are lower for doctoral programmes than for bachelor's and master's programmes. This is the case in Australia, Italy and Switzerland (public institutions) and in Estonia (government-dependent private institutions). In Australia, for example, the annual average tuition fees in public institutions for doctoral programmes are about 20 times lower than for bachelor's programmes (about USD 260 compared to USD 5 000). In contrast, public institutions in Chile and Korea charge higher tuition fees for doctoral programmes than for bachelor's and master's programmes. This is also true in Latvia for government-dependent private institutions (Figure C5.1).

Variations within countries in tuition fees for bachelor's programmes

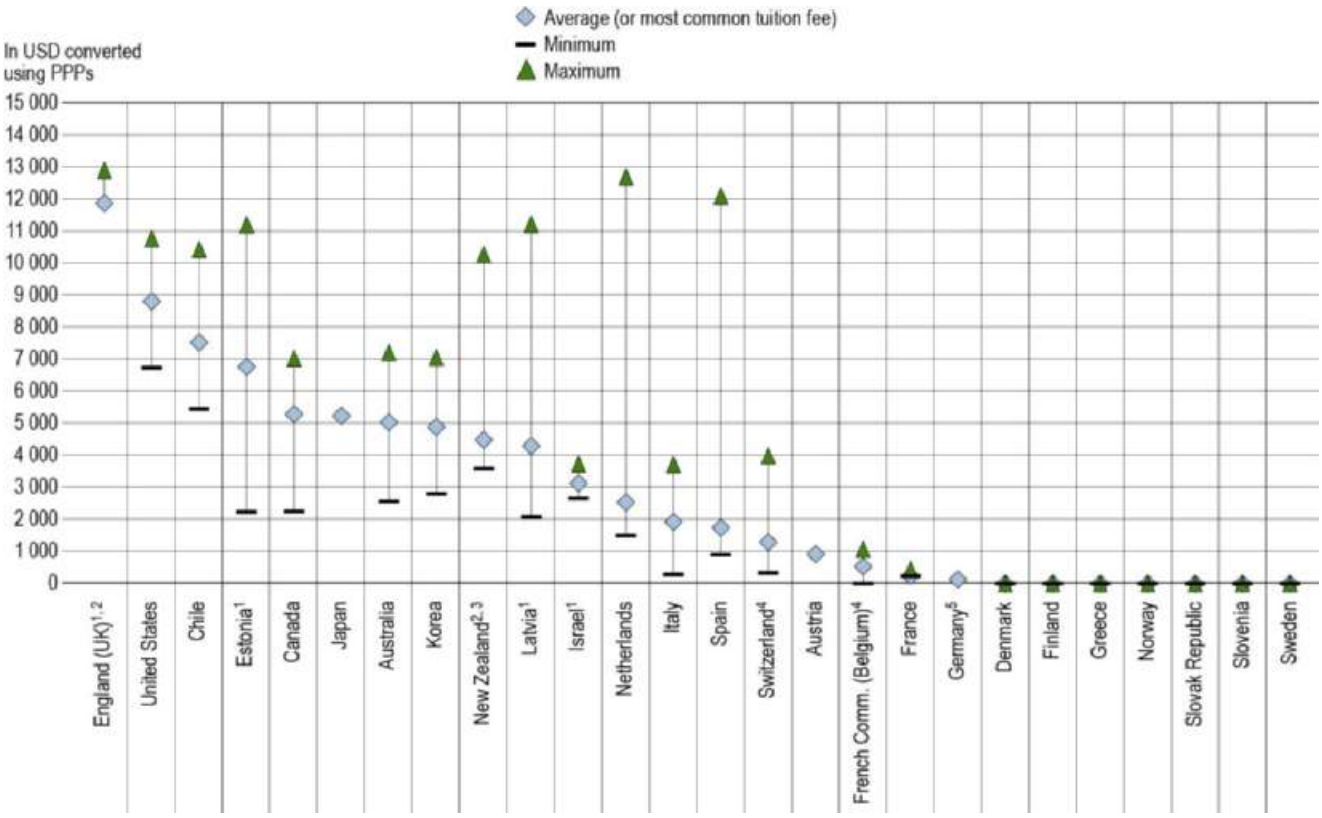
Tuition fees vary not only across countries and educational levels, but also within countries for a given level of education. At bachelor's or equivalent level, the countries with the highest average tuition fees tend to have wider ranges of tuition fees. For instance, in Canada, where annual average tuition fees in public institutions are around USD 5 300, tuition fees range from USD 2 250 to USD 7 000. Similarly, in Chile, where average tuition fees are around USD 7 500, they range from USD 5 450 to USD 10 400. In the United States (average fees of USD 8 800), tuition fees range from USD 6 700 to USD 10 750 (Figure C5.2).

The range of tuition fees is also wide in a few countries with more moderate fees, such as the Netherlands (annual average fees of USD 2 500) and Spain (annual average fees of USD 1 750). In the Netherlands, tuition fees range from USD 1 500 to USD 12 700, and in Spain they range from USD 900 to USD 12 100. In these two countries, the high tuition fees only apply for a small number of students.

In contrast, in the countries with the lowest average tuition fees (such as Denmark, Finland, France, Greece, Norway, the Slovak Republic, Slovenia and Sweden), the range of tuition fees tends be very narrow – with the difference between the minimum and maximum annual fees not exceeding USD 200.

Figure C5.2. Minimum, maximum and average (or most common) annual tuition fees charged by public institutions for national students at bachelor's or equivalent level (2017/18)

Annual tuition fees charged to full-time national students, in equivalent USD converted using PPPs for GDP



Note: The year of reference may differ across countries and economies. Please see Annex 3 for details.
1. Data are presented for government-dependent institutions instead of public institutions.
2. Short-cycle tertiary programmes are included in bachelor's or equivalent programmes.
3. Estimates include universities only and exclude ISCED 6, such as postgraduate certificates and diplomas.
4. Government-dependent private institutions are included in public institutions.
5. Tuition fees are presented for total tertiary education instead of bachelor's or equivalent level. Tuition fees correspond to national and foreign students. Only academic programmes are included.
Countries and economies are ranked in descending order of annual average (or most common) tuition fees.
Source: OECD (2019), Table C5.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Differentiation of tuition fees by type of institution for bachelor's programmes

The need for financial resources and the goal of guaranteeing an affordable education for all lead to different levels of tuition fees for different types institutions. Independent private institutions are often less affected by government regulation and less reliant on public funds than public institutions. In some cases, they are also more pressed by competition to provide the best possible services to students. As a result, they may charge higher annual tuition fees than public institutions for bachelor's or equivalent programmes in all OECD countries with available data.

In over one-third of countries with available data, tuition fees are at least twice as high in independent private institutions as in public institutions (Table C5.1). In the United States, the average annual tuition fee charged by independent private institutions for national students at the bachelor's or equivalent level is USD 29 500, more than three times the average annual tuition fee in public institutions (USD 8 800). In Japan and Korea, the average annual tuition fee at this level is between USD 8 700 and USD 8 800 in independent private institutions, while it is closer to USD 5 000 in public institutions. Tuition fees are about four times higher in independent private institutions than in public institutions in Spain, about three times higher in Italy, and about twice as high in Israel. In the Slovak Republic, tuition fees for bachelor's or equivalent programmes are around USD 2 150, while public institutions do not charge tuition fees. Similarly, in Norway, tuition fees for bachelor's and master's degrees (combined) are around USD 5 700 in independent private institutions, while there are no tuition fees in public institutions.

In contrast, the difference between public institutions and government-dependent private institutions in average annual tuition fees at the bachelor's or equivalent level is minimal in most countries with available data. Neither type of institution charges fees in Finland, Slovenia and Sweden, and private and public institutions charge very similar average tuition fees in Austria and Israel (Table C5.1).

Differentiation of tuition fees between national and foreign students

National policies on tuition fees generally cover all students studying in the country's educational institutions, including foreign students (see *Definitions* section). However, tuition fees may be higher for foreign students, and differences between national and foreign students in fees can have an impact on the international flows of students, as can other factors, such as public support from their home countries (OECD, 2017[1]). These differences can attract students to study in some countries and discourage them from studying in others (see Indicator B6), especially in a context where an increasing number of OECD countries are charging higher tuition fees for foreign students than for national ones. However, tertiary education in countries with higher fees for foreign students can still be attractive because of the quality and prestige of their educational institutions or the expected labour-market opportunities in the country after graduation.

National and foreign students generally pay similar tuition fees in Chile, France, Greece, Israel, Italy, Japan, Korea, Norway, the Slovak Republic and Spain (Table C5.1). In European Union (EU) and European Economic Area (EEA), countries charge the same tuition fees to nationals and students from other EU and EEA countries.

In some countries, however, the difference in tuition fees for national and foreign students can be significant. For instance, at the bachelor's level, in Australia, Canada and the United States, public institutions charge on average over USD 13 900 more per year for foreign students than for national students (Table C5.1). In the United States, international students and national students who study outside their state pay higher tuition fees than in-state students. In Austria, the average tuition fees charged by public institutions to students who are not citizens of EU or EEA countries are twice as high as those for national students (for bachelor's, master's and doctoral or equivalent programmes). These fees, however, remain moderate (around USD 1 850 per year for foreign students). In Sweden, tuition is free for national students and those from the European Union, while non-EU students pay over USD 14 500 per year at the bachelor's level. In Finland, as of academic year 2017/18, tuition fees were introduced for students who are not citizens of EU or EEA countries and who are enrolled in bachelor's or master's programmes taught in English.

Higher tuition fees do not necessarily discourage foreign students, however. For instance, in Australia, Austria and Canada, international or foreign students make up over 11% of students enrolled at the bachelor's level, compared to only 4% on average across OECD countries (see Indicator B6).

Country approaches to funding tertiary education

OECD countries have different approaches to providing financial support to students enrolled in tertiary education. Despite policy changes over time within individual countries (Box C5.1), and differences across countries, national financing systems for higher education can be grouped together according to a number of common characteristics. Countries and economies can be roughly divided into four groups, depending on their level of tuition fees and the financial support available through the country's student financial support system for tertiary education (OECD, 2015[2]):

- **Group 1: No tuition fees and generous student-support systems**

This group includes all Nordic countries with available data: Denmark, Finland, Norway and Sweden. Students do not pay tuition fees for bachelor's degrees in public institutions, and they have access to generous public subsidies for tertiary education, which help them cover their living costs. In these countries, more than 55% of students benefit from public/government-guaranteed loans, scholarships/grants or a combination of the two (Figure C5.3). These countries have more progressive tax structures and individuals face high income tax rates (Indicator A5 and (OECD, 2015[2])).

- **Group 2: High tuition fees and well-developed student-support systems**

This group is composed of Australia, Canada, England (United Kingdom), New Zealand and the United States. In these countries and economies, the financial cost of entering tertiary education is relatively high (with annual tuition fees over USD 4 400 for bachelor's degrees in public institutions), but students benefit from extensive financial support. In Canada, over 70% of students receive financial support for bachelor's and master's long first degrees, and this proportion exceeds 85% in Australia, England (United Kingdom), New Zealand and the United States (Figure C5.3).

England (United Kingdom) has moved into this group of countries since 1995, as both tuition fees and financial support to students increased significantly. The Netherlands is gradually moving towards this group from Group 1, as tuition fees have increased while its student-support system has developed (see Figure B5.1 in (OECD, 2014[3])). Israel lies between Group 1 and Group 2, as participation in tertiary education is based on relatively high levels of student support (two-thirds of students benefit from grants, scholarships or loans), with annual tuition fees reaching around USD 3 000 in public institutions at bachelor's level (Table C5.1). In 2018, New Zealand began to move towards Group 1 by eliminating first-year fees for national students entering tertiary education for the first time. By 2024, three years of tertiary education will be free to all national first-time students.

- **Group 3: High tuition fees and less-developed student-support systems**

In Chile (Figure C5.3), Japan and Korea (OECD, 2015[2]), students pay high tuition fees (over USD 4 800 per year) for bachelor's programmes in public institutions, but student-support systems are somewhat less developed than in countries from Groups 1 and 2. However, Chile recently implemented important reforms to its tertiary education system. Access to tertiary education has become completely free of charge for low-income students. In addition, the maximum amount charged to students who do not benefit from free tuition fees is now regulated and the amount of resources allocated to tertiary education scholarships has increased. As for Japan, it recently adopted reforms to improve the financial support system to students, including a grant-type scholarship programme, increased interest-free student loans and an income-based repayment system (a flexible monthly repayment system after graduation). Similarly, financial support has been expanding in Korea, notably with the creation of income-contingent loans in 2010, and of a national grants/scholarships programme in 2012.

- **Group 4: Low or moderate tuition fees and less-developed student-support systems**

This group includes most other European countries and economies for which data are available: Austria, the French Community of Belgium, France, Italy, Spain and Switzerland (Figure C5.3 and (OECD, 2015[2]). In these countries, average annual tuition fees for bachelor's degrees in public institutions are low or moderate (below USD 2 600), and financial support is somewhat limited (targeting less than 45% of students).

Box C5.1. Changes in tuition fees and financial support to students (2007/08 to 2017/18)

Reforms related to the level of tuition fees and the availability of scholarships, grants and loans are highly debated in national education policy. They are often discussed in combination, as countries seek to improve or adjust how the public and private sectors (including students and their families) share the costs of tertiary education. Between the years 2007/08 and 2017/18, 15 out of 28 countries and economies with available information have undertaken tuition fee reforms. In 12 of them, these reforms in tuition fees were accompanied by changes in the level of public subsidies available to students (Table C5.4).

In about half of the countries with available data, tuition fees for bachelor's degrees in public institutions increased by over 20% over the past decade. This is the case in some countries with high average annual tuition fees (fees over USD 4 400 in 2017/18) such as in Canada, England (United Kingdom), New Zealand and the United States, but also in countries with more moderate fees (fees below USD 2 600 in 2017/18) such as in the Netherlands, Spain and Switzerland.

In contrast, in countries that charged no tuition fees in 2007/08 (Denmark, Finland, Greece, Norway, the Slovak Republic and Slovenia), there was no change in tuition fees over the past decade. Similarly, in Austria and France, annual average tuition fees have remained fairly constant (at around USD 950 and USD 200 respectively). Finally, Chile is the only country with available data where there was a sharp reduction in tuition fees (from USD 8 050 to USD 7 500 per year).

Although there is little trend data available, it is also interesting to look at the change in the proportion of students benefiting from loans, scholarships/grants, or a combination of both. Among the countries that experienced a significant increase in tuition fees, in New Zealand, the share of students receiving financial support remained rather constant (at around 85%) over the past decade (Table C5.4). At the same time, the average annual amount of loans borrowed increased (from USD 6 400 to USD 7 600) while the average amount of grants/scholarships slightly decreased (from USD 5 700 to USD 5 100) (see Annex 3 for details).

In the two countries with data available that did not charge tuition fees in either 2007/08 or 2017/18, there was an increase in the share of students receiving financial support: from 69% to 83% in Denmark and from 55% to 58% in Finland (Table C5.4). In Denmark, both the average annual amount of loans borrowed and the amount of grants/scholarships increased, while in Finland there was an increase in the average annual amount of loans and a decrease in the amount of grants/scholarships (see Annex 3 for details).

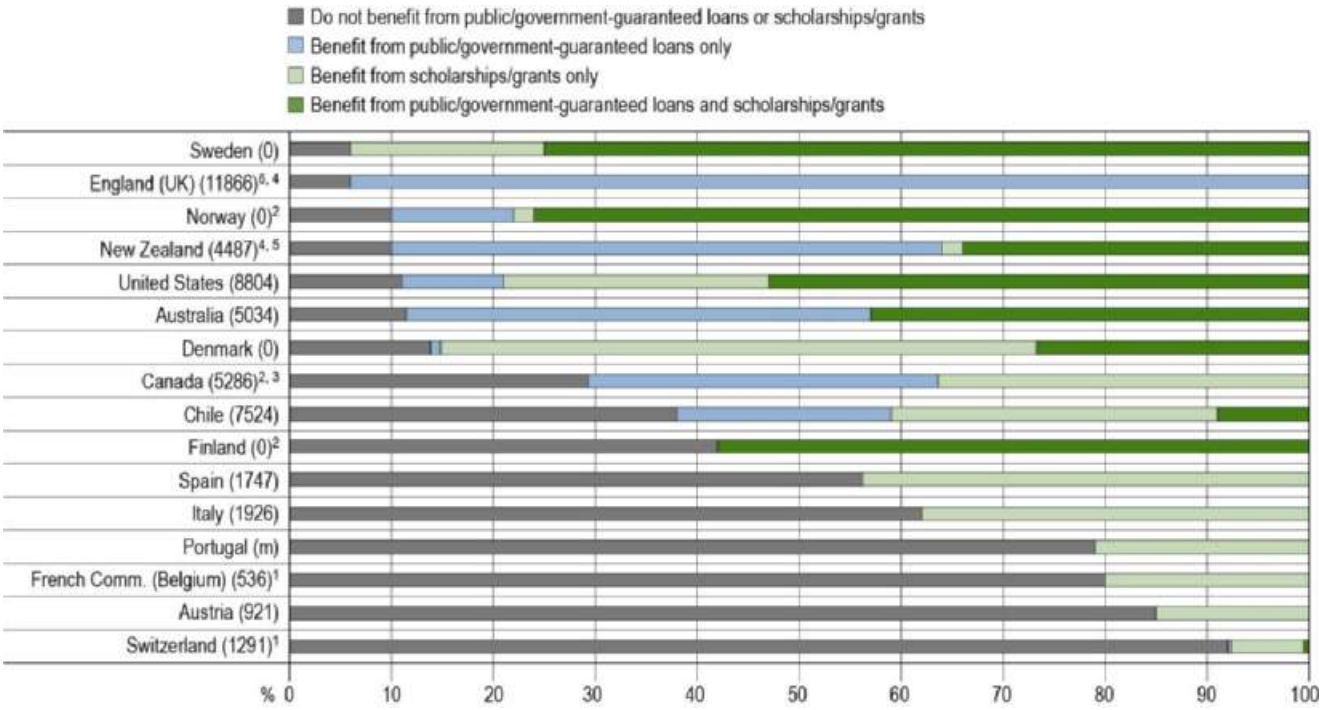
Finally, in Chile, where tuition fees decreased significantly over the past decade, there was also a sharp increase in the percentage of students receiving public/government-guaranteed loans and/or grants/scholarships. This share went from 17% in 2007/08 to 58% in 2017/18, which is the biggest increase among countries with available data.

The level of tuition fees and financial support to students can have a significant impact on equity and access to tertiary education. Evidence suggests that charging high tuition fees while simultaneously giving students opportunities to benefit from comprehensive financial support systems can be a way for countries to increase access to tertiary education, make efficient use of limited public funds, and acknowledge the significant private returns that students receive from tertiary education (OECD, 2018[4]). For instance, Australia and New Zealand,

which have particularly well-developed financial support systems (including income-contingent loans), also have above-average tertiary entry rates in spite of high tuition fees (see Indicator B4).

As for the high entry rates among some countries that charge no tuition fees, they may be due as much to their highly developed student financial support systems to cover living expenses, as to the absence of tuition fees (see Indicator B4). For instance, in Denmark and Norway – two countries with above-average tertiary entry rates – there are no tuition fees and more than 80% of students benefit from loans, scholarships/grants or a combination of both.

Figure C5.3. Distribution of students benefiting from public/government-guaranteed loans and scholarships/grants in bachelor's and master's long first degrees or equivalent (2017/18)



Note: Annual average (or most common) tuition fees charged by public institutions for national students at the bachelor's level are indicated in parenthesis (USD converted using PPPs). The year of reference may differ across countries and economies. Please see Annex 3 for details.
1. Tuition fees correspond to public institutions and government-dependent institutions combined.
2. Data on financial support corresponds to total tertiary instead of bachelor's and master's long first degree or equivalent.
3. The data on "public or government-guaranteed loans only" and "public scholarships/grants only" include anyone who received a loan or scholarship/grant in the reference year (although they may have received other forms of financial support as well).
4. Tuition fees include short-cycle tertiary programmes and bachelor's or equivalent programmes.
5. Estimates include universities only and exclude ISCED 6, such as postgraduate certificates and diplomas.
6. Tuition fees are presented for government-dependent institutions instead of public institutions.
Countries and economies are ranked in descending order of the share of students who do not benefit from public/government-guaranteed loans or scholarships/grants.
Source: OECD (2019), Table C5.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Financial support to students, in the form of loans, grants and scholarships

A key question that many educational systems face is whether financial support for students in tertiary education should be provided primarily in the form of loans or in the form of grants or scholarships. On the one hand, advocates of student loans argue that they allow the number of students who can benefit from the available

resources to be scaled up (OECD, 2014[3]). If the funding spent on scholarships and grants was used instead to guarantee and subsidise loans, the same public resources could target a larger number of students, and overall access to higher education would increase. Loans also shift some of the cost of education to those who benefit most from higher education, individual students, reflecting the high private returns of completing tertiary education (see Indicator A5).

On the other hand, student loans are less effective than grants in encouraging low-income students to access tertiary education. Opponents of loans argue that high levels of student debt at graduation may have adverse effects for both students and governments if large numbers of students are unable to repay their loans (OECD, 2014[3]). A large share of graduates with debt could be a problem if employment prospects are not sufficient to guarantee student loan repayments.

OECD governments support students' living or education costs through different combinations of these two types of support – and these combinations vary even among countries with similar levels of tuition fees. The cross-country variation is significant, for instance, among countries and economies with high annual average tuition fees for bachelor's degrees in public institutions (around USD 4 500 and over). In England (United Kingdom), more than 90% of students only receive loans (and not scholarships/grants) to cover the cost of their studies (in bachelor's and master's long first degrees). In the United States, 53% of students benefit from both loans and scholarships or grants, 26% from scholarships/grants alone and 10% from loans alone. In Australia and New Zealand, most students receive either loans alone or both loans and scholarships or grants; and in Canada, they receive loans, scholarships/grants, or a combination of both. (Figure C5.3).

In countries with available data where public institutions charge no tuition fees at the bachelor's level, most students receive financial support in the form of both loans and scholarships or grants, in order to cover their living costs. This is true for 58% of students in Finland and around 75% in Norway and Sweden. In contrast, in Denmark, most students receive financial support in the form of scholarships/grants alone (58%), and only 27% receive both loans and scholarships or grants.

Finally, in countries and economies such as Austria, the French Community of Belgium, Italy, Portugal, Spain and Switzerland, where annual average tuition fees for bachelor's degrees are below USD 2 000, less than 45% of students receive any form of financial support – and those who do tend to receive it in the form of grants or scholarships only.

Type of loans systems, amounts borrowed and debt at graduation

There are two main types of student loans: mortgage-style loans and income-contingent loans. In a mortgage-style loan system, students are obliged to repay the loan within a fixed period, regardless of their financial situation after their studies. This may impose a heavy financial burden on graduates (or those who did not graduate) with low incomes. In contrast, in income-contingent loan systems, repayment is conditional on the borrower's income reaching a threshold, and includes debt forgiveness after a certain period of time. This type of repayment arrangement is considered to be more equitable, as it takes into account graduates' ability to repay their loan.

Both systems imply some costs for the government that guarantees the loan repayment. However, the potential financial burden for the government is more uncertain with income-contingent loans, as these are contingent on graduates' ability to find work and earn income above the minimum threshold for reimbursement.

Several countries have introduced income-contingent loans in recent years. For example, the United Kingdom replaced its mortgage-loan system with an income-contingent loan system in 1999 – and nowadays as much as 45% of student loans are not repaid. With the increase in student debt, some income-contingent loan systems were also introduced in the United States: the income-based repayment programme in 2009 and the Pay-As-You-Earn (PAYE) plan in 2012 (Table C5.3 and (OECD, 2015[2]). Among countries with available data, Australia, Chile and New Zealand have also adopted an income-contingent loan system. Japan, Korea and the Netherlands exhibit a hybrid system, which includes both income-contingent and mortgage-style loans (Table C5.3).

Previous sections have highlighted cross-country variations in the proportion of students benefiting from a loan; but there is also variation in the average annual amount borrowed by each student. Among countries and economies where most students receive loans (70% of students or more), this ranges from around USD 5 600 per year in Australia to around USD 7 000 in New Zealand and Sweden, USD 10 400 in Norway, and up to USD 17 000 in England (United Kingdom). Similarly, in countries where about 25% to 35% of students receive loans (Canada, Chile, Denmark and Japan), the average annual amount borrowed ranges from around USD 3 900 in Denmark to around USD 7 700 in Japan (Table C5.3).

The debt burden that students accumulate is one factor that may affect individuals' decisions to invest in tertiary education. The extent to which debt can be an issue for graduates mostly depends on the amount borrowed and the underlying loan conditions compared to graduates' labour-market prospects, in terms of earnings and uncertainty of employment.

Among the countries and economies with high tuition fees, in Australia, England (United Kingdom) and New Zealand, at least 70% of students are in debt at graduation as a result of taking loans. However, the average amount of debt at graduation varies significantly, from USD 10 500 in Australia to USD 24 100 in New Zealand and over USD 49 800 in England (United Kingdom). In countries where tertiary studies entail no or low tuition fees, debt at graduation would typically be lower than in countries with high tuition fees, since student loans are mainly needed to cover students' living expenses. However, in Nordic countries, where there are low or no tuition fees, the level of student debt at graduation may still be high because living expenses are high. This is the case for instance in Norway, where students' average debt amounts to over USD 28 700 (Table C5.3).

Box C5.2. What percentage of public student loans are repaid?

For some countries and economies, student public loans have become an important element of student support. The variety of loan systems and repayment schemes across the world can present some challenges in assessing the actual financial contribution of the public sector. To improve the comparability, an approach is to estimate the repayment of loans. Two methods may be considered for this analysis:

- **Cash accounting basis:** This method considers the repayment in the reference year of loans issued in previous years. This figure is shown as a percentage of gross disbursement of loans in the reference year in Figure C5.a.
- **Net present value:** This method tries to capture the current choices made by governments by measuring the expected repayment levels of loans issued in the reference year. The measure presented in Figure C5.a is the discounted expected repayment of loans issued in the reference year, as a percentage of the gross disbursement of loans in the reference year.

These two methods may yield very different results for a given country, because they are based on different time periods and student cohorts. The cash accounting basis compares earlier loans (repayment of loans issued in previous years) with current loans (disbursement of loans in the reference year). In other words, this approach compares loans for several cohorts: 1) students who borrow loans in the reference year; and 2) people who are repaying loans in the same year. In countries with well-established loans systems, the number of students who are repaying loans in the reference year can be significantly higher than the number of students who borrow money.

On the other hand, the net present value approach focuses on current loans (disbursement of loans in the reference year and their expected repayment). In other words, it takes into account the amounts of loans borrowed by students in the reference year and an estimation of the future repayment by the same cohort.

Figure C5.a shows significant cross-country variation in the repayment of student loans, particularly when using the cash accounting basis. In Australia, England (United Kingdom) and Finland, the repayment of outstanding loans received in the reference year represents less than 40% of the gross disbursement of loans issued that year. This value rises to around 65% in Norway and around 90% in Canada and the United States.

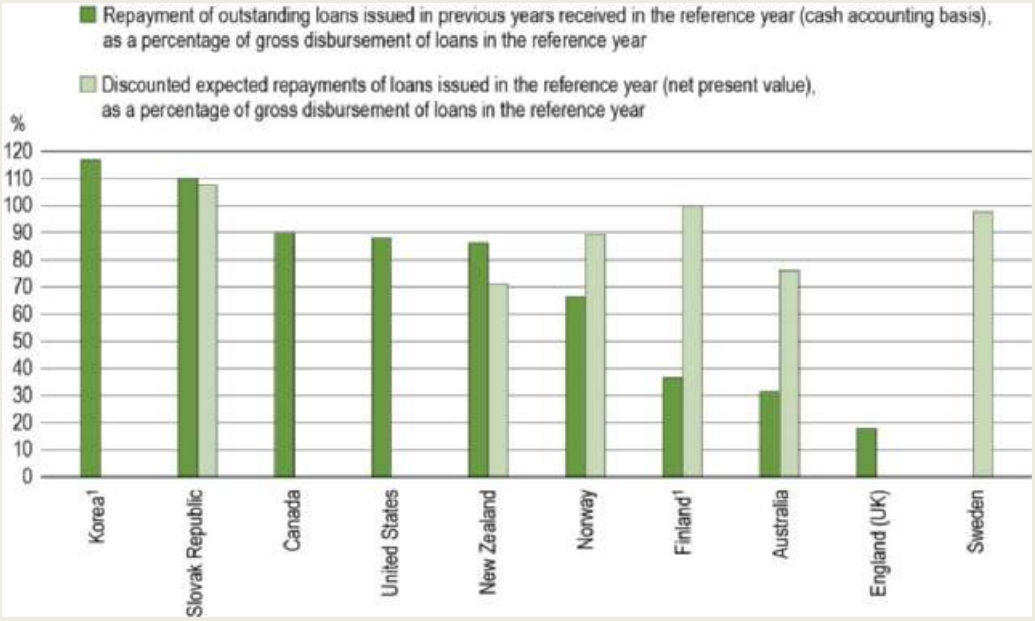
In Korea and the Slovak Republic, it even exceeds 100% (with values of 117% in Korea and 110% in the Slovak Republic).

The results observed may reflect the maturity of student loans programmes: older programmes may have a large number of people repaying student loans compared to those currently receiving loans, while newer programmes may have relatively few people in the repayment phase of loans. High values may also reflect a decrease in financial support to students in the reference year compared to previous years (e.g. lower average amounts of loans, lower number of students benefiting from a loan etc.), or a high repayment of loans issued in previous years. In Korea, for instance, the high value (117%) reflects 1) the high number of people repaying loans in the reference year compared to students borrowing loans in the same year; 2) the increased reliance on scholarships rather than students loans; and 3) the increased amount of loan repayments

It is important to note that loan repayments are not necessarily re-allocated to education. In fact, Korea is the only country with available data where it is clearly stated that 100% of loan repayments are re-allocated to student loans.

Considering the net present value of loans, in Australia and New Zealand, between 70% and 75% of student loans issued in the reference year are expected to be repaid. In contrast, this proportion reaches around 90% in Norway and around 100% in Finland and Sweden. In the Slovak Republic, it even exceeds 100% due to interest rates.

Figure C5.a. What percentage of public student loans are repaid?



Note: The numbers in this figure should be interpreted with caution as they are based on estimations. The year of reference may differ across countries. Please see Annex 3 for details.
1. Government-guaranteed private loans instead of public loans.
Countries and economies are ranked in descending order of the percentage of student loans repaid based on the cash accounting basis methodology.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Definitions

In this chapter, **national students** are defined as the citizens of a country who are studying within that country. **Foreign students** are those who are not citizens of the country in which the data are collected. While pragmatic and operational, this classification is inappropriate for capturing student mobility because of differing national policies regarding the naturalisation of immigrants. For countries that are members of the European Union (EU), citizens from other EU countries usually have to pay the same fees as national students. In these cases, foreign students refer to students that are citizens from countries outside the European Union. Further details on these definitions are available in Indicator B6.

Methodology

Amounts of tuition fees and amounts of loans in national currency are converted into equivalent USD by dividing the national currency by the purchasing power parity (PPP) index for GDP. The amounts of tuition fees and associated proportions of students should be interpreted with caution, as they represent the weighted averages of the main tertiary programmes and may not cover all educational institutions.

Student loans include the full range of student loans extended or guaranteed by governments, in order to provide information on the level of support received by students. The gross amount of loans provides an appropriate measure of the financial aid to current participants in education. Interest payments and repayments of principal by borrowers should be taken into account when assessing the net cost of student loans to public and private lenders. In most countries, loan repayments do not flow to education authorities, and the money is not available to them to cover other expenditure on education.

OECD indicators take the full amount of scholarships/grants and loans (gross) into account when discussing financial aid to current students. Some OECD countries have difficulty quantifying the amount of loans to students. Therefore, data on student loans should also be treated with caution.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[5]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the school year 2017/18 and are based on a special survey administered by the OECD in 2019 (for details see Annex 3 at https://doi.org/10.1787/f8d7880d-en).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator C5 Tables

Table C5.1 Annual average (or most common) tuition fees charged by tertiary institutions to national and foreign students (2017/18)

Table C5.2 Tuition fees charged by institutions for full-time students, in USD converted using PPPs, and percentage of national students receiving financial support (2017/18)

Table C5.3 Public loans to students, repayment and remission in tertiary education (2017/18)

Table C5.4 Changes in tuition fee policies and public support to students (2007/08 to 2017/18)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981134

Table C5.1. Annual average (or most common) tuition fees charged by tertiary institutions to national and foreign students (2017/18)

In equivalent USD converted using PPPs, by type of institutions and level of education

		Percentage of students (in bachelor's, master's and doctoral degrees combined) enrolled in:		Percentage of international students (in bachelor's, master's and doctoral degrees combined)	Annual average tuition fees charged by insitutions for full-time students					
					Public institutions (or government-dependent private institutions if more prevalent)					
					National students			Foreign students		
		Public institutions (or government-dependent private institutions if more prevalent)	Independent private institutions		Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	**Countries**									
	Australia[1]	92	8 [d]	22	5 034	8 929	260	19 029	18 318	16 187
	Austria[1]	82	18 [d]	20	921	921	921	1 841	1 841	1 841
	Canada	100	a	13	5 286	5 527	m	20 406	13 040	m
	Chile	20	63	0	7 524	10 446	9 067	No differentiation for foreign students		
	Denmark	99	a	10	0	0	0	m	m	m
	Estonia[2, 3]	76	10	8	6 764	7 536	0	6 764	7 536	0
	Finland	53	a	8	0	0	0	Differentiation of tuition fees based on the language of the programmes		0
	France	82	17	11	237	330	504	No differentiation for foreign students		
	Germany[1,4]	91	9 [d]	8	133 [d]	x(4)	x(4)	x(4)	x(4)	x(4)
	Greece	100	a	3	0	4 114	0	No differentiation for foreign students		
	Israel[2]	74	14	3	3 130	m	m	No differentiation for foreign students		
	Italy	88	12	5	1 926	2 149	464	No differentiation for foreign students		
	Japan	25	75	4	5 234	5 231	5 231	No differentiation for foreign students		
	Korea	25	75	3	4 886	6 414	7 167	No differentiation for foreign students		
	Latvia[2]	78	22	9	4 291	4 505	5 836	7 301	8 096	10 543
	Netherlands	85	15	11	2 537	2 537	a	m	m	a
	New Zealand[5, 6]	95	2	19	4 487 [d]	m	4 739	m	m	4 739
	Norway	85	10	3	0	0	a	No differentiation for foreign students		
	Slovak Republic	87	13	7	0	0	0	No differentiation for foreign students		
	Slovenia	87	7	4	0	0	m	Institutions may charge higher tuition fees for students from outside the European Economic Area.		m
	Spain	82	18	3	1 747	2 873	m	No differentiation for foreign students		
	Sweden	94	a	7	0	0	0	14 679	14 679	0
	Switzerland[7]	93 [d]	7	18	1 291 [d]	1 291 [d]	386 [d]	m	m	m
	United States[8]	63	37	7	8 804	11 617 [d]	x(5)	24 854	m	m
	Economies									
	Flemish Comm. (Belgium)[2]	62	0.2	9	m	m	580	For students from outside the European Economic Area, institutions have the autonomy to fix the amount of the tuition fee, except for some categories of sudents (e.g. refugees, asylum seekers).		
	French Comm. (Belgium)[7]	99.8 [d]	0.2	9	536 [d]	993 [d]	m	Institutions may charge higher tuition fees for students from outside the European Economic Area.		
	England (UK)[2, 8]	100	a	20	11 866 [d]	m	m	m	m	m

		Annual average tuition fees charged by insitutions for full-time students					
		Independent private institutions					
		National students			Foreign students		
		Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent
		(10)	(11)	(12)	(13)	(14)	(15)
OECD	**Countries**						
	Australia[1]	9 360 [d]	12 023 [d]	2 531 [d]	10 810 [d]	11 449 [d]	20 093 [d]
	Austria[1]	m	m	m	m	m	m
	Canada	a	a	a	a	a	a
	Chile	6 723	10 727	8 898	No differentiation for foreign students		
	Denmark	a	a	a	a	a	a
	Estonia[2, 3]	8 565	8 747	0	8 565	8 747	0
	Finland	a	a	a	a	a	a
	France	m	m	m	m	m	m
	Germany[1,4]	4 908 [d]	x(10)	x(10)	x(10)	x(10)	x(10)
	Greece	a	a	a	a	a	a
	Israel[5]	6 872	m	m	No differentiation for foreign students		
	Italy	6 707	8 050	2 512	No differentiation for foreign students		
	Japan	8 784	7 644	5 988	No differentiation for foreign students		
	Korea	8 760	11 755	12 674	No differentiation for foreign students		
	Latvia[2]	4 652	5 477	6 276	5 877	6 771	6 961
	Netherlands	m	m	a	m	m	a
	New Zealand[6, 8]	m	m	a	m	m	a
	Norway	5 680 [d]	x(10)	a	No differentiation for foreign students		
	Slovak Republic	2 148	2 571	2 590	No differentiation for foreign students		
	Slovenia	0	0	0	Institutions may charge higher tuition fees for students from outside the European Economic Area.		m
	Spain	7 771	12 030	m	No differentiation for foreign students		
	Sweden	a	a	a	a	a	a
	Switzerland[7]	3 202	3 202	5 456	m	m	m
	United States[8]	29 478	24 712 [d]	x(11)	No differentiation for international students		
	Economies						
	Flemish Comm. (Belgium)[2]	m	m	m	m	m	m
	French Comm. (Belgium)[7]	a	a	a	a	a	a
	England (UK)[2, 6]	a	a	a	a	a	a

Note: Enrolment data is presented for the year 2016/17. The year of reference may differ across countries. Please see Annex 3 for details. For European countries, tuition fees for foreign students refer to students from outside the European Economic Area. For institutions charging no tuition fees, the fees are shown as 0.
The detailed disaggregation by type of institution is available on line (see StatLink below).
1. Government-dependent institutions are included in independent private institutions. For Austria and Germany, government-dependent institutions are included in independent private institutions for enrolment data only.
2. Government-dependent institutions instead of public institutions.
3. Institutions have the autonomy to fix the amount of the tuition fee for degree programmes with study language other than Estonian, in public and government-dependent private institutions.
4. Tuition fees are presented for total tertiary education instead of bachelor's or equivalent level. Only academic programmes are included.
5. Short-cycle tertiary programmes are included in bachelor's or equivalent programmes.
6. Estimates include universities only and exclude ISCED 6, such as postgraduate certificates and diplomas.
7. Government-dependent private institutions are included in public institutions.
8. Tuition fees for foreign students typically refer to tuition fees for out-of-state national students. However, in a minority of institutions, tuition fees can be lower for out-of-state national students.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933979215

Table C5.2. Tuition fees charged by institutions for full-time students, in USD converted using PPPs, and percentage of national students receiving financial support (2017/18)

Bachelor's only for tuition fees, and bachelor's and master's long first degrees or equivalent programmes for financial support

	Bachelor's or equivalent degrees							Bachelor's and master's long first degrees or equivalent			
	First-time entry rates to bachelor's or equivalent programmes for national students below the age of 25	Percentage of students enrolled in:		Annual tuition fees charged by institutions for full-time national students (in equivalent USD, converted using PPPs)				Percentage of enrolled students receiving financial support in the form of ...			
		Public institutions (or government-dependent private institutions if more prevalent)	Independent private institutions	Public institutions (or government-dependent private institutions if more prevalent)		Independent private institutions		Public/government-guaranteed private loans only	Public grants/ scholarships only	Both public/ government-guaranteed private loans and public grants or scholarships	Students who do not benefit from public/government-guaranteed private loans or public scholarships/grants
				Average (or most common fee)	Range (minimum-maximum)	Average (or most common fee)	Range (minimum-maximum)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD **Countries**											
Australia[1]	61	92	8 d	5 034	2 564 - 7 199	9 360 d	4 022 - 16 823 d	46	0	43	11
Austria[1]	30	78	22 d	921	m	m	m	a	15	a	85
Canada[2]	m	100	a	5 286	2 253 - 7 018	a	a	34 d	36 d	x(8, 9)	29
Chile	48	20	64	7 524	5 448 - 10 416	6 723	3 455 - 11 385	21	32	9	38
Denmark	47	99	0	0	0 - 0	a	a	1	58	27	14
Estonia[3]	47	65	13	6 764	2 239 - 11 195	8 565	m	a	a	a	a
Finland[2]	42	39	a	0	0 - 0	a	a	x(10)	x(10)	58 d	42
France	m	86	13	237	237 - 441	m	m	m	m	m	m
Germany[1, 4]	39	87	13 d	133 d	m	4 908 d	m	m	m	m	m
Greece	64	100	a	0	0 - 0	a	a	m	m	m	m
Israel[3]	35	74	14	3 130	2 663 - 3 729	6 872	3 196 - 10 121	m	m	m	m
Italy	37	87	13	1 926	287 - 3 713	6 707	2 298 - 12 926	0	38	0	62
Japan	m	20	80	5 234	m	8 784	m	m	m	m	m
Korea	56	24	76	4 886	2 804 - 7 050	8 760	2 064 - 10 560	m	m	m	m
Latvia[3]	56	75	25	4 291	2 076 - 11 208	4 652	1 100 - 15 833	m	m	m	m
Netherlands	51	90	10	2 537	1 499 - 12 687	m	m	m	m	m	m
New Zealand[5, 6]	41	94	2	4 487 d	3 590 - 10 260	m	m	54	2	34	10
Norway[2]	52	82	13	0	0 - 0	5 680 d	2 820 - 7 557	12	2	76	10
Portugal	42	80	20	m	1 187 - 1 840	m	m	0	21	0	79
Slovak Republic	41	87	13	0	0 - 0	2 148	1 266 - 7 470	m	m	m	m
Slovenia	65	85	9	0	0 - 0	0	0 - 0	a	m	a	m
Spain	44	83	17	1 747	902 - 12 082	7 771	902 - 21 052	0	44	0	56
Sweden	30	95	a	0	0 - 0	a	a	0	19	75	6
Switzerland[7]	40	90 d	10	1 291 d	335 - 3 981 d	3 202	m	0	7	1	92
United States	m	67	33	8 804	6 737 - 10 753	29 478	16 975 - 41 304	10	26	53	11
Economies											
Flemish Comm. (Belgium)	72	39	0.1	m	137 - 1 160	m	m	m	m	m	m
French Comm. (Belgium)[2, 7]	72	99.9 d	0.1	536 d	0 - 1 069	a	a	0	20	0	80
England (UK)[3, 6]	48	100	a	11 866 d	m - 12 882	a	a	94 d	x(8)	x(8)	6

Note: Enrolment data is presented for the year 2016/17. The year of reference may differ across countries. Please see Annex 3 for details. For institutions charging no tuition fees, the fees are shown as 0.

The detailed disaggregation by type of institution is available on line (see StatLink below).

1. Government-dependent private institutions are included in independent private institutions. For Austria and Germany, government-dependent institutions are included in independent private institutions for enrolment data only.
2. Data on financial support corresponds to total tertiary instead of bachelor's and long-cycle master's degrees or equivalent.
3. Data is presented for government-dependent institutions instead of public institutions.
4. Tuition fees are presented for total tertiary education instead of bachelor's or equivalent level. Tuition fees correspond to national and foreign students. Only academic programmes are included.
5. Short-cycle tertiary programmes are included in bachelor's or equivalent programmes.
6. Estimates include universities only and exclude ISCED 6, such as postgraduate certificates and diplomas.
7. Government-dependent private institutions are included in public institutions.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933979234

Table C5.3. Public loans to students, repayment and remission in tertiary education (2017/18)

		Loan availability				Debt at graduation from tertiary education		Repayment				Remission	
		Share of national tertiary students who benefit from a loan	Average annual gross amount of loan (in USD) borrowed by each national student	Average proportion of loan amounts attributable to tuition	Interest rate after studies	Share of graduates with debt	Average amount of debt at graduation (in USD)	Repayment system	Annual minimum income threshold (in USD) for income-contingent loans	Duration of typical amortisation period (in years)	Average annual amount of repayment (in USD)	Proportion of graduates who benefit from remission/ forgiveness	Proportion of loans that are not repaid
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	**Countries**												
	Australia	81	5 573	m	1.9%	78	10 479	Income-contingent	38 682	9	3 002	m	a
	Canada	34	6 286	85	m	60	17 622	m	m	10	m	m	10
	Chile	24	4 657	100	2.0%	m	m	Income-contingent (up to 5% of monthly earnings)	m	m	m	m	m
	Denmark	26	3 937	100	1.0%	m	13 902	Mortgage style	a	m	m	m	m
	Estonia[1]	6	m	m	5.0%	a	a	Mortgage style	a	6	a	a	0
	Finland[1]	55	6 063	0	Interest rate agreed with private banks	57	11 719	Mortgage style	a	5 to 15	1 982	Less than 2%	Less than 2%
	Germany	m	m	m	0.0%	m	m	Mortgage style	18 219	m	m	m	m
	Italy	0	m	m	m	m	m	m	m	m	m	m	m
	Japan[2]	37	7 669	m	0% to 3%	m	28 269	Hybrid: mortgage style and income-contingent	a	13	1 674	0	m
	Korea[1]	m	4 798	76	2.2%	m	m	Hybrid: mortgage style and income contingent	For income-contingent loans: 23 608	10 (maximum)	m	m	m
	Latvia[1]	5	2 407	m	6 months EURIBOR + 2.5%	0	a	Mortgage style	a	10 years for loans over USD 2 900. 5 years otherwise	a	a	2
	Mexico							m					
	Netherlands	48	8 433	m	0.3%	67	18 974	Hybrid: mortgage style and income-contingent	17 372	15	1 567	m	10
	New Zealand	84	7 596	64	0% interest rate if New Zealand-based. 4.4% otherwise	72	24 117	Income-contingent	13 011	8	2 010	0.2% approx.	m
	Norway	88	10 382	m	2.2%	m	28 698	Mortgage style	0	20	1 820	1	3
	Slovak Republic	1	4 669	m	3.0%	1	3 263	Mortgage style	a	7	871	m	m
	Slovenia	a	a	a	a	a	a	m	a	a	a	a	a
	Spain	0	0	m	m	m	m	m	m	m	m	m	m
	Sweden	71	7 186	1	0.1%	73	19 116	Mortgage style	a	25	903	0	0
	Switzerland	1	6 101	a	m	m	m	m	m	m	m	m	m
	United States	m	m	m	5.1% to 7.2%	m	m	m	m	m	m	m	m
	Economies												
	French Comm. (Belgium)	0	0	m	m	m	m	m	m	m	m	m	m
	England (UK)[1, 3]	94	17 033	m	1.6% to 4.6%	94	49 812	Income-contingent	30 059	30	m	70	45

Note: The year of reference may differ across countries. Please see Annex 3 for details.

1. Information on debt, repayment and remission refer to government-guaranteed private loans instead of public loans.
2. The two types of repayment are: fixed payment (depending on the total amount of loan and numbers of repayment times) and income-contingent payment (depending on students' incomes in the previous year).
3. The share of students who benefit from a loan and the average annual amount of loan are presented for short-cycle tertiary, bachelor's and long-cycle master's degrees.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table C5.4. Changes in tuition fee policies and public support to students (2007/08 to 2017/18)

Tuition fees in equivalent USD converted using PPPs (2017 constant prices), full-time national students

		Reforms implemented between 2007/08 and 2017/18		Annual average (or most common) tuition fees charged for full-time national students in public institutions						Share of tertiary students receiving public/government-guaranteed loans, grants/ scholarships, or both	
				Bachelor's or equivalent		Master's or equivalent		Doctoral or equivalent			
		Reforms implemented on the level of tuition fees between 2007 and 2017	Of which, at least some were combined with a change in the level of public subsidies available to students	2007/08	2017/18	2007/08	2017/18	2007/08	2017/18	2007/08	2017/18
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	**Countries**										
	Australia	Yes	Yes	4 693	5 034	7 232	8 929	286	260	m	81
	Austria	No	No	980	921	980	921	980	921	15	11
	Canada	Yes	Yes	4 327	5 286	5 308	5 527	m	m	m	71
	Chile	Yes	Yes	8 061	7 524	12 315	10 446	11 847	9 067	17	58
	Denmark	No	No	0	0	0	0	0	0	69	83
	Estonia[1]	Yes	Yes	5 981	6 764	8 835	7 536	0	0	a	a
	Finland	Yes	Yes	0	0	0	0	0	0	55	58
	France	No	No	203	237	264	330	401	504	m	m
	Germany[2]	Yes	No	645 d	133 d	x(3)	x(4)	x(3)	x(4)	m	m
	Greece	Yes	Yes	0	0	m	4 114	m	0	m	m
	Israel[1]	No	No	m	3 130	m	m	m	m	m	m
	Italy	Yes	Yes	1 215 d	1 926	x(3)	2 149	1 035	464	17	39
	Japan	No	No	m	5 234	m	5 231	m	5 231	m	m
	Korea	Yes	Yes	m	4 886	m	6 414	m	7 167	m	m
	Latvia[1]	No	No	m	4 291	m	4 505	m	5 836	m	m
	Netherlands	No	No	1 954	2 537	1 954	2 537	a	a	m	m
	New Zealand[3, 4]	Yes	Yes	3 687 d	4 487 d	m	m	3 597	4 739	85	86
	Norway	No	No	0	0	0	0	a	a	m	90
	Portugal	No	No	m	m	m	m	m	m	19	20
	Slovak Republic	No	No	0	0	0	0	0	0	m	m
	Slovenia	No	No	0	0	0	0	m	m	m	m
	Spain	Yes	No	1 068	1 747	2 049	2 873	m	m	m	42
	Sweden	Yes	Yes	m	0	m	0	m	0	88	89
	Switzerland[5]	No	No	879 d	1 291 d	879 d	1 291 d	275 d	386 d	12	8
	United States	No	No	6 807	8 804	8 494 d	11 617 d	x(5)	x(6)	m	m
	Economies										
	Flemish Comm. (Belgium)	Yes	No	105 - 638	137 - 1 160	105 - 638	137 - 1 160	333 - 417	m - 580	m	m
	French Comm. (Belgium)[5]	Yes	Yes	m	536 d	m	993 d	m	m	20	20
	England (UK)[1, 3]	Yes	Yes	3 000 d	11 866 d	m	m	m	m	m	m

Note: The year of reference may differ across countries. Please see Annex 3 for details.
1. Government-dependent institutions instead of public institutions.
2. Tuition fees are presented for total tertiary education instead of bachelor's or equivalent level. Tuition fees correspond to national and foreign students. Only academic programmes are included.
3. Short-cycle tertiary programmes are included in bachelor's or equivalent programmes.
4. Estimates include universities only and exclude ISCED 6, such as postgraduate certificates and diplomas.
5. Government-dependent private institutions are included in public institutions.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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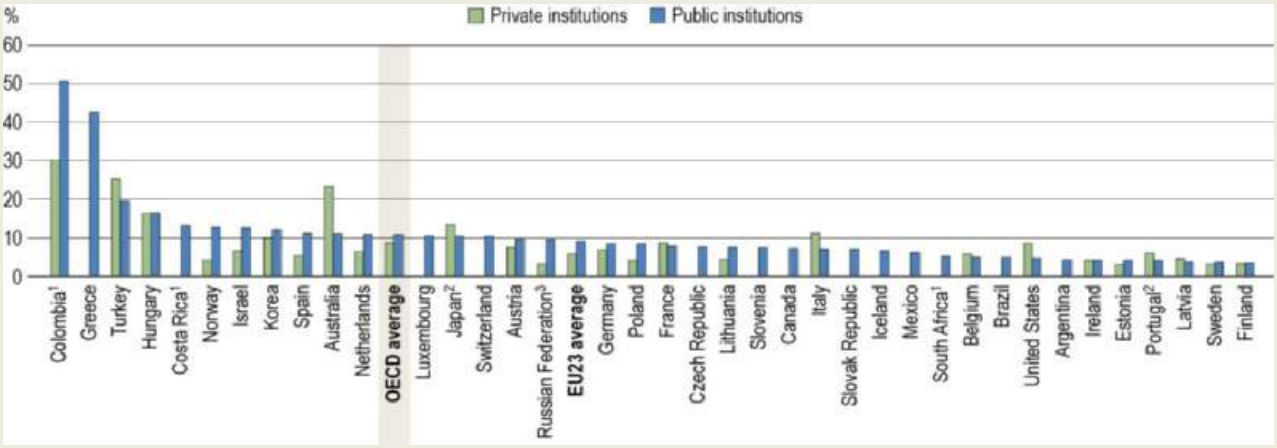
Indicator C6. On what resources and services is education funding spent?

Highlights

- From primary to tertiary level, 92% of the spending of educational institutions is devoted to current expenditure (goods and services consumed within the current year) on average across OECD countries.
- On average across OECD countries, staff compensation comprises the largest share of current expenditure at all levels of education: 78% in non-tertiary education not including pre-primary (primary, secondary and post-secondary non-tertiary education) and 69% in tertiary education.
- OECD countries allocate on average 8% of their total education spending to capital expenditure. The share is higher in tertiary education (10%) than in non-tertiary education (7%) and varies across countries and type of educational institution.

Figure C6.1. Share of capital expenditure by type of institutions (2016)

Tertiary education



1. Year of reference 2017.
2. Tertiary education includes post-secondary non-tertiary education.
3. Tertiary education includes upper secondary (vocational).

Countries are ranked in descending order of the share of capital expenditure in public institutions.

Source: OECD/UIS/Eurostat (2019), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979424

Context

How spending is allocated between current and capital expenses can affect the quality of instruction (through teachers' salaries, for example), the material conditions under which instruction takes place (such as expenditure on school maintenance) and the ability of the education system to adjust to changing demographic

and enrolment trends. Decisions on resource allocation can thus influence the nature of instruction and, by extension, student learning outcomes. Striking a proper balance, given a country's educational priorities, is a challenge facing all governments and institutions. Comparing the distribution of educational expenditure across resource categories can shed light on the various organisational and operational structures that different countries have developed.

This indicator describes the resources and services on which money for education from all funding sources (governments, international sources and the private sector) is spent. It shows the difference between current and capital expenditure. Capital expenditure can be driven by rising enrolment, which often requires the construction of new buildings. The indicator also presents details on how current expenditure is allocated, between staff compensation and other services such as meals, transport, housing and/or research activities.

Other findings

- Staff compensation comprises the largest share of current expenditure at all levels of education. Four-fifths of staff compensation goes to teachers in non-tertiary education not including pre-primary with the remainder going to other staff.
- In non-tertiary education, the share of total expenditure allocated to current expenditures by public institutions (93%) is similar to that of private institutions (94%). Conversely, at tertiary levels, private institutions (92%) spend a larger share of total expenditure on current expenditures than public institutions (89%).
- The share of other staff expenditure varies in non-tertiary institutions, from a high of around 20% or more in Estonia, France, Iceland, Lithuania and the United States to less than 10% in Austria, Colombia and Luxembourg.

Analysis

Distribution of educational institutions' current and capital expenditure by level

Expenditure by educational institutions is composed of current and capital expenditure. Current expenditure includes spending on school resources used each year for operation of schools, while capital expenditure refers to spending on the acquisition or maintenance of assets which last longer than one year (see *Definitions* section). Given the labour-intensive nature of education, current expenditure, particularly staff compensation, makes up the largest proportion of total education expenditure in OECD countries. In 2016, an average of 92% of total expenditure by educational institutions in OECD countries was on current expenditure, across all education levels from primary to tertiary. Across countries, the share of current expenditure for all levels varies from 81% in Colombia to 96% in Belgium, Iceland, Italy, Portugal and the United Kingdom (Table C6.1).

The OECD average share of current expenditure is higher in non-tertiary education (93%) than at the tertiary level (90%). At primary level, the share varies from 80% in Slovenia to 99% in Italy. At secondary level, the share varies from 87% in Slovenia and Turkey to 98% in Austria. At the post-secondary non-tertiary level, the share varies from 87% in Ireland to 100% in Israel and Luxembourg. At the tertiary level, it varies from 57% in Greece to 97% in Estonia and Finland. The overall share of current expenditure does not differ by more than 3 percentage points, on average, across all education levels. In most countries, the share of current expenditure in non-tertiary education is greater than at tertiary level. The only countries where the share of current expenditure is greater at tertiary level than in non-tertiary education are Estonia, Finland, Ireland, Israel, Korea, Latvia, Norway, Slovenia, Sweden and the United States.

Differences in expenditure allocation across countries reflect how various levels of education are organised and the degree to which countries have invested in the construction of new buildings, which often becomes necessary when enrolments increase. On average across OECD countries, the share of capital expenditure is generally higher in tertiary institutions (10%) than in non-tertiary institutions (7%). Capital expenditure on tertiary education reaches highs of 21% in Turkey, 40% in Colombia and 43% in Greece. In non-tertiary education, Slovenia allocates the highest shares of education budgets to capital expenditure across countries with available data (16%).

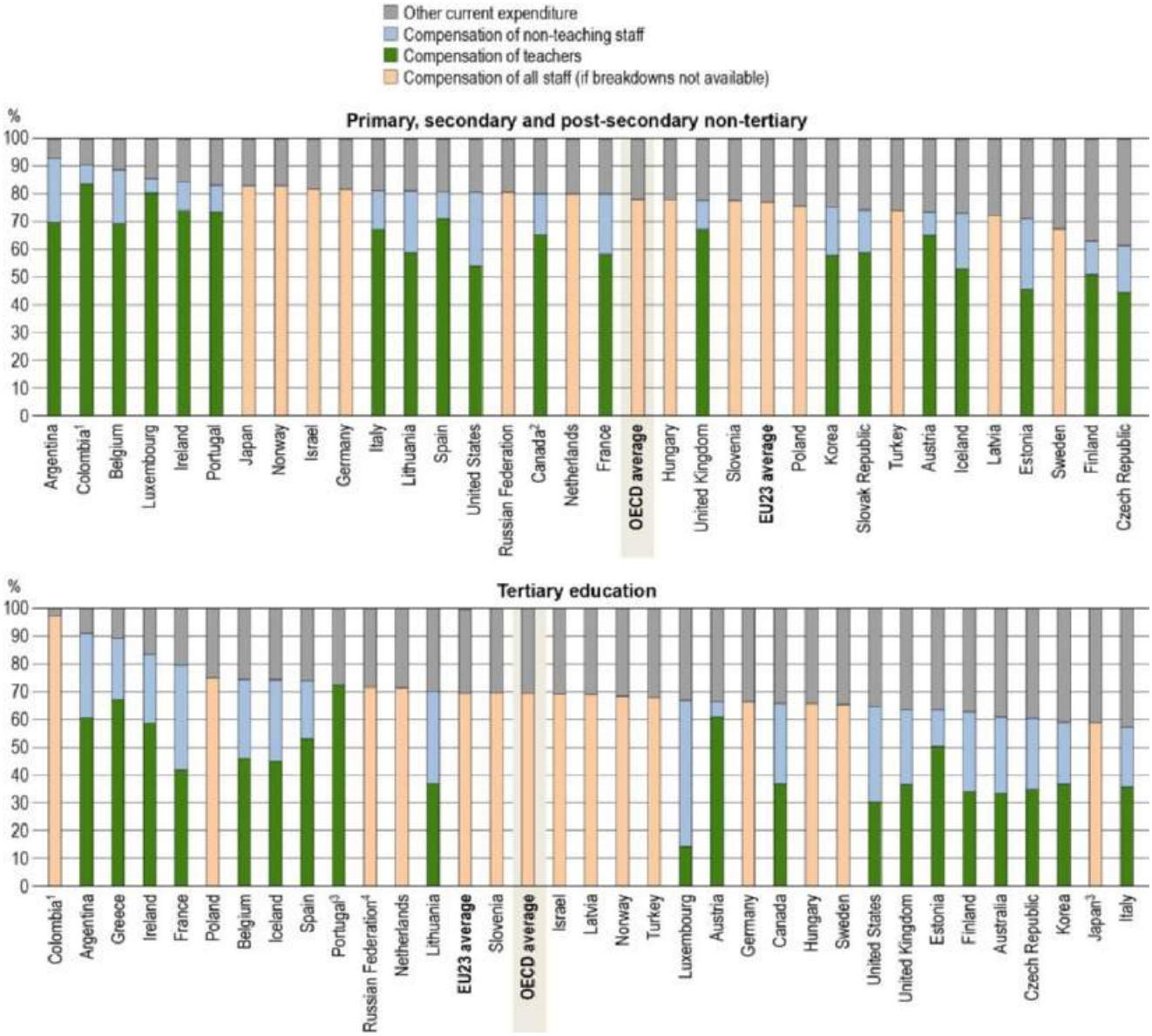
Differences in the relative shares of current and capital expenditure at the tertiary level can be explained in part by the ownership arrangement of university buildings. For instance, in various cases, the buildings and land used for education may be owned by the institution, used free of charge or rented. Therefore the amount of current and capital expenditure reported by countries partially depends on the physical infrastructure arrangement that prevails in a given country (see Box B6.1 in OECD (2012[1])).

How current expenditure is allocated

Current expenditure by educational institutions can be further subdivided into three broad functional categories: 1) compensation of teachers; 2) compensation of other staff; and 3) other current expenditure (for example, teaching materials and supplies, maintenance of school buildings, providing students' meals and renting school facilities). The relative shares of these categories typically do not change much from year to year. Current and projected changes in enrolments, changes to the salaries of education personnel and the costs of maintaining education facilities can affect not only the amounts allocated, but also the shares allotted to each category.

The salaries of teachers and other staff employed in education comprise the largest share of current expenditure in non-tertiary and tertiary education. However, salaries represent a larger share in non-tertiary education (78%) than at the tertiary level (69%), a difference of 9 percentage points. OECD countries spend on average 63% of total current expenditure on teacher compensation and 15% on paying other staff in non-tertiary education, leaving 22% for other current expenditure (Table C6.2 and Figure C6.2).

Figure C6.2. Distribution of current expenditure in public and private educational institutions (2016)



1. Year of reference 2017.
2. Primary education includes pre-primary programmes.
3. Tertiary education includes post-secondary non-tertiary education.
4. Tertiary education includes upper secondary (vocational).

Countries are ranked in descending order of the share of all staff compensation.

Source: OECD/UIS/Eurostat (2019), Table C6.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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There is significant variation within countries in how current expenditure is allocated across levels of education. In most countries, tertiary education has the lowest share of total current spending allocated to staff compensation across all levels of education. Colombia and Iceland are the only countries to report a greater share of current expenditure allocated to staff compensation at the tertiary level than at any other level (Table C6.2), and their differences between tertiary and non-tertiary levels exceeds 1 and 6 percentage points respectively. When looking at all education levels together, Colombia stand out as distinctive. It tends to devote a larger share of

current educational expenditure to staff compensation (92%) and less to other contracted and purchased services, such as support services (e.g. building maintenance), ancillary services (e.g. meal programmes) and the rent paid for school buildings and other facilities.

The variation between levels of education in the share of current expenditure allocated under "other current expenditure" reflects to some extent the differences in the size of administrative systems (for instance, the number of employees or the equipment available to the administrative staff across these levels). The cost of facilities and equipment is generally higher in tertiary education than at other levels. In addition, in some countries, tertiary institutions may be more likely to rent their premises, which can account for a substantial share of current expenditure. The differences among countries in the shares allocated to paying non-teaching staff are likely to reflect the degree to which non-teaching education personnel (such as principals, guidance counsellors, bus drivers, school nurses, janitors and maintenance workers) are included in the category of "non-teaching staff". Compensation of staff involved in research and development at the tertiary level may also explain some of the differences between countries and across levels of education in this category (see Indicator C1).

Distribution of current and capital expenditure by public versus private educational institutions

Public and private institutions generally allocate their spending between current and capital expenditure in a similar way, although differences are more marked in tertiary education than in non-tertiary education. Across OECD countries, the average share of current expenditure in private institutions is 94% in non-tertiary education, 1 percentage point higher than in public institutions (93%). At the tertiary level, the share of current expenditure in private institutions (92%) is 3 percentage points higher than in public institutions (89%). This difference at tertiary level is more marked in Colombia (21 percentage-point difference). In Australia, the share of current expenditure is substantially higher in public institutions, with a difference of 12 percentage points (Table C6.3).

Public and private institutions also differ in how current expenditure is distributed (Table C6.3). On average, across OECD countries in non-tertiary education, the share of current expenditure devoted to staff compensation in public institutions (80%) is 8 percentage points higher than in private institutions (72%). This gap is most pronounced in Italy, Portugal and Turkey, where the differences between the two sectors are greater than 20 percentage points. The pattern is reversed in Norway, where private institutions allocate a greater share of their current expenditure to staff compensation than public institutions. At the tertiary level, public institutions also allocate a higher share of their current spending to staff compensation (69% on average across OECD countries) than do private institutions (63%). However, the share of current spending devoted to staff compensation is lower at tertiary level than at lower levels of education suggesting the existence of non-staff related services at tertiary level that affects both public and private institutions.

The fact that private institutions typically devote a lower share of current expenditure to paying staff can be explained by factors inherent to each country's educational system. For instance private institutions may be more likely to contract services from external providers. They may be more likely to rent school buildings and other facilities (as opposed to public institutions operating in state-owned properties), and they may be at a disadvantage when purchasing teaching materials, as they cannot benefit from the same economies of scale in procurement as the public sector.

Public and private institutions allocate a very similar share of their total expenditure to capital investment in tertiary education on average across OECD countries (11% and 9%). However, the share of capital expenditure in public and private institutions varies to a large extent by country (Figure C6.1). Public institutions in Colombia, Greece and Turkey allocate the highest share of capital spending in tertiary education, reaching more than 20% of total expenditure. Some explanations for this might be related to the lower tertiary attainment rate in Colombia and Turkey (see Indicator A1) and the fact that most students in Colombia are enrolled in private institutions (see Indicator B1). Public institutions spend the lowest share on capital in Argentina, Estonia, Finland, Ireland, Latvia, Portugal and Sweden (below 5%). The variation across countries is also high for private institutions, with private institutions in Colombia and Turkey spending more than 25% of their total expenditure on capital, and those in

Estonia, Finland, the Russian Federation and Sweden spending below 4%. The difference between public and private institutions in the share of their allocations to capital expenditure is less than 3 percentage points for two-thirds of the countries with data available. Colombia has the largest differences in the share of capital expenditure, with its public institutions spending proportionally 20 percentage points more than its private institutions.

Definitions

Capital expenditure refers to spending on assets that last longer than one year, including construction, renovation or major repair of buildings, and new or replacement equipment. The capital expenditure reported here represents the value of educational capital acquired or created during the year in question (i.e. the amount of capital formation), regardless of whether the capital expenditure was financed from current revenue or through borrowing. Neither current nor capital expenditure includes debt servicing.

Current expenditure refers to spending on goods and services consumed within the current year and requiring recurrent production in order to sustain educational services. Other current expenditure (i.e. not on paying staff) by educational institutions includes expenditure on subcontracted services, such as support services (e.g. maintenance of school buildings), ancillary services (e.g. preparation of meals for students) and rental of school buildings and other facilities. These services are obtained from outside providers, unlike the services provided by education authorities or by educational institutions using their own personnel.

Staff compensation (including teachers and non-teaching staff, see below) includes: 1) salaries (i.e. gross salaries of educational personnel, before deduction of taxes, contributions for retirement or healthcare plans, and other contributions or premiums for social insurance or other purposes); 2) expenditure on retirement (actual or imputed expenditure by employers or third parties to finance retirement benefits for current educational personnel); and 3) expenditure on other non-salary compensation (healthcare or health insurance, disability insurance, unemployment compensation, maternity and childcare benefits and other forms of social insurance). The "**teachers**" category includes only personnel who participate directly in the instruction of students. The "**non-teaching staff**" category includes other pedagogical, administrative and professional personnel as well as support personnel (e.g. head teachers, other school administrators, supervisors, counsellors, school psychologists and health personnel, librarians, and building operations and maintenance staff).

Methodology

Calculations cover expenditure by public institutions or, where available, by both public and private institutions.

Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classification* (OECD, 2018[2]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Sources

Data refer to the financial year 2016 (unless otherwise specified) and are based on the UNESCO, the OECD and Eurostat (UOE) data collection on education statistics administered by the OECD in 2018 (for details see Annex 3 at https://doi.org/10.1787/f8d7880d-en). Data from Argentina, the People's Republic of China, India, Indonesia, Saudi Arabia and South Africa are from the UNESCO Institute of Statistics (UIS).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

References

OECD (2018), *OECD Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications*, OECD Publishing, Paris, https://doi.org/10.1787/9789264304444-en. [2]

OECD (2012), *Education at a Glance 2012: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2012-en. [1]

Indicator C6 Tables

Table C6.1 Share of current and capital expenditure, by education level (2016)

Table C6.2 Current expenditure, by resource category (2016)

Table C6.3 Share of current expenditure, by resource category and type of institution (2016)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981153

Table C6.1. Share of current and capital expenditure, by education level (2016)

Distribution of current and capital expenditure by educational institutions from public and private sources

		Primary		Secondary						Post-secondary non-tertiary		Primary, secondary and post-secondary non-tertiary		Tertiary		Primary to tertiary	
				Lower secondary		Upper secondary		All secondary									
		Current	Capital	Current	Capital	Current	Capital	Current	Capital	Current	Capital	Current	Capital	Current	Capital	Current	Capital
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Countries																
	Australia	93	7	m	m	m	m	m	m	m	m	m	m	88	12	m	m
	Austria	93	7	97	3	98	2	98	2	99	1	96	4	91	9	94	6
	Belgium	95	5	97	3	97 d	3 d	97 d	3 d	x(5, 7)	x(6, 8)	96	4	95	5	96	4
	Canada[1]	93 d	7 d	x(1)	x(2)	93	7	93	7	m	m	93 d	7 d	93	7	93 d	7 d
	Chile[2]	m	m	m	m	m	m	m	m	a	a	m	m	m	m	m	m
	Colombia[2]	90	10	93	7	92 d	8 d	92 d	8 d	x(5, 7)	x(6, 8)	92	8	60	40	81	19
	Czech Republic	91	9	91	9	95	5	93	7	94	6	93	7	93	7	93	7
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	92	8	93	7	94	6	94	6	98	2	93	7	97	3	94	6
	Finland	88	12	88	12	92 d	8 d	90 d	10 d	x(5, 7)	x(6, 8)	89	11	97	3	91	9
	France	94	6	93	7	91	9	92	8	92	8	93	7	92	8	93	7
	Germany	94	6	95	5	90	10	92	8	93	7	93	7	92	8	92	8
	Greece	97	3	98	2	96	4	97	3	m	m	m	m	57	43	m	m
	Hungary	98	2	97	3	97	3	97	3	97	3	97	3	84	16	94	6
	Iceland	95	5	95	5	98	2	97	3	97	3	96	4	94	6	96	4
	Ireland	93	7	91	9	91	9	91	9	87	13	92	8	96	4	93	7
	Israel	89	11	x(5, 7)	x(6, 8)	93 d	7 d	93	7	100	0	91	9	93	7	91	9
	Italy	99	1	99	1	93 d	7 d	96 d	4 d	x(5, 7)	x(6, 8)	97	3	92	8	96	4
	Japan	87	13	87	13	90 d	10 d	89 d	11 d	x(5, 7, 13)	x(6, 8, 14)	88	12	88 d	12 d	88	12
	Korea	86	14	87	13	89	11	89	11	a	a	87	13	89	11	88	12
	Latvia	89	11	89	11	92	8	91	9	96	4	90	10	96	4	91	9
	Lithuania	93	7	93	7	92	8	93	7	92	8	93	7	93	7	93	7
	Luxembourg	98	2	90	10	90	10	90	10	100	0	93	7	90	10	92	8
	Mexico	m	m	m	m	m	m	m	m	a	a	m	m	m	m	m	m
	Netherlands	89	11	89	11	91	9	90	10	a	a	90	10	90	10	90	10
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	87	13	87	13	88	12	88	12	88	12	87	13	88	12	87	13
	Poland	94	6	97	3	95	5	96	4	95	5	95	5	92	8	94	6
	Portugal	97	3	97	3	94 d	6 d	95 d	5 d	x(5, 7, 13)	x(6, 8, 14)	96	4	96 d	4 d	96	4
	Slovak Republic	96	4	98	2	95	5	96	4	95	5	96	4	m	m	m	m
	Slovenia	80	20	80	20	95	5	87	13	a	a	84	16	93	7	86	14
	Spain	97	3	98	2	97 d	3 d	97 d	3 d	x(5, 7)	x(6, 8)	97	3	90	10	95	5
	Sweden	95	5	95	5	93	7	94	6	94	6	95	5	96	4	95	5
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	89	11	90	10	86	14	87	13	a	a	88	12	79	21	85	15
	United Kingdom	97	3	96	4	97	3	96	4	a	a	97	3	95	5	96	4
	United States	91	9	91	9	91	9	91	9	92	8	91	9	94	6	92	8
	OECD average	93	7	93	7	93	7	93	7	m	m	93	7	90	10	92	8
	EU23 average	94	6	94	6	94	6	94	6	m	m	93	7	91	9	93	7
Partners	Argentina	m	m	m	m	m	m	m	m	a	a	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	m	m	a	a	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	x(11)	x(12)	x(11)	x(12)	x(13)	x(14)	x(11)	x(12)	x(11)	x(12)	93	7	91	9	92	8
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.
1. Primary education includes pre-primary programmes. Post-secondary non-tertiary figures are treated as negligible.
2. Year of reference 2017.
Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table C6.2. Current expenditure, by resource category (2016)

Distribution of current expenditure by educational institutions from public and private sources as a percentage of total current expenditure

		Primary, secondary and post-secondary non-tertiary				Tertiary				Primary to tertiary			
		Staff compensation			Other current expenditure	Staff compensation			Other current expenditure	Staff compensation			Other current expenditure
		Teachers	Other staff	Total		Teachers	Other staff	Total		Teachers	Other staff	Total	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	m	m	m	m	33	28	61	39	m	m	m	m
	Austria	65	8	74	26	61	6	66	34	64	7	71	29
	Belgium	69	19	89	11	46	28	74	26	63	22	85	15
	Canada[1]	65 [d]	15 [d]	80 [d]	20 [d]	37	29	66	34	54 [d]	20 [d]	75 [d]	25 [d]
	Chile[2]	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[2]	84	7	91	9	x(7)	x(7)	97	3	x(11)	x(11)	92	8
	Czech Republic	44	17	62	38	35	26	60	40	42	19	61	39
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	46	25	71	29	50	13	64	36	47	21	68	32
	Finland	51	12	63	37	34	29	63	37	46	17	63	37
	France	58	22	80	20	42	38	80	20	54	26	80	20
	Germany	x(3)	x(3)	82	18	x(7)	x(7)	66	34	x(11)	x(11)	77	23
	Greece	m	m	m	m	67	22	89	11	m	m	m	m
	Hungary	m	m	78	22	x(7)	x(7)	66	34	m	m	75	25
	Iceland	53	20	73	27	45	29	74	26	51	22	73	27
	Ireland	74	10	84	16	59	25	84	16	70	14	84	16
	Israel	x(3)	x(3)	82	18	x(7)	x(7)	69	31	x(11)	x(11)	78	22
	Italy	67	14	81	19	36	21	57	43	60	16	76	24
	Japan	x(3)	x(3)	83	17	x(7)	x(7)	59 [d]	41 [d]	x(11)	x(11)	75	25
	Korea	58	17	75	25	37	22	59	41	51	19	70	30
	Latvia	x(3)	x(3)	72	28	x(7)	x(7)	69	31	x(11)	x(11)	71	29
	Lithuania	59	22	81	19	37	33	70	30	52	26	78	22
	Luxembourg	80	5	86	14	14	53	67	33	70	12	83	17
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	x(3)	x(3)	80	20	x(7)	x(7)	71	29	x(11)	x(11)	77	23
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	x(3)	x(3)	83	17	x(7)	x(7)	68	32	x(11)	x(11)	79	21
	Poland	x(3)	x(3)	76	24	x(7)	x(7)	75	25	x(11)	x(11)	76	24
	Portugal	74	10	83	17	72	0	72 [d]	28 [d]	73	7	81	19
	Slovak Republic	59	16	74	26	m	m	m	m	m	m	m	m
	Slovenia	x(3)	x(3)	78	22	x(7)	x(7)	70	30	x(11)	x(11)	76	24
	Spain	71	10	81	19	53	21	74	26	66	13	79	21
	Sweden	54	13	67	33	x(7)	x(7)	65	35	x(11)	x(11)	67	33
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	x(3)	x(3)	74	26	x(7)	x(7)	68	32	x(11)	x(11)	72	28
	United Kingdom	67	10	78	22	37	27	64	36	59	15	74	26
	United States	54	27	81	19	30	34	65	35	44	30	74	26
	OECD average	63	15	78	22	m	m	69	31	m	m	76	24
	EU23 average	63	15	77	23	m	m	70	30	m	m	75	25
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	m	m	m	m	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	x(3)	x(3)	81	19	x(7)	x(7)	72	28	x(11)	x(11)	77	23
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

Note: Some levels of education are included with others. Refer to "x" in Table C6.1 for details. See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes.
2. Year of reference 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table C6.3. Share of current expenditure, by resource category and type of institution (2016)

Distribution of current expenditure by educational institutions

		Primary, secondary and post-secondary non-tertiary								Tertiary							
		Share of current expenditure in total expenditure		Compensation of staff as a percentage of current expenditure						Share of current expenditure in total expenditure		Compensation of staff as a percentage of current expenditure					
				Compensation of teachers		Compensation of other staff		Total compensation				Compensation of teachers		Compensation of other staff		Total compensation	
		Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	Countries																
	Australia	95	m	62	m	15	m	78	m	89	77	33	34	28	21	61	56
	Austria	96	99	65	66	9	4	74	70	90	92	61	59	6	3	67	62
	Belgium	95	97	68	71	22	18	90	88	95	94	46	46	28	29	74	75
	Canada[1]	93[d]	94[d]	66[d]	52[d]	15[d]	20[d]	81[d]	71[d]	93	a	37	a	29	a	66	a
	Chile[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Colombia[2]	95	87	87	78	9	4	96	82	49	70	m	99	m	1	93	100
	Czech Republic	92	100	45	43	17	18	62	61	92	100	36	6	27	3	63	9
	Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	93	97	46	51	26	14	72	65	96	97	17	59	37	7	54	66
	Finland	89	95	52	47	11	19	63	66	97	97	31	43	30	26	61	69
	France	93	93	59	52	22	20	81	73	92	91	40	53	41	22	81	74
	Germany	94	88	x(7)	x(8)	x(7)	x(8)	83	76	92	93	x(15)	x(16)	x(15)	x(16)	67	60
	Greece	97	m	92	m	2	m	93	m	57	a	67	a	22	a	89	a
	Hungary	97	97	m	m	m	m	78	77	83	84	m	m	m	m	66	66
	Iceland	96	100	53	55	20	18	73	73	93	100	45	45	29	29	74	74
	Ireland	92	100	74	a	11	a	85	a	96	96	59	a	25	a	84	a
	Israel	89	96	x(7)	x(8)	x(7)	x(8)	85[d]	72[d]	87	93	x(15)	x(16)	x(15)	x(16)	55	70
	Italy	97	97	68	50	15	0	83	50	93	89	36	34	22	20	58	54
	Japan	88	85	x(7)	x(8)	x(7)	x(8)	84	73	90[d]	87[d]	x(15)	x(16)	x(15)	x(16)	54[d]	62[d]
	Korea	86	93	58	59	18	14	76	73	88	90	28	41	25	21	53	62
	Latvia	90	89	x(7)	x(8)	x(7)	x(8)	72	73	96	95	x(15)	x(16)	x(15)	x(16)	64	69
	Lithuania	93	94	59	58	23	18	81	76	92	96	38	24	33	31	71	55
	Luxembourg	93	93	82	70	4	14	86	84	90	a	14	a	53	a	67	a
	Mexico	97	m	77	m	14	m	91	m	94	m	54	m	15	m	69	m
	Netherlands	89	97	x(7)	x(8)	x(7)	x(8)	80	86	89	94	x(15)	x(16)	x(15)	x(16)	70	78
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	87	100	x(7)	x(8)	x(7)	x(8)	82	100	87	96	x(15)	x(16)	x(15)	x(16)	69	65
	Poland	96	80	x(7)	x(8)	x(7)	x(8)	76	77	92	96	x(15)	x(16)	x(15)	x(16)	76	70
	Portugal	98	89	79	48	9	12	89	60	96[d]	94[d]	75[d]	59[d]	0[d]	0[d]	75[d]	59[d]
	Slovak Republic	96	100	59	61	16	13	74	74	93	m	32	m	23	m	55	m
	Slovenia	83	100	x(7)	x(8)	x(7)	x(8)	78	63	93	100	x(15)	x(16)	x(15)	x(16)	71	43
	Spain	98	96	73	64	9	11	83	75	89	95	57	35	21	21	78	56
	Sweden	95	94	54	53	14	11	68	66	96	97	x(15)	x(16)	x(15)	x(16)	65	65
	Switzerland	90	m	72	m	14	m	86	m	90	m	50	m	27	m	77	m
	Turkey	88	88	x(7)	x(8)	x(7)	x(8)	85	38	80	75	x(15)	x(16)	x(15)	x(16)	68	67
	United Kingdom	98	96	67	67	12	9	79	76	a	95	a	37	a	27	a	64
	United States	91	91	54	53	27	26	81	78	95	91	31	28	36	33	67	61
	OECD average	93	94	65	m	15	m	80	72	89	92	m	m	m	m	69	63
	EU23 average	94	95	65	m	14	m	79	72	91	94	m	m	m	m	69	61
Partners	Argentina	87	m	70	m	23	m	93	m	96	m	61	m	30	m	91	m
	Brazil	97	m	x(7)	m	x(7)	m	78	m	95	m	x(15)	m	x(15)	m	80	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[2]	93	m	79	m	4	m	83	m	87	m	m	m	m	m	77	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia[2]	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	93	95	x(7)	x(8)	x(7)	x(8)	81	62	90[d]	97[d]	x(15)	x(16)	x(15)	x(16)	72[d]	61[d]
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[2]	95	m	77	m	7	m	83	m	95	m	56	m	0	m	56	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Some levels of education are included with others. Refer to "x" in Table C6.1 for details. Total data for expenditure on primary to tertiary education (i.e. Columns 17 to 24) are available for consultation on line (see StatLink below). See *Definitions* and *Methodology* sections for more information. Data and more breakdowns available at http://stats.oecd.org/, Education at a Glance Database.

1. Primary education includes pre-primary programmes.

2. Year of reference 2017.**Source**: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933979405

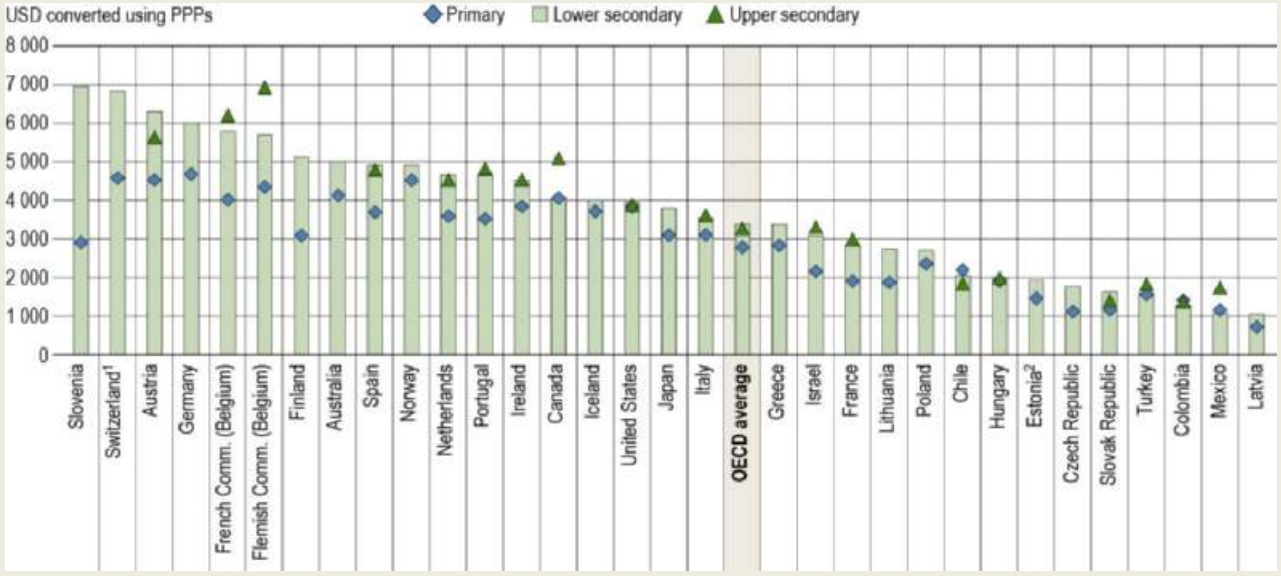
Indicator C7. Which factors influence teachers' salary cost?

Highlights

- This analysis calculates the salary cost of teachers per student using four factors: teachers' salaries, students' instruction time, teachers' teaching time and theoretical class size (see *Definitions* section). Different levels of salary cost of teachers per student result from various different combinations of these four factors.
- On average across OECD countries, the salary cost of teachers per student rises from USD 2 784 in primary education to USD 3 380 in lower secondary education.
- The two main factors influencing the level of teachers' salary costs are teachers' salaries and theoretical class sizes. Between 2005 and 2017, teachers' salaries increased in most OECD countries, and this additional cost was often offset by similar increases in the average class size.

Figure C7.1. Annual salary cost of teachers per student in public institutions, by level of education (2017)

USD converted using PPPs for private consumption



1. Teachers' statutory salaries after 10 years of experience instead of 15 years.
2. Teachers' statutory salaries at the start of their career instead of after 15 years of experience.

Countries and economies are ranked in descending order of the annual salary cost of teachers per student in lower secondary education.

Source: OECD (2019), Table C7.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Governments have become increasingly interested in the relationship between the amount of resources devoted to education and student learning outcomes. They seek to provide more and better education for their population, while ensuring that public funding is used efficiently, particularly when public budgets are tight. Teachers' compensation usually accounts for the largest share of expenditure on education and thus of expenditure per student. The salary cost of teachers per student, as calculated in this indicator, is a function of students' instruction time, teachers' teaching time, teachers' statutory salaries and theoretical class sizes (see *Methodology* section).

Differences among countries in these factors may explain differences in the level of expenditure per student. Similarly, a given level of expenditure may be associated with different combinations of these factors. This indicator examines the choices countries make when investing their resources in primary and secondary education and explores how different policy choices related to these factors affect the salary cost of teachers.

The salary cost of teachers per student can be affected by other variables not directly assessed in this indicator, such as demographic changes. For example, in countries where enrolments have been declining in recent years, class sizes would also shrink (assuming all other factors remain constant), unless there was also a simultaneous drop in the number of teachers. This indicator does not distinguish between a reduction in class size due to demographic changes and a deliberate policy decision to reduce class size.

Other findings

- Similar levels of expenditure among countries can mask a variety of contrasting policy choices. For example, France and Hungary have nearly the same salary cost of teachers per primary student, but teachers' statutory salaries in France are 80% higher than in Hungary, which is more than balanced out by classes in France having about seven more students on average (based on the theoretical class size).
- On average across OECD countries, the salary cost of teachers per student represents 6.7% of gross domestic product (GDP) per capita at primary level and 8.2% at lower secondary level.
- Given a fixed level of salary cost, a reduction in class size can be compensated for by a decrease in teachers' salaries, a decrease in instruction time or an increase in teaching time. For example, in Australia, in order to reduce theoretical class size by one student and keep the salary cost per student constant, annual teacher salaries would have to fall by USD 3 600, annual instruction time would have to be reduced by 57 hours, or annual teaching time would have to increase by 53 hours

Note

The salary cost of teachers per student is estimated based on values for teachers' gross statutory salaries after 15 years of experience and the most prevalent qualifications (see Indicator D3), the theoretical instruction time for students (see Indicator D1) and teachers' statutory teaching time (see Indicator D4). This measure may differ from the actual salary cost of teachers (see Box C7.1).

The use of statutory salaries means that this indicator does not take into account the actual level of qualifications and the seniority of the teaching workforce. The statutory salary also does not include employer's contribution to social security and pension and therefore does not represent the full cost incurred by the employer (i.e. the government). As a result, this measure is not comparable to the indicator on expenditure on teacher compensation (see Indicator B6).

Analysis

Variation in the salary cost of teachers per student by level of education

On average across OECD countries and economies, the salary cost of teachers is USD 2 784 per primary student, USD 3 380 per lower secondary student and USD 3 274 per general upper secondary student (Figure C7.1). Each of these averages masks a wide range of salary costs across countries. For example, in primary education, the salary cost of teachers per student in Germany (USD 4 679) is over six times the cost in Latvia (USD 720). Higher salary costs are a result of higher teachers' salaries and/or having more teachers per student, which is itself pushed up by smaller classes, longer required instruction time for students or shorter teaching hours for teachers.

The general increase in teachers' salary cost between primary and lower secondary education is the result of increases in teachers' salaries and students' instruction time, as well as a reduction in teaching time, all of which push up the cost. In 2017, the OECD average annual statutory salary for teachers with 15 years of experience was USD 43 007 at lower secondary level, around USD 1 950 more than the average salary at primary level. Moreover, the average annual instruction time in lower secondary education was 124 hours longer than in primary education, while average teaching time was 83 hours shorter, implying that more teachers were needed to teach a given number of pupils.

In contrast to the other factors, theoretical class size tends to increase between primary and lower secondary education, which partially offsets the increase in cost between the two levels (the OECD average theoretical class size increases from 15 students at primary level to 17 students at lower secondary). However, in general, the effect of the larger class size is not enough to offset the increase in cost caused by the other three factors. Chile, Colombia and Mexico are the only OECD countries where the salary cost of teachers per student in lower secondary is less than in primary education (Tables C7.5a and b, available on line). This is mainly due to an increase in theoretical class size between primary and lower secondary levels in these countries.

In a few countries, the learning environment and the organisation of schools are relatively similar in primary and lower secondary education. For example, in 2017, the difference in the salary cost of teachers per student between primary and lower secondary was less than USD 100 in Canada, Hungary, Mexico and Turkey. The greatest difference was in Slovenia, where it was of USD 4 036.

Variation in the salary cost of teachers per student after accounting for countries' wealth

The level of the salary cost of teachers per student is positively correlated with countries' GDP per capita, so it is important to also take into account relative wealth when comparing countries. On average across OECD countries, the salary cost of teachers per student represents 6.7% of GDP per capita at primary level, 8.2% at lower secondary level and 8.0% in general programmes at upper secondary level (Table C7.1).

The ranking of a few countries changes once GDP per capita is taken into account. For example, Poland's salary cost of teachers per student in primary education is below the OECD average, at USD 2 355. However, this amount represents 7.9% of the country's GDP per capita, above the OECD average of 6.7%. This means that Poland devotes an above-average share of its GDP per capita to teachers' salary cost, even if the absolute amount is relatively low. The opposite is the case in Ireland, where the salary cost of teachers per student in primary education (USD 3 844) is considerably above the OECD average, but represents only 5% of the country's GDP per capita, well below the OECD average.

Box C7.1. Methodological limitations and potential future developments

Teachers' salary cost per student, as presented in this indicator, is an estimated measure of how much is spent on teachers' salaries in each country. In addition to teachers' salaries themselves, the indicator takes into account three factors that influence the number of teachers a system requires: the number of required instruction hours, the number of hours teachers spend teaching and the theoretical class size. Please see the *Methodology* section for more information on how these factors relate to each other and are combined to calculate the salary cost.

It is important to consider the limitations of this indicator's methodology when interpreting the results. First, the indicator is calculated using the statutory values for teaching and instruction time and teachers' statutory salaries. Therefore, the results presented in this indicator are theoretical in nature, and do not reflect the actual time teachers spend teaching or how much they actually earn each year. Indeed, even the concept of teaching and instruction time have become increasingly theoretical in nature as learning settings become more flexible, making it difficult to accurately measure the amount of time spent on these activities.

Second, by using national figures, the indicator misses the wide discrepancies that may exist within countries. The trade-off between teachers' salaries and class size, for example, may have very different effects depending on the socio-economic status of students and schools. Moreover, the trade-offs highlighted in this analysis are only a few of the many decisions countries must make when allocating their resources. Countries must also examine potential trade-offs with other investment areas, such as teacher training and school infrastructure, as well as trade-offs between different levels of education.

Although some of these limitations are difficult to address due to current data availability, there are several possible avenues to take that would expand the analytical potential of this indicator once more data become available. The first would be improving the measure used to estimate the cost of teachers. One way to achieve this might be to use teachers' average actual salaries, taking bonuses and allowances into account, instead of the statutory salaries. Another possibility would be to take into account the full cost to the government of teachers' salaries, including costs that do not go directly to teachers, such as employer's contributions and pensions.

Other avenues for potential future development include exploring the link between teachers' salary costs and school funding formulae, and how the trade-offs associated with teachers' salary costs may differ across subnational levels of decision making, such as schools, school districts and municipalities.

Contribution of each factor to the salary cost of teachers per student

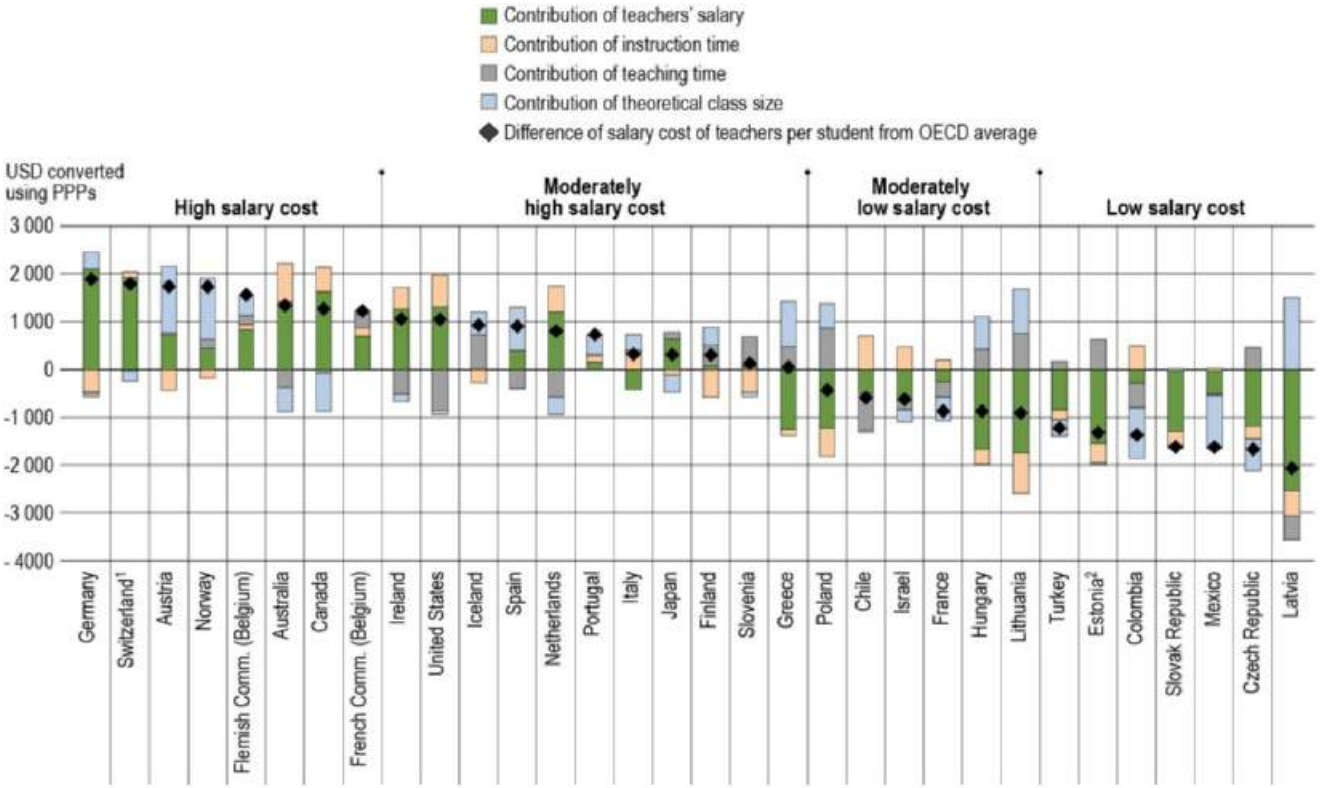
The four factors which determine the salary cost of teachers per student affect it in different ways. The impact of the first factor, teachers' salaries, is direct: higher salaries lead to higher salary costs. The other three factors affect the salary cost by changing the number of teachers needed, assuming that the number of students enrolled is constant. If instruction time increases or teaching time decreases, more teachers must be hired to keep class sizes constant. Similarly, more teachers would need to be hired in order to reduce class sizes while keeping everything else constant.

By comparing a country's salary cost to the OECD average, it is possible to determine the contribution of each of the four factors to the difference from the average. In other words, it is possible to assess whether a given salary cost is above average because of higher salaries, longer instruction times, shorter teaching hours, smaller class sizes or a combination of these four factors. Changing one of these factors may require compensatory trade-offs among the other factors in order to keep the total salary cost constant (Box C7.2).

Figure C7.2 shows the wide variety of combinations of the four factors across countries and their different effects on the salary cost of teachers. The size of the contribution of each factor to the difference between a country's salary cost and the OECD average depends on the difference between the factor itself and the respective OECD average. The sum of each factor's contribution equals the difference in salary cost between that country and the OECD average. For example, the salary cost per student in primary education in Poland is USD 2 355, USD 429 lower than the OECD average. This difference is the result of the contributory effects of the four factors: below-average theoretical class size adds USD 521 to the difference, below-average teaching time adds USD 864, below-average teachers' salary subtracts USD 1 226 and below-average instruction time subtracts USD 588 (Table C7.2).

Figure C7.2. Contribution of various factors to salary cost of teachers per student in public institutions, primary education (2017)

USD converted using PPPs for private consumption



How to read this chart: This figure shows the contribution (in USD) of the factors influencing the difference between salary cost of teachers per student in the country and the OECD average. For example, in Poland, the salary cost of teachers per student is USD 429 lower than the OECD average. Poland has a smaller theoretical class size (+ USD 521) and less teaching time (+ USD 864) than the OECD average, both of which push the salary cost of teachers up. However, this is more than compensated for by below-average teachers' salaries (- USD 1 226) and below-average instruction time (- USD 588), which push the cost down.

1. Teachers' statutory salaries after 10 years of experience instead of 15 years.
2. Teachers' statutory salaries at the start of their career instead of after 15 years of experience.

Countries and economies are ranked in descending order of the difference between the salary cost of teachers per student and the OECD average.

Source: OECD (2019), Table C7.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979538

Different policies in countries with similar spending

Higher levels of expenditure on education cannot automatically be equated with better performance by education systems (OECD, 2016[1]). In addition to the fact that structural changes cannot guarantee better learning outcomes, countries spending similar amounts on education do not necessarily have similar education policies and practices. The OECD countries and economies shown in Figure C7.2 can be divided into four groups, each with similar teachers' salary cost per student, in order to better illustrate the range of policy choices that are possible – and have been made by other countries – while spending similar amounts.

Group 1: High salary cost of teachers per student in primary education

This group, which has the highest salary cost of teachers per student in primary education, is composed of Australia, Austria, the Flemish and French communities of Belgium, Canada, Germany, Norway and Switzerland. The salary cost of teachers per student in this group ranges from USD 4 013 to USD 4 679. All of these countries have above-average GDP per capita, but the relationship between salary cost and GDP per capita is not one-to-one. Some countries allocate a larger share of their wealth to this type of expenditure than others (Table C7.1).

Compared to countries from the other groups, it may seem as though these high-spending countries do not face trade-offs between the four factors analysed in this indicator. Indeed, most of the countries in this group can afford both above-average teacher salaries *and* below-average theoretical class sizes. However, the magnitude of the difference between these factors and the respective OECD averages differs considerably across these countries. In Germany, for example, the high salary cost of teachers is mostly a result of high teachers' salaries, whereas in Austria it is mostly the result of small theoretical class sizes.

Group 2: Moderately high salary cost of teachers per student in primary education

This group is composed of 11 countries with above-average salary costs: Finland, Greece, Iceland, Ireland, Italy, Japan, the Netherlands, Portugal, Slovenia, Spain and the United States. The salary cost of teachers per student in this group ranges from USD 2 833 to USD 3 844 (Table C7.1). This group is highly heterogeneous in terms of GDP per capita and education expenditure, which sheds light on the many different choices countries with similar spending can make.

A potential trade-off observed in some countries is between students' required instruction time and teachers' teaching time. In the Netherlands, for example, students receive 147 hours more instruction time per year than the OECD average, but this is almost entirely offset by teaching time that is 150 hours longer than the average. Requiring longer teaching hours, which limits the number of teachers that need to be hired, can also be used to compensate for higher teachers' salaries. This is the case in the United States, where the requirement for 224 teaching hours above the OECD average helps offset for the additional USD 19 970 teachers receive each year (the statutory teachers' salary in the United States is USD 61 028 compared to the OECD average of USD 41 058).

Group 3: Moderately low salary cost of teachers per student in primary education

This group is composed of six countries with below-average salary cost of teachers per student: Chile, France, Hungary, Israel, Lithuania and Poland. Teachers' salary cost in this group range from USD 1 875 per student to USD 2 355 (Table C7.1). With the exception of France, all of these countries have below-average GDP per capita.

All six countries in this group have below-average teacher salaries, which is one of the main drivers of the below-average salary cost in primary education. However, there are considerable differences between them. In Hungary, Lithuania and Poland, lower teachers' salaries are partially compensated by shorter teaching hours and smaller theoretical class sizes. This is not the case in the other three countries, where teaching time and theoretical class sizes are both above average. France and Hungary have nearly the same salary cost of teachers

per student, but teachers' statutory salaries in France are 80% higher than in Hungary, which is more than compensated for by having about seven more students per class (based on the theoretical class size).

Group 4: Low salary cost of teachers per student in primary education

This group is composed of the seven countries with the lowest salary cost of teachers per student in primary education: Colombia, the Czech Republic, Estonia, Latvia, Mexico, the Slovak Republic and Turkey. The salary cost of teachers per student in this group ranges from USD 720 to USD 1 560 (Table C7.1). These countries all have below-average GDP per capita.

In an overall cross-country comparison, Latvia and the Slovak Republic might be bundled together as having low salary costs due to below-average salaries and below-average theoretical class sizes. However, there are important differences in the education characteristics of these two countries. The Slovak Republic's larger theoretical class size (compared to Latvia's) allows it to pay teachers over twice as much as Latvia, which has the lowest teachers' salaries and smallest theoretical class sizes of all OECD countries.

Evolution of average class size and teachers' salaries

At each level of education, teachers' salaries generally have the greatest impact on the degree to which countries' salary cost of teachers per student diverges from the OECD average. The second most influential factor is the theoretical class size. The trade-off between these two variables, which are often the target of educational reforms and policies, reflects the choice countries have to make between increasing teachers' salaries and hiring more teachers. In fact, controlling for the total salary cost of teachers, countries with higher teachers' salaries tend to have larger class sizes (OECD, 2018[2]).

Figure C7.3 plots the evolution of teachers' statutory salaries and average class sizes between 2005 and 2017. The average class size, unlike the theoretical class size discussed in the previous sections of this indicator, refers to the average actual class size obtained by dividing the number of students enrolled by the number of classes in each country (please see the *Definitions* section for more information on the difference between theoretical and average class size).

The figure groups countries into four different categories, each represented in a quadrant of the chart. Countries in the top-right and bottom-left quadrants exhibit a trade-off between average class size and teachers' salaries in this period. Countries in the top-right quadrant increased average class sizes (which brings the salary cost of teachers down) and increased teachers' salaries (which pushes the cost up). The most notable example among this group of countries is Mexico, where the average class size increased by over 20% in the period, helping to offset the cost of increasing teachers' salaries by over 30%. Only two countries (Greece and Japan) faced the opposite trade-off, where average class sizes were reduced, but the additional cost was somewhat compensated for by lower teachers' salaries. It is important to note that although these changes have opposite effects on the salary cost, they are not necessarily taken in response to each other. In Japan, for example, the decrease in average class size was mainly due to a demographic change whereas the decrease in teachers' salaries was at least partially due to a change in teachers' generation.

No particular trade-off between these two variables seems to have taken place in this period in the countries and economies in the top-left and bottom-right quadrants. Those in the top-left quadrant increased average class sizes and reduced teachers' salaries over this period, both measures that push down the salary cost of teachers. In some countries and economies, the cost was mostly pushed down by larger average class sizes – in Portugal, for example, average class size increased by 17% in this period – and in others the cost was mostly pushed down by lower teachers' salaries – in England (United Kingdom), teachers' salaries decreased by 10%.

The opposite trend is found in countries in the bottom-right quadrant, which reduced average class sizes and increased teachers' salaries, both measures that increase the salary cost of teachers. Once again, the size of the change in each variable differs across countries. Between 2005 and 2017, teachers' salaries increased by nearly 40% in Luxembourg, while average class sizes fell by nearly 30% in Korea.

It is interesting to observe countries that had a similar evolution in one of the factors, but followed a very different path for the other. For example, between 2005 and 2017, both Austria and Hungary increased teachers' salaries by about 9%. However, during the same period, Hungary also increased average class sizes by 10%, thus offsetting some of the additional cost of higher salaries, while Austria reduced average class sizes by about 8%, thus increasing the salary cost of teachers even more.

Smaller class sizes are often seen as beneficial, but the evidence regarding their impact on student learning is mixed. Results from the latest Programme for International Student Assessment (PISA) show that students in larger classes have higher scores in science on average across OECD countries (OECD, 2016[3]). Other research has found that smaller class sizes may be beneficial in some cases, such as for students from disadvantaged backgrounds who may need more individualised attention (Dynarski, Hyman and Schanzenbach, 2013[4]). Given that reducing class size is a costly measure (Box C7.2), it is important to compare its impact with other possible interventions (OECD, 2016[1]).

Box C7.2. What might be the trade-offs of decreasing class size by one student?

This indicator assesses the impact of four factors (teachers' salaries, instruction time, teaching time and theoretical class size) on countries' salary cost of teachers per student and the trade-offs that can exist between them. This analysis can be used to answer the following question: assuming that the number of students and the salary cost remain constant, what are the potential trade-offs among the other factors which would compensate for a smaller class size? More specifically, by how much would salaries or instruction time have to fall, or teaching time have to increase, in order to maintain the same salary cost?

Table C7.a presents the simulation results for decreasing the theoretical class size by one student. For each factor, the value is calculated keeping everything else constant. For example, in primary education in Australia, in order to reduce the theoretical class size by one student and keep the salary cost per student constant, teachers' salaries would have to fall by USD 3 600, annual instruction time would have to fall by 57 hours, or annual teaching time would have to increase by 53 hours. Any one of these trade-offs would compensate for the additional cost of the smaller class size, without any change to the total salary cost of teachers per student.

These results emphasise the fact that reducing class sizes, by as little as one student, comes with a price tag. Indeed, class sizes have been decreasing in several OECD countries over recent years (see Indicator D2), although often as a result of demographic changes rather than of active policy choices. Class sizes tend to fall when student enrolment falls because of the political, economic and organisational challenges of simultaneously reducing the number of teachers. However, in the long term, not reducing the teaching workforce is in itself a policy choice that will keep classes smaller. Table C7.a shows that the price of smaller class sizes can either be reflected in higher salary costs, or it can be offset by changes to the other three factors.

It is important to assess the results presented in Table C7.a by taking into account the current values of each factor in the country. For example, Chile already has the longest teaching hours of all OECD countries, so further increases to compensate for smaller class size may not be feasible or desirable.

This simulation is not meant to assess the real cost of reforms. The simple model only takes into account four factors, and it only shows the trade-off for one factor at a time. In reality, trade-offs will often consist of changes in several factors at the same time. Moreover, important regional variations, not captured by this indicator, may require specific policies that would not necessarily be reflected in the national averages. Rather, this analysis is only meant to highlight the importance of trade-offs in policy decisions, and to provide some guidance as to the direction and size of the potential trade-offs across the four factors assessed in this indicator.

Table C7.a. Keeping salary cost constant, what might be the trade-offs of decreasing class size by one student? (2017)

Trade-offs of decreasing theoretical class size in primary education, public institutions only

OECD countries and economies	Teachers' statutory salaries (in equivalent USD per year)	Instruction time (in hours per year)	Teaching time (in hours per year)
Australia	-3 600	-57	53
Austria	-5 000	-69	85
Flemish Comm. (Belgium)	-3 900	-62	60
French Comm. (Belgium)	-3 400	-57	52
Canada	-3 500	-49	45
Chile	-2 200	-69	75
Colombia	-1 400	-40	41
Czech Republic	-1 000	-32	30
Estonia[1]	-1 300	-44	42
Finland	-3 200	-49	55
France	-2 000	-47	51
Germany	-5 300	-51	63
Greece	-2 500	-70	67
Hungary	-1 800	-61	63
Iceland	-3 200	-56	52
Ireland	-3 800	-58	62
Israel	-1 900	-58	54
Italy	-2 700	-67	62
Japan	-3 000	-45	47
Latvia	-1 200	-83	165
Lithuania	-1 900	-54	62
Mexico	-1 200	-29	31
Netherlands	-3 600	-56	59
Norway	-4 400	-72	78
Poland	-2 100	-52	50
Portugal	-3 300	-63	64
Slovak Republic	-1 400	-45	57
Slovenia	-2 700	-43	43
Spain	-4 100	-70	85
Switzerland[2]	-4 400	-51	53
Turkey	-1 600	-41	43
United States	-4 000	-63	70

Note: Results for teachers' statutory salaries are rounded to the nearest hundred. Teachers' salaries used in the calculation of this indicator refer to the annual statutory teachers' salaries in public institutions for teachers with 15 years of experience and the most prevalent qualification (Indicator D3). Instruction time refers to the average number of hours per year of compulsory instruction time (Indicator D1) and teaching time refers to the statutory net teaching hours over the school year (Indicator D4). The reference year for these factors may differ by one year for some countries. See Table C7.5a, available on line, for notes on each factor.

1. Teachers' statutory salaries at the start of their career instead of after 15 years of experience.
2. Teachers' statutory salaries after 10 years of experience instead of 15 years.

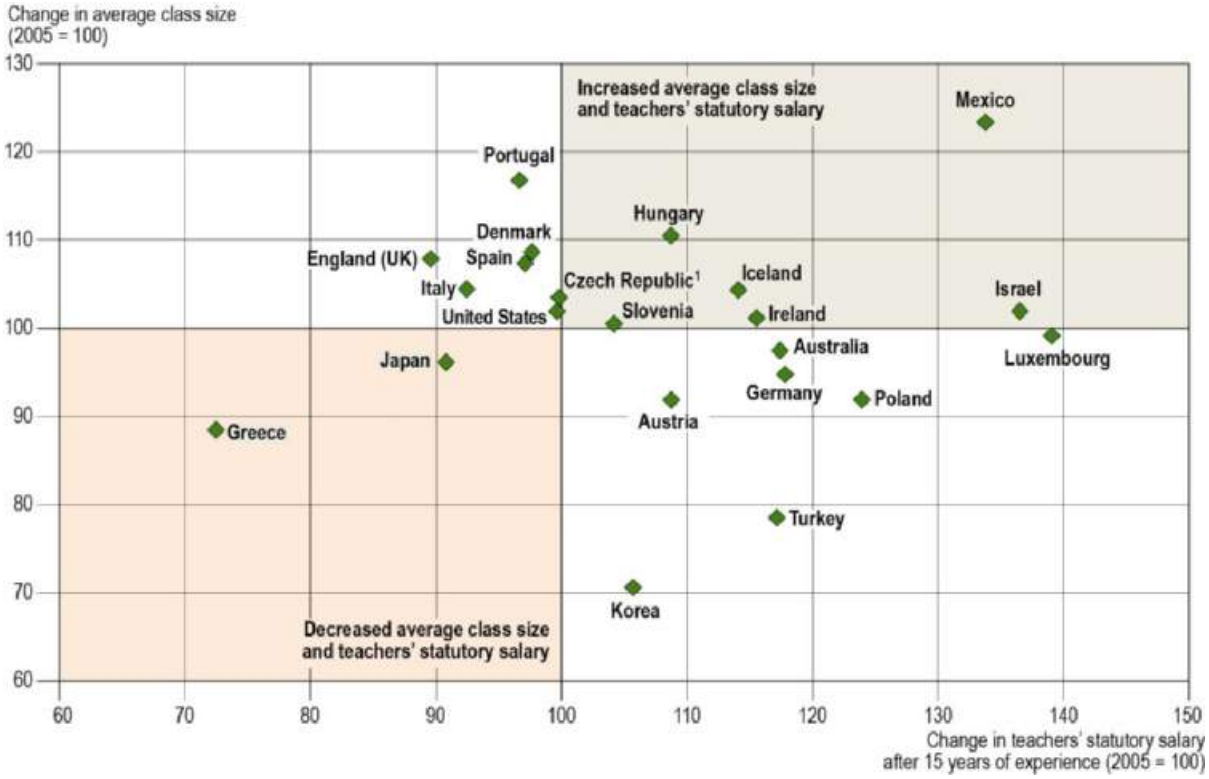
Source: OECD (2019), Table C7.5a, available on line. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979576

As observed in Figure C7.3, one alternative measure is to increase teacher salaries. Evidence from PISA points to the importance of high-quality teaching in improving student outcomes (OECD, 2016[1]) and one way to help school systems attract the best candidates to the teaching profession is by offering higher salaries. However, attracting good candidates to the teaching profession and retaining the effective ones is not just a matter of raising salaries. Other factors include the quality of training before and after entering the profession and the relationship between teachers and society.

Figure C7.3. Index of change in teachers' salaries and in average class size in primary education between 2005 and 2017

Public institutions only



Note: The source for the average class size is the UOE CLASS questionnaire. The average class size does not correspond to the theoretical class size (please see *Definitions* section).
1. Teachers' statutory salaries based on minimum qualifications instead of typical qualifications.
Source: OECD (2019), Education at a Glance database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979557

Definitions

Average class size refers to number of students enrolled in a given education level divided by the number of classes. It measures the average number of students that are grouped together in classrooms (see Indicator D2).

Instruction time refers to the time a public school is expected to provide instruction to students on all the subjects integrated into the compulsory and non-compulsory curriculum, on school premises or in before or after-school activities that are formal parts of the compulsory programme (see Indicator D1).

Teachers' teaching time is the annual average number of hours that full-time teachers teach a group or class of students including all extra hours, such as overtime (see Indicator D4).

Teachers' salary refers to the annual statutory salary of teachers after 15 years of experience, converted to USD using purchasing power parity (PPP) for private consumption (see Indicator D3).

Theoretical class size refers to the theoretical size of classes given the statutory – or theoretical – values of instruction and teaching time and the student teacher ratio (see *Methodology* section). It does not reflect the actual average class size in countries.

Methodology

The salary cost of teachers per student (SCS) is calculated as:

$$SCS = Teacher\ salary * Instruction\ time * \frac{1}{Teaching\ time} * \frac{1}{Theoretical\ Class\ Size}$$

Where theoretical class size is calculated as:

$$Theoretical\ class\ size = \frac{Instruction\ time}{Teaching\ time} * \frac{Students}{Teachers}$$

The contribution of each factor to the level of the salary cost of teachers per student is analysed by comparing the salary cost of teachers per student in each country to the OECD average and then calculating the contribution of these different factors to the variation from the OECD average. This exercise is based on a mathematical relationship between the various factors and follows the method presented in the Canadian publication *Education Statistics Bulletin* (Quebec Ministry of Education, Recreation and Sports, 2003[5]). Using this mathematical relationship and comparing a country's values for the four factors to the OECD averages makes it possible to measure both the direct and indirect contribution of each of these four factors to the variation in salary cost per student between that country and the OECD average.

Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[6]) for more information and Annex 3 for country-specific notes (http://dx.doi.org/10.1787/eag-2018-36-en).

Source

Data referring to the 2017 school year are based on the UOE data collection on education statistics and on the Survey on Teachers and the Curriculum, which were both administered by the OECD in 2018.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator C7 Tables

Table C7.1 Salary cost of teachers per student, by level of education (2017)

Table C7.2 Contribution of various factors to salary cost of teachers per student in primary education (2017)

Table C7.3 Contribution of various factors to salary cost of teachers per student in lower secondary education (2017)

WEB Table C7.4 Contribution of various factors to salary cost of teachers per student in general programmes of upper secondary education (2017)

WEB Table C7.5a Factors used to compute the salary cost of teachers per student in public institutions, in primary education (2017)

WEB Table C7.5b Factors used to compute the salary cost of teachers per student in public institutions, in lower secondary education (2017)

WEB Table C7.5c Factors used to compute the salary cost of teachers per student in public institutions, in general programmes of upper secondary education (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance database.

StatLink: https://doi.org/10.1787/888933981172

Table C7.1. Salary cost of teachers per student, by level of education (2017)

Annual salary cost of teachers per student in public institutions, in equivalent USD, converted using PPPs for private consumption, and in percentage of GDP per capita

		Salary cost of teachers per student (in USD, 2017 constant prices)			Salary cost of teachers per student (in percentage of GDP per capita)		
		Primary	Lower secondary	Upper secondary, general programmes	Primary	Lower secondary	Upper secondary, general programmes
		(1)	(2)	(3)	(4)	(5)	(6)
OECD	**Countries**						
	Australia	4 127	5 008	m	7.9	9.6	m
	Austria	4 525	6 299	5 635	8.4	11.7	10.4
	Canada	4 057	4 057	5 092	8.6	8.6	10.9
	Chile	2 198	2 048	1 841	9.0	8.4	7.6
	Colombia	1 416	1 274	1 384	9.7	8.7	9.5
	Czech Republic	1 117	1 779	m	2.9	4.7	m
	Denmark	m	m	m	m	m	m
	Estonia[1]	1 463	1 930	m	4.4	5.8	m
	Finland	3 087	5 112	m	6.7	11.0	m
	France	1 915	2 843	2 993	4.3	6.4	6.8
	Germany	4 679	6 008	m	8.9	11.4	m
	Greece	2 833	3 376	m	9.9	11.8	m
	Hungary	1 915	2 000	1 990	6.7	7.0	6.9
	Iceland	3 714	4 010	m	6.6	7.1	m
	Ireland	3 844	4 532	4 532	5.0	5.9	5.9
	Israel	2 165	3 095	3 307	5.5	7.9	8.4
	Italy	3 103	3 546	3 616	7.6	8.7	8.8
	Japan	3 096	3 798	m	7.4	9.1	m
	Korea	q	q	m	q	q	m
	Latvia	720	1 044	m	2.8	4.1	m
	Lithuania	1 875	2 738	m	5.7	8.3	m
	Luxembourg	m	m	m	m	m	m
	Mexico	1 159	1 061	1 743	5.8	5.4	8.8
	Netherlands	3 590	4 650	4 531	6.6	8.5	8.3
	New Zealand	m	m	m	m	m	m
	Norway	4 518	4 909	m	8.6	9.3	m
	Poland	2 355	2 699	m	7.9	9.0	m
	Portugal	3 518	4 641	4 831	10.8	14.3	14.9
	Slovak Republic	1 164	1 627	1 406	3.6	5.0	4.3
	Slovenia	2 911	6 948	m	8.1	19.2	m
	Spain	3 691	4 912	4 787	9.4	12.6	12.2
	Sweden	m	m	m	m	m	m
	Switzerland[2]	4 579	6 818	m	6.9	10.2	m
	Turkey	1 560	1 605	1 830	5.5	5.7	6.5
	United States	3 834	3 940	3 880	6.4	6.6	6.5
	Economies						
	Flemish Comm. (Belgium)	4 349	5 699	6 920	8.8	11.5	14.0
	French Comm. (Belgium)	4 013	5 775	6 200	8.1	11.7	12.5
	England (UK)	m	m	m	m	m	m
	Scotland (UK)	m	m	m	m	m	m
	OECD average[3]	2 784	3 380	3 274	6.7	8.2	8.0

Note: Teachers' salaries used in the calculation of this indicator refer to the annual statutory teachers' salaries in public institutions for teachers with 15 years of experience and the most prevalent qualification (Indicator D3). Instruction time refers to the average number of hours per year of compulsory instruction time (Indicator D1) and teaching time refers to the statutory net teaching hours over the school year (Indicator D4). The reference year for these factors may differ by one year for some countries. See Tables C7.5a, b and c, available on line, for notes on each factor.

1. Teachers' statutory salaries at the start of their career instead of after 15 years of experience.
2. Teachers' statutory salaries after 10 years of experience instead of 15 years.
3. The OECD average only includes countries and economies with data for all factors used to calculate salary cost.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933979462

Table C7.2. Contribution of various factors to salary cost of teachers per student in primary education (2017)

In equivalent USD, converted using PPPs for private consumption

		Salary cost of teachers per student (2017)	Difference (in USD) from the 2017 OECD average of USD 2 784	Contribution of the underlying factors to the difference from the OECD average			
				Effect (in USD) of teachers' salary below/above the 2017 OECD average of USD 41 058	Effect (in USD) of instruction time (for students) below/ above the 2017 OECD average of 793 hours	Effect (in USD) of teaching time (for teachers) below/ above the 2017 OECD average of 780 hours	Effect (in USD) of theoretical class size below/above the 2017 OECD average of 15 students per class
		(1)	(2) = (3) + (4) + (5) + (6)	(3)	(4)	(5)	(6)
OECD	**Countries**						
	Australia	4 127	1 343	1 423	804	- 363	- 521
	Austria	4 525	1 741	767	- 429	2	1 401
	Canada	4 057	1 273	1 633	515	- 79	- 797
	Chile	2 198	- 586	- 491	704	- 778	- 21
	Colombia	1 416	-1 368	- 285	493	- 513	-1 063
	Czech Republic	1 117	-1 668	-1 176	- 272	457	- 677
	Denmark	m	m	m	m	m	m
	Estonia[1]	1 463	-1 321	-1 550	- 391	633	- 13
	Finland	3 087	303	79	- 583	434	374
	France	1 915	- 869	- 250	202	- 334	- 488
	Germany	4 679	1 895	2 110	- 464	- 98	346
	Greece	2 833	49	-1 253	- 128	482	948
	Hungary	1 915	- 869	-1 667	- 315	428	685
	Iceland	3 714	930	8	- 274	721	474
	Ireland	3 844	1 060	1 262	460	- 517	- 145
	Israel	2 165	- 619	- 646	479	- 194	- 258
	Italy	3 103	319	- 415	345	55	334
	Japan	3 096	312	634	- 114	147	- 355
	Korea	q	q	q	q	q	q
	Latvia	720	-2 064	-2 541	- 526	- 505	1 509
	Lithuania	1 875	- 909	-1 743	- 853	756	931
	Luxembourg	m	m	m	m	m	m
	Mexico	1 159	-1 625	- 499	18	- 49	-1 095
	Netherlands	3 590	806	1 202	549	- 570	- 375
	New Zealand	m	m	m	m	m	m
	Norway	4 518	1 734	445	- 185	185	1 289
	Poland	2 355	- 429	-1 226	- 588	864	521
	Portugal	3 518	733	158	160	6	410
	Slovak Republic	1 164	-1 620	-1 296	- 302	- 34	13
	Slovenia	2 911	127	65	- 468	625	- 94
	Spain	3 691	907	396	- 3	- 393	907
	Sweden	m	m	m	m	m	m
	Switzerland[2]	4 579	1 795	1 931	106	- 23	- 220
	Turkey	1 560	-1 225	- 844	- 205	172	- 348
	United States	3 834	1 050	1 315	677	- 854	- 87
	Economies						
	Flemish Comm. (Belgium)	4 349	1 565	838	106	190	431
	French Comm. (Belgium)	4 013	1 229	694	177	288	70
	England (UK)	m	m	m	m	m	m
	Scotland (UK)	m	m	m	m	m	m

Note: Teachers' salaries used in the calculation of this indicator refer to the annual statutory teachers' salaries in public institutions for teachers with 15 years of experience and the most prevalent qualification (Indicator D3). Instruction time refers to the average number of hours per year of compulsory instruction time (Indicator D1) and teaching time refers to the statutory net teaching hours over the school year (Indicator D4). The reference year for these factors may differ by one year for some countries. See Table C7.5a, available on line, for notes on each factor.

1. Teachers' statutory salaries at the start of their career instead of after 15 years of experience.

2. Teachers' statutory salaries after 10 years of experience instead of 15 years.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933979481

Table C7.3. Contribution of various factors to salary cost of teachers per student in lower secondary education (2017)

In equivalent USD, converted using PPPs for private consumption

		Salary cost of teachers per student (2017)	Difference (in USD) from the 2017 OECD average of USD 3 380	Contribution of the underlying factors to the difference from the OECD average			
				Effect (in USD) of teachers' salary below/above the 2017 OECD average of USD 43 007	Effect (in USD) of instruction time (for students) below/ above the 2017 OECD average of 916 hours	Effect (in USD) of teaching time (for teachers) below/ above the 2017 OECD average of 696 hours	Effect (in USD) of theoretical class size below/above the 2017 OECD average of 17 students per class
		(1)	(2) = (3) + (4) + (5) + (6)	(3)	(4)	(5)	(6)
OECD	**Countries**						
	Australia	5 008	1 628	1 524	367	-570	308
	Austria	6 299	2 919	1 014	-85	651	1 339
	Canada	4 057	677	1 621	33	-253	-724
	Chile	2 048	-1 331	-650	422	-1 130	27
	Colombia	1 274	-2 106	-418	636	-531	-1 793
	Czech Republic	1 779	-1 601	-1 720	-82	316	-114
	Denmark	m	m	m	m	m	m
	Estonia[1]	1 930	-1 450	-2 085	-294	401	528
	Finland	5 112	1 732	242	-537	706	1 321
	France	2 843	-537	-349	100	56	-344
	Germany	6 008	2 628	2 805	1	-334	157
	Greece	3 376	-4	-1 694	-538	474	1 754
	Hungary	2 000	-1 380	-1 999	-356	170	805
	Iceland	4 010	630	-162	-328	407	713
	Ireland	4 532	1 152	1 360	10	-141	-76
	Israel	3 095	-285	-681	235	-11	172
	Italy	3 546	166	-351	269	368	-120
	Japan	3 798	418	608	-91	478	-576
	Korea	q	q	q	q	q	q
	Latvia	1 044	-2 336	-3 418	-351	-76	1 509
	Lithuania	2 738	-642	-2 529	-775	432	2 229
	Luxembourg	m	m	m	m	m	m
	Mexico	1 061	-2 319	-138	539	-857	-1 863
	Netherlands	4 650	1 270	2 250	359	-305	-1 034
	New Zealand	m	m	m	m	m	m
	Norway	4 909	1 529	317	-195	202	1 205
	Poland	2 699	-681	-1 588	-385	1 188	103
	Portugal	4 641	1 261	16	-108	489	865
	Slovak Republic	1 627	-1 753	-1 801	-266	166	149
	Slovenia	6 948	3 568	-125	-949	548	4 094
	Spain	4 912	1 533	758	573	-96	297
	Sweden	m	m	m	m	m	m
	Switzerland[2]	6 818	3 438	3 035	254	-363	513
	Turkey	1 605	-1 775	-1 089	-208	825	-1 303
	United States	3 940	560	1 421	400	-1 228	-32
	Economies						
	Flemish Comm. (Belgium)	5 699	2 319	858	121	251	1 089
	French Comm. (Belgium)	5 775	2 395	719	185	263	1 228
	England (UK)	m	m	m	m	m	m
	Scotland (UK)	m	m	m	m	m	m

Note: Teachers' salaries used in the calculation of this indicator refer to the annual statutory teachers' salaries in public institutions for teachers with 15 years of experience and the most prevalent qualification (Indicator D3). Instruction time refers to the average number of hours per year of compulsory instruction time (Indicator D1) and teaching time refers to the statutory net teaching hours over the school year (Indicator D4). The reference year for these factors may differ by one year for some countries. See Table C7.5b, available on line, for notes on each factor.

1. Teachers' statutory salaries at the start of their career instead of after 15 years of experience.
2. Teachers' statutory salaries after 10 years of experience instead of 15 years.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Chapter D. Teachers, the learning environment and the organisation of schools



Indicator D1 How much time do students spend in the classroom?
StatLink https://doi.org/10.1787/888933981191
Indicator D2 What is the student-teacher ratio and how big are classes?
StatLink https://doi.org/10.1787/888933981210
Indicator D3 How much are teachers and school heads paid?
StatLink https://doi.org/10.1787/888933981229
Indicator D4 How much time do teachers spend teaching?
StatLink https://doi.org/10.1787/888933981248
Indicator D5 Who are the teachers?
StatLink https://doi.org/10.1787/888933981267
Indicator D6 What are the admission systems for tertiary education?
StatLink https://doi.org/10.1787/888933981286

Indicator D1. How much time do students spend in the classroom?

Highlights

- Students in OECD countries and economies receive an average of 7 590 hours of compulsory instruction during their primary and lower secondary education, ranging from 5 973 hours in Hungary to almost double that in Australia (11 000 hours) and Denmark (10 960 hours).
- Across OECD countries and economies, compulsory instruction time for primary students averages 799 hours per year, while lower secondary students receive an average of 120 more hours of compulsory education per year than primary students (919 hours).
- On average across OECD countries and economies, instruction in reading, writing and literature; mathematics; and the arts represents 52% of compulsory instruction time for primary school students, and instruction in reading, writing and literature; second and other languages; and mathematics represents about 42% of compulsory instruction time for lower secondary school students.

Context

Providing instruction in formal classroom settings accounts for a large portion of public investment in education. Countries make various choices concerning the overall amount of time devoted to instruction and which subjects are compulsory. These choices reflect national and/or regional priorities and preferences concerning what material students should be taught and at what age. Almost all countries have statutory or regulatory requirements regarding hours of instruction. These are most often stipulated as the minimum number of hours of instruction a school must offer and are based on the understanding that sufficient time is required for good learning outcomes. Matching resources with students' needs and making optimal use of time are central to education policy. Teachers' salaries, institutional maintenance and the provision of other educational resources constitute the main costs of education. The length of time during which these resources are made available to students (as partly shown in this indicator) is an important factor in determining how funds for education are allocated (see Indicator C7, which shows the factors influencing the salary cost of teachers per student). There is growing awareness of the importance of time spent outside the classroom during the school day in activities other than instruction, including recesses and breaks. In addition to formal instruction time, students may participate in extracurricular activities before and/or after the school day or during school holidays, but these activities (as well as examination periods) are outside the scope of this indicator.

Other findings

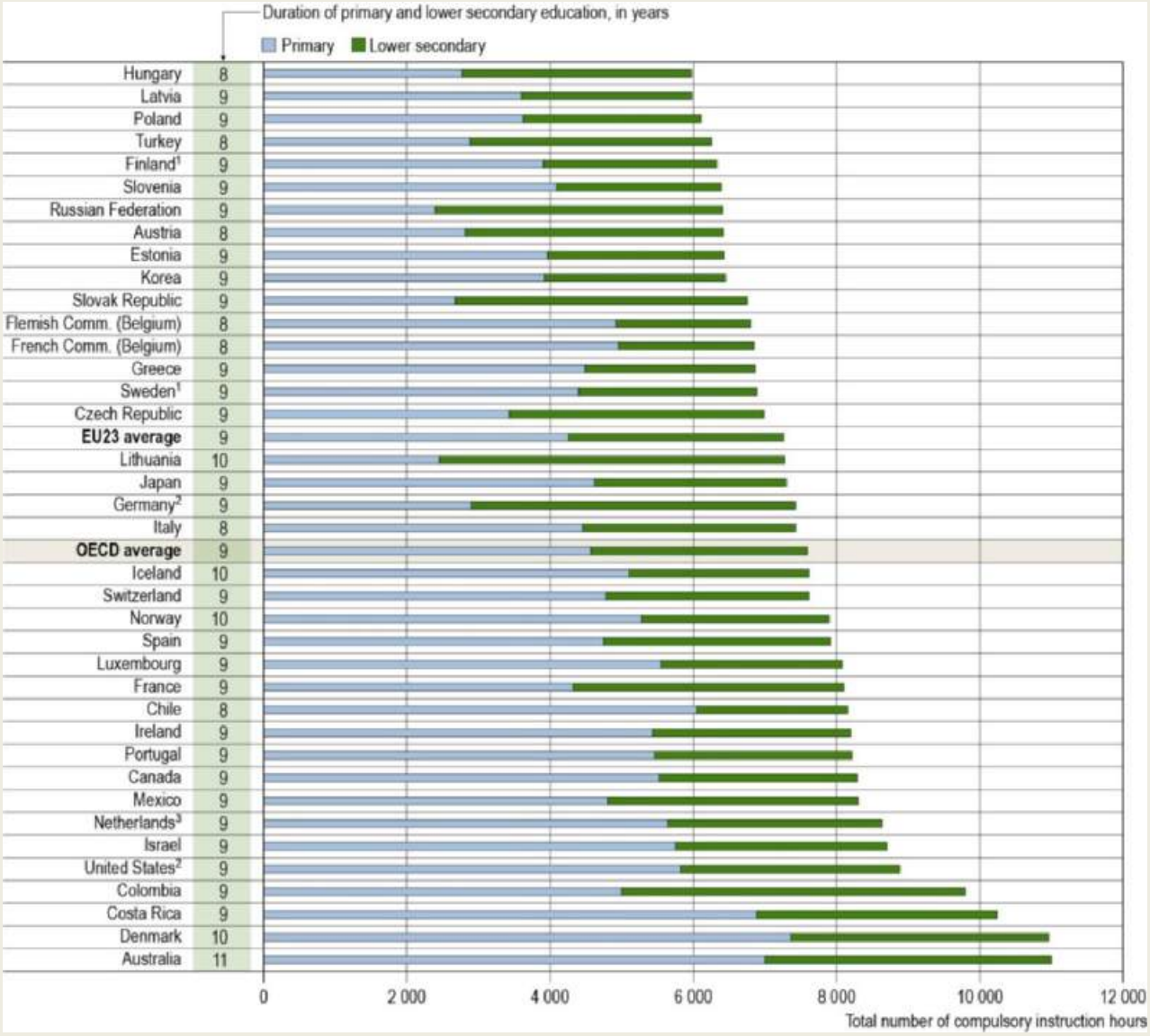
- The proportion of the compulsory curriculum for primary students devoted to reading, writing and literature ranges from 18% in Portugal to 38% in France; for lower secondary students, it ranges from 9% in Ireland (for English, one of the two national languages) to 25% in Greece (and 33% in Italy, including social studies).
- The proportion of the compulsory curriculum devoted to mathematics at the primary level ranges from 12% in Denmark to 27% in Mexico; at the lower secondary level, it ranges from about 11% in Hungary, Ireland and Korea to 16% in Chile, Latvia and the Russian Federation (and 20% in Italy, including natural sciences).
- Except for a few countries where the compulsory curriculum is mostly devoted to flexible subjects, in OECD countries and economies, an average of 1% or less of compulsory instruction time for primary students and lower secondary students is devoted to subjects with a flexible timetable. An average of

5% of compulsory instruction time both at the primary level and at the lower secondary level is devoted to flexible subjects chosen by schools.

- In one-quarter of countries with available data, the allocation of instruction time across grades is flexible (i.e. instruction time for a specific subject is defined for a certain number of grades or even the whole of compulsory education, without specifying the time to be allocated to each grade).

Figure D1.1. Compulsory instruction time in general education (2019)

Primary and lower secondary education, in public institutions



1. Estimated number of hours by level of education based on the average number of hours per year, as for some subjects, the allocation of instruction time across multiple levels is flexible.
2. Year of reference 2018.
3. The number of grades in lower secondary education is three or four, depending on the track. The fourth year of pre-vocational secondary education (VMBO) was excluded from the calculation.

Countries and economies are ranked in ascending order of the total number of compulsory instruction hours.

Source: OECD (2019), Table D1.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Analysis

Compulsory general education

Both annual instruction time and the length of compulsory education have an impact on the total instruction time during compulsory education. In some countries, the duration of compulsory education is shorter, and students could bear a heavier annual workload based on statutory requirements. In other countries, the workload is distributed evenly over more years. This indicator focuses on compulsory education at primary and lower secondary levels. However, in some countries such as the Netherlands, pre-primary education is also compulsory, so the starting age for compulsory education is younger than the age at which primary education starts (see Annex 3 for more details on the length of compulsory education). Moreover, in around three out of five countries and economies with available data, at least one year of upper secondary education is part of compulsory full-time education (Table D1.1).

In around three out of four countries and economies with available data, students are required to start primary education at the age of 6. In most other countries, students are not required to start until they are 7, as in Estonia, Finland, Latvia, Lithuania, Poland, the Russian Federation and Sweden. Only in Australia, England (United Kingdom), New Zealand and Scotland (United Kingdom) does primary education start at age 5.

There is also substantial variation in the duration of primary education. On average across OECD countries and economies, primary education lasts six years, but it ranges from four years in Austria, Germany, Hungary, Lithuania, the Russian Federation, the Slovak Republic and Turkey to seven years in Australia, Denmark, Iceland, Norway and Scotland (United Kingdom). Lower secondary education averages three years, but ranges from two years in Chile and the Flemish and French communities of Belgium to five years in Germany, the Russian Federation and the Slovak Republic, and six years in Lithuania (Table D1.2).

Countries also allocate annual instruction time differently over the year. The number of instruction days and the way they are distributed across the school year can vary significantly between countries, as countries organise holidays differently (Box D1.1). Within these instruction days, countries also vary in the way they organise recess and breaks (see Box D1.2 in OECD (2018[1])).

Box D1.1. Organisation of breaks within in the school year in lower secondary education (2019)

The length of the school year varies greatly between countries, implying that there is also wide variation in the number of weeks students are not at school across countries. Countries organise the school year in different ways, in terms of the frequency and length of school breaks during the school year.

School breaks are usually defined for the whole country, but can differ between subnational entities, especially in federal countries. Breaks are usually similar at primary and lower secondary levels, but breaks at the end of the school year at lower secondary level are two weeks shorter than primary level in Greece, one week shorter in the Russian Federation, one week longer in Iceland, Israel and Portugal, and three weeks longer in Ireland (see Box D1.1 in OECD (2018[1]) for more information on breaks within the school year at the primary level).

The distribution of breaks during the school year can also be flexible according to regions. For example, dates for school breaks are defined according to the three zones of France, and similar flexibility occurs for several or all breaks in federal countries, as well as in Australia, Austria, the Czech Republic, England (United Kingdom), Italy, the Netherlands, Poland, Slovenia and the Slovak Republic (see Annex 3 for the organisation of the school year at primary and lower secondary levels).

In all countries, the longest break is the one between two successive school years. Focusing on lower secondary education, and excluding Colombia, the break between two successive years varies from a minimum of 5 weeks in some subnational entities in Switzerland up to 13 weeks in Chile (11-13 weeks), Italy

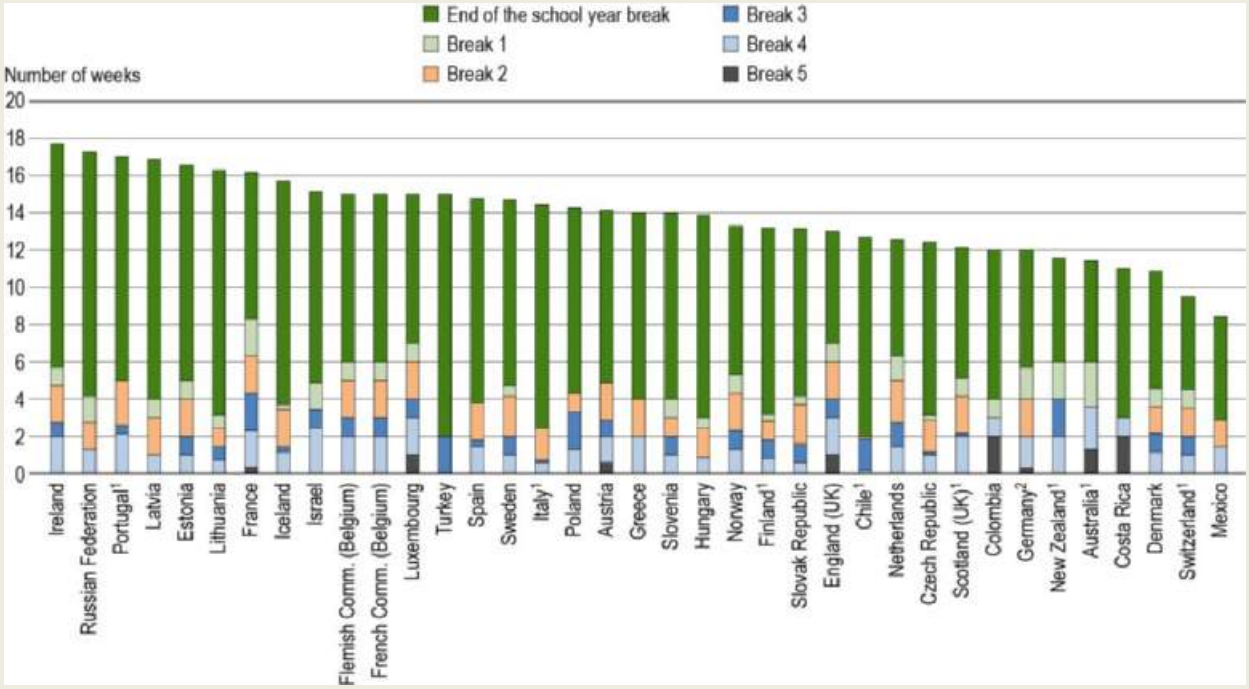
(12-13 weeks), Latvia, Lithuania, Portugal (12-13 weeks), the Russian Federation and Turkey. In nearly all countries with available information, this break between two school years represents at least half of the school holiday time (see Figure D1.a).

In addition to this long break, students usually have three to four other shorter holiday periods during the school year. England (United Kingdom), Luxembourg and Scotland (United Kingdom), as well as some *Länder* in Germany offer a fifth break during the third term of the school year.

Breaks during the school year differ in both length and timing, but the main common break period is at the end of calendar year, corresponding to either an approximately two-week break (in the northern hemisphere), or the end of the school year in the southern hemisphere. Differences in the timing of breaks may result from flexible calendar dates (e.g. for holidays such as Easter).

In most countries, the length of the different breaks within the school year varies significantly, from a few days to two weeks. Exceptions to this pattern are Denmark, Lithuania, the Russian Federation and Slovenia, with one-week breaks (three to four during the school year), and Australia, France, Greece and New Zealand, with two-week breaks (from two in Greece to four in France). Belgium, England (United Kingdom), Luxembourg and Poland alternate one-week and two-week breaks during the school year.

Figure D1.a. School breaks in compulsory general lower secondary education (2019)



Note: Breaks exclude public/religious days, except if these days are included in longer breaks.
1. Minimum length of breaks as some may be longer for some regions within the country.
2. Data for Nordrhein-Westfalen. The length of breaks for Germany are indicative only as variation between and among jurisdictions can occur.
Countries and economies are ranked in descending order of the number of weeks of breaks during the school year.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979728

Compulsory instruction time

Compulsory instruction time refers to the amount and allocation of instruction time that must be provided in almost every public school and must be attended by almost all public sector students, as per public regulations.

Students in OECD countries and economies receive an average of 4 568 hours of compulsory instruction during primary school and 3 022 hours during lower secondary education. While the total compulsory instruction time for primary and lower secondary students averages 7 590 hours (in 9 years on average) across OECD countries and economies, formal instruction-time requirements range from 5 973 hours in Hungary (in 8 years) to 11 000 hours in Australia (in 11 years) (Figure D1.1). In England (United Kingdom), New Zealand and Scotland (United Kingdom), the regulations do not prescribe the total compulsory instruction time in schools. However, schools are required to be open for instruction for a minimum number of hours per day (New Zealand) or to allow sufficient instruction time to deliver a broad and balanced curriculum that includes all statutory requirements (for variations in instruction time at the subnational level, see Box D1.3).

Box D1.2. Comparability of data on instruction time (2019)

Data on (intended) instruction time as established in public regulations are gathered through a data collection exercise based on agreed international standards and methodologies to ensure the comparability of the data reported. However, comparability issues can arise not just because of deviations from these guidelines, but due to differences in the way instruction time is defined in official documents.

Type of information on instruction time

Intended instruction time often refers to the minimum required instruction time, but it can also refer to recommended instruction time. Both may imply that schools or local levels have some flexibility to adjust this number of hours of instruction. In some countries, the data can refer to a mix of different types of data. For example, Denmark reports minimum instruction time for three subjects (reading, writing and literature, mathematics and history) for each grade, but recommended instruction time for other subjects.

Whereas intended instruction time is usually similar across schools throughout the whole country, in some countries it is a weighted average based on various regulations. This is the case when intended instruction times vary for different groups of the population (e.g. in Latvia and Lithuania, for schools for minority groups), or for different tracks within general programmes (e.g. in Chile for tracks with or without *Jornada Escolar Completa*, and in Italy for various upper secondary programmes in *licei*) or between subnational entities (often the case in federal countries such as Australia, Canada, Germany and the United States).

Number of days of instruction per year

Most countries regulate the length of a school year as a number of days of instruction (either a number of days per school year, or a number of days per week combined with a number of weeks per year). These numbers do not take into account the fact that the (statutory) length of one school day may vary. For example in Austria, Denmark and Korea, the number of lessons per week and therefore the length of the school day varies from one grade to another within primary level. Few countries take into account different lengths of the school day to determine the number of days of instruction per year. In the Flemish Community of Belgium and France, 4.5 days of instruction per week are considered, as students do not go to school on Wednesday afternoon. This may result in fewer days of instruction compared to countries with no differentiation of the length of the school day across the week or year.

Number of hours of instruction.

Instruction time is displayed in hours (of 60 minutes) to ensure the comparability of data across countries. However, official documents can define instruction time based on other units of time. About one-half of the

countries define instruction time as a number of periods of instruction and/or for a different reference unit of time than the school year. Converting this information into hours per year may raise difficulties. In some countries, the length of a period of instruction is not uniform across the country. In this case, an average (for example in Costa Rica and Greece) or the most prevalent value (in Latvia) is used to convert periods into hours of instruction. About one-third of countries and economies also define instruction time per week rather than per school year, so the weekly values are multiplied by the defined or estimated number of weeks in the school year.

To ensure the comparability of hours of instruction, breaks between period/sessions are excluded. However, in some countries, breaks with educational activities are included in the prescribed intended instruction time, although they are excluded from reported intended instruction time to comply with the international definition. For example in Denmark, breaks are a part of regulated compulsory instruction time in both primary and lower secondary education. Similarly, in Spain, primary education legislations in autonomous communities includes breaks in compulsory instruction time (87.5 hours per year).

For more information on comparability issues, see notes for specific countries in Annex 3.

Instruction may also occur outside compulsory school hours and outside the classroom or school. In some countries, secondary school students are encouraged to take after-school classes in subjects already taught in school to help them improve their performance. Students can participate in after-school lessons in the form of remedial catch-up classes or enrichment courses, with individual tutors or in group lessons provided by school teachers, or in other independent courses (see Box D1.2 in OECD (2017[2])). These lessons can be financed through public funds or by students and their families (see Box D1.1 in OECD (2011[3])).

This indicator on compulsory instruction time only captures the time spent by students in formal classroom settings (as established in public regulations). This is only a part of the total time students spend receiving instruction. It does not show the actual number of hours of instruction that students receive and does not cover learning outside the formal classroom setting.

Box D1.3. Subnational variation in compulsory instruction time at the primary and lower secondary levels

Compulsory instruction time varies across OECD countries at all levels of education. It can also vary significantly among subnational entities within a single county, especially in federal countries where instruction time requirements may be defined at the subnational level. These variations are illustrated by the subnational data on compulsory instruction time at the primary and lower secondary levels in 2019 provided by four countries (Belgium, Canada, the United Kingdom and the United States).

At the primary level, Belgium has the smallest variation in the total number of compulsory instruction hours between subnational entities: the total number of compulsory instruction hours varies by less than 1% (40 hours) between the French and Flemish communities (4 956 hours compared with 4 916 hours). The difference between subnational entities exceeds 6% (342 hours) in the United Kingdom (Wales and Northern Ireland only). In Canada, the variation in intended instruction hours (compulsory and non-compulsory hours) between subnational entities reaches 15% (745 hours). It is even larger in the United States, where the difference between the lowest and highest total compulsory instruction hours reaches 3 240 hours.

The same general pattern is observed at the lower secondary level, although all four countries have smaller subnational variations at this level than at the primary level. The total number of compulsory instruction hours at the lower secondary level varies very slightly between subnational entities in Belgium (2 hours). The variation exceeds 3% (about 86 hours) in the United Kingdom (Wales and Northern Ireland only). In Canada, intended instruction time varies by 13% (353 hours) across subnational entities. In the United States, the difference between the subnational entities reaches 1 620 hours.

The extent of these variations may be related to differences across subnational entities in the number of annual days of instruction at both the primary and lower secondary levels. In 2019, the number of annual days of compulsory instruction varied by 10 days across subnational entities in Canada (from 180 to 190 days), in Belgium by 19 days at the primary level (from 158 to 177 days) and 17 days at the lower secondary level (from 160 to 177 days), and by 26 days in the United States (from 160 to 186 days). In contrast, there is no difference in the number of annual days of instruction across subnational entities in the United Kingdom (190 days).

Source: Education at a Glance Database. http://stats.oecd.org.

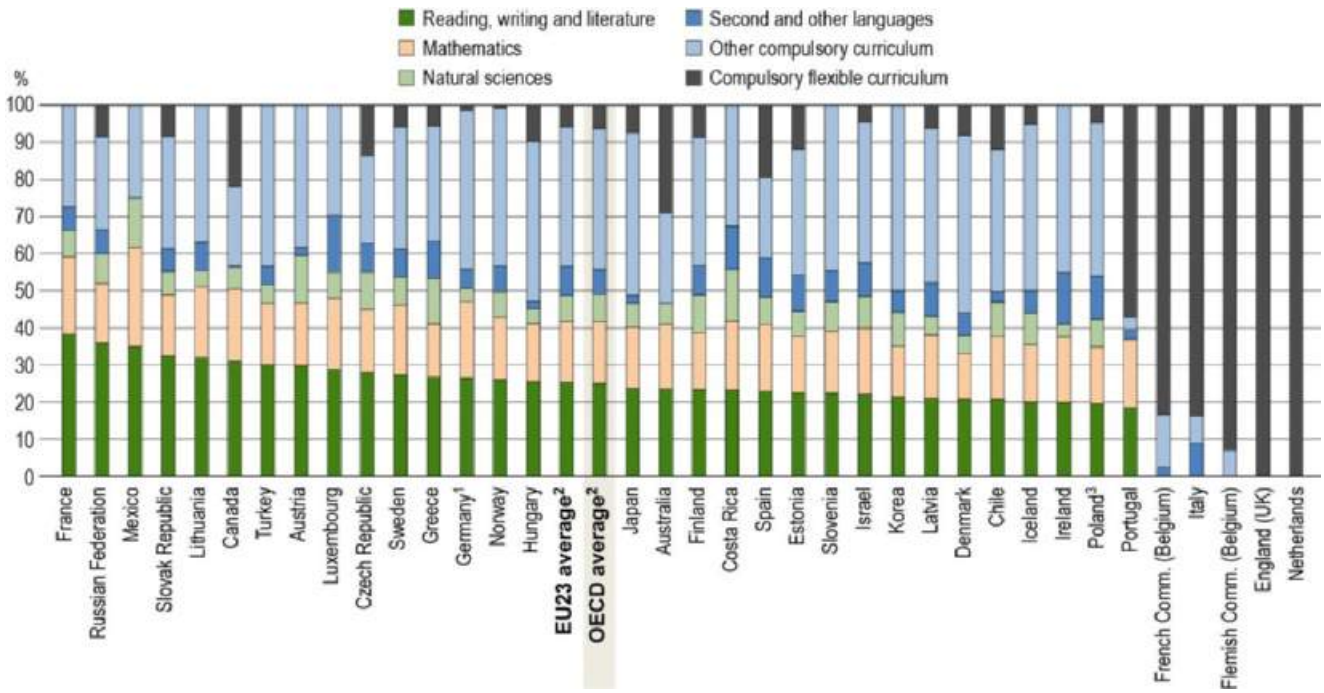
Intended instruction time

Total intended instruction time is the estimated number of hours during which schools are obliged to offer instruction in compulsory and, if applicable, non-compulsory subjects.

Intended and compulsory instruction time are the same (i.e. intended instruction time is fully compulsory) for primary and lower secondary students in about three out of four countries with available data. In Finland, France (lower secondary), Greece, Lithuania, Poland, Portugal (primary) and Slovenia, the intended instruction time is at least 5% longer than the compulsory instruction time. However, intended instruction time could be different from actual instruction time (see Box D1.2).

Figure D1.2a. Instruction time per subject in primary education (2019)

As a percentage of total compulsory instruction time, in public institutions



1. Year of reference 2018.
2. Excludes England (United Kingdom), Flemish Comm. (Belgium), French Comm. (Belgium), Italy, the Netherlands and Portugal.
3. Excludes the first three years of primary education for which a large proportion of the time allocated to compulsory subjects is flexible.

Countries and economies are ranked in descending order of the proportion of instruction hours devoted to reading, writing and literature.

Source: OECD (2019), Table D1.3a. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979690

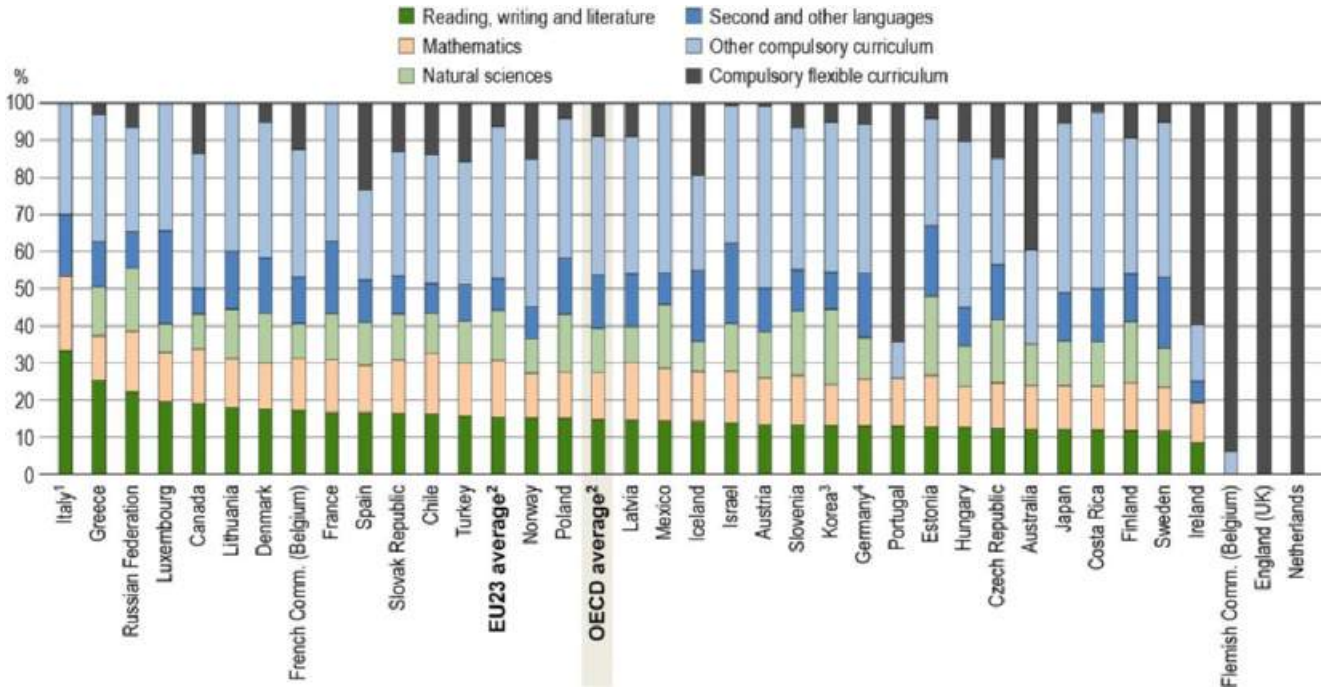
Instruction time per subject

On average across OECD countries, primary students spend 52% of the compulsory instruction time on three subjects: reading, writing and literature (25%); mathematics (17%); and the arts (10%). Together with physical education and health (9%), natural sciences (7%) and social studies (6%), these six study areas form the major part of the curriculum in all OECD countries where instruction time per subject is specified. Second and other languages; religion, ethics and moral education; information and communication technologies (ICT); technology; practical and vocational skills; and other subjects make up the remainder of the non-flexible compulsory curriculum at the primary level, representing about 19% of the compulsory instruction time on average across OECD countries (Table D1.3a and Figure D1.2a).

At the lower secondary level, on average across OECD countries and economies, about 42% of the compulsory curriculum is composed of three subjects: reading, writing and literature (15%); second and other languages (15%); and mathematics (13%). On average, an additional 12% of the compulsory curriculum is devoted to natural sciences, 11% to social studies, 8% to physical education and health, and 7% to the arts. These seven study areas form the major part of the curriculum for this level of education in all OECD countries where instruction time per subject is specified. Religion, ethics and moral education; ICT; technology; practical and vocational skills; and other subjects make up the remainder (about 12%) of the non-flexible compulsory curriculum for students at this level of education (Table D1.3b and Figure D1.2b).

Figure D1.2b. Instruction time per subject in general lower secondary education (2019)

As a percentage of total compulsory instruction time, in public institutions



1. Reading, writing and literature includes social studies. Mathematics includes natural sciences.
2. Excludes England (United Kingdom), Flemish Comm. (Belgium), Ireland, the Netherlands and Portugal.
3. Natural sciences includes information and communication technologies and practical and vocational skills.
4. Year of reference 2018.

Countries and economies are ranked in descending order of the proportion of instruction hours devoted to reading, writing and literature.

Source: OECD (2019), Table D1.3b. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979709

This is a significant shift in the allocation of time from primary schooling. On average across OECD countries and economies, instruction in reading, writing and literature drops from 25% of compulsory instruction time to 15%, and instruction in mathematics drops from 17% of compulsory instruction time to 13%. Conversely, instruction in natural sciences climbs from 7% of the compulsory curriculum to 12%, and in social studies from 6% to 11%, while instruction in other languages (second and others) climbs from 6% to 15%. At the national level, instruction in second and other languages accounts for the largest share of the compulsory core curriculum at the lower secondary level in Costa Rica, France, Germany, Iceland, Israel, Japan, Luxembourg and Sweden (Table D1.3a and b).

At the lower secondary level, there is substantial variation in how countries allocate time to the different subjects within the compulsory curriculum. For example, reading, writing and literature account for 12% or less of compulsory instruction time in Australia, Costa Rica, the Czech Republic, Finland, Ireland, Japan and Sweden, but more than 25% of compulsory instruction time in Greece and Italy (in Italy, this also includes time devoted to social studies). In Ireland, reading, writing and literature are taught in two national languages, and therefore the combined instruction time of two languages could reach about 15% of the total compulsory instruction time. Compulsory instruction time devoted to second and other languages also varies widely between countries. Second-language instruction accounts for less than 7% of compulsory instruction time in Greece and Ireland and 13% or more in the French Community of Belgium, Iceland and Japan. In addition, more than 4 out of 10 countries with available data allocate some compulsory instruction time for lower secondary students to instruction in another language in addition to a second language.

As the difference between the primary and lower secondary levels shows, there are significant differences in how time is allocated to school subjects as students grow older. On average across OECD countries, 28% of instruction time is devoted to reading, writing and literature for 7-year-olds, 19% for 11-year-olds and 12% for 15-year-olds. In contrast, while an average of 3% of instruction time for 7-year-olds is devoted to a second language, 10% of instruction time for 11-year-olds is spent studying a second language and 1% studying other languages, while for 15-year-olds, 9% of instruction time is devoted to a second language and 5% to other languages. The share of instruction time dedicated to natural sciences increases from 6% for 7-year-olds to 9% for 11-year-olds and 12% for 15-year-olds, while instruction time in social studies increases from 5% for 7-year-olds to 9% for 11-year-olds and 10% for 15-year-olds. The portion of instruction time dedicated to the arts decreases from 11% for 7-year olds and 9% for 11-year-olds to 4% for 15-year-olds, and similarly the portion for the physical education declines from 10% for 7-year-olds and 8% for 11-year-olds to 6% for 15-year-olds (Tables D1.5b, f and j, available on line).

Flexibility in the curriculum

In most countries, central and state authorities establish regulations or recommendations regarding instruction time and the curriculum. However, local authorities, schools, teachers and/or students also have varying degrees of freedom in organising instruction time or in choosing subjects.

In one-quarter of countries with available data, the allocation of instruction time across grades is flexible (i.e. instruction time for a specific subject is defined for a certain number of grades or even the whole of compulsory education, without specifying the time to be allocated to each grade). In such cases, schools/local authorities are free to decide how much time should be allocated for each grade (Table D1.2).

Setting compulsory subjects within a flexible timetable is the practice for most subjects in a few countries. In Portugal, more than half of the compulsory curriculum at the primary level is organised within a flexible timetable, and the proportion exceeds 80% in the Flemish and French communities of Belgium and Italy. In England (United Kingdom) and the Netherlands, the whole curriculum at the primary level is organised as a flexible timetable. At the lower secondary level, similar patterns are found in the Flemish Community of Belgium, England (United Kingdom), the Netherlands and Portugal. In these countries and economies, compulsory subjects and/or total instruction time are specified, but not how time should be allocated to each subject. Local authorities, schools and/or teachers are free to decide how much time to allocate to each compulsory subject. In Scotland

(United Kingdom), at both primary and lower secondary levels, some compulsory subjects are specified, but there is no regulation on total instruction time, which is the responsibility of local authorities and schools themselves. Excluding these countries and economies, compulsory subjects with flexible timetables account for less than 1% of the compulsory instruction time at both primary and lower secondary levels, even if they are a significant part of the curriculum in some countries. Flexible timetables account for more than 10% of the compulsory subjects only in Canada at the primary level.

Flexibility in the choice of subjects is less common across OECD countries. On average, 5% of compulsory instruction time is allocated to subjects chosen by schools at the primary level. At the lower secondary level, 5% of compulsory instruction time is allocated to subjects chosen by schools and another 4% to subjects chosen by students. However, some countries allocate a substantial part of the compulsory instruction time to flexible subjects. For example, about 10% or more of compulsory instruction time is allocated to subjects chosen by schools in Canada (lower secondary), Chile, the Czech Republic, Estonia (primary), the French Community of Belgium (lower secondary), Hungary, the Slovak Republic (lower secondary) and Spain (primary). At least 20% of compulsory instruction time is allocated in this way in Australia (29% at the primary level and 22% at lower secondary level), the Flemish Community of Belgium (20% at lower secondary level), Ireland (60% at lower secondary level) and Spain (23% at lower secondary level). In Australia, Iceland, Norway and Turkey, 15-20% of compulsory instruction time is allocated to subjects chosen by lower secondary students (Table D1.3a and b).

Non-compulsory instruction time

Non-compulsory instruction time is rare across OECD countries. Only six countries at primary level and eight countries at lower secondary level devote a known amount of time to non-compulsory instruction. Across OECD countries, non-compulsory instruction time is equivalent to an average of 4% of the total compulsory instruction time for both primary students and lower secondary students. However, a considerable amount of additional non-compulsory instruction time is provided in some countries. At the primary level, additional non-compulsory time accounts for 53% of the total compulsory instruction time in Greece, 14% in Portugal and 21% in Slovenia. At the lower secondary level, non-compulsory instruction time accounts for 11% of the total compulsory instruction time in Finland, 20% in France, 32% in Greece, 15% in Lithuania and 23% in Slovenia (Table D1.3a and b).

Definitions

Compulsory instruction time/curriculum refers to the amount and allocation of instruction time that has to be provided in almost every public school and must be attended by almost all public sector students. The compulsory curriculum may be flexible, as local authorities, schools, teachers and/or students may have varying degrees of freedom to choose the subjects and/or the allocation of compulsory instruction time.

Compulsory flexible subjects chosen by schools refers to the total amount of compulsory instruction time indicated by the central authorities, which regional authorities, local authorities, schools or teachers allocate to subjects of their choice (or subjects they chose from a list defined by central education authorities). It is compulsory for the school to offer one of these subjects, and students must attend.

Compulsory options chosen by the students refers to the total amount of instruction time in one or more subjects that pupils have to select (from a set of subjects that are compulsory for schools to offer) in order to cover part of their compulsory instruction time.

Compulsory subjects with a flexible timetable refers to the total amount of instruction time indicated by the central authorities for a given group of subjects, which regional authorities, local authorities, schools or teachers allocate to individual subjects. There is flexibility in the time spent on a subject, but not in the subjects to be taught.

Flexible allocation of instruction time across multiple grades refers to the case where the curriculum only indicates the total instruction time for a specific subject for a certain number of grades, or even the whole of compulsory education, without specifying the time to be allocated to each grade. In such cases, schools/local authorities are free to decide how much time should be assigned for each grade.

Instruction time refers to the time a public school is expected to provide instruction to students on all the subjects integrated into the compulsory and non-compulsory curriculum, on school premises or in before-school/after-school activities that are formal parts of the compulsory programme. Instruction time excludes breaks between classes or other types of interruptions, non-compulsory time outside the school day, time dedicated to homework activities, individual tutoring or private study and examination periods (days for non-school-based examinations, e.g. national examinations).

Intended instruction time refers to the number of hours per year of the compulsory and non-compulsory part of the curriculum that students are entitled to receive in public schools. The intended curriculum can be based on regulations or standards of the central (or top-level) education authorities or may be established as a set of recommendations at the regional level.

The **non-compulsory part of the curriculum** refers to the total amount of instruction time that public schools must offer on top of the compulsory instruction time, but which is not mandatory for all students. Subjects can vary from school to school or from region to region and take the form of optional subjects. Additional activities before/after classes offered by the school are not *per se* part of the non-compulsory curriculum, for instance, if there is no obligation upon public schools to provide this instruction time or it is not part of the official curricula. In particular, non-compulsory education excludes morning care classes or after-school care classes, even if they are officially regulated.

Methodology

This indicator captures intended instruction time (as established in public regulations) as a measure of learning in formal classroom settings. It does not show the actual number of hours of instruction that students receive and does not cover learning outside of the formal classroom setting. Differences may exist across countries between the regulatory minimum hours of instruction and the actual hours of instruction received by students. Given such factors as school timetables, lesson cancellations and teacher absenteeism, schools may not consistently attain the regulatory minimum instruction time (see Box D1.1 in OECD (2007[4])).

The indicator also illustrates how minimum (and/or recommended) instruction hours are allocated across different curricular areas. It shows the intended net hours of instruction for those grades that are part of compulsory full-time general education. Although the data are difficult to compare among countries because of different curricular policies, they nevertheless provide an indication of how much formal instruction time is considered necessary for students to achieve the desired educational goals.

When the allocation of instruction time across grades is flexible (i.e. instruction time for a specific subject is defined for a certain number of grades, or even the whole of compulsory education, without specifying the time to be allocated to each grade), instruction time per age or level of education was estimated by assuming equal distribution of the total number of instruction hours between grades.

For more information please see the *OECD Handbook for Internationally Comparable Education Statistics* (OECD, 2018[5]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data on instruction time are from the 2018 Joint Eurydice-OECD Instruction time data collection and refer to instruction time during compulsory primary and full-time (lower and upper) secondary general education for the school year 2018/19.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator D1 Tables

Table D1.1. Instruction time in compulsory general education (2019)

Table D1.2 Organisation of compulsory general education (2019)

Table D1.3a Instruction time per subject in primary education (2019)

Table D1.3b Instruction time per subject in general lower secondary education (2019)

WEB Table D1.4 Instruction time in compulsory general education, by age (2019)

WEB Table D1.5a Instruction time per subject for 6-year-olds (2019)

WEB Table D1.5b Instruction time per subject for 7-year-olds (2019)

WEB Table D1.5c Instruction time per subject for 8-year-olds (2019)

WEB Table D1.5d Instruction time per subject for 9-year-olds (2019)

WEB Table D1.5e Instruction time per subject for 10-year-olds (2019)

WEB Table D1.5f Instruction time per subject for 11-year-olds (2019)

WEB Table D1.5g Instruction time per subject for 12-year-olds (2019)

WEB Table D1.5h Instruction time per subject for 13-year-olds (2019)

WEB Table D1.5i Instruction time per subject for 14-year-olds (2019)

WEB Table D1.5j. Instruction time per subject for 15-year-olds (2019)

WEB Table D1.5k. Instruction time per subject for 16-year-olds (2019)

WEB Table D1.5l Instruction time per subject for 17-year-olds (2019)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981191

Table D1.1. Instruction time in compulsory general education[1] (2019)

By level of education, in public institutions

		Primary						Lower secondary					
		Number of grades that are part of compulsory education	Average hours per year			Total number of hours			Number of grades that are part of compulsory education	Average hours per year			Total number of hours		
			Compulsory instruction time	Non-compulsory instruction time	Intended instruction time	Compulsory instruction time	Non-compulsory instruction time	Intended instruction time		Compulsory instruction time	Non-compulsory instruction time	Intended instruction time	Compulsory instruction time	Non-compulsory instruction time	Intended instruction time
		(1)	(2)	(3)	(4) = (2) + (3)	(5)	(6)	(7) = (5) + (6)	(8)	(9)	(10)	(11) = (9) + (10)	(12)	(13)	(14) = (12) + (13)
OECD	**Countries**														
	Australia	7	1 000	m	m	7 000	m	m	4	1 000	m	m	4 000	m	m
	Austria	4	705	m	m	2 820	m	m	4	900	m	m	3 600	m	m
	Canada	6	920	a	920	5 518	a	5 518	3	924	3	927	2 771	9	2 780
	Chile	6	1 008	a	1 008	6 047	a	6 047	2	1 052	a	1 052	2 103	a	2 103
	Colombia	5	1 000	a	1 000	5 000	a	5 000	4	1 200	a	1 200	4 800	a	4 800
	Czech Republic	5	687	a	687	3 434	a	3 434	4	888	a	888	3 550	a	3 550
	Denmark	7	1 051	a	1 051	7 360	a	7 360	3	1 200	a	1 200	3 600	a	3 600
	Estonia	6	661	a	661	3 964	a	3 964	3	823	a	823	2 468	a	2 468
	Finland[2]	6	651	33	683	3 905	195	4 100	3	808	87	894	2 423	261	2 683
	France	5	864	a	864	4 320	a	4 320	4	946	189	1 135	3 784	756	4 540
	Germany[3, 4]	4	724	a	724	2 896	a	2 896	5	905	a	905	4 526	a	4 526
	Greece	6	748	396	1 144	4 488	2 376	6 864	3	791	253	1 044	2 374	758	3 132
	Hungary	4	692	a	692	2 769	a	2 769	4	801	a	801	3 204	a	3 204
	Iceland	7	729	a	729	5 100	a	5 100	3	839	a	839	2 516	a	2 516
	Ireland	6	905	a	905	5 430	a	5 430	3	924	a	924	2 772	a	2 772
	Israel	6	958	a	958	5 751	a	5 751	3	984	a	984	2 952	a	2 952
	Italy	5	891	a	891	4 455	a	4 455	3	990	a	990	2 970	a	2 970
	Japan	6	770	a	770	4 621	a	4 621	3	893	a	893	2 680	a	2 680
	Korea	6	655	a	655	3 928	a	3 928	3	842	a	842	2 525	a	2 525
	Latvia	6	599	m	m	3 595	m	m	3	794	m	m	2 381	m	m
	Lithuania	4	613	37	650	2 452	149	2 600	6	804	119	923	4 826	713	5 539
	Luxembourg	6	924	a	924	5 544	a	5 544	3	845	a	845	2 535	a	2 535
	Mexico	6	800	a	800	4 800	a	4 800	3	1 167	a	1 167	3 500	a	3 500
	Netherlands[5]	6	940	a	940	5 640	a	5 640	3	1 000	a	1 000	3 000	a	3 000
	New Zealand	6	m	m	m	m	m	m	4	m	m	m	m	m	m
	Norway	7	753	a	753	5 272	a	5 272	3	874	a	874	2 622	a	2 622
	Poland	6	603	58	661	3 619	348	3 967	3	829	63	893	2 488	190	2 678
	Portugal	6	910	129	1 039	5 460	774	6 234	3	918	27	945	2 754	80	2 834
	Slovak Republic	4	670	a	670	2 678	a	2 678	5	815	a	815	4 073	a	4 073
	Slovenia	6	682	140	822	4 091	840	4 931	3	766	179	944	2 298	536	2 833
	Spain	6	792	a	792	4 750	a	4 750	3	1 054	a	1 054	3 161	a	3 161
	Sweden[2]	6	733	m	m	4 400	m	m	3	830	m	m	2 490	m	m
	Switzerland	6	797	m	m	4 782	m	m	3	945	m	m	2 836	m	m
	Turkey	4	720	a	720	2 880	a	2 880	4	843	a	843	3 371	a	3 371
	United States[3]	6	971	m	m	5 824	m	m	3	1 020	m	m	3 059	m	m
	Economies														
	Flemish Comm. (Belgium)	6	819	a	819	4 916	a	4 916	2	945	a	945	1 890	a	1 890
	French Comm. (Belgium)	6	826	a	826	4 956	a	4 956	2	944	a	944	1 888	a	1 888
	England (UK)	6	m	a	m	m	a	m	3	m	a	m	m	a	m
	Scotland (UK)	7	m	a	m	m	a	m	3	m	a	m	m	a	m
	OECD average	6	799	m	m	4 568	m	m	3	919	m	m	3 022	m	m
	EU23 average	6	769	m	m	4 258	m	m	3	892	m	m	3 002	m	m
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	5	m	m	m	m	m	m	4	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	6	1 147	a	1 147	6 880	a	6 880	3	1 120	a	1 120	3 360	a	3 360
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	4	598	m	m	2 393	m	m	5	803	m	m	4 016	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: Columns showing instruction time combined for compulsory primary and lower secondary education (i.e. Columns 15-18) and compulsory upper secondary education (i.e. Columns 19-25) are available for consultation on line. See *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Refers to full-time compulsory education and excludes pre-primary education, even if compulsory.
2. Estimated number of hours by level of education based on the average number of hours per year, as for some subjects, the allocation of instruction time across multiple levels is flexible.
3. Year of reference 2018.
4. Excludes the last year of compulsory education, which can be classified at either the lower secondary or the upper secondary level.
5. The number of grades in lower secondary education is three or four, depending on the track. The fourth year of pre-vocational secondary education (VMBO) was excluded from the calculation.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D1.2. Organisation of compulsory general education[1] (2019)

By level of education, in public institutions

		Primary				Lower secondary			
		Number of grades that are part of compulsory education	Theoretical starting age	Average number of instruction days per year	Flexible allocation of instruction time across multiple grades	Number of grades that are part of compulsory education	Theoretical starting age	Average number of instruction days per year	Flexible allocation of instruction time across multiple grades
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	**Countries**								
	Australia	7	5	200	No	4	12	200	No
	Austria	4	6	180	No	4	10	180	No
	Canada	6	6	183	No	3	12	183	No
	Chile	6	6	183	No	2	12	182	No
	Colombia	5	6	200	No	4	11	200	No
	Czech Republic	5	6	194	Yes	4	11	194	Yes
	Denmark	7	6	200	No	3	13	200	No
	Estonia	6	7	175	Yes	3	13	175	Yes
	Finland[2]	6	7	188	Yes	3	13	188	Yes
	France	5	6	162	No	4	11	162	No
	Germany[3, 4]	4	6	188	No	5	10	188	No
	Greece	6	6	176	No	3	12	166	No
	Hungary	4	6	181	No	4	10	181	No
	Iceland	7	6	170	Yes	3	13	170	Yes
	Ireland	6	6	181	No	3	12	165	No
	Israel	6	6	219	No	3	12	209	No
	Italy	5	6	200	No	3	11	200	No
	Japan	6	6	201	No	3	12	201	No
	Korea	6	6	190	Yes	3	12	190	Yes
	Latvia	6	7	169	No	3	13	173	No
	Lithuania	4	7	175	Yes	6	11	185	Yes
	Luxembourg	6	6	180	No	3	12	169	No
	Mexico	6	6	200	No	3	12	200	No
	Netherlands[1]	6	6	m	Yes	3	12	m	Yes
	New Zealand	6	5	195	m	4	11	193	m
	Norway	7	6	190	Yes	3	13	190	Yes
	Poland	6	7	176	No	3	13	176	No
	Portugal	6	6	180	No	3	12	178	No
	Slovak Republic	4	6	186	No	5	10	186	No
	Slovenia	6	6	190	No	3	12	185	No
	Spain	6	6	175	No	3	12	175	No
	Sweden[2]	6	7	178	Yes	3	13	178	Yes
	Switzerland	6	6	188	No	3	12	188	No
	Turkey	4	6	180	No	4	10	180	No
	United States[3]	6	6	180	m	3	12	180	m
	Economies								
	Flemish Comm. (Belgium)	6	6	158	No	2	12	160	No
	French Comm. (Belgium)	6	6	177	No	2	12	177	No
	England (UK)	6	5	190	m	3	11	190	m
	Scotland (UK)	7	5	190	Yes	3	12	190	Yes
	OECD average	6	6	185	m	3	12	184	m
	EU23 average	6	6	181	m	3	12	180	m
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	5	6	200	No	4	11	200	No
	China	m	m	m	m	m	m	m	m
	Costa Rica	6	6	200	No	3	12	200	No
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Russian Federation	4	7	169	No	5	11	175	No
	Saudi Arabia	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m

Note: Students go to school five days a week (six days in Israel and secondary education in Italy). In some countries, the statutory length of the school days varies within the school week. Columns showing the organisation of compulsory upper secondary education (i.e. Columns 9-12) are available for consultation on line. See *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Refers to full-time compulsory education and excludes pre-primary education, even if compulsory.
2. For some subjects, allocation of instruction time across multiple levels of education is flexible.
3. Year of reference 2018.
4. Excludes the last year of compulsory education, which can be classified at either the lower secondary or the upper secondary level.
5. The number of grades in lower secondary education is three or four, depending on the track. The fourth year of pre-vocational secondary education (VMBO) was excluded from the calculation.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933979614

Table D1.3a. Instruction time per subject in primary education (2019)

As a percentage of total compulsory instruction time, in public institutions

		Reading, writing and literature	Mathematics	Natural sciences	Social studies	Second language	Other languages	Physical education and health	Arts	Religion/ ethics/ moral education	Information and communication technologies (ICT)	Technology	Practical and vocational skills	Other subjects	Compulsory subjects with flexible timetable	Compulsory options chosen by the students	Compulsory flexible subjects chosen by schools	Total compulsory curriculum	Non-compulsory curriculum
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	**Countries**																		
	Australia	24	17	6	8 d	x(16)	x(16)	8	5	x(4)	x(11)	4 d	x(11)	x(16)	x(16)	m	29 d	100	m
	Austria	30	17	13 d	x(3)	2	a	11	9	9	x(17)	x(3)	6	4	a	a	a	100	m
	Canada	31	19	6	5	1	a	9	5	0	a	0	0	1	17	a	5	100	a
	Chile	21	17	9	9	3	x(16)	9	10	6	x(16)	2	x(16)	2	a	a	12 d	100	a
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	a
	Czech Republic	28	17	10 d	x(3)	8	a	8	10	x(13)	1	4 d	x(11)	x(16)	a	x(16)	14 d	100	a
	Denmark	21	12	5	3	5	1	6	8	3	x(14)	a	4	23	8 d	a	a	100	a
	Estonia	23	15	7	5	8	2	11	15	x(16)	x(16)	3	a	a	a	a	12 d	100	a
	Finland[1]	23	15	10	4	7	1	9	16	5	x(17)	a	a	a	4	a	4	100	5
	France	38	21	7 d	3	6	a	13	8	4	x(3)	x(3)	a	a	a	a	a	100	a
	Germany[2]	26	21	4	6	5	a	11	13	6	0	2	0	4	a	1	a	100	a
	Greece	27	14	12	6	8	2	9	10	3	3	a	a	a	a	a	6	100	53
	Hungary	25	16	4	a	2	a	20	16	4	a	4	a	a	a	a	10	100	a
	Iceland	20	16	8	13 d	6 d	x(5, 15)	9	19 d	x(4)	3	a	x(8)	a	a	5 d	x(15)	100	a
	Ireland[3]	20	17	4 d	8	14	a	4	12	10	x(17)	x(3)	a	11	a	a	a	100	a
	Israel	22	18	8	8	6	3	6	6	14	a	a	4	a	a	a	4	100	a
	Italy[4]	x(14)	x(14)	x(14)	x(14)	9	a	x(14)	x(14)	7	a	x(14)	a	a	84 d	a	x(17)	100	a
	Japan	24	16	7	6	2	a	10	12	3	a	a	a	13	7	a	a	100	a
	Korea	21	14	9 d	9 d	6	a	7	9	x(4, 13)	x(12, 13)	x(12)	x(3)	25 d	a	a	a	100	a
	Latvia	21	17	5	6	8	1	8	12	2	1	a	4	9	a	a	6	100	m
	Lithuania	32	19	4	4	8	a	12	17 d	4	a	x(8)	a	a	a	a	a	100	6
	Luxembourg[3]	29	19	7	2	15	a	10	11	7	a	a	a	a	a	a	a	100	a
	Mexico	35	27	13	10	m	a	5	5	5	a	a	a	a	a	a	a	100	a
	Netherlands[4]	x(14)	x(14)	x(14)	x(14)	x(14)	a	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	a	100 d	a	a	100	a
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	26	17	7	7	7	a	11	14	8	a	a	2	a	a	a	1	100	a
	Poland[5]	20	15	8	7	12	a	15	8	a	4	4	a	4	a	a	5	100	9
	Portugal[4]	18	18	x(14)	x(14)	3	a	3	x(14)	a	x(17)	x(14)	a	x(16)	53 d	a	4 d	100	14
	Slovak Republic	32	17	6	3	6	x(16)	8	10	4	2	a	2	x(16)	a	x(16)	8 d	100	a
	Slovenia	22	17	8	7 d	8	a	14	15	x(4)	x(17)	5	2	1	a	a	a	100	21
	Spain	23	18	7	7	11	x(16)	9	x(16)	5	a	a	a	0	a	x(16)	20 d	100	a
	Sweden[1]	27	19	8	12	6	1	7	6	a	a	3	5	a	a	6	a	100	m
	Switzerland	m	m	m	m	a	a	m	m	m	m	m	m	a	a	a	a	m	m
	Turkey	30	17	5	13	5	a	14	7	2	a	a	1	7	a	a	a	100	a
	United States	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Economies																		
	Flemish Comm. (Belgium)[4]	x(14)	x(14)	x(14)	x(14)	x(14)	a	x(14)	x(14)	7	x(17)	x(3)	a	x(17)	93 d	a	x(14)	100	a
	French Comm. (Belgium)[4]	x(14)	x(14)	x(14)	x(14)	2	a	7	x(14)	7	a	x(14)	a	a	83 d	a	a	100	a
	England (UK)[4]	x(14)	x(14)	x(14)	x(14)	x(14)	a	x(14)	x(14)	x(14)	x(14)	x(14)	a	a	100 d	a	a	100	a
	Scotland (UK)	m	m	m	m	m	a	m	m	m	m	m	m	a	a	a	a	m	a
	OECD average[4]	25	17	7	6	6	0	9	10	5	1	1	1	4	1	0	5	100	4
	EU23 average[4]	25	17	7	5	7	1	10	11	4	1	2	1	3	1	0	4	100	6
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	a	m	m	m	m	a	a	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	23	19	14	9	12	a	5	5	5	a	a	a	9	a	a	a	100	a
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	36	16	8	a	6	a	12	8	1	a	4	a	a	a	a	9	100	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: The averages were adjusted to add up to 100% and do not correspond exactly to the average of each column. Please refer to Tables D1.5a to D1.5l, available on line, for instruction time per subject for each age (see *StatLink* at the end of the indicator). See *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. For some subjects, allocation of instruction time across multiple levels of education is flexible.
2. Year of reference 2018.
3. The second language of instruction includes other national languages taught.
4. England (United Kingdom), Flemish Comm. (Belgium), French Comm. (Belgium), Italy, the Netherlands and Portugal are not included in the averages.
5. Excludes the first three years of primary education for which a large proportion of the time allocated to compulsory subjects is flexible.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933979633

Table D1.3b. Instruction time per subject in general lower secondary education (2019)

As a percentage of total compulsory instruction time, in public institutions

		Reading, writing and literature	Mathematics	Natural sciences	Social studies	Second language	Other languages	Physical education and health	Arts	Religion/ ethics/ moral education	Information and communication technologies (ICT)	Technology	Practical and vocational skills	Other subjects	Compulsory subjects with flexible timetable	Compulsory options chosen by the students	Compulsory flexible subjects chosen by schools	Total compulsory curriculum	Non-compulsory curriculum
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD	**Countries**																		
	Australia[1]	12	12	11	10 d	x(16)	x(16)	8	4	x(4)	x(11)	4 d	x(11)	x(16)	x(16)	18	22 d	100	m
	Austria	13	13	12	11	12	x(15)	12	13	7	x(17)	a	7	x(15)	a	1 d	a	100	m
	Canada	19	15	9	13	7	a	10	7	2	a	3	1	1	0	4	10	100	0
	Chile	16	16	11	11	8	x(16)	5	8	5	x(16)	3	x(16)	3	a	a	14 d	100	a
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	a
	Czech Republic	12	12	17	9	10	5	8	8	x(13)	1	2 d	x(11)	x(16)	a	x(16)	15 d	100	a
	Denmark	18	13	13	8	8	8	5	x(15)	2	x(15)	x(15)	2	21	a	5 d	a	100	a
	Estonia	13	14	21	11	10	10	6	6	x(16)	x(16)	5	a	a	a	a	4 d	100	a
	Finland[2]	12	13	16	8	8	5	12	7	4	x(17)	a	6	a	6	a	4	100	11
	France	17	14	12	12 d	12	7	12	8	x(4)	x(17)	4	a	1	a	a	a	100	20
	Germany[3]	13	13	11	11	12	5	9	9	5	1	2	2	2	a	6	a	100	a
	Greece	25	12	13	8	6	6	6	6	6	3	3	2	a	a	a	3	100	32
	Hungary	13	11	11	9	10	a	17	7	3	3	3	a	3	a	a	10	100	a
	Iceland	14	14	8	8 d	19 d	x(5, 15)	8	8 d	x(4)	2	a	x(8)	a	a	20 d	x(15)	100	a
	Ireland[4, 5]	9	11	x(16)	7	6	x(16)	6	x(16)	x(16)	x(16)	x(16)	x(16)	2	a	a	60 d	100	a
	Israel	14	14	13	18	11	10	6	4	9	a	a	a	a	a	a	0	100	a
	Italy	33 d	20 d	x(2)	x(1)	10	7	7	13	3	a	7	a	a	a	a	x(17)	100	a
	Japan	12	12	12	11	13	a	10	7	3	a	3	a	12	5	a	a	100	a
	Korea	13	11	20 d	15 d	10	a	8	8	x(4)	x(3)	x(12)	x(3)	9	a	x(16)	5 d	100	a
	Latvia	15	16	10	14	8	6	6	6	a	1	a	4	7	a	a	9	100	m
	Lithuania	18	13	13	15	10	5	5	7	3	3	5	a	1	a	a	a	100	15
	Luxembourg[4]	19	13	8	11	12	13	8	9	7	a	a	a	a	a	a	a	100	a
	Mexico	14	14	17	12	9	a	6	6	8	a	11	a	3	a	a	a	100	a
	Netherlands[5]	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	a	100 d	a	a	100	a
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	15	12	9	9	8	x(15)	9	9	6	x(15)	x(15)	7	x(15)	a	15 d	x(15)	100	a
	Poland[6]	15	12	16	13	11	4	12	3	a	3	1	a	5	a	a	4	100	8
	Portugal[5]	13	13	x(14)	x(14)	x(14)	x(14)	10	x(14)	a	x(14)	x(14)	a	x(16)	61 d	a	3 d	100	3
	Slovak Republic	16	14	12	11	10	x(16)	7	6	3	3	x(16)	3	x(16)	a	x(16)	13 d	100	a
	Slovenia	13	13	17	15 d	11	x(15)	9	8	x(4)	x(17)	4	a	2	a	7 d	a	100	23
	Spain	17	13	11	10	11	x(16)	7	x(16)	4	a	x(16)	a	3	a	x(16)	23 d	100	a
	Sweden[2]	12	12	11	14	8	11	8	7	a	a	4	9	a	a	5	a	100	m
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	a	a	m	a	m	m
	Turkey	16	14	11	8	10	x(15)	5	6	8	3	3	1	a	a	16 d	a	100	a
	United States	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Economies																		
	Flemish Comm. (Belgium)[5]	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	6	a	x(14)	a	a	73 d	a	20	100	a
	French Comm. (Belgium)	17	14	9	13	13	a	9	3	6	x(16)	3	x(16)	a	a	x(16)	13 d	100	a
	England (UK)[6]	x(14)	x(14)	x(14)	x(14)	x(14)	a	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	x(14)	100 d	a	a	100	a
	Scotland (UK)	m	m	m	m	m	m	m	m	m	m	m	m	a	a	a	a	m	a
	OECD average[5]	15	13	12	11	10	5	8	7	4	1	3	2	3	0	4	5	100	4
	EU23 average[5]	15	13	12	11	10	6	8	7	3	1	3	2	3	0	1	5	100	6
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	a	m	m	m	m	a	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	12	12	12	14	7	7	5	10	2	5	a	7	5	a	a	2	100	a
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	22	16	17	9	10	a	7	5	a	2	5	1	a	a	m	7	100	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: The averages were adjusted to add up to 100% and do not correspond exactly to the average of each column. Please refer to Tables D1.5a to D1.5l, available on line, for instruction time per subject for each age (see *StatLink* at the end of the indicator). See *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. The intended instruction time derived from the Australian Curriculum assumes that certain subjects, which may be considered compulsory in years 7 and 8, could be delivered to students as electives in years 9 and 10.
2. For some subjects, allocation of instruction time across multiple levels of education is flexible.
3. Year of reference 2018.
4. The second language of instruction includes other national languages taught.
5. England (United Kingdom), Flemish Comm. (Belgium), Ireland, the Netherlands and Portugal are not included in the averages.
6. Instruction time for other languages is included in instruction time for the second language for grade 9.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

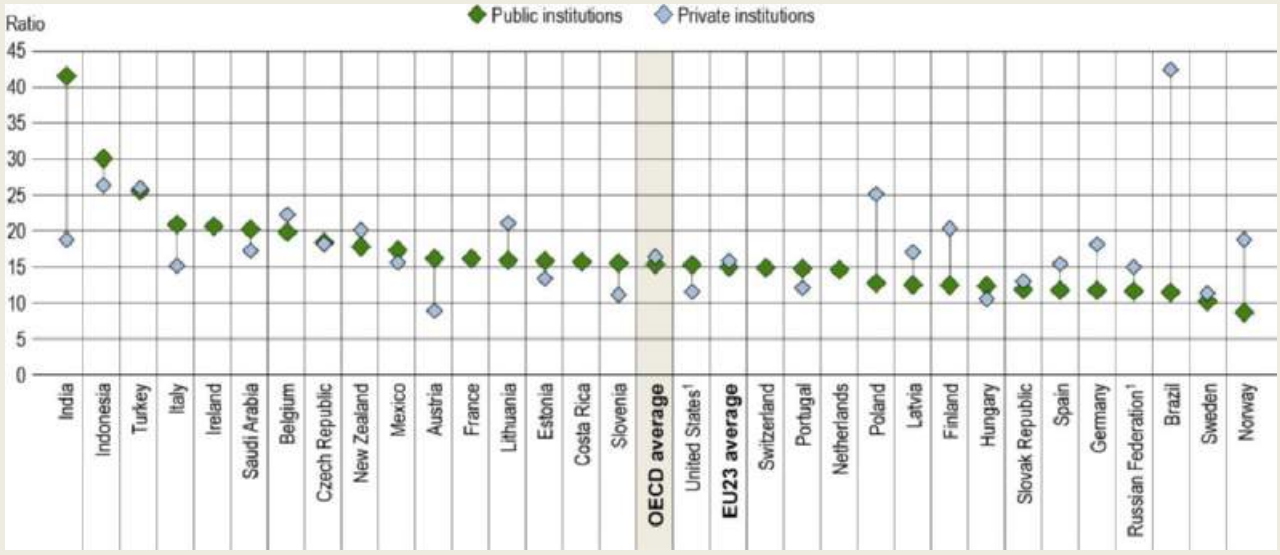
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Indicator D2. What is the student-teacher ratio and how big are classes?

Highlights

- On average across OECD countries, there are 15 students for every teacher in primary education and 13 students per teacher in lower secondary education. The average school class has 21 students in primary education and 23 students in lower secondary education.
- At tertiary level, the student-teacher ratios in public and private institutions are similar on average across OECD countries, with about 15 students per teaching staff member in public institutions and 16 students per teaching staff member in private institutions. The difference in student-teacher ratios across public and private institutions is larger in partner countries.
- The average primary school class in OECD countries in 2017 had 21 students in public institutions and 20 students in private institutions. The difference in class size between public and private primary institutions varies substantially across OECD countries.

Figure D2.1. Ratio of students to teaching staff in tertiary education, by type of institution (2017)



1. Tertiary includes programmes outside tertiary level - see Annex 3 for further details.
Countries are ranked in descending order of the ratio of students to teaching staff in tertiary public institutions.
Source: OECD/UIS/Eurostat (2019), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979804

Context

Class sizes and student-teacher ratios are much-discussed aspects of education and are among the determinants of the demand for teachers, along with students' instruction time (see Indicator D1), and teachers' working time and the division of teachers' time between teaching and other duties (see Indicator D4). Together with teachers' salaries (see Indicator D3), age distribution (see Indicator D5) and instruction time (see Indicator C7), class size and student-teacher ratios also have a considerable impact on the level of current expenditure on education (see Indicators C6 and C7).

Smaller classes are often seen as beneficial, because they allow teachers to focus more on the needs of individual students and reduce the amount of class time needed to deal with disruptions. Yet, while there is some evidence that smaller classes may benefit specific groups of students, such as those from disadvantaged backgrounds (Piketty and M. Valdenaire, 2006[1]), overall evidence of the effect of class size on student performance is mixed (Fredriksson, Öckert and Oosterbeek, 2013[2]; OECD, 2016[3]).

The ratio of students to teaching staff is an indicator of how resources for education are allocated. Smaller student-teacher ratios often have to be weighed against measures such as higher salaries for teachers, investing in their professional development, greater investment in teaching technology, or more widespread use of assistant teachers and other paraprofessionals, whose salaries are often considerably lower than those of teachers.

Other findings

- Across OECD countries, the numbers of teachers and students have grown at an average annual rate of 1% between 2005 and 2017.
- On average across OECD countries, the student-teacher ratio in lower secondary education is slightly lower in private institutions than in public institutions. The difference is most striking in Mexico, where at the lower secondary level there are more than twice as many students per teacher in public institutions as in private institutions.
- Class size in primary education varies significantly across countries, ranging from 15 students per class in Costa Rica to 31 students per class in Chile.

Analysis

Student-teacher ratios

The ratio of students to teaching staff compares the number of students (full-time equivalents) to the number of teachers (full-time equivalents) at a given level of education and in similar types of institutions. This ratio does not take into account the amount of instruction time students have compared to the length of a teacher's working day, or how much time teachers spend teaching. Therefore, it cannot be interpreted in terms of class size (Box D2.1).

On average across OECD countries, there are 15 students for every teacher at primary level. The student-teacher ratio ranges from 10 to 1 in Norway to 27 to 1 in Mexico. It is even higher in some partner countries, reaching 33 to 1 in India (Table D2.2).

On average, there are fewer students per teacher at secondary level (13 students per teacher) than at primary level. This reduction in the student-teacher ratio from primary to secondary level may result from differences in annual instruction time (as instruction hours tend to increase with the education level, so does the number of teachers) or from differences in teaching hours (teaching time decreases with the level of education as teacher specialisation increases). There are also wider variations across countries at secondary level than at primary level, from 8 students per teacher in Lithuania to 29 students per teacher in Mexico.

On average, the student-teacher ratio is about the same in lower secondary and upper secondary education (13 students per teacher). In some countries, however, it varies widely between these two levels. This is the case in Finland, where there are at least twice as many students per teacher at the upper secondary level than at the lower secondary level.

At the upper secondary level, the difference in student-teacher ratios between general and vocational programmes also varies across countries. On average, the ratio of students to teaching staff in upper secondary vocational and general programmes are similar (14 to 1 and 13 to 1). While the difference between the two is negligible in a few countries, there are in fact as many countries where the ratio is greater in vocational programmes as there are countries where it is lower. In Latvia, there are twice as many students per teacher in vocational programmes (17 to 1) as general programmes (8 to 1). In the United Kingdom, there are 25 students per teacher in vocational programmes and only 14 per teacher in general programmes. These large differences may be due to the fact that in some countries, vocational programmes are significantly work based, so vocational students spend considerable time outside the school. As a result, schools need fewer teachers, which may translate into higher student-teacher ratios (OECD, 2017[4]). In other countries such as Brazil, which has the largest difference between programmes of all OECD and partner countries with available data, the difference is reversed: there are twice as many students per teacher in general programmes (26 to 1) as in vocational programmes (13 to 1). In this case, this may reflect the fact that students in vocational education typically need greater instructor attention, especially as they have access to more sophisticated equipment. Vocational students require more careful supervision as skill specificity rises. This may in turn have important implications for the cost of vocational instruction, as advanced vocational training requires both specialised machinery and a greater level of human resources (Klein, 2001[5]).

At the tertiary level, there are on average 16 students per teaching staff member. The student-teacher ratio ranges from 9 to 1 in Norway to over 25 to 1 in Colombia, Indonesia and Turkey. The difference in student-teaching staff ratios across short-cycle tertiary and bachelor's, master's, doctoral or equivalent level varies across countries with available data. These results should be interpreted with caution, however, as the student-teacher ratio remains a limited measure of the level of teaching resources at tertiary level (Box D2.2). Moreover, the relatively low enrolment in short-cycle tertiary in some countries limits comparability across tertiary levels (see Indicator B1).

Box D2.1. What is the relationship between class size and the student-teacher ratio?

Class size, as presented in Table D2.1, is defined as the number of students who are following a common course of study, based on the highest number of common courses (usually compulsory studies), and excluding teaching in subgroups. The calculation is made by dividing the number of students by the number of classes. The student-teacher ratio, as presented in Tables D2.2 and D2.3, is calculated by dividing the number of full-time equivalent students by the number of full-time equivalent teachers at a given level of education and type of institution.

The two indicators therefore measure very different characteristics of the educational system. Student-teacher ratios provide information on the level of teaching resources available in a country, whereas class sizes measure the average number of students that are grouped together in classrooms.

Given the difference between student-teacher ratio and average class size, it is possible for countries with similar student-teacher ratios to have different class sizes. For example, at the primary level, Israel and the United States have similar ratios of students to teaching staff (15 students per teacher, Table D2.2), but the average class size differs substantially (21 students per class in the United States and 27 in Israel). This may be explained by the fact that teaching time in the United States is considerably higher than in Israel, meaning that American teachers can teach more classes during the day and thus students can be taught in smaller classes (see Indicator C7).

Student-teacher ratios in public and private institutions

On average across OECD countries with available data, the ratios of students to teaching staff are slightly higher in public institutions than in private institutions at the lower secondary level and about the same at upper secondary level (Table D2.3).

At lower secondary level, the largest difference between public and private institutions is found in Mexico, where there are more than twice as many students per teacher in public institutions as in private institutions. However, only 10% of lower secondary students are enrolled in private institutions in Mexico (Education at a Glance Database). In contrast, the student-teacher ratio is lower in public institutions than in private institutions in some countries. This difference is most pronounced in Chile, where the student-teacher ratio is 16 to 1 in public institutions, compared to 24 to 1 in private institutions (Table D2.3). In Chile, almost 60% of lower secondary students are enrolled in private institutions (Education at a Glance Database).

At the upper secondary level, the student-teacher ratio is larger in public institutions than in private institutions in 14 countries, smaller in public institutions in 15 countries, and similar for both sectors in 4 countries. Mexico is once more the country with the largest difference in student-teacher ratios at this level, with 25 students per teacher in public institutions and 16 students per teacher in private institutions. (Table D2.3). This mixed pattern in upper secondary education may, in part, reflect differences in the types of programmes offered in public and private institutions. For instance, in Norway, few private schools offer vocational programmes, in which the student-teacher ratio is slightly lower than the ratio in general programmes (Education at a Glance Database and Table D2.2).

At tertiary level, there is little difference between public and private institutions on average across OECD countries, with 15 students per teaching staff member in public institutions and 16 in private institutions (Figure D2.1). In a few OECD countries, such as Austria and Italy, there are over five more students per teacher in public institutions than in private institutions. In these countries, however, less than 20% of tertiary students are enrolled in private institutions (see Indicator B1). The difference between public and private institutions is larger in some partner countries: in India, there are over twice as many students per teachers in public institutions (42 to 1) as in private institutions (19 to 1). The largest difference in student-teacher ratio between public and private

institutions is in Brazil where, interestingly, the ratio is much higher in private institutions, which enrol 73% of tertiary students, than in public institutions, which are more selective. In Brazil, students thus face either a performance barrier to accessing free but highly selective public institutions, or a financial barrier to accessing private institutions, which could limit their opportunities and raises significant equity concerns (Figure D2.1).

Box D2.2. Calculating the student-teacher ratio in higher education

The student-teacher ratio measures the teaching resources that are available in a given country. When the student-teacher ratio is low, students are more likely to receive more support and attention. However, at tertiary level, the interpretation of this indicator is affected by the definition and function of academic staff. Some may have limited teaching responsibilities and could for example spend most of their time doing research. In such cases, the student-teacher ratio would not be representative of the level of support and attention students receive in the classroom.

Currently the available data do not allow hours spent teaching to be distinguished from hours spent doing research. Specifically, the UNESCO-UIS, OECD and Eurostat (UOE) manual defines academic staff as personnel employed at the tertiary level of education whose primary assignment is instruction or research, with no further distinction. Other authoritative sources on tertiary academic staff, including the Frascati Manual (OECD, 2016[6]) and the European Tertiary Education Register (ETER[7]) also lack such distinction.

Eurydice's 2017 report on academic staff at tertiary level across Europe (European Commission/EACEA/Eurydice, 2017[8]) is one of the first attempts to map the different attributes of academic staff onto a harmonised segmentation. The report draws on several data sources. It is based mainly on qualitative data gathered from the Eurydice National Units and has been complemented by a range of research reports and databases from other international organisations. In line with the UOE definition of instructional staff, the data collection concentrated on tertiary staff primarily responsible for teaching and/or research, including both academic staff and teaching/research aides. While this data collection did not specifically consider the number of hours spent teaching and the number of hours spent doing research, it included information on staff's primary responsibilities, thus providing a first attempt to distinguish between teaching and research.

Outside European countries, other OECD countries also collect data on the function of staff: instruction, research, or a combination of both. However the definition of each differs across countries. For example, Australia defines instruction staff as "teaching only" based on their formal job requirements. For these types of staff, "work involves only teaching and associated activities […], or the management and leadership of teaching staff and of staff who support teaching staff. There is no formal requirement that research be undertaken" (Australian Government[9]). In contrast, the classification of instructional staff by function in the United States is broader. Instructional staff includes faculty whose role is either primarily instructional or instruction combined with research and/or public service (NCES National Center for Education Statistics, 2018[10]). Neither Canada nor New Zealand separate out instruction staff from research staff. In Korea, instructors are only required for teaching, whereas professors usually have both teaching and research responsibilities.

Overall, these attempts remain limited. Further efforts are needed to more accurately collect data on the number of hours spent teaching and the number of hours spent doing research, in order to refine the calculation of the student-teacher ratio in tertiary education.

The number of students per teacher remains an important concern, even though tertiary education may involve more self-learning than primary and secondary education. Although student-teacher ratios are difficult to measure at tertiary level, they could still shed some light on the level of available resources in higher education. In fact,

the student-teacher ratio is considered to be a proxy of quality in higher education (McDonald, 2013[11]), which warrants efforts to improve the calculation of this indicator (Box D2.2).

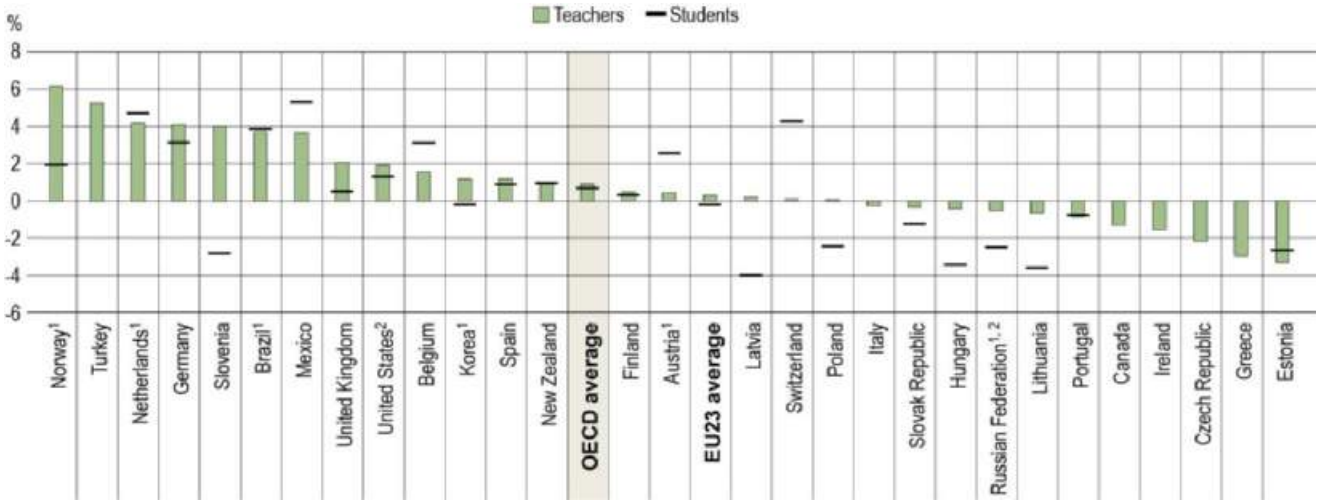
Trends in the number of students and academic staff in tertiary education

Comparing the average annual growth rates of the numbers of tertiary students to the average annual growth rates of the numbers of academic staff between 2005 and 2017 could shed light on the changes in human resources over this period.

On average across OECD countries, the number of academic staff and students grew at an average annual rate of 1% between 2005 and 2017. These averages, however, mask large disparities across countries. The largest changes in the number of academic staff are found in Norway and Estonia: Norway recorded the highest average annual growth rate in the number of teachers (+6%) and Estonia and Greece the lowest (-3%). The highest average annual growth rate in the number of students is found in Mexico and the Netherlands (+5%) and the lowest in Latvia (-4%; Figure D2.2).

In the majority of countries with available data, the number of academic staff and students have changed in a similar way: both either increased or decreased between 2005 and 2017. However, the pace of change varies widely. For example in Norway, the number of academic staff grew three times faster than the growth in the number of students. In contrast, in Hungary and Lithuania, the decline in the number of students was at least three times greater than the decline in the number of academic staff. In other countries, such as Finland and Portugal, the pace of change was similar for students and academic staff. In Latvia, Korea, Poland and Slovenia, however, the number of academic staff has on average increased every year, although the number of students fell over the same period (Figure D2.2). This may reflect the difficulties in reducing the number of teachers in academia following demographic shifts.

Figure D2.2. Average annual growth rates of the numbers of students and teaching staff in tertiary education (2005-17)



Note: This figure cannot be interpreted as student-teacher ratio. Enrolment data coverage is not adjusted to personnel by level of education, programme orientation, type of institution, and intensity of participation, as it is the case when calculating the student-teacher ratio (see *Methodology* section).
1. Year of reference is 2010 instead of 2005.
2. Tertiary includes programmes outside tertiary level - see Annex 3 for further details.
Countries are ranked in descending order of the average annual growth rate in the number of teachers in tertiary education, between 2005 and 2017.
Source: OECD/UIS/Eurostat (2019), Education at a Glance Database, http://stats.oecd.org/. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Monitoring the number of students and academic staff at tertiary level could provide valuable insights into the way education systems are responding to the changing demand for tertiary education. On average across OECD and partner countries, tertiary attainment has been growing over the past 20 years, and it is expected to continue growing in the next decade (OECD, 2018[12]). This increase reflects the rise in demand for skilled labour, in part driven by technological changes (OECD, 2017[13]), and governments effort to promote access to tertiary education, including through a variety of financial support policies (OECD, 2017[4]). In countries with the largest increase in demand (see Indicator A1), the challenge is to limit the impact of such growing demands on the quality of tertiary education systems and invest in human resources accordingly.

Class size

Average class size in primary and lower secondary education

The indicator on class size is limited to primary and lower secondary education. Class sizes are difficult to define and compare at higher levels, as students are often split into several different classes at these levels, depending on the subject area.

At the primary level, the average class in OECD countries has 21 pupils. There are fewer than 28 pupils per class in nearly all of the countries with available data, with the exception of Chile (31 pupils) (Table D2.1).

At the lower secondary level, the average class in OECD countries has 23 students. Among all countries with available data, the number varies from fewer than 20 students per class in Estonia, Finland, Latvia, Lithuania, Luxembourg, the Slovak Republic and the Russian Federation to more than 30 students per class in Costa Rica and Japan (Table D2.1).

The number of students per class tends to increase between primary and lower secondary education. In Costa Rica, this increase corresponds to almost 18 students. On the other hand, in the United Kingdom and, to a lesser extent, Australia, Chile, Estonia, Finland, Hungary and the Russian Federation, the number of students per class falls between these two levels of education (Table D2.1).

Class size in public and private institutions

Class size is one factor that parents may consider when deciding on a school for their children. Hence, the difference in average class size between public and private schools (and between different types of private institutions) could influence enrolment.

Differences in class sizes between public and private institutions are similar to those observed for student-teacher ratios. In most OECD countries, average class sizes do not differ between public and private institutions by more than two students per class in both primary and lower secondary education. However, in some countries (including Brazil, Colombia, the Czech Republic, Latvia, Poland and the Russian Federation), the average class in public primary schools has more than five additional students compared to the average class in private schools (Table D2.1). However, with the exception of Brazil and Colombia, the private sector is relatively small in all of these countries, representing at most 5% of students at the primary level (see Education at a Glance Database). In contrast, in Chile, Greece, Korea, Luxembourg and Spain, the average class in private institutions is larger than in public institutions by at least four students.

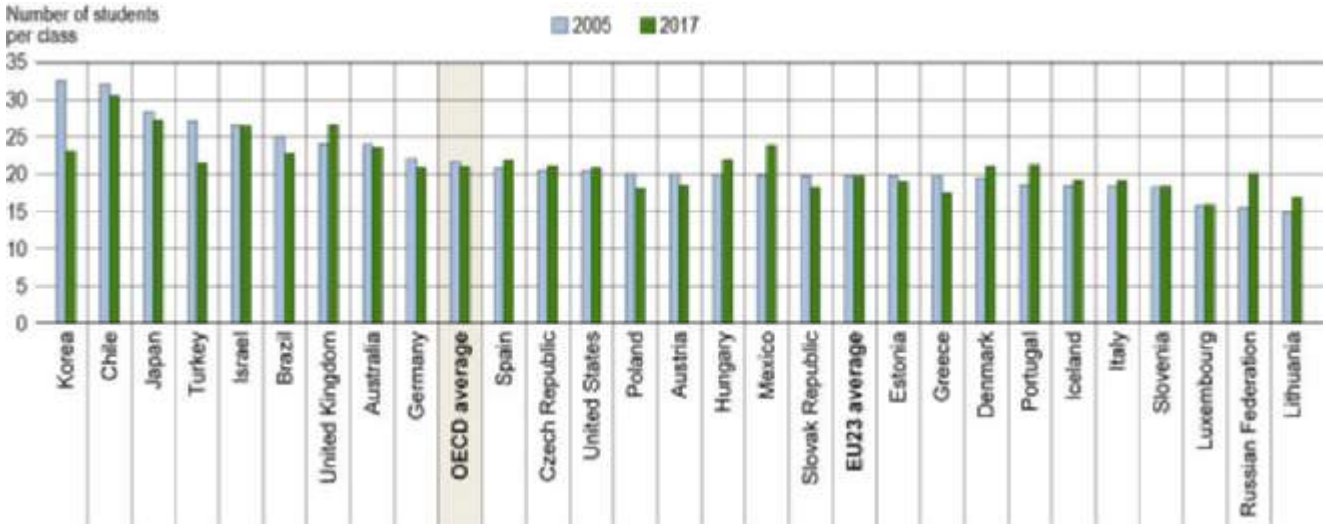
At the lower secondary level, where private institutions are more prevalent, the comparison of class size between public and private institutions shows a more mixed picture. The average class in private lower secondary institutions is larger than in public institutions in 9 countries, smaller in 16 countries and the same in 7 countries. The differences, however, tend to be smaller than in primary education.

Trends in average class size

Between 2005 and 2017, class size has remained about the same at primary level and fallen at lower secondary level on average across OECD countries (Table D2.1). While 19 out of 27 countries with available data at the lower secondary level experienced a decrease in average class size, this was the case for only 12 out of the 27 countries at the primary level (Figure D2.3).

At the lower secondary level, the average class size fell by 6% between 2005 and 2017. These averages mask considerably larger changes in individual countries. In Estonia and Korea, for example, the average class size in lower secondary education has decreased by about 20% over the past decade. In Korea, classes at the primary level are also, on average, 29% smaller than in 2005 – the largest decrease among OECD countries in the past decade. This could reflect the declining number of students. Other countries, however, saw an increase in average class sizes in primary schools: by 20% in Mexico, 14% in Portugal and 29% in the Russian Federation. At the lower secondary level, average class sizes increased by 8% in Denmark, the largest increase among OECD countries.

Figure D2.3. Average class size in primary education (2005 and 2017)



Countries are ranked in descending order of the average class size in primary education in 2005.
Source: OECD/UIS/Eurostat (2019), Table D2.1. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933979842

Definitions

There are two categories of instructional personnel (teachers):

- **Teachers' aides and teaching/research assistants** include non-professional personnel or students who support teachers in providing instruction to students.
- **Teaching staff** refers to professional personnel directly involved in teaching to students. The classification includes classroom teachers, special-education teachers and other teachers who work with a whole class of students in a classroom, in small groups in a resource room, or in one-to-one teaching situations inside or outside a regular class. Teaching staff also include departmental chairs whose duties include some teaching, but exclude non-professional personnel who support teachers in providing instruction to students, such as teachers' aides and other paraprofessional personnel.

Academic staff include personnel at tertiary level whose primary assignment is instruction or research.

Methodology

Class size is calculated by dividing the number of students enrolled by the number of classes. In order to ensure comparability among countries, special-needs programmes are excluded. Data include only regular programmes at primary and lower secondary levels of education, and exclude teaching in subgroups outside the regular classroom setting.

The ratio of students to teaching staff is obtained by dividing the number of full-time equivalent students at a given level of education by the number of full-time equivalent teachers at that level and in similar types of institutions. At tertiary level, the student-teacher ratio is calculated using data on academic staff instead of teachers.

For the ratio of students to teachers to be meaningful, consistent coverage of personnel and enrolment data are needed. For instance, if teachers in religious schools are not reported in the personnel data, then students in those schools must also be excluded.

For more information, please see the OECD *Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications* (OECD, 2018[14]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the academic year 2016/17 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018 (for details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator D2 Tables

Table D2.1 Average class size, by type of institution (2017) and index of change between 2005 and 2017

Table D2.2 Ratio of students to teaching staff in educational institutions, by level of education (2017)

Table D2.3 Ratio of students to teaching staff, by type of institution (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981210

Table D2.1. Average class size, by type of institution (2017) and index of change between 2005 and 2017

By level of education, calculations based on number of students and number of classes

		Primary					Lower secondary					Index of change between 2005 and 2017 (2005 = 100)					
			Private institutions					Private institutions				Primary			Lower secondary		
		Public institutions	Total private institutions	Government-dependent private institutions	Independent private institutions	Total public and private institutions	Public institutions	Total private institutions	Government-dependent private institutions	Independent private institutions	Total public and private institutions	Public institutions	Total private institutions	Total public and private institutions	Public institutions	Total private institutions	Total public and private institutions
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(141)	(15)	(16)
OECD	Countries																
	Australia	23	24	24	a	24	21	24	24	a	22	97	m	98	87	m	89
	Austria	18	19	x(2)	x(2)	18	21	21	x(7)	x(7)	21	92	92	92	88	85	87
	Belgium	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	28	32	33	25	31	29	31	33	25	30	85	102	95	82	95	89
	Colombia	25	19	a	19	23	31	24	a	24	30	m	m	m	m	m	m
	Czech Republic	21	15	15	a	21	22	18	18	a	22	103	m	103	93	m	93
	Denmark	22	19	19	a	21	22	20	20	a	21	109	m	108	109	m	108
	Estonia	19	16	a	16	19	19	14	a	14	18	97	m	96	81	m	81
	Finland	20	18	18	a	20	19	19	19	a	19	m	m	m	m	m	m
	France	23	25	25	a	24	25	26	27	12	25	m	m	m	104	104	104
	Germany	21	21	x(2)	x(2)	21	24	24	x(7)	x(7)	24	96	91	95	97	91	97
	Greece	17	21	a	21	18	21	22	a	22	21	88	m	89	85	m	85
	Hungary	22	21	22	17	22	21	21	22	16	21	110	110	110	96	96	96
	Iceland	19	15	15	a	19	20	13	13	a	20	104	111	104	101	107	101
	Ireland	25	m	a	m	m	m	m	a	m	m	101	m	m	m	m	m
	Israel	27	25	25	a	27	29	24	24	a	28	98	m	96	94	m	91
	Italy	19	19	a	19	19	21	21	a	21	21	104	m	104	101	m	101
	Japan	27	28	a	28	27	32	33	a	33	32	96	83	96	96	92	96
	Korea	23	27	a	27	23	28	27	27	a	27	71	84	71	77	77	77
	Latvia	17	9	a	9	16	16	13	a	13	16	m	m	m	m	m	m
	Lithuania	17	15	a	15	17	18	19	a	19	18	114	149	114	83	123	83
	Luxembourg	15	20	20	20	16	19	19	19	20	19	99	105	101	100	93	98
	Mexico	24	20	a	20	24	28	24	a	24	28	123	91	120	94	89	93
	Netherlands[1]	23[d]	m	m	m	m	m	m	m	m	m	105[d]	m	m	m	m	m
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Poland	19	12	11	12	18	22	17	22	15	22	92	100	90	92	101	91
	Portugal	21	21	23	20	21	22	24	25	23	22	117	96	114	98	101	98
	Slovak Republic	18	18	18	a	18	19	18	18	a	19	92	m	92	84	m	84
	Slovenia	18	21	21	a	18	20	20	20	a	20	101	m	101	97	m	97
	Spain	21	25	25	21	22	25	27	27	22	25	107	102	105	104	100	103
	Sweden	20	18	18	a	19	21	22	22	a	21	m	m	m	m	m	m
	Switzerland	19	m	m	m	m	19	m	m	m	m	m	m	m	m	m	m
	Turkey	22	18	a	18	21	26	19	a	19	25	79	m	79	m	m	m
	United Kingdom	28	a	28	12	27	24	a	25	12	23	108	m	110	100	m	104
	United States	21	18	a	18	21	27	20	a	20	26	102	99	102	101	95	100
	OECD average	21	20	m	m	21	23	21	m	m	23	100	m	99	94	m	94
	Average for countries with available data for both reference years	21	20	m	m	21	23	22	m	m	23	99	m	99	94	m	94
	EU23 average	20	19	m	m	20	21	20	m	m	21	m	m	m	m	m	m
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	24	18	a	18	23	28	24	a	24	27	94	m	91	84	m	85
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	15	17	x(2)	x(2)	15	35	21	x(7)	x(7)	33	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	20	13	a	13	20	20	12	a	12	19	130	m	129	103	m	103
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

1. Primary education includes pre-primary programmes.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D2.2. Ratio of students to teaching staff in educational institutions, by level of education (2017)

Calculations based on full-time equivalents

		Primary	Lower secondary	Upper secondary			All secondary	Post-secondary non-tertiary	Tertiary		
				General programmes	Vocational programmes	All programmes			Short-cycle tertiary	Bachelor's, master's and doctoral or equivalent	All tertiary
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	Countries										
	Australia	15	x(3)	12 d	m	m	m	m	m	16	m
	Austria	11	9	10	10	10	9	12	8	16	14
	Belgium	13	9	11	9	10	9	15	x(10)	x(10)	21
	Canada[1]	16 d	x(1)	x(5)	x(5)	13	m	m	m	m	m
	Chile	20	20	21	21	21	21	a	m	m	m
	Colombia	24	26	x(5)	x(5)	25	26	37	35	30	31
	Czech Republic	19	12	11	11	11	12	41	11	18	18
	Denmark	m	m	m	m	m	m	a	m	m	m
	Estonia[2]	13	10	14	18 d	16 d	13	x(4)	a	14	14
	Finland	14	9	14	20	18	14	20	a	16	16
	France[3]	20	14	13	8	11	13	m	m	m	m
	Germany	15	13	12	14	13	13	13	13	12	12
	Greece	m	m	m	m	m	m	m	a	m	m
	Hungary	11	10	11	12	11	11	9	x(10)	x(10)	12
	Iceland	11	10	m	m	m	m	m	m	m	m
	Ireland[3]	16	x(3)	13 d	a	13 d	13	m	x(10)	x(10)	21
	Israel[3]	15	11	x(5)	x(5)	10	10	m	m	m	m
	Italy[2]	12	11	11	10 d	10 d	11 d	x(4)	a	20	20
	Japan[2,4]	16	13	x(5)	x(5)	12 d	12 d	x(5, 10)	m	m	m
	Korea	16	14	14	11	13	14	a	m	m	m
	Latvia	12	8	8	17	10	9	25	13	19	17
	Lithuania	11	7	8	9	8	8	16	a	16	16
	Luxembourg	m	m	m	m	m	m	m	m	m	m
	Mexico	27	34	x(5)	x(5)	23	29	a	22	17	17
	Netherlands	17	16	17	19	18	17	a	15	15	15
	New Zealand	17	17	12	20	13	15	24	19	18	18
	Norway	10	9	11	10	10	10	12	11	9	9
	Poland	11	10	12	9	10	10	14	9	14	14
	Portugal[2]	13	10	x(5)	x(5)	9 d	10 d	x(5)	x(10)	x(10)	14 d
	Slovak Republic	17	12	14	13	14	13	14	8	12	12
	Slovenia	14 d	x(1)	15	13	14	9	a	18	15	15
	Spain	14	12	12	9	11	11	a	11	13	12
	Sweden	13	12	x(5)	x(5)	14	13	11	8	10	10
	Switzerland[2, 3]	15	12	11	13 d	12 d	12 d	x(4)	a	m	m
	Turkey	17	17	13	13	13	15	a	60	21	26
	United Kingdom	17	15	14	25 d	17	16	a	x(4, 10)	x(10)	16
	United States[4]	15	15	15	a	15	15	x(10)	x(10)	x(10)	14 d
	OECD average	15	13	13	14	13	13	m	m	m	16
	EU23 average	14	11	m	m	12	12	m	m	m	m
Partners	Argentina	m	m	m	m	m	m	a	m	m	m
	Brazil	24	25	26	13	24	25	27	11	25	25
	China	17	12	x(5)	x(5)	15	13	m	m	m	m
	Costa Rica	12	14	15	11	13	14	a	m	m	m
	India	33	26	x(5)	x(5)	29	27	m	a	24	24
	Indonesia	16	15	x(5)	x(5)	15	15	a	17	m	28
	Russian Federation[4]	21	10 d	x(2)	x(8)	x(2, 8)	10	x(8)	13 d	11	12 d
	Saudi Arabia	m	m	m	m	m	m	a	x(10)	x(10)	20
	South Africa[5]	30	x(5)	x(5)	x(5)	27 d	27	m	m	m	m
	G20 average	19	16	m	m	16	17	m	m	18	19

1. Primary includes pre-primary education.
2. Upper secondary includes programmes outside upper secondary level - see Annex 3 for further details.
3. For France, public and government-dependent private institutions only for all levels. For Ireland and Switzerland, public institutions only for all levels. For Israel, public institutions only for upper secondary education and all secondary.
4. Tertiary includes programmes outside tertiary level - see Annex 3 for further details.
5. Year of reference is 2016 instead of 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D2.3. Ratio of students to teaching staff, by type of institution (2017)

By level of education, calculations based on full-time equivalents

		Lower secondary				Upper secondary				All secondary programmes			
			Private institutions				Private institutions				Private institutions		
		Public institutions	Total private institutions	Government-dependent private institutions	Independent private institutions	Public institutions	Total private institutions	Government-dependent private institutions	Independent private institutions	Public institutions	Total private institutions	Government-dependent private institutions	Independent private institutions
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia[1]	x(5)	x(6)	x(7)	a	12 d	11 d	11 d	a	m	m	m	m
	Austria	8	10	x(2)	x(2)	10	10	x(6)	x(6)	9	10	x(10)	x(10)
	Belgium	9	9	9	6	10	10	10	10	9	9	9	8
	Canada	m	m	m	m	13	14	x(6)	x(6)	m	m	m	m
	Chile	16	24	25	20	19	23	25	16	18	23	25	17
	Colombia	28	21	a	21	26	23	a	23	27	22	a	22
	Czech Republic	12	11	11	a	11	12	12	a	12	12	12	a
	Denmark	m	m	m	a	m	m	m	m	m	m	m	m
	Estonia[2]	10	9	a	9	16	13	a	13	13	11	a	11
	Finland	9	9	9	a	18	20	20	a	13	17	17	a
	France	14	16	16	m	11	12	12	m	12	14	14	m
	Germany	13	13	x(2)	x(2)	13	12	x(6)	x(6)	13	12	x(10)	x(10)
	Greece	m	m	a	m	m	m	a	m	m	m	a	m
	Hungary	10	12	12	10	11	12	11	13	11	12	12	12
	Iceland	10	5	5	a	m	m	m	m	m	m	m	m
	Ireland	x(5)	m	a	m	13 d	m	a	m	13	m	a	m
	Israel	11	m	m	m	10	m	m	a	10	m	m	m
	Italy[2]	11	11	a	11	11	7	a	7	11	8	a	8
	Japan[2]	13	12	a	12	11 d	14 d	a	14 d	12 d	13 d	a	13 d
	Korea	14	15	15	a	12	14	14	a	13	14	14	a
	Latvia	8	6	a	6	10	10	a	10	9	8	a	8
	Lithuania	7	9	a	9	8	8	a	8	7	9	a	9
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	38	18	a	18	25	16	a	16	32	17	a	17
	Netherlands	16	16	a	16	18	19	a	19	17	18	a	18
	New Zealand	17	m	m	13	13	12	13	11	15	m	m	12
	Norway	9	8	8	8	10	11	11	a	10	10	10	8
	Poland	10	9	11	8	10	11	11	11	10	10	11	10
	Portugal[2]	9	15	15	15	9 d	10 d	12 d	10 d	9 d	12 d	14 d	11 d
	Slovak Republic	12	12	12	a	14	12	12	a	13	12	12	a
	Slovenia	m	m	m	a	14	17	28	13	9	15	17	13
	Spain	11	15	15	14	10	14	15	13	10	15	15	13
	Sweden	12	17	17	a	14	14	14	a	13	15	15	a
	Switzerland[2]	12	m	m	m	12 d	m	m	m	12 d	m	m	m
	Turkey	17	10	a	10	13	10	a	10	15	10	a	10
	United Kingdom	16	15	16	8	14	18	20	8	15	17	19	8
	United States	16	10	a	10	16	10	a	10	16	10	a	10
	OECD average	13	12	m	m	13	13	m	m	13	13	m	m
	EU23 average	11	m	m	m	12	13	m	m	11	m	m	m
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	26	20	a	20	25	18	a	18	26	19	a	19
	China	12	17	x(2)	x(2)	14	18	x(6)	x(6)	13	17	x(10)	x(10)
	Costa Rica	14	9	x(2)	x(2)	14	9	x(6)	x(6)	14	9	x(10)	x(10)
	India	26	26	x(2)	x(2)	m	m	m	m	m	m	m	m
	Indonesia	16	14	x(2)	x(2)	15	16	x(6)	x(6)	16	15	x(10)	x(10)
	Russian Federation	11 d	5 d	a	5 d	x(1)	x(2)	a	x(4)	11	5	a	5
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa[3]	x(5)	x(6)	x(7)	x(8)	28	14	x(6)	x(6)	28	14	x(10)	x(10)
	G20 average	17	14	m	m	15	14	m	m	16	13	m	m

1. Includes only general programmes in lower and upper secondary education.
2. Upper secondary includes programmes outside upper secondary level - see Annex 3 for further details.
3. Year of reference is 2016 instead of 2017.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Indicator D3. How much are teachers and school heads paid?

Highlights

- Statutory and actual salaries of school heads are higher than those of teachers at pre-primary, primary and general secondary levels of education. On average across OECD countries and economies, actual salaries of school heads are more than 52% higher than those of teachers across primary and secondary levels of education.
- Teachers' actual salaries at pre-primary, primary and general secondary levels of education are 78% to 93% of earnings of tertiary-educated workers on average across OECD countries.
- On average across OECD countries and economies, school heads' salaries are at least 25% higher than earnings of tertiary-educated workers at primary and secondary levels.

Context

Salaries of school staff, and in particular teachers and school heads, represent the largest single cost in formal education. Teachers' salaries have also a direct impact on the attractiveness of the teaching profession. They influence decisions to enrol in teacher education, to become a teacher after graduation, to return to the teaching profession after a career interruption and/or to remain a teacher (in general, the higher the salaries, the fewer the people who choose to leave the profession) (OECD, 2005[1]). The level of salaries can also have an impact on the decision to become a school head.

Burgeoning national debt, spurred by governments' responses to the financial crisis of late 2008, has put pressure on policy makers to reduce government expenditure, particularly on public payrolls. Since compensation and working conditions are important for attracting, developing and retaining skilled and high-quality teachers and school heads, it is important for policy makers to carefully consider their salaries and career prospects as they try to ensure both high-quality teaching and sustainable education budgets (see Indicators C6 and C7).

However, statutory salaries are just one component of teachers' and school heads' total compensation. Other benefits, such as regional allowances for teaching in remote areas, family allowances, reduced rates on public transport and tax allowances on the purchase of instructional materials, may also form part of teachers' total remuneration. In addition, there are large differences in taxation and social benefits systems across OECD countries. This, as well as potential comparability issues related to data collected (see Box D3.1 and Annex 3), should be borne in mind when analysing teachers' salaries and comparing them across countries.

Other findings

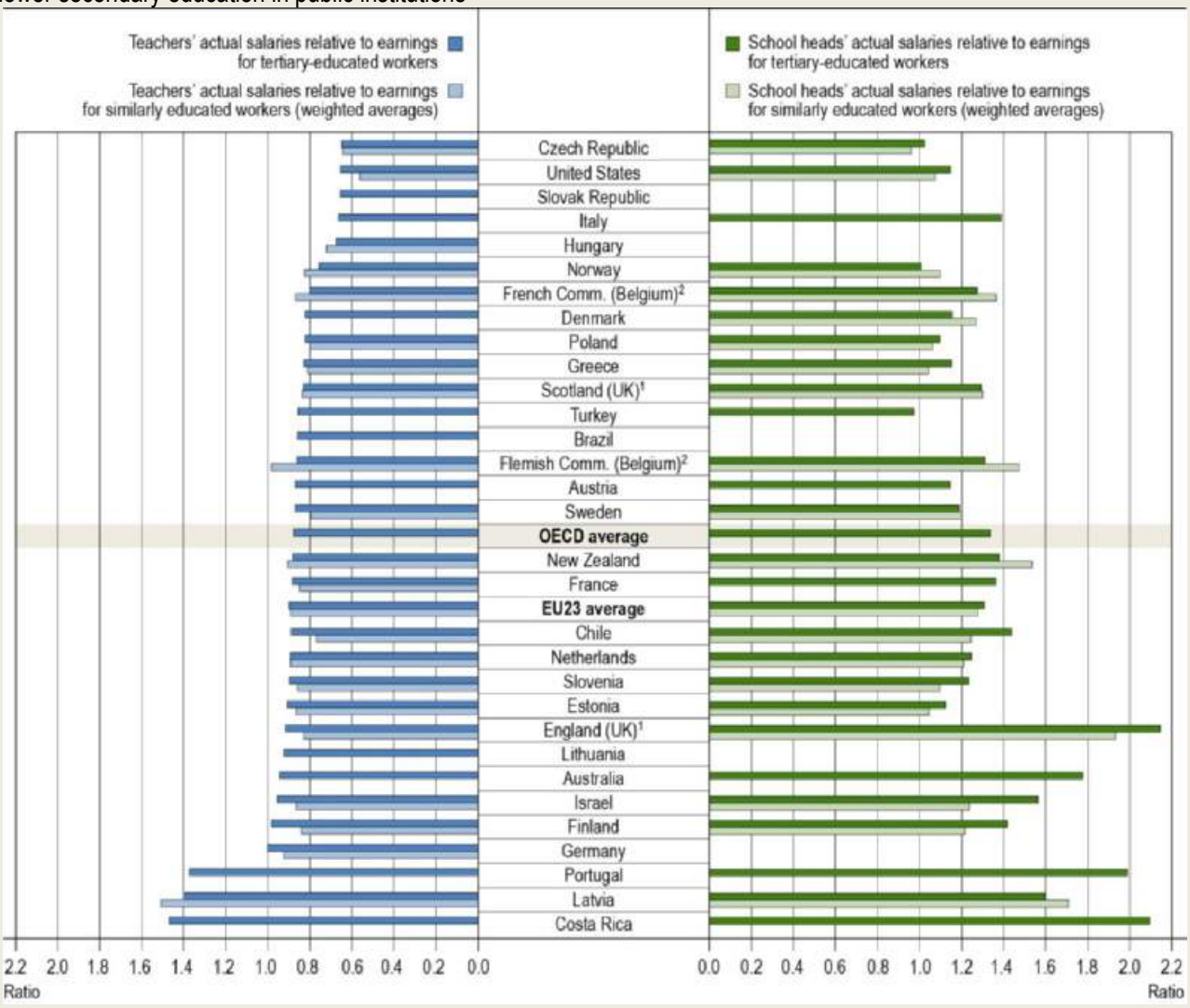
- In most OECD countries, the salaries of teachers and school heads increase with the level of education they teach.
- In at least three-quarters of countries and economies with available data, the minimum qualifications to enter the teaching profession are also the most prevalent qualifications of teachers.
- Statutory salaries of teachers with maximum qualifications at the top of their salary scales are, on average, between 86% and 89% higher than those of teachers on minimum salaries and with minimum qualifications at the start of their career.
- Between 2005 and 2018, on average across OECD countries and economies with available data, statutory salaries of teachers with 15 years of experience and most prevalent qualifications increased

by 10% at primary level, 9% at lower secondary level (general programmes) and 6% at upper secondary level (general programmes).

- Statutory salaries of primary, lower secondary and upper secondary teachers with 15 years of experience and minimum qualifications have now exceeded pre-crisis levels.
- School heads are less likely than teachers to receive additional compensation for performing responsibilities over and above their regular tasks. School heads and teachers working in a disadvantaged or remote area are rewarded with additional compensation in half of the OECD countries and economies with available data.

Figure D3.1. Lower secondary teachers' and school heads' salaries relative to earnings for tertiary-educated workers (2018)

Actual salaries (annual average salaries including bonuses and allowances) of teachers and school heads in general lower secondary education in public institutions



1. Data on earnings for full-time, full-year workers with tertiary education refer to the United Kingdom.
2. Data on earnings for full-time, full-year workers with tertiary education refer to Belgium.

Countries and economies are ranked in descending order of the ratio of teachers' salaries to earnings for full-time, full-year tertiary-educated workers aged 25-64.

Source: OECD (2019), Table D3.2a. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).

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Analysis

Statutory salaries of teachers

Statutory salaries of teachers can vary according to a number of factors, including the level of education taught, the qualification level of teachers and the level of experience or the stage of the career of teachers.

By level of education

Teachers' salaries vary widely across countries. The salaries of lower secondary school teachers with 15 years of experience and most prevalent qualifications (a proxy for mid-career salaries of teachers) range from less than USD 25 000 in the Czech Republic, Hungary, Lithuania and the Slovak Republic to more than USD 60 000 in Australia, Canada, Germany, Ireland, the Netherlands and the United States, and they exceed USD 100 000 in Luxembourg (Table D3.1a).

In most countries and economies with available information, teachers' salaries increase with the level of education they teach. In the Flemish and French communities of Belgium, and Norway, upper secondary teachers with 15 years of experience and the most prevalent qualifications earn between 25% and 30% more than pre-primary teachers with the same experience, while in Lithuania, Finland and the Slovak Republic they earn 36 to 50% more, and in Mexico, 89% more. In Finland and the Slovak Republic, the difference is mainly explained by the gap between pre-primary and primary teachers' salaries. In the Flemish and French communities of Belgium, teachers' salaries at upper secondary level are significantly higher than at other levels of education (Table D3.1a).

The increase in salaries between teachers (with 15 years of experience and most prevalent qualifications) at pre-primary and upper secondary levels is less than 5% in Australia, Chile, Costa Rica, France and Slovenia, and teachers have the same salary irrespective of the level of education taught in Colombia, England (United Kingdom), Greece, Poland, Portugal, Scotland (United Kingdom) and Turkey (Table D3.1a).

However, in Israel the salary of a pre-primary teacher is about 5% higher than the salary of an upper secondary teacher. This difference results from the "New Horizon" reform, begun in 2008 and almost fully implemented by 2014, which increased salaries for pre-primary, primary and lower secondary teachers. Another reform, launched in 2012 with implementation ongoing, aims to raise salaries for upper secondary teachers.

By level of qualification

The minimum qualifications required to teach at a given level of education in the public school system refers to the minimum duration and type of training required (based on official documents) to enter the profession. The "most prevalent" level of qualifications refers to the level of qualifications and training held by the largest proportion of teachers. It can be defined either for a level of education or at a specific stage of the teaching career (see Annex 3 for the description of qualification levels).

Countries may require different minimum levels of qualifications to teach at various levels of education. Austria, Denmark, Hungary, Luxembourg, Poland, Spain and Switzerland require a higher degree (master's or equivalent) to teach either at general lower and/or upper secondary level than at primary level. This helps explain the higher salaries observed at these levels in those countries.

Differences in salaries of teachers between those with the minimum and most prevalent qualifications are by no means the general rule: in countries with a large proportion of teachers with the minimum qualification, they may also represent the most prevalent qualification. In about three-quarters of countries and economies with available information (or more, depending on the level of education taught), the minimum qualification to enter the teaching profession is also the most prevalent qualification at that level (as a consequence, there is no difference in statutory salaries between teachers with minimum and most prevalent qualifications throughout a teacher's career).

In the remaining countries and economies, the most prevalent qualification at a level of education is higher than the minimum qualification required, and this is recognised by the compensation system. Among the 15 countries with available data, the salaries of teachers with the most prevalent qualifications are at least 10% higher than those of teachers with the minimum qualifications in Colombia (pre-primary and primary levels), the Flemish Community of Belgium (upper secondary level), Norway (upper secondary level), Poland (pre-primary, primary and lower secondary levels) and the United States (primary, lower and upper secondary levels), and at some stages of a teacher's career only in Canada, Colombia (lower and upper secondary levels), the French Community of Belgium, Greece, Mexico, New Zealand and Norway (primary and lower secondary levels). The difference in teachers' salaries between those with the most prevalent and the minimum qualifications exceeds 75% in Costa Rica. However, the salaries of teachers with the most prevalent qualifications are still at least 20% lower than the OECD average (at all stages of the teachers' careers and at all levels of education). Caution is necessary when interpreting these differences in salaries, as in some countries only a very small proportion of teachers have the minimum qualification required (Tables D3.1b and D3.1c, available on line).

The most prevalent qualifications of teachers may also vary according to the number of years of experience teachers have. This is the case in a small number of countries (Hungary, Iceland, Ireland, Israel, Mexico, Norway and the United States), and the difference can refer to one or several of the four career stages taken into account (starting point, 10 years of experience, 15 years of experience and top of the range) in one or several levels of education. This is usually linked to recent reforms related to the compensation system and/or qualification requirements for teachers. In Ireland, for example, the salary arrangements have changed for teachers who entered the teaching profession from the beginning of 2011. The salaries related to most prevalent qualifications for teachers with 10 or more years of experience refer to the salary arrangement in place for teachers appointed prior to 2012 (the difference in salary varies from 8% to 17% according to levels of education and stage of the career). In Norway, the most prevalent qualification when entering the teaching profession at the primary and lower secondary level is the minimum qualification, and then differs from the most prevalent qualification of all teachers at these levels of education (Table D3.1a and Table D3.1b, available on line).

By level of experience

Salary structures usually define the salaries paid to teachers at different points in their careers. Deferred compensation, which rewards employees for staying in organisations or professions and for meeting established performance criteria, is also used in teachers' salary structures. OECD data on teachers' salaries are limited to information on statutory salaries at four points of the salary scale: starting salaries, salaries after 10 years of experience, salaries after 15 years of experience and salaries at the top of the scale. Further qualifications also influence differences in starting and maximum salaries and lead to wage increases in some countries.

In OECD countries, teachers' salaries rise during the course of their career (for a given qualification level), although the rate of change differs across countries. For lower secondary teachers with the most prevalent qualifications, average statutory salaries after 10 years of experience are 30% higher than average starting salaries, and 38% higher with 15 years of experience. In addition, average salaries at the top of the scale (reached after an average of 25 years of experience) are 67% higher than the average starting salaries. In Greece, Hungary, Israel, Italy, Korea and Spain, lower secondary school teachers reach the top of the salary scale only after at least 35 years of service. By contrast, lower secondary teachers in Australia, New Zealand and Scotland (United Kingdom) reach the highest step on the salary scale after 6-7 years (Table D3.1b and Table D3.3a, available on line).

In addition to pay scales, the number of years required to reach the top of scale is an indication of the speed of career progression and perspectives. In general, the wider the range between minimum and maximum salaries, the more years it takes for teachers to achieve maximum status. For example, it takes only 6-7 years to reach this level in Australia, New Zealand and Scotland (United Kingdom), but the maximum salary in these countries and economies is only about 33-53% higher than starting salaries, compared to 66% on average across OECD countries with available data for salaries at both starting point and top of the scale. However, this is not true of all

countries. For example, while teachers with the most prevalent qualifications in both the Czech Republic and Israel will reach the top of their scale within approximately 32-36 years, maximum statutory salaries in the Czech Republic are only 32% higher than starting statutory salaries, compared to 105% higher in Israel (Table D3.3a, available on line).

Statutory salaries per hour of net teaching time

As the number of hours of teaching varies considerably between countries and also between levels of education, differences in statutory salaries of teachers may also translate into different levels of salary per teaching hour. The average statutory salary per teaching hour after 15 years of experience and with the most prevalent qualifications is USD 56 for primary teachers, USD 65 for lower secondary teachers and USD 75 for upper secondary teachers in general education (Table D3.3a, available on line).

Because secondary teachers are required to teach fewer hours than primary teachers, their salaries per teaching hour are usually higher than those of teachers at lower levels of education, even in countries where statutory salaries are similar (see Indicator D4). On average across OECD countries, upper secondary teachers' salaries per teaching hour exceed those of primary teachers by about 28%. In Scotland (United Kingdom), there is no difference, while in Mexico, the salary per teaching hour for an upper secondary teacher is at least 73% higher than that for a primary teacher. In Costa Rica and Lithuania, the salary per teaching hour is higher at the primary level (Table D3.3a, available on line).

However, for countries with similar statutory salaries at primary and secondary levels, these difference in salaries per teaching hour between primary and secondary teachers may disappear when comparing salaries per hour of working time, as teachers' statutory working time is usually similar at primary and secondary level (see Indicator D4).

By level of experience and qualification: Minimum and maximum teachers' salaries

Countries that are looking to increase the supply of teachers, especially those with an ageing teacher workforce and/or a growing school-age population, might consider offering more attractive starting wages and career prospects. However, to ensure a well-qualified teaching workforce, efforts must be made not only to recruit and select, but also to retain the most competent and qualified teachers.

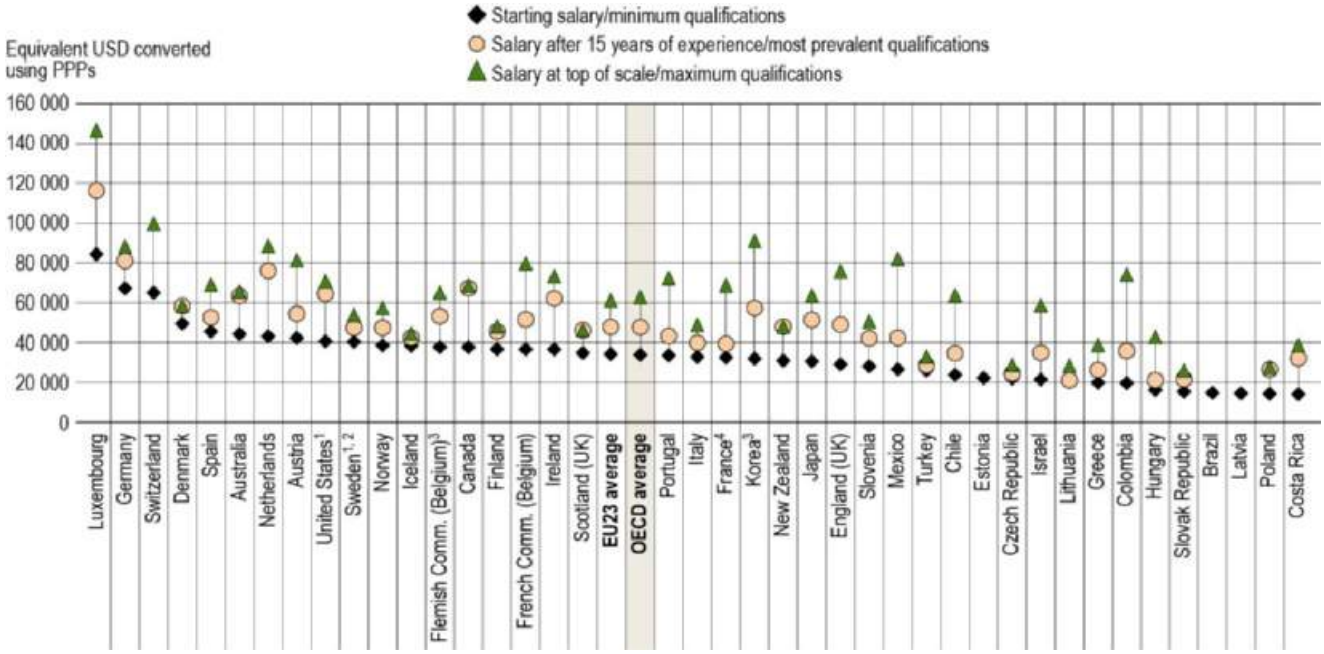
At the lower secondary level, the average statutory salary of a teacher with the most prevalent qualification level with 15 years of experience is 40% higher than that of a starting teacher with minimum qualifications. At the top of the salary range with maximum qualifications, the average statutory salary is 85% higher than the average starting salary with the minimum qualification (Figure D3.2).

In terms of the maximum statutory salary range, from starting salaries (with minimum qualifications) to maximum salaries (with maximum qualifications), most countries and economies with starting salaries below the OECD average also have maximum salaries that are below the OECD average. At the lower secondary level, the most notable exceptions are Colombia, England (United Kingdom), Korea and Mexico, where starting salaries are at least 5% lower than the OECD average, but maximum salaries are 18% to 45% higher. These differences may be reflective of the different career paths available to teachers' with different qualifications in these countries. The opposite is true in Denmark, Finland, Iceland, Norway and Sweden, where starting salaries are between 7% and 45% higher than the OECD average, while maximum salaries are at least 5% lower than the OECD average (7% to 29% lower). This results from relatively flat/compressed salary scales in a number of these countries (Tables D3.1c and D3.6, available on line).

Weak financial incentives may make it more difficult to retain teachers as they approach the peak of their earnings. However, there may be some benefits to compressed pay scales. For example, organisations in which there are smaller differences in salaries among employees may enjoy more trust, freer flows of information and more collegiality among co-workers.

Figure D3.2. Lower secondary teachers' statutory salaries at different points in teachers' careers (2018)

Annual statutory salaries of teachers in public institutions, in equivalent USD converted using PPPs



1. Actual base salaries.
2. Salaries at top of scale and minimum qualifications, instead of maximum qualifications.
3. Salaries at top of scale and most prevalent qualifications, instead of maximum qualifications.
4. Includes the average of fixed bonuses for overtime hours.

Countries and economies are ranked in descending order of starting salaries for lower secondary teachers with minimum qualifications.

Source: OECD (2019), Table D3.1a, Tables D3.1c and D3.6, available on line. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).

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By contrast, for lower secondary teachers, maximum salaries (at top of scale, with maximum qualifications) are at least double the starting salaries (with minimum qualifications) in the French Community of Belgium, Chile, Costa Rica, England (United Kingdom), France, Hungary, Ireland, Israel, Japan, Korea, the Netherlands, Portugal and more than three times higher in Colombia and Mexico (Figure D3.2).

The salary premium for maximum qualifications at the top of teachers' pay scales, compared to most prevalent qualifications after 15 years of experience also varies across countries. At lower secondary level, the pay gap is less than 10% in a quarter of OECD countries and economies, while it exceeds 60% in Chile, Colombia, France, Hungary, Israel, Mexico and Portugal (Table D3.6, available on line and Figure D3.2).

When analysing starting salaries (with minimum qualifications) and maximum salaries (i.e. those at the top of the salary scale with maximum qualification), it is important to bear in mind a couple of things. First, minimum qualifications are the most prevalent in the majority of countries. Second, not all teachers may aim for or reach the top of the salary scale and in some systems few of them may hold the minimum or maximum qualifications (Table X2.5).

Box D3.1. Comparability issues related to data on salaries of teachers and school heads

Meaningful international comparisons rely on the provision and implementation of rigorous definitions and a related statistical methodology. In view of the diversity across countries of both their education and their teachers' compensation systems, adhering to these guidelines and methodology is not always straightforward. Some caution is therefore required when interpreting these data.

Teachers' salaries at different level of experience are collected based on the qualification level of teachers. The minimum and most prevalent qualification level are then used to distinguish pay scales. The number of pay scales that exist and the proportion of teachers who are paid according to each one varies substantially between countries. Some countries have many pay scales while others have few (or only one). In the case of federal countries, such as Australia, Canada, Germany and the United States, the structure of pay scales varies between states (and between municipalities in some cases), an average of pay scales from the subnational entities (or actual salaries) is reported by countries. This means the data on statutory salaries do not directly correspond to any particular group of teachers within these countries. Data at the subnational level illustrate the variations in pay systems within countries (Box D3.2).

Multiple pay scales in a country can mean that only a small proportion of teachers are paid according to the pay scale related to the most prevalent qualification. In contrast, in many countries the minimum qualification is also the most prevalent one, and then the proportion of teachers paid according to the related salary scale can represent the largest proportion of teachers at this level. There tends to be a greater number of pay scales for school heads then for teachers, as several criteria are taken into account to determine the level of compensation of school heads This means that the salaries for the most prevalent qualification maybe less representative for school heads.

Salaries for teachers with minimum or maximum qualifications need to be compared with caution as in some cases a large share of the teaching population in a country may have the minimum or maximum, while in other cases there may be very few teachers in these positions. In some countries, maximum/top of the scale statutory salaries for school heads may be notional. It is possible to be paid at that level, but few (if any) school heads are actually paid the maximum salary. No inference can be drawn from the data about how school heads are distributed between the minimum and maximum pay in each pay scale.

How schools grades are grouped together into levels of education also varies between countries. For example, in New Zealand there is no separate lower secondary system. The first two years of lower secondary are part of the primary system and the second two years are covered by the secondary system. As a result, statutory salaries reported by level of education may be averages of different groups of teachers rather than relating to specific pay scales for teaching at that level. In Norway, similar salary levels for primary and secondary school teachers are reported as teachers often teach at both levels and the salary level of teachers depends on their educational attainment rather than on the level of education at which they teach.

The role of teachers and school heads and also the way their compensation systems operate differ between countries. The allowances given to teachers in addition to their salaries gives some insight into this. For example, 13 countries give their lower secondary teachers an allowance for student counselling, while 18 countries give no such allowance but 4 of these countries (Greece, Latvia, Slovenia and Switzerland) require teachers to perform this task without additional compensation. Differences in roles are even more evident among school heads; the tasks that are required or expected of them vary between countries. Their level of responsibility may also vary, as well as the scale of the institutions they manage.

For more information on comparability issues, see the notes for specific countries in Annex 3.

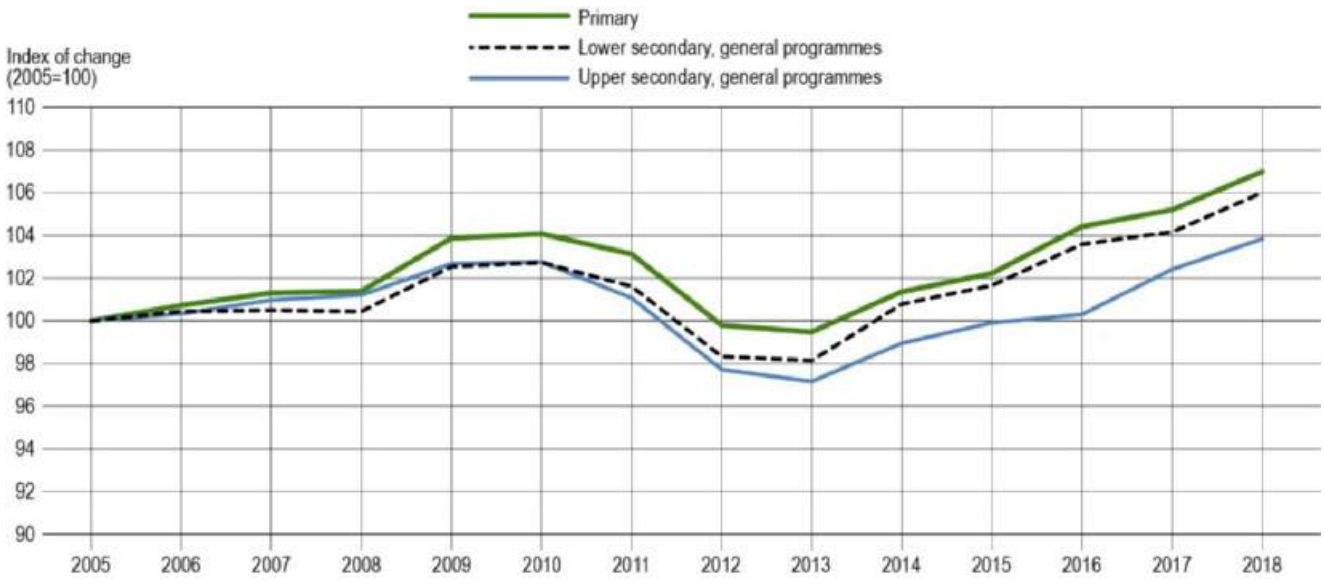
Salary trends since 2000

Among the half of the OECD countries with available data on statutory salaries of teachers with most prevalent qualifications (with 15 years of experience) for 2000 and 2018 (and no break in the time series), teachers' salaries increased overall in real terms in most of these countries during this period. Notable exceptions are England (United Kingdom), where there was a decline of 3%; France, where salaries declined by up to 6%; and Greece where salaries decreased by 17%. There were also slight declines in teachers' salaries in real terms (less than 2%) in Italy (for primary and secondary education). Salaries increased by more than 30% across primary and secondary education levels in Ireland and Israel. However, in some countries, the overall increase in teachers' salaries between 2000 and 2018 includes periods of decrease in salaries (in real terms), particularly from 2010 (Table D3.5a, available on line).

Over the period 2005-18, for which three-quarters of OECD countries and economies have comparable data for at least one level of education, more than half showed an increase in real terms in the statutory salaries of teachers with 15 years of experience and most prevalent qualifications. On average across OECD countries and economies with available data for the reference years of 2005 and 2018, statutory salaries increased by 10% at primary level, 9% at lower secondary level and 6% at upper secondary level. The increase exceeded 20% in Poland at pre-primary, primary and secondary levels (the result of a 2007 government programme that aimed to increase teachers' salaries successively between 2008 and 2013, and also since 2017 and to improve the quality of education by providing financial incentives to attract high-quality teachers) and also in Israel, Luxembourg (pre-primary and primary), Norway and Sweden.

Figure D3.3. Change in teachers' salaries in OECD countries (2005 to 2018)

Average index of change, among OECD countries with data on statutory salaries for all reference years, for teachers with 15 years of experience and minimum qualifications (2005 = 100, constant prices)



Source: OECD (2019), Table D3.5b, available on line. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).

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In most countries, the salary increases were similar across primary, lower secondary and upper secondary levels between 2005 and 2018. However, this is not the case in Israel, where salaries increased by more than 56% at pre-primary level, 40% at primary level, 52% at lower secondary level and 50% at upper secondary level. This is largely the result of the gradual implementation of the "New Horizon" reform in primary and lower secondary

schools, which began in 2008 following an agreement between the education authorities and the Israeli Teachers Union (for primary and lower secondary education). This reform included raising teachers' pay in exchange for longer working hours (see Indicator D4).

By contrast, salaries have decreased slightly since 2005 in a few countries: France (secondary), Italy, Portugal, Scotland (United Kingdom) and Spain, and they decreased by at least 10% in England (United Kingdom) and Japan, and by more than 25% in Greece as the result of reductions in remuneration, implementation of new wage grids and salary freezes since 2011 (Table D3.5a).

However, these overall changes in teachers' salaries in OECD countries between 2005 and 2018 mask different periods of change in teachers' salaries, as a result of the impact of the economic downturn in 2008. On average across OECD countries and economies with available data for all years over the period, salaries were either frozen or cut between 2009 and 2013, before starting to increase again (Figure D3.3). Statutory salaries for primary, lower and upper secondary teachers with minimum qualifications have now exceeded pre-crisis levels, on average across OECD countries with data for all reference years.

Statutory salaries of school heads

The responsibilities of school heads may vary between countries and also within countries, depending on the schools they are responsible for. School heads may exercise educational responsibilities (which may include teaching tasks but also responsibility for the general functioning of the institution in areas such as the timetable, implementation of the curriculum, decisions about what is taught, and the materials and methods used). They may also have other administrative, staff management and financial responsibilities.

Differences in the nature of the work carried out by school heads are reflected in the systems of compensation used within countries. School heads may be paid according to a specific salary range and may or may not receive a school-head allowance on top of the statutory salary. However, they can also be paid in accordance with the salary scale(s) of teachers and receive an additional school-head allowance. The use of teachers' salary ranges may reflect the fact that school heads are initially teachers with additional responsibilities. At lower secondary level, school heads are paid according to teachers' salary scales, with a school-head allowance, in 13 out of the 33 countries with available information, and according to a specific salary range in the other countries. Of these, 12 countries have no specific school-head allowance and 8 countries have a school-head allowance. The amounts payable to school heads (through statutory salaries and/or school-head allowances) may vary according to criteria related to the school(s) where the school head is based (for example the size of the school based on the number of students enrolled, number of teachers supervised, etc.). They could also vary according to the individual characteristics of the school heads themselves, such as the duties they have to perform or their years of experience (Table D3.9, available on line).

Considering the large number of criteria involved in teachers' statutory salaries, the statutory salary data for school heads focuses on the minimum qualification requirements to become a school head, and Table D3.10 shows only the minimum and maximum values. Caution is necessary when interpreting these values because salaries often depend on many criteria and as a result few school heads may earn these amounts.

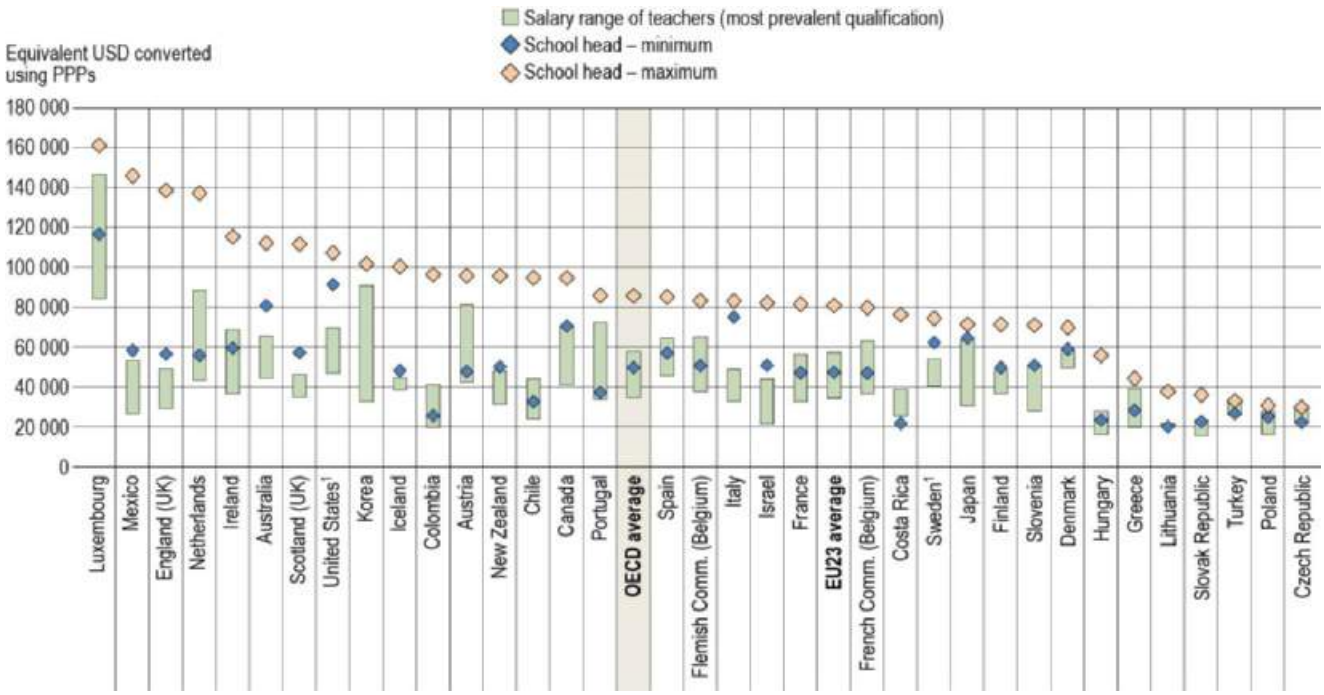
At lower secondary level, the minimum salary is USD 49 629 on average across OECD countries, varying from USD 19 184 in Latvia to USD 116 560 in Luxembourg, and the maximum salary is USD 85 700 on average across OECD countries, varying from USD 29 715 in the Czech Republic to USD 161 200 in Luxembourg. Caution is necessary when interpreting these values, as minimum and maximum statutory salaries refer to school heads in different types of schools. About half of OECD countries have similar pay ranges for primary and lower secondary school heads, while upper secondary school heads benefit, on average, from higher statutory salaries.

On average across OECD countries and economies, the maximum statutory salary of a school head with minimum qualifications is 80% higher than the minimum statutory salary in primary education, 77% higher than in lower secondary and 74% higher than in upper secondary. There are only 12 countries where school heads at

the top of the scale can expect to earn twice the statutory starting salary in at least one of these levels of education; in Costa Rica, they can expect to earn more than three times the starting salary.

Figure D3.4. Minimum and maximum statutory salaries for lower secondary teachers and school heads (2018)

Based on teachers with most prevalent qualifications at a given level of education and school heads with minimum qualifications



1. Actual base salaries.

Countries and economies are ranked in descending order of maximum salaries of school heads.

Source: OECD (2019), Table D3.1b available on line and Table D3.10. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).

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The minimum statutory salaries for school heads with minimum qualifications are higher than the starting salaries of teachers, except in Costa Rica and Lithuania (primary and secondary). The difference between minimum salaries for school heads (with minimum qualifications) and starting salaries for teachers (with the most prevalent qualifications) increases with levels of education: 23% on average across OECD countries and economies at pre-primary level, 33% at primary level, 44% at lower secondary level and 45% at upper secondary level. In a few countries, the minimum statutory salary of school heads is even higher than the maximum salary of teachers. This is the case at lower secondary level in Australia, Canada, Denmark, England (United Kingdom), Finland, Iceland, Israel, Italy, Japan, Mexico, New Zealand, Scotland (United Kingdom), Slovenia and the United States (Figure D3.4).

Similarly, the maximum statutory salaries of school heads are higher than those of teachers for all OECD countries and economies with available data. At the top of their scale, at lower secondary level, the maximum statutory salary of a school head is 48% higher than the salary of teachers at the top of the range (with most prevalent qualifications), on average across OECD countries and economies. However, maximum statutory

salaries of school heads in Chile, Colombia, England (United Kingdom), Hungary, Iceland, Mexico and Scotland (United Kingdom) are more than twice the statutory salaries at the top of the range for teachers. (Figure D3.4).

Actual average salaries of teachers and school heads

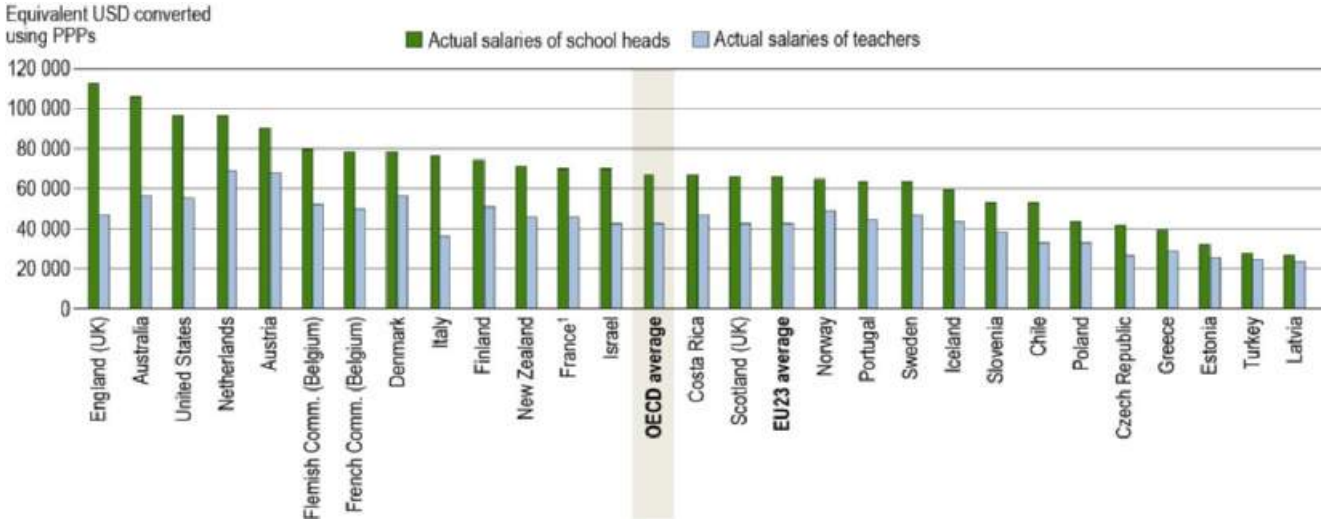
Unlike statutory salaries, teachers' and school heads' actual salaries may include work-related payments, such as annual bonuses, results-related bonuses, extra pay for holidays, sick-leave pay and other additional payments (see the *Definitions* section). These bonuses and allowances can represent a significant addition to base salaries. In this case, actual average salaries are influenced by the prevalence of bonuses and allowances in the compensation system, on top of factors such as the level of experience or the qualifications level of the teaching workforce. Differences between statutory and actual average salaries are also linked to the distribution of teachers by years of experience and qualifications, as these two factors have an impact on the salary level of teachers.

Across OECD countries and economies, average actual salaries of teachers aged 25-64 are USD 36 247 at pre-primary level, USD 40 580 at primary level, USD 42 553 at lower secondary level and USD 45 803 at upper secondary level. Average actual salaries of school heads aged 25-64 vary from USD 61 791 at primary level, USD 66 534 at lower secondary level and USD 72 081 at upper secondary level (Table D3.4) (see Box D3.2 for variations at subnational level).

Among the 28 OECD countries and economies with available data on both the statutory salaries of teachers with 15 years of experience and most prevalent qualifications, and the actual salaries of 25-64 year-old teachers for at least one level of education, actual annual salaries are 10% higher than statutory salaries in one-sixth (at pre-primary level) to one-third (at upper secondary level) of countries.

Figure D3.5. Actual salaries of lower secondary teachers and school heads (2017)

Annual actual salaries of teachers and school heads in public institutions, in equivalent USD converted using PPPs



1. Year of reference differs from 2016. See Table D3.4 for more information.
Countries and economies are ranked in descending order of actual salaries of school heads.
Source: OECD (2019), Table D3.4. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).

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Actual salaries of school heads are higher than those of teachers, and the premium increases with levels of education. On average across OECD countries and economies, actual salaries of school heads are 52% higher

than those of teachers at primary level. The premium is 56% at lower secondary level, and 57% at upper secondary level. The difference between actual salaries of school heads and teachers varies widely between countries and between levels of education. The countries and economies with the highest premium for school heads compared to teachers are England (United Kingdom) (secondary levels) and Italy (primary and secondary levels), where the actual salaries of school heads are twice that of teachers. The lowest premiums, of less than 25%, are in Estonia (at primary and secondary), Finland (pre-primary), Latvia (lower secondary), Norway (pre-primary) and Turkey. Other countries show a steep rise in salaries of school heads compared to teachers at the secondary level, while there is a more moderate difference at primary level. For example in Denmark, actual salaries of school heads are 28% higher than teachers at pre-primary level but the difference is 40% at lower secondary and 59% at upper secondary level. In Latvia, the difference is much larger at pre-primary and primary levels than at lower and upper secondary level (Table D3.4).

Box D3.2. Subnational variations in teachers' salaries at pre-primary, primary and secondary levels

For each country, teachers' statutory salaries can vary by level of education and by level of experience. Salaries can also vary significantly among subnational entities within each country, especially in federal countries where salary requirements may be defined at the subnational level. Subnational data provided by four countries (Belgium, Canada, the United Kingdom and the United States) illustrate these variations at the subnational level.

In these four countries, statutory salaries vary to a differing extent between subnational entities, depending on the stage teachers have reached in their careers. In 2018 in Belgium, for example, the starting salary of a primary school teacher varied by only 3% (USD 1 101), ranging from USD 36 589 in the French Community to USD 37 690 in the Flemish Community. In comparison, subnational variation was largest in Canada, where the starting salary of a primary school teacher varied by 80% (USD 25 710) across subnational entities, ranging from USD 32 279 in Quebec to USD 57 989 in the Northwest Territories. Similar patterns were observed in the starting salaries for lower secondary and upper secondary teachers.

In Belgium, the extent of the variation of statutory salaries between subnational entities remains relatively even across all levels of education and stages of teachers' careers. In contrast, in both Canada and the United Kingdom, the variation across subnational entities was greater for starting salaries than for salaries at the top of the scale. For example, at the upper secondary level, starting salaries in the United Kingdom varied by 23% (USD 6 583) between subnational entities, from USD 28 186 to USD 34 769, while salaries at the top of the salary scale varied by only 6% (USD 2 728), from USD 46 227 to USD 48 956. In the United States, there was no clear pattern in the extent of the variation of statutory salaries across subnational entities at different levels of education and stages of teachers' careers. At the lower secondary level, the variation was the smallest for starting salaries, ranging from USD 34 243 to USD 59 927 (a difference of 75%, or USD 25 684) and the largest for salaries at top of the salary scale, ranging from USD 54 081 to USD 110 661 (a difference of 105%, or USD 56 580).

There is also large subnational variation in actual salaries of teachers and school heads among the three countries (Belgium, the United Kingdom and the United States) with available data in 2017. In both the United Kingdom and the United States, the subnational variation in actual salaries was much greater among school heads than among teachers. For example, at the upper secondary level, teachers' salaries in the United Kingdom (among subnational entities with available data) ranged from USD 42 474 in Scotland to USD 51 307 in Northern Ireland, a difference of 21% or USD 8 832. In comparison, school heads' salaries ranged from USD 66 023 in Scotland to USD 111 801 in England, a difference of 69% or USD 45 778. Subnational variation in actual salaries was much smaller among both teachers and school heads in Belgium. For example, the salaries of upper secondary school heads ranged from USD 92 707 in the French Community to USD 94 989 in the Flemish Community, a difference of 2% or USD 2 283.

The extent of the subnational variation in actual salaries (for teachers and school heads) also varies according to level of education. For both teachers and school heads in the United Kingdom (for subnational entities with available data), subnational variation was greater in actual salaries at the lower and upper secondary levels than at the primary level. In the United States, subnational variation in actual salaries of teachers was the largest at the primary level, while subnational variation among school heads was largest at the upper secondary level.

Source: Education at a Glance Database. http://stats.oecd.org.

Teachers' and school heads' actual salaries relative to earnings for tertiary-educated workers

Education systems compete with other sectors of the economy to attract high-quality graduates as teachers. Research shows that salaries and alternative employment opportunities are important factors in the attractiveness of teaching (Johnes and Johnes, 2004[2]). Teachers' salaries relative to those of other occupations (with similar education requirements) and the likely growth in earnings may have a huge influence on a graduate's decision to become a teacher and stay in the profession. The career prospects of school heads and their relative salaries are also a signal of the career progression pathways available to teachers and the compensation they can expect in the longer term.

Box D3.3. How teachers' salaries compare to similarly educated workers

Differences between actual salaries for male and female teachers are small: 3% or less in favour of men, on average, at primary and secondary levels. However, there are larger gender differences in the ratio of teachers' salaries to earnings for tertiary-educated workers aged 25-64. On average across OECD countries and economies, the actual salaries of male teachers (aged 25-64) range from 73% (at primary level) to 83% (at upper secondary level) of the earnings of a tertiary-educated 25-64 year-old full-time, full-year male worker. Teachers' actual salaries relative to earnings of tertiary-educated workers are about 31 to 40 percentage points higher among women than among the men at pre-primary, primary and secondary levels of education. This higher earnings ratio among female teachers shows that teaching may be more attractive to women than to men compared to other professions, but it also reflects the persistent gender gap in earnings (in favour of men) in the labour market (Tables D3.2 and D3.4).

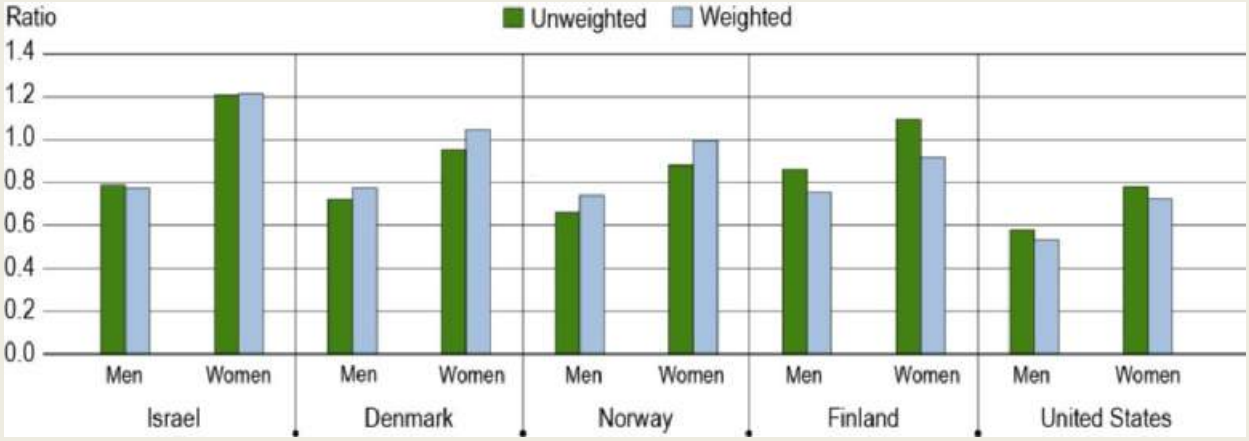
A survey launched in 2018 collected information on the distribution of teachers by attainment level, with a breakdown of teachers by gender (and age groups). With these data, it was then possible to compute the actual salaries of teachers relative to the weighted average earnings of similarly educated workers for a small number of countries. This helps to remove the differences in educational attainment by gender between teachers and tertiary-educated workers when comparing actual salaries to earnings.

Among the five countries with available data at the lower secondary level, these weighted ratios show an impact on the value of the relative earnings, implying differences in the breakdown by attainment level and/or salaries between teachers and tertiary-educated workers. However, the impact can result in either a decrease or an increase in relative salaries. These ratios also show that female teachers earn salaries that are closer to that of their peers than do their male colleagues. For example, in these countries a woman teaching at the lower secondary level earns between 73% and 121% of the earnings of a similarly educated woman. In contrast, men teaching at lower secondary earn between 53% and 78% of what similarly educated men earn (Figure D3.a).

At primary and secondary levels, the actual salaries of older teachers (aged 55-64) are, on average, 35-37% higher than those of younger teachers (aged 25-34), but this difference between age groups varies considerably between countries and economies. The difference is less than 20% at all levels of education in

Australia, Latvia, Norway and Sweden, while it is 60% or more in Austria, Greece, Israel and Portugal (Table D3.4).

Figure D3.a. Lower secondary teachers' actual salaries relative to earnings of tertiary-educated workers, aged 25- 64 (2018)



Countries and economies are ranked in descending order of weighted relative salaries of women teachers
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).

StatLink https://doi.org/10.1787/888933980032

Despite the increase in teachers' salaries for older age groups, comparing teachers' salaries with the earnings of tertiary-educated workers seems to show that teachers' salaries may evolve at a slower rate than the earnings of other workers and that the teaching profession becomes less attractive as the workforce ages. On average across OECD countries and economies, teachers' actual salaries relative to the earnings of tertiary-educated workers are about 10 percentage points higher among 25-34 year-olds than among the older age groups (55-64 year-olds) at lower secondary level. However, there are large differences between countries, and in Chile, Greece, Hungary, Israel and Latvia, teachers' actual salaries relative to earnings of tertiary-educated workers are higher for older age groups at pre-primary, primary and secondary levels.

The comparison of salaries of teachers and earnings of tertiary-educated workers might be biased by differences in the attainment level and/or the earnings of teachers and tertiary-educated workers in the different age groups. The survey on data availability on the distribution of teachers by attainment level gathered data on these distributions by age group in a few countries. This made it possible to compute relative salaries of teachers by age group, removing the differences in the attainment distribution between teachers and tertiary-educated workers. As with the relative salaries by gender, this has a significant impact on the relative measure of salaries of teachers by age group. The effect can either increase or decrease relative salaries and the magnitude of the change varies between age groups. The relative salaries of teachers in this group of countries follow a similar pattern across age groups. The youngest teachers (age 25-34) earn between 66% and 110% of the earnings of similarly educated 25-34 year-olds. However older cohorts earn notably less, with teachers aged 45-54 earning between 52% and 89% of the earnings of similarly educated, similarly aged workers.

In most OECD countries, a tertiary degree is required to become a teacher and then a school head, at all levels of education, meaning the likely alternative to teacher education is a similar tertiary education programme. Thus, to interpret salary levels in different countries and reflect comparative labour-market conditions, actual salaries are compared to the earnings of other tertiary-educated professionals: 25-64 year-old full-time, full-year workers

with a similar tertiary education (ISCED levels 5 to 8) (see Box D3.3 for data by age group or gender). Moreover, to ensure that the comparison between countries is not biased by differences in the distribution of tertiary attainment level among teachers and tertiary-educated workers more generally, actual salaries of teachers are compared to a weighted average of earnings of similarly educated workers (the earnings of similarly educated workers weighted by the proportion of teachers with similar tertiary attainment) (see Tables X2.11a and X2.11b in Annex 2 for the proportion of teachers and school heads by attainment level).

Among the 22 countries and economies with available data (for at least one level), actual salaries of teachers amount to 65% or less of earnings of similarly educated workers in the Czech Republic (primary and secondary) and the United States. Very few countries and economies have actual teachers' salaries that reach or exceed those of similarly educated workers. However, in the Flemish Community of Belgium, actual salaries of teachers are the same as those of similarly educated workers at pre-primary and primary levels, and in Latvia, they are 15% higher at the pre-primary level and 47-60% higher at primary and secondary levels (Table D3.2a).

Considering the few countries with available data for this relative measure of teachers' salaries, a second benchmark is based on the actual salaries of all teachers, relative to earnings for full-time, full-year workers with tertiary education (ISCED levels 5 to 8) (see the *Methodology* section). Against this benchmark, actual teachers' salaries relative to other tertiary-educated workers increase with higher education levels. Pre-primary teachers' salaries amount to 78% of full-time, full-year earnings, on average, among 25-64 year-olds with tertiary education. Primary teachers earn 84% of the benchmark salary, lower secondary teachers 88% and upper secondary teachers 93% (Table D3.2a).

In almost all countries and economies with available information, and at almost all levels of education, teachers' actual salaries are lower than those of tertiary-educated workers. The relative salary of teachers is lowest in the Slovak Republic at the pre-primary level, where teachers' salaries are 50% of those of tertiary-educated workers, in the United States at the primary level (63% those of tertiary-educated workers), and in the Czech Republic at primary and secondary levels where they reach 64% to 66% of those of tertiary-educated workers. However in some countries, teachers earn more than tertiary-educated adults at all levels of education (Costa Rica, Latvia and Portugal), or at some levels of education only (at upper secondary level in Finland and the Flemish and French communities of Belgium, at lower and upper secondary levels in Germany). In Latvia and Portugal, teachers earn at least 30% more than tertiary-educated workers. (Table D3.2a and Figure D3.1).

School heads earn more than teachers and, unlike teachers, typically earn more than similarly educated workers at all the levels of education considered. This difference tends to increase with the level of education. Among the 17 OECD countries and economies with available data (for at least one level), it is only pre-primary school heads in Estonia, Finland and Norway whose actual salaries are on average at least 5% lower than the earnings of similarly educated workers. In contrast, school heads' salaries are at least 40% higher than similarly educated workers in the Flemish Community of Belgium (pre-primary, primary and lower secondary), England (United Kingdom) (secondary), Latvia and New Zealand (primary and secondary). At the upper secondary level in Latvia, school heads earn twice as much as similarly educated workers.

As with teachers, there are only a few countries with available data for this relative measure of school heads' salaries. Hence, a second benchmark is based on the actual salaries of all school heads, relative to earnings for full-time, full-year workers with tertiary education. Using this measure, on average across OECD countries and economies, school heads earn 25% more than tertiary-educated adults at primary level, 34% more at lower secondary level and 43% more at upper secondary level. School heads earn less than tertiary-educated adults only in the Czech Republic (pre-primary level), Denmark (pre-primary level), Estonia (pre-primary level), Finland (pre-primary level), Norway (pre-primary level) and in Turkey (for pre-primary, primary and secondary levels).

Formation of base salary and additional payments: Incentives and allowances

Statutory salaries, based on pay scales, are only one component of the total compensation of teachers and school heads. School systems also offer additional payments to teachers and school heads, such as allowances,

bonuses or other rewards. These may take the form of financial remuneration and/or reductions in the number of teaching hours, and decisions on the criteria used for the formation of the base salary are taken at different decision-making levels (Tables D3.8 and D3.12, available on line).

Criteria for additional payments vary across countries. In the large majority of countries, teachers' core tasks (teaching, planning or preparing lessons, marking students' work, general administrative work, communicating with parents, supervising students and working with colleagues) are rarely considered to merit bonuses or additional payments (Table D3.7, available on line). Teachers may also be required to have some responsibilities or perform some tasks without additional compensations (see Indicator D4 for the tasks and responsibilities of teachers).Taking on other responsibilities, however, often entails some sort of extra compensation.

At lower secondary level, teachers who participate in school management activities in addition to their teaching duties received extra compensation in two-thirds of countries and economies with available information.

It is also common to see additional payments, either annual or occasional, when teachers teach more classes or hours than required by their full-time contract, have responsibility as a class or form teacher, or perform special tasks, such as training student teachers (Table D3.7, available on line).

Additional compensation, either in the form of occasional additional or annual payments or through increases in basic salary, is also awarded for outstanding performance by lower secondary teachers in about half of OECD countries and economies with available data. Additional payments can also include bonuses for special teaching conditions, such as teaching students with special needs in regular schools or teaching in disadvantaged, remote or high-cost areas (Table D3.7, available on line).

There are also criteria for additional payments for school heads, but fewer tasks or responsibilities lead to additional payments compared to teachers. At lower secondary level, only a few countries do not offer any type of additional compensation to their school heads: Austria, the French Community of Belgium and Portugal (Table D3.11, available on line).

Among the 31 countries with available data, nearly one-third provide additional compensation to school heads for participating in management tasks over and above their usual school-head responsibilities or for working overtime. About half of the countries (Australia, Austria, the French Community of Belgium, Chile, England [United Kingdom], Finland, France, Ireland, Italy, Korea, Poland, Portugal, Slovenia, Spain and Switzerland) provide additional compensation for teachers when they take on extra responsibilities, but do not provide any additional payments to school heads (Table D3.11, available on line). The extent to which teachers receive additional compensation for taking on extra responsibilities and the activities for which teachers are compensated varies across these countries. As with teachers (see above), in some countries, such as Greece, a number of these responsibilities and tasks are considered part of teachers' and school heads' duties and so they are not compensated with any extra allowances.

At lower secondary level, additional compensation is also awarded to school heads for outstanding performance in more than one-third of the countries and economies with available data, as it is to teachers. However, Austria, Chile, England (United Kingdom), Israel and Turkey provide additional compensation for outstanding performance to teachers, but not to school heads. The opposite is observed in Colombia, France and Spain, where school heads are rewarded for high performance, but not teachers. In France, a part of the school-head allowance is awarded according to the results of a professional interview and is paid every three years (Tables D3.11 and D3.7, available on line).

Teachers and school heads are also likely to receive additional payments for working in disadvantaged, remote, or high-cost areas in half of the countries, with the exception of Australia, where such incentives are provided only to teachers. (Tables D3.11 and D3.7, available on line).

Definitions

Teachers refer to professional personnel directly involved in teaching students. The classification includes classroom teachers, special-education teachers and other teachers who work with a whole class of students in a classroom, in small groups in a resource room, or in one-to-one teaching situations inside or outside a regular class.

School head refers to any person whose primary or major function is heading a school or a group of schools, alone or within an administrative body such as a board or council. The school head is the primary leader responsible for the leadership, management and administration of a school.

Actual salaries for teachers/school heads aged 25-64 refer to the annual average earnings received by full-time teachers/school heads aged 25 to 64, before taxes. It is the gross salary from the employee's point of view, since it includes the part of social security contributions and pension-scheme contributions that are paid by the employees (even if deducted automatically from the employees' gross salary by the employer). However, the employers' premium for social security and pension is excluded. Actual salaries also include work-related payments, such as school-head allowance, annual bonuses, results-related bonuses, extra pay for holidays and sick-leave pay. Income from other sources, such as government social transfers, investment income and any other income that is not directly related to their profession are not included.

Earnings for workers with tertiary education are average earnings for full-time, full-year workers aged 25-64 with an education at ISCED level 5, 6, 7 or 8.

Salary at the top of the scale refers to the maximum scheduled annual salary (top of the salary range) for a full-time classroom teacher (for a given level of qualification of teachers recognised by the compensation system).

Salary after 15 years of experience refers to the scheduled annual salary of a full-time classroom teacher. Statutory salaries may refer to the salaries of teachers with a given level of qualification recognised by the compensation system (the minimum training necessary to be fully qualified, the most prevalent qualifications, or the maximum qualification), plus 15 years of experience.

Starting salary refers to the average scheduled gross salary per year for a full-time classroom teacher with a given level of qualification recognised by the compensation system (the minimum training necessary to be fully qualified or the most prevalent qualifications) at the beginning of the teaching career.

Statutory salaries refer to scheduled salaries according to official pay scales. The salaries reported are gross (total sum paid by the employer) less the employer's contribution to social security and pension, according to existing salary scales. Salaries are "before tax" (i.e. before deductions for income tax).

Methodology

Data on teachers' salary at lower and upper secondary level refer only to general programmes.

Salaries were converted using purchasing power parities (PPPs) for private consumption from the OECD National Accounts database. The period of reference for teachers' salaries is from 1 July 2017 to 30 June 2018 for statutory data and from 1 July 2016 to 30 June 2017 for actual data. The reference date for PPPs is 2017/18 for statutory data and 2016/17 for actual data, except for some Southern Hemisphere countries (e.g. Australia and New Zealand), where the academic year runs from January to December. In these countries, the reference year is the calendar year (i.e. 2018 and 2017). Tables with salaries in national currency are included in Annex 2. To calculate changes in teachers' salaries (Table D3.5a and Table D3.5b, available on line), the deflator for private consumption is used to convert salaries to 2005 prices.

In most countries, the criteria to determine the most prevalent qualifications of teachers are based on a principle of relative majority (i.e. the level of qualifications of the largest proportion of teachers).

In Table D3.2a, the ratios of salaries to earnings for full-time, full-year workers with tertiary education aged 25-64 are calculated based on weighted averages of earnings of tertiary-educated workers (Columns 1 to 4 for teachers and Columns 10 to 13 for school heads). The weights, collected for every country individually, are based on the percentage of teachers or school heads by ISCED level of tertiary attainment (see Tables X2.11a. and X2.11b in Annex 2). The ratios have been calculated for countries for which these data are available. When data on earnings of workers referred to a different reference year than the 2017 reference year used for salaries of teachers or school heads, a deflator has been used to adjust earnings data to 2017 reference year). For all other ratios in Table D3.2a and those in Table D3.2c (available on line), information on all tertiary-educated workers was used instead of weighted averages. Data on earnings of workers take account of earnings from work for all individuals during the reference period, including salaries of teachers. In most countries, the population of teachers is large and may impact on the average earnings of workers. The same procedure was used in Table D3.2b (available on line), but the ratios are calculated using the statutory salaries of teachers with 15 years of experience instead of their actual salaries.

For more information please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018[3]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en.).

Source

Data on salaries and bonuses for teachers and school heads are derived from the 2018 joint OECD/Eurydice data collection on salaries of teachers and school heads. Data refer to the school year 2017/18 (for statutory salaries) or 2016/17 (for actual salaries) and are reported in accordance with formal policies for public institutions. Data on earnings of workers are based on the regular data collection by the OECD LSO (Labour Market and Social Outcomes of Learning) Network.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator D3 Tables

Table D3.1a Teachers' statutory salaries, based on the most prevalent qualifications at different points in teachers' careers (2018)

WEB Table D3.1b Teachers' statutory salaries, based on the most prevalent qualifications at a given level of education (2018)

WEB Table D3.1c Teachers' statutory salaries, based on the minimum qualifications to enter the teaching profession (2018)

Table D3.2a Actual salaries of teachers and school heads relative to earnings of tertiary-educated workers (2018)

WEB Table D3.2b Teachers' statutory salaries relative to earnings of tertiary-educated workers (2018)

WEB Table D3.2c Teachers' actual salaries relative to earnings of tertiary-educated workers, by age group and by gender (2017)

WEB Table D3.2d School heads' statutory salaries relative to earnings of tertiary-educated workers (2018)

WEB Table D3.3a Comparison of teachers' statutory salaries, based on the most prevalent qualifications of teachers by level of education (2018)

WEB Table D3.3b Comparison of teachers' statutory salaries, based on the minimum qualifications required to enter the teaching profession in the reference year (2018)

Table D3.4 Average actual salaries of teachers and school heads, by age group and by gender (2017)

WEB Table D3.5a Trends in teachers' salaries, based on most prevalent qualifications at different points in teachers' careers, between 2000 and 2018

WEB Table D3.5b Trends in teachers' salaries, based on minimum qualifications on entry to the profession, between 2000 and 2018

WEB Table D3.6 Starting/maximum teachers' statutory salaries, based on minimum/maximum qualifications (2018)

WEB Table D3.7 Criteria used for base salaries and additional payments awarded to teachers in public institutions, all level of education (2018)

WEB Table D3.8 Decision-making level for criteria used for determining teachers' base salaries and additional payments, by level of education (2018)

WEB Table D3.9 Structure of compensation system for school heads (2018)

Table D3.10 Minimum / maximum school heads' statutory salaries, based on minimum qualifications (2018)

WEB Table D3.11 Criteria used for base salaries and additional payments awarded to school heads in public institutions, by level of education (2018)

WEB Table D3.12 Decision-making level for criteria used for determining schools heads' base salaries and additional payments, by level of education (2018)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at https://doi.org/10.1787/f8d7880d-en.. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink https://doi.org/10.1787/888933981229

Table D3.1a. Teachers' statutory salaries, based on the most prevalent qualifications at different points in teachers' careers (2018)

Annual teachers' salaries, in public institutions, in equivalent USD converted using PPPs for private consumption

		Pre-primary				Primary				Lower secondary, general programmes				Upper secondary, general programmes			
		Starting salary	Salary after 10 years of experience	Salary after 15 years of experience	Salary at top of scale	Starting salary	Salary after 10 years of experience	Salary after 15 years of experience	Salary at top of scale	Starting salary	Salary after 10 years of experience	Salary after 15 years of experience	Salary at top of scale	Starting salary	Salary after 10 years of experience	Salary after 15 years of experience	Salary at top of scale
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD	**Countries**																
	Australia	44 729	63 277	63 277	65 706	44 287	63 277	63 098	65 421	44 247	63 393	63 393	65 560	44 247	63 393	63 393	65 560
	Austria	m	m	m	m	42 702	46 582	51 788	76 160	42 277	48 872	54 406	81 311	41 918	52 888	59 626	86 639
	Canada	m	m	m	m	39 937	64 561	67 301	67 301	39 937	64 561	67 301	67 301	39 937	64 561	67 301	67 301
	Chile	23 747	29 318	34 577	44 107	23 747	29 318	34 577	44 107	23 747	29 318	34 577	44 107	24 555	30 396	35 763	45 723
	Colombia	19 624	35 788	35 788	41 156	19 624	35 788	35 788	41 156	19 624	35 788	35 788	41 156	19 624	35 788	35 788	41 156
	Czech Republic	20 472	21 250	21 768	24 273	21 854	23 236	24 273	28 678	21 854	23 323	24 359	28 851	21 854	23 323	24 359	28 765
	Denmark	44 039	49 675	49 675	49 675	48 989	53 943	57 206	57 206	49 482	54 756	58 349	58 349	46 383	60 278	60 278	60 278
	Estonia	a	a	a	a	22 178	a	a	a	22 178	a	a	a	22 178	a	a	a
	Finland[6]	30 027	32 651	32 871	32 871	33 916	39 525	42 180	44 711	36 629	42 688	45 555	48 288	38 842	46 966	49 175	52 126
	France[2]	30 872	35 290	37 700	54 503	30 872	35 290	37 700	54 503	32 492	36 910	39 320	56 283	32 492	36 910	39 320	56 283
	Germany	m	m	m	m	60 507	70 678	74 486	79 355	67 163	77 499	80 993	88 214	70 749	81 584	85 206	96 736
	Greece	19 825	23 638	26 198	38 804	19 825	23 638	26 198	38 804	19 825	23 638	26 198	38 804	19 825	23 638	26 198	38 804
	Hungary	14 545	19 635	21 090	27 635	14 545	19 635	21 090	27 635	16 161	19 635	21 090	27 635	16 161	21 817	23 433	30 705
	Iceland	37 367	39 324	41 400	41 400	38 336	40 293	42 368	42 368	38 336	40 293	42 368	42 368	37 335	42 029	46 228	48 379
	Ireland	m	m	m	m	36 553	55 755	61 534	70 967	36 553	57 748	62 135	71 568	36 553	57 748	62 135	71 568
	Israel	24 352	31 149	35 025	64 096	21 276	28 132	31 532	53 639	21 389	30 099	34 860	56 000	22 629	30 132	33 449	54 969
	Italy	30 403	33 389	36 604	44 468	30 403	33 389	36 604	44 468	32 725	36 197	39 840	48 833	32 725	37 068	40 952	51 045
	Japan	m	m	m	m	30 560	43 658	51 339	63 562	30 560	43 658	51 339	63 562	30 560	43 658	51 321	65 238
	Korea	32 485	48 959	57 179	90 911	32 485	48 959	57 179	90 911	32 548	49 021	57 242	90 973	31 799	48 273	56 493	90 225
	Latvia	14 494	a	a	a	14 494	a	a	a	14 494	a	a	a	14 494	a	a	a
	Lithuania	12 930	13 917	14 236	14 840	20 255	20 511	21 084	21 721	20 255	20 511	21 084	21 721	20 255	20 511	21 084	21 721
	Luxembourg[3]	74 400	96 224	108 624	131 440	74 400	96 224	108 624	131 440	84 320	105 400	116 312	146 568	84 320	105 400	116 312	146 568
	Mexico	20 851	26 364	33 076	41 693	20 851	26 364	33 076	41 693	26 560	33 598	42 316	53 262	50 775	58 726	62 678	62 678
	Netherlands	42 133	53 654	63 413	67 147	42 133	53 654	63 413	67 147	43 132	66 101	76 006	88 464	43 132	66 101	76 006	88 464
	New Zealand[4]	m	m	m	m	30 890	47 311	47 311	47 311	31 392	47 950	47 950	47 950	31 894	48 589	48 589	48 589
	Norway	34 886	40 645	40 645	42 333	38 559	47 387	47 387	50 883	38 559	47 387	47 387	50 883	46 914	51 838	51 838	57 374
	Poland	16 140	21 639	26 428	27 549	16 140	21 639	26 428	27 549	16 140	21 639	26 428	27 549	16 140	21 639	26 428	27 549
	Portugal	33 516	40 791	43 279	72 369	33 516	40 791	43 279	72 369	33 516	40 791	43 279	72 369	33 516	40 791	43 279	72 369
	Slovak Republic[3]	13 705	15 084	15 762	16 995	15 339	18 418	21 553	23 242	15 339	18 418	21 553	23 242	15 339	18 418	21 553	23 242
	Slovenia[5]	28 031	33 333	40 591	46 922	28 031	34 563	42 111	50 539	28 031	34 563	42 111	50 539	28 031	34 563	42 111	50 539
	Spain	40 813	44 121	47 107	57 983	40 813	44 121	47 107	57 983	45 509	49 340	52 506	64 473	45 509	49 340	52 506	64 473
	Sweden[4, 5, 6]	38 489	40 655	41 839	45 315	39 131	44 135	45 636	52 346	40 348	44 904	47 323	53 885	40 823	46 508	47 470	54 931
	Switzerland	54 388	67 921	m	82 663	58 017	72 235	m	88 308	65 010	82 222	m	99 703	73 250	94 095	m	112 286
	Turkey	25 955	26 956	28 545	32 953	25 955	26 956	28 545	32 953	25 955	26 956	28 545	32 953	25 955	26 956	28 545	32 953
	United States[4, 6]	39 506	54 044	65 728	72 886	40 067	55 040	62 404	68 712	40 602	55 796	64 467	69 586	41 430	55 840	64 426	72 498
	Economies																
	Flemish Comm. (Belgium)	37 690	47 265	53 213	65 110	37 690	47 265	53 213	65 110	37 690	47 265	53 213	65 110	47 024	59 935	68 350	82 374
	French Comm. (Belgium)	36 589	45 752	51 511	63 030	36 589	45 752	51 511	63 030	36 589	45 752	51 511	63 030	45 518	58 020	66 167	79 746
	England (UK)	29 040	a	48 956	48 956	29 040	a	48 956	48 956	29 040	a	48 956	48 956	29 040	a	48 956	48 956
	Scotland (UK)	34 769	46 227	46 227	46 227	34 769	46 227	46 227	46 227	34 769	46 227	46 227	46 227	34 769	46 227	46 227	46 227
	OECD average	31 276	39 264	42 078	51 484	33 058	42 896	45 947	55 364	34 230	44 784	47 675	57 990	35 859	47 332	49 804	60 677
	EU23 average	30 615	37 589	41 354	48 806	32 987	41 590	45 748	54 354	34 261	43 735	47 772	57 403	35 104	45 894	49 875	60 005
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	14 775	m	m	m	14 775	m	m	m	14 775	m	m	m	14 775	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	24 238	28 552	30 709	37 179	24 238	28 552	30 709	37 179	25 251	29 746	31 994	38 736	25 251	29 746	31 994	38 736
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: The definition of teachers' most prevalent qualifications is based on a broad concept, including the typical ISCED level of attainment and other criteria. The most prevalent qualification is defined for each of the four stage of the career included in this table. In many cases, the minimum qualification is the same as the most prevalent qualification, see Table X3.D3.2 in Annex 3. Please see Annex 2 and *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Data on pre-primary teachers includes the salary of kindergarten teachers who are the majority.
2. Includes the average of fixed bonuses for overtime hours for lower and upper secondary teachers.
3. Includes the social security contributions and pension-scheme contributions paid by the employers.
4. Excludes the social security contributions and pension-scheme contributions paid by the employees.
5. At the upper secondary level includes teachers working in vocational programmes. (In Slovenia and Sweden, includes only those teachers teaching general subjects within vocational programmes).
6. Actual base salaries.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D3.2a. Actual salaries of teachers and school heads relative to earnings of tertiary-educated workers (2017)

Ratio of salary, using annual average salaries (including bonuses and allowances) of teachers and school heads in public institutions relative to the wages of workers with similar educational attainment (weighted average) and to the earnings of full-time, full-year workers with tertiary education

		Year of reference of latest available data on earnings of tertiary-educated workers	All teachers								All school heads							
			Actual salaries, relative to earnings for full-time, full-year similarly educated workers (weighted averages, 25-64 year-olds)				Actual salaries, relative to earnings for full-time, full-year workers with tertiary education (ISCED 5 to 8, 25-64 year-olds)				Actual salaries, relative to earnings for full-time, full-year similarly educated workers (weighted averages, 25-64 year-olds)				Actual salaries, relative to earnings for full-time, full-year workers with tertiary education (ISCED 5 to 8, 25-64 year-olds)			
			Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
OECD	**Countries**																	
	Australia	2016	m	m	m	m	0.93	0.93	0.94	0.94	m	m	m	m	1.40	1.53	1.78	1.78
	Austria	2017	m	m	m	m	m	0.74	0.87	0.96	a	m	m	m	m	1.04	1.15	1.40
	Canada	2016	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	2017	0.77	0.75	0.77	0.83	0.89	0.87	0.89	0.96	1.23	1.22	1.25	1.37	1.42	1.41	1.44	1.58
	Colombia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	2015	0.77	0.63	0.62	0.63	0.54	0.64	0.64	0.66	1.03	0.96	0.96	1.03	0.76	1.01	1.01	1.08
	Denmark	2017	m	m	m	0.81	0.68	0.81	0.82	0.96	0.95	1.27	1.27	1.29	0.87	1.15	1.15	1.53
	Estonia	2017	0.68	0.88	0.86	0.86	0.63	0.91	0.91	0.91	0.90	1.05	1.05	1.04	0.95	1.12	1.12	1.12
	Finland	2016	0.73	0.76	0.84	0.94	0.66	0.89	0.98	1.11	0.89	1.06	1.22	1.26	0.83	1.23	1.42	1.49
	France	2015	0.80	0.78	0.85	0.95	0.79	0.77	0.88	0.99	m	m	m	m	1.03	1.03	1.36	1.36
	Germany	2017	m	0.84	0.93	0.98	m	0.91	1.00	1.06	m	m	m	m	m	m	m	m
	Greece	2017	0.79	0.79	0.81	0.81	0.78	0.78	0.83	0.83	0.99	0.99	1.04	1.04	1.02	1.02	1.15	1.15
	Hungary	2017	0.73	0.72	0.72	0.65	0.64	0.68	0.68	0.74	m	m	m	m	m	m	m	m
	Iceland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Ireland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	2017	0.83	0.83	0.86	0.87	0.85	0.88	0.96	0.94	a	1.29	1.24	1.39	m	1.60	1.56	1.65
	Italy	2015	m	m	m	m	0.65	0.65	0.66	0.71	a	m	m	m	m	1.39	1.39	1.39
	Japan	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Latvia	2017	1.15	1.47	1.51	1.60	1.05	1.35	1.40	1.50	1.71	1.84	1.71	2.04	1.60	1.72	1.60	1.91
	Lithuania	2014	m	m	m	m	0.92	0.92	0.92	0.92	m	m	m	m	m	m	m	m
	Luxembourg	2016	m	m	m	m	m	m	m	m	a	m	m	m	m	m	m	m
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	2017	0.75	0.75	0.89	0.89	0.71	0.71	0.89	0.89	0.99	0.99	1.21	1.21	1.00	1.00	1.25	1.25
	New Zealand	2017	m	0.89	0.90	0.95	m	0.86	0.88	0.95	m	1.45	1.54	1.73	m	1.30	1.38	1.50
	Norway	2017	0.75	0.83	0.83	0.80	0.68	0.76	0.76	0.82	0.89	1.10	1.10	1.19	0.81	1.01	1.01	1.21
	Poland	2016	0.67	0.77	0.80	0.78	0.68	0.79	0.82	0.80	0.99	1.04	1.06	1.07	1.02	1.07	1.10	1.10
	Portugal	2017	m	m	m	m	1.53	1.40	1.37	1.50	m	m	m	m	1.99	1.99	1.99	1.99
	Slovak Republic	2017	m	m	m	m	0.50	0.65	0.65	0.67	m	m	m	m	m	m	m	m
	Slovenia	2017	0.83	0.83	0.86	0.84	0.74	0.87	0.90	0.94	1.33	1.10	1.10	1.15	1.20	1.24	1.24	1.28
	Spain	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Sweden	2017	0.82	0.86	0.80	0.79	0.74	0.84	0.87	0.89	1.21	1.20	1.20	1.17	1.08	1.19	1.19	1.23
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	2017	m	m	m	m	0.85	0.85	0.85	0.85	m	m	m	m	0.97	0.97	0.97	0.97
	United States	2017	0.55	0.55	0.56	0.58	0.62	0.63	0.65	0.68	1.01	1.03	1.07	1.08	1.09	1.11	1.15	1.17
	Economies																	
	Flemish Comm. (Belgium)	2016	1.00	1.00	0.98	0.96	0.88	0.88	0.86	1.07	1.40	1.41	1.47	1.33	1.25	1.25	1.31	1.57
	French Comm. (Belgium)	2016	0.95	0.93	0.87	0.88	0.83	0.82	0.80	1.02	1.33	1.33	1.37	1.34	1.17	1.19	1.28	1.50
	England (UK)	2017	0.76	0.76	0.83	0.83	0.81	0.81	0.92	0.92	1.39	1.39	1.93	1.93	1.47	1.47	2.14	2.14
	Scotland (UK)	2017	0.84	0.84	0.84	0.84	0.83	0.83	0.83	0.83	1.30	1.30	1.30	1.30	1.29	1.29	1.29	1.29
	OECD average		m	m	m	m	0.78	0.84	0.88	0.93	m	m	m	m	m	1.25	1.34	1.43
	EU23 average		0.82	0.85	0.88	0.89	0.78	0.85	0.89	0.95	1.17	1.21	1.28	1.30	1.16	1.24	1.34	1.43
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	2015	m	m	m	m	0.82	0.84	0.86	0.87	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	2017	m	m	m	m	1.15	1.21	1.47	1.47	m	m	m	m	1.96	1.83	2.09	2.09
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average		m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D3.4. Average actual salaries of teachers and school heads, by age group and by gender (2017)

Annual average salaries (including bonuses and allowances) of teachers in public institutions, in equivalent USD converted using PPPs for private consumption, by age group and gender

		25-64 year-old teachers				25-64 year-old school heads			
		Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes
		(1)	(2)	(3)	(4)	(29)	(30)	(31)	(32)
OECD	**Countries**								
	Australia	55 283	55 312	56 196	56 196	83 169	90 774	105 703	105 703
	Austria[1]	m	58 130	67 894	74 920	a	81 325	89 618	109 211
	Canada	m	m	m	m	m	m	m	m
	Chile	32 837	31 968	32 690	35 169	52 108	51 849	52 922	58 219
	Colombia	m	m	m	m	m	m	m	m
	Czech Republic	22 021	26 318	26 204	27 039	31 386	41 358	41 358	44 184
	Denmark	45 882	55 227	55 793	65 272	58 715	78 304	78 304	103 525
	Estonia	17 686	25 333	25 333	25 333	26 564	31 328	31 328	31 328
	Finland[2]	34 560	46 300	51 194	57 779	43 061	64 366	73 953	77 650
	France[3]	40 457	39 426	45 375	51 007	52 727	52 727	70 116	70 116
	Germany	m	68 747	75 904	80 483	m	m	m	m
	Greece[1]	26 453	26 453	28 292	28 292	34 751	34 751	39 331	39 331
	Hungary	23 850	25 393	25 393	27 648	m	m	m	m
	Iceland	37 873	43 358	43 358	56 234	52 408	59 228	59 228	82 495
	Ireland	m	m	m	m	m	m	m	m
	Israel	37 734	39 261	42 476	41 968	a	71 123	69 544	73 578
	Italy	35 647	35 647	36 363	38 815	a	76 184	76 184	76 184
	Japan	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m
	Latvia	17 638	22 725	23 488	25 089	26 811	28 829	26 819	32 068
	Lithuania[4]	21 264	21 264	21 264	21 264	m	m	m	m
	Luxembourg	m	m	m	m	a	a	m	m
	Mexico	m	m	m	m	m	m	m	m
	Netherlands	54 598	54 598	68 771	68 771	77 366	77 366	96 178	96 178
	New Zealand	m	44 339	45 203	48 452	m	66 711	70 675	77 079
	Norway	43 534	48 820	48 820	53 120	51 934	64 921	64 921	78 125
	Poland	27 064	31 535	32 688	31 796	40 320	42 572	43 561	43 669
	Portugal	49 070	44 856	44 050	48 035	63 834	63 834	63 834	63 834
	Slovak Republic[1, 5]	19 053	25 170	25 170	25 678	m	m	m	m
	Slovenia	31 701	37 443	38 453	40 489	51 313	53 010	53 010	55 103
	Spain	m	m	m	m	m	m	m	m
	Sweden[1]	39 265	44 549	46 156	47 255	57 534	63 214	63 214	65 400
	Switzerland	m	m	m	m	m	m	m	m
	Turkey	24 187	24 187	24 187	24 187	27 561	27 561	27 561	27 561
	United States[1]	52 239	53 157	54 993	57 022	91 867	93 578	96 518	98 033
	Economies								
	Flemish Comm. (Belgium)	53 304	53 093	52 118	64 756	75 405	75 931	79 467	94 989
	French Comm. (Belgium)	51 530	50 864	49 426	62 685	72 193	73 143	78 703	92 707
	England (UK)	41 462	41 462	46 858	46 858	76 559	76 559	111 801	111 801
	Scotland (UK)[6]	42 474	42 474	42 474	42 474	66 023	66 023	66 023	66 023
	OECD average	36 247	40 580	42 553	45 803	m	61 791	66 534	72 081
	EU23 average	34 749	39 864	42 212	45 534	53 410	60 046	65 711	70 739
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil[7]	22 544	22 987	23 526	23 890	m	m	m	m
	China	m	m	m	m	m	m	m	m
	Costa Rica	36 514	38 410	46 477	46 477	61 824	58 020	66 215	66 215
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m

Note: Columns showing average actual teachers' salaries, broken down by age groups (i.e. Columns 5-20), are available on line. See Annex 2 and *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. At the upper secondary level includes teachers working in vocational programmes (in Sweden, includes only those teachers teaching general subjects within vocational programmes).
2. Includes data on the majority, i.e. kindergarten teachers only for pre-primary education.
3. Year of reference 2016.
4. Includes unqualified teachers.
5. Includes salaries of school heads and teachers.
6. Includes all teachers, irrespective of their age.
7. Year of reference 2015.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D3.10. Minimum/maximum school heads' statutory salaries, based on minimum qualifications (2018)

Annual school heads' salaries, in public institutions, in equivalent USD converted using PPPs for private consumption (by level of education)

		Pre-primary			Primary			Lower secondary, general programmes			Upper secondary, general programmes		
		Minimum salary (1)	Maximum salary (2)	Ratio (max/min) (3)	Minimum salary (4)	Maximum salary (5)	Ratio (max/min) (6)	Minimum salary (7)	Maximum salary (8)	Ratio (max/min) (9)	Minimum salary (10)	Maximum salary (11)	Ratio (max/min) (12)
OECD	**Countries**												
	Australia	71 345	104 807	1.47	71 345	105 761	1.48	80 717	112 073	1.39	80 717	112 073	1.39
	Austria	m	m	m	47 674	95 799	2.01	47 674	95 799	2.01	62 859	120 319	1.91
	Canada	m	m	m	69 384	94 641	1.36	70 498	94 641	1.34	73 998	94 641	1.28
	Chile	32 496	94 717	2.91	32 496	94 717	2.91	32 496	94 717	2.91	33 614	97 950	2.91
	Colombia	21 196	92 674	4.37	21 196	92 674	4.37	25 511	96 381	3.78	25 511	96 381	3.78
	Czech Republic	21 077	24 878	1.18	22 027	29 715	1.35	22 027	29 715	1.35	22 027	29 715	1.35
	Denmark	46 925	54 970	1.17	58 961	69 767	1.18	58 961	69 767	1.18	72 940	82 992	1.14
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m
	Finland[1]	34 164	37 147	1.09	48 060	63 019	1.31	49 645	71 318	1.44	56 792	69 341	1.22
	France	39 014	60 305	1.55	39 014	60 305	1.55	47 048	81 524	1.73	47 048	85 540	1.82
	Germany	m	m	m	m	m	m	m	m	m	m	m	m
	Greece	25 453	40 619	1.60	25 453	44 250	1.74	28 177	44 250	1.57	29 084	45 158	1.55
	Hungary	23 271	50 179	2.16	23 271	50 179	2.16	23 271	55 754	2.40	25 857	55 754	2.16
	Iceland	47 302	68 390	1.45	48 195	100 383	2.08	48 195	100 383	2.08	72 638	104 474	1.44
	Ireland	m	m	m	46 017	101 823	2.21	59 450	115 327	1.94	59 450	115 327	1.94
	Israel	a	a	a	50 696	81 901	1.62	50 762	82 126	1.62	39 593	101 683	2.57
	Italy	a	a	a	74 984	83 139	1.11	74 984	83 139	1.11	74 984	83 139	1.11
	Japan	m	m	m	64 547	71 354	1.11	64 547	71 354	1.11	66 150	75 139	1.14
	Korea	a	101 886	a	a	101 886	a	a	101 699	a	a	100 951	a
	Latvia	19 184	a	a	19 184	a	a	19 184	a	a	19 184	a	a
	Lithuania	15 860	34 714	2.19	19 936	37 613	1.89	19 936	37 613	1.89	19 936	37 613	1.89
	Luxembourg[2]	a	a	a	a	a	a	116 560	161 200	1.38	116 560	161 200	1.38
	Mexico	25 840	75 698	2.93	25 840	75 698	2.93	58 320	145 898	2.50	58 851	76 592	1.30
	Netherlands	50 599	92 651	1.83	50 599	92 651	1.83	55 699	137 147	2.46	55 699	137 147	2.46
	New Zealand	m	m	m	50 802	95 698	1.88	50 086	95 707	1.91	49 371	95 716	1.94
	Norway	m	m	m	m	m	m	m	m	m	m	m	m
	Poland	23 972	26 609	1.11	24 686	27 323	1.11	25 014	30 602	1.22	28 247	34 676	1.23
	Portugal	37 125	85 902	2.31	37 125	85 902	2.31	37 125	85 902	2.31	37 125	85 902	2.31
	Slovak Republic	17 629	28 822	1.63	22 475	35 925	1.60	22 475	35 925	1.60	22 475	36 447	1.62
	Slovenia	50 200	70 938	1.41	50 739	70 938	1.40	50 739	70 938	1.40	49 427	78 371	1.59
	Spain	47 061	71 659	1.52	47 061	71 659	1.52	57 011	85 170	1.49	57 011	85 170	1.49
	Sweden[1]	a	a	a	62 289	74 413	1.19	62 289	74 413	1.19	65 381	76 337	1.17
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
	Turkey	26 489	32 955	1.24	26 489	32 955	1.24	26 489	32 955	1.24	26 489	33 157	1.25
	United States[3, 4]	83 427	104 107	1.25	85 798	105 419	1.23	91 386	107 229	1.17	88 481	117 572	1.33
	Economies												
	Flemish Comm. (Belgium)	49 324	83 226	1.69	49 324	83 226	1.69	50 602	83 226	1.64	61 580	100 490	1.63
	French Comm. (Belgium)	41 698	77 864	1.87	41 698	77 864	1.87	46 892	79 746	1.70	59 613	95 152	1.60
	England (UK)	56 446	138 588	2.46	56 446	138 588	2.46	56 446	138 588	2.46	56 446	138 588	2.46
	Scotland (UK)	57 164	111 584	1.95	57 164	111 584	1.95	57 164	111 584	1.95	57 164	111 584	1.95
	OECD average	38 570	70 636	1.85	44 575	77 538	1.80	49 629	85 700	1.77	52 126	87 420	1.74
	EU23 average	36 454	64 156	1.69	42 009	71 699	1.69	47 321	80 848	1.70	50 299	84 817	1.68
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	21 015	64 689	3.08	20 526	65 297	3.18	21 576	76 268	3.53	21 576	76 268	3.53
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

Note: The definition of school heads' minimum qualifications is based on a broad concept, including the typical ISCED level of attainment and other criteria. Please see *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Includes data on the majority, i.e. kindergarten school heads only for pre-primary education.
2. Includes the social security contributions and pension-scheme contributions paid by the employers.
3. Actual base salaries.
4. Minimum salary refers to the most prevalent qualification (master's degree) and maximum salary refers to the highest qualification (education specialist or doctoral degree).

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en.).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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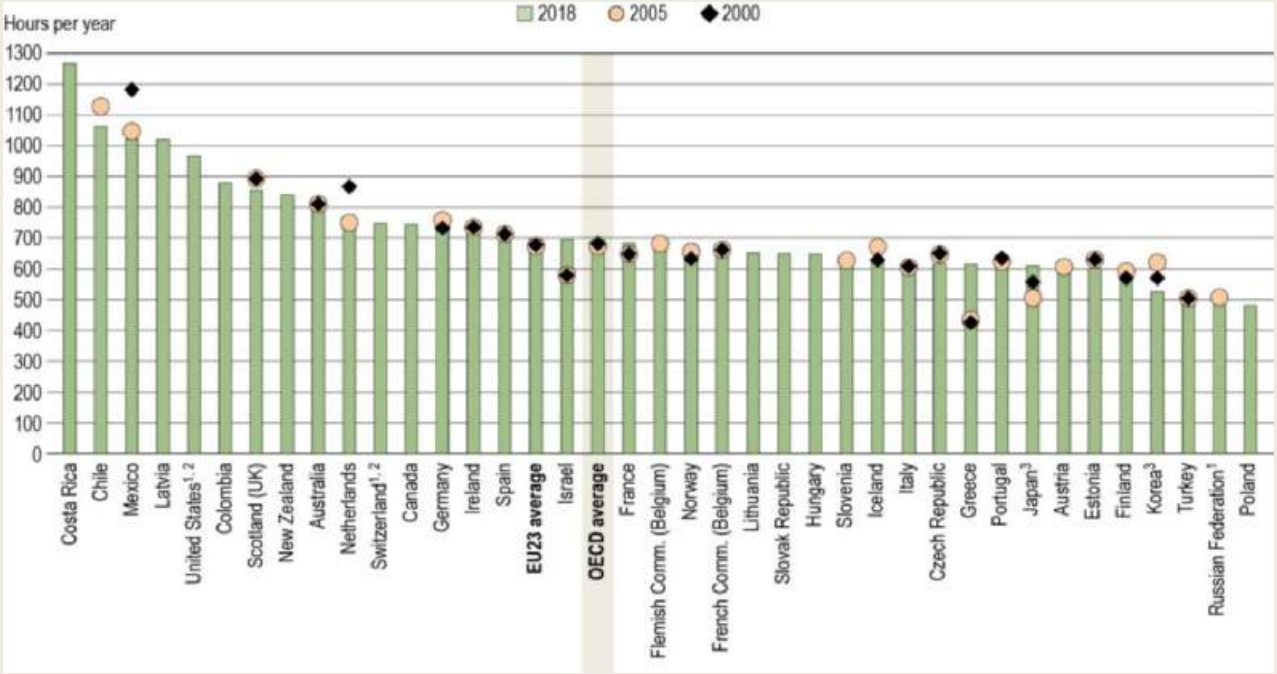
Indicator D4. How much time do teachers spend teaching?

Highlights

- Based on official regulations or agreements, public school teachers in OECD countries and economies are required to teach on average 1 024 hours per year at pre-primary level, 783 hours at primary level, 709 hours at lower secondary level (general programmes) and 667 hours at upper secondary level (general programmes).
- In the majority of countries with available data, the amount of statutory teaching time in primary, lower secondary and upper secondary public institutions remained largely unchanged between 2000 and 2018. However, in a few countries, teaching time changed by 10% or more in one or several levels during this period.
- Most countries regulate the number of hours teachers are required to work per year, including teaching and non-teaching activities. Some of these countries regulate the specific number of hours required at school, while others set the overall working time, including hours at school and elsewhere.

Figure D4.1. Number of teaching hours per year in general lower secondary education (2000, 2005 and 2018)

Net statutory contact time in public institutions



Note: The OECD and EU23 averages refer to countries and economies with available data for 2000, 2005, 2010, 2015 and 2018.
1. Actual teaching time.
2. Reference year differs from 2018. Refer to the source table for details.
3. Average planned teaching time in each school at the beginning of the school year or semester.
Countries and economies are ranked in descending order of the number of teaching hours per year in general lower secondary education in 2018.
Source: OECD (2019), Table D4.2. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Although statutory working hours and teaching hours only partly determine teachers' actual workload, they do offer valuable insights into the demands placed on teachers in different countries. Teaching hours and the extent of non-teaching duties may also affect the attractiveness of the teaching profession. Together with teachers' salaries (see Indicator D3) and average class size (see Indicator D2), this indicator presents some key measures of the working lives of teachers.

The proportion of statutory working time spent teaching provides information on the amount of time available for non-teaching activities, such as lesson preparation, correction, in-service training and staff meetings. A larger proportion of statutory working time spent teaching may indicate that a lower proportion of working time is devoted to tasks such as assessing students and preparing lessons, as stated in regulations. It also could indicate that teachers have to perform these tasks on their own time and hence work more hours than required by statutory working times.

In addition to class size and the ratio of students to teaching staff (see Indicator D2), students' hours of instruction (see Indicator D1) and teachers' salaries (see Indicator D3), the amount of time teachers spend teaching also affects the financial resources countries need to allocate to education (see Indicator C7).

Other findings

- The number of teaching hours per year required of the average OECD public school teacher in pre-primary, primary and secondary education varies considerably across countries and tends to decrease as the level of education increases.
- Required teaching time in public schools varies more across countries at the pre-primary level than at any other level. The number of teaching hours required in public pre-primary schools averages 1 024 hours per year across OECD countries and economies, ranging from 519 hours per year in Mexico to 1 755 in Germany.
- Public primary school teachers are required to teach on average 783 hours per year across OECD countries and economies, but this ranges from less than 590 hours in Estonia, Poland and the Russian Federation to more than 1 050 hours in Chile and Costa Rica.
- The number of teaching hours required in public lower secondary schools (general programmes) averages 709 hours per year across OECD countries and economies, ranging from 481 hours in Poland to over 1 050 hours in Chile and Costa Rica.
- Teachers in public upper secondary schools (general programmes) are required to teach on average 667 hours per year across OECD countries and economies, but teaching time ranges from 405 hours in Denmark to over 1 050 hours in Chile and Costa Rica.
- At the lower secondary level, teachers spend 43% of their working time on teaching on average, ranging from 35% or less in Austria, Iceland, Japan, Korea, Poland and Turkey to 63% in Scotland (United Kingdom).

Analysis

Teaching time

At pre-primary, primary and secondary levels of education, countries vary considerably in their annual statutory teaching time – the number of teaching hours per year required of a full-time public school teacher (for variations in teaching time at the subnational level, see Box D4.1). Variations in how teaching time is regulated and/or reported across countries may also explain some of the differences in statutory teaching time between countries (Box D4.2).

Across countries and economies with available data, statutory teaching time in public schools varies more at the pre-primary level than at any other level. The number of teaching days ranges from 159 days per year in the Flemish Community of Belgium to 225 days in Germany, Iceland and Norway. Annual teaching time ranges from 519 hours per year in Mexico to 1 755 hours in Germany. On average across OECD countries and economies, teachers at this level of education are required to teach 1 024 hours per year, spread over 40 weeks or 195 days of teaching (Table D4.1a and Figure D4.2).

Primary school teachers are required to teach an average of 783 hours per year in public institutions. In most countries with available data, daily teaching time ranges from three to six hours a day, with an OECD average of more than four hours per day. There is no set rule on how teaching time is distributed throughout the year. For example, primary school teachers in Costa Rica must teach 1 188 hours per year, over 160 hours more than in Latvia. However as teachers teach more days in Costa Rica than in Latvia (198 days compared to 170 days), teachers in both countries teach on average 6 hours a day (Table D4.1a).

Box D4.1. Teaching and working time at the subnational level

Differences are observed across regions in teachers' statutory teaching and working time among the four countries (Belgium, Canada, Korea and the United Kingdom) reporting subnational data. In 2018, the number of weeks of teaching (at pre-primary, primary, and lower and upper secondary levels) varied between regions in two of these countries: by one week in Belgium (from 36 to 37 weeks) and by two weeks in Canada (from 36 to 38 weeks). In Korea and the United Kingdom, the number of weeks of teaching is the same across all subnational regions. However, overall figures for the number of weeks of teaching can mask difference in teaching time in terms of days or hours of teaching at the subnational level.

The countries show different patterns of variation at the subnational level. In Belgium, the number of days of teaching varies much more (in relative terms) between the French and Flemish communities than the number of hours of teaching (except in vocational upper secondary programmes). For example, in general upper secondary programmes, the number of days of teaching is 12% higher in the French Community than in the Flemish Community (179 days compared to 160 days) due to differences in how the number of school days is defined in the regulations. However, teaching hours vary by only 4% between the two communities (622 hours in the Flemish Community compared to 596 hours in the French Community). In contrast, the number of days teaching at primary and secondary levels varies by up to 6% across the different provinces/territories in Canada (ranging from 180 days to 190 days), but teaching hours vary much more between subnational regions. At the primary level, teaching time in the region with the longest teaching hours is 29% higher than teaching time in the region with the shortest teaching hours (905 hours compared to 700 hours). The difference between the regions reaches 58% for general programmes at the lower secondary level (971 hours compared to 615 hours) and 52% for general programmes at the upper secondary level (934 hours compared to 615 hours). In Korea, there is no variation between subnational entities in the number of teaching days, but teaching hours for general programmes vary by 8% at upper secondary level (from 522 to 564 hours) and by 24% at lower secondary level (from 454 to 561 hours).

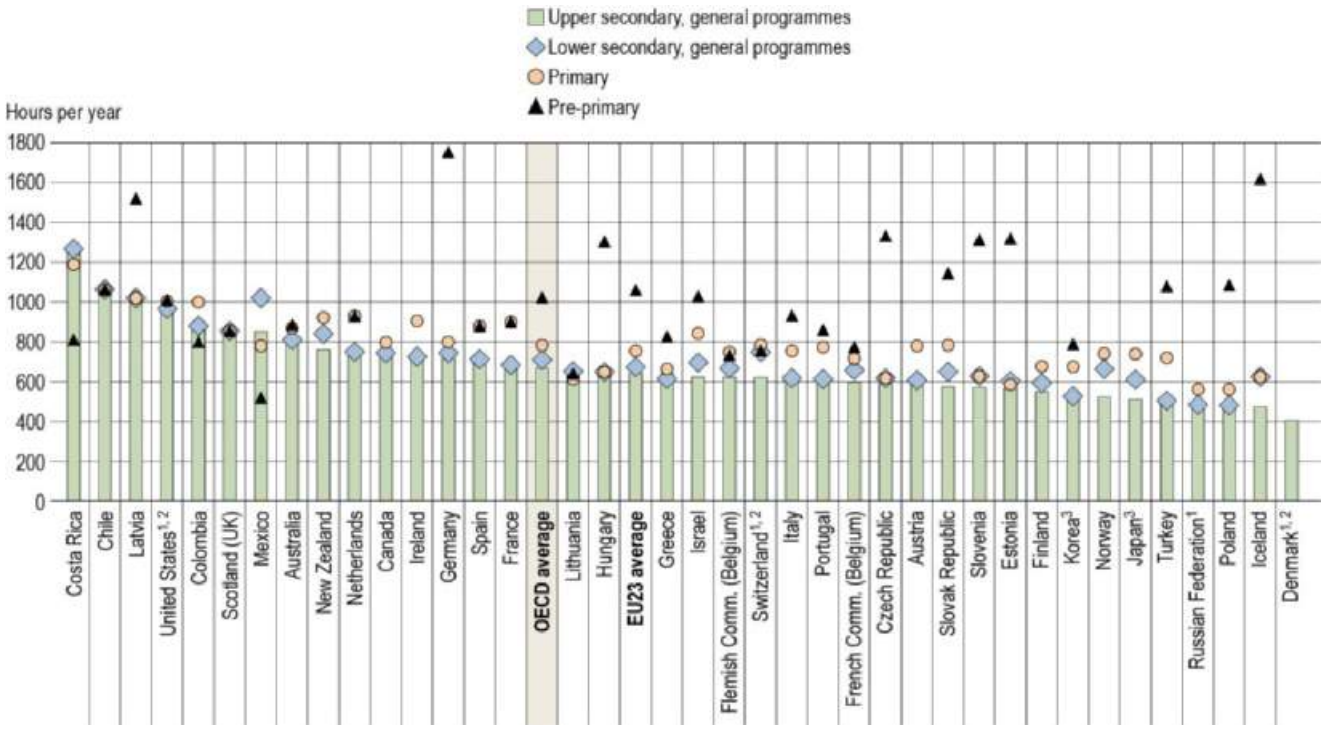
However, caution is necessary when comparing information at the subnational level, considering potential differences in the regulations between countries and between subnational regions within countries, and in the way data are reported for the different subnational regions. For example typical teaching time is reported for the subnational regions of Belgium, but maximum or estimated teaching time is reported for the different subnational regions in Canada (for more information on potential differences in the data reported, see Box D4.2).

Source: Education at a Glance Database. http://stats.oecd.org

Lower secondary school teachers in general programmes in public institutions are required to teach an average of 709 hours per year. Teaching time is less than 600 hours in Finland, Korea, Poland, the Russian Federation and Turkey, and exceeds 1 000 hours in Chile, Costa Rica, Latvia and Mexico. However, the reported hours in Finland and Korea refer to the minimum time teachers are required to teach (Box D4.2) and teachers in Poland can be obliged to teach as much as 25% of the statutory time as additional overtime, at the discretion of the school head (at the lower secondary level).

Figure D4.2. Number of teaching hours per year, by level of education (2018)

Net statutory contact time in public institutions



1. Actual teaching time.
2. Reference year differs from 2018. Refer to the source table for details.
3. Average planned teaching time in each school at the beginning of the school year or semester.

Countries and economies are ranked in descending order of the number of teaching hours per year in general upper secondary education.

Source: OECD (2019), Table D4.1a. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933980165

A teacher in general upper secondary education in public institutions has an average teaching load of 667 hours per year. Teaching time ranges from fewer than 500 hours per year in Denmark, Iceland, Poland,

the Russian Federation and Turkey to more than 1 000 hours in Chile, Costa Rica and Latvia, although in Chile the reported hours refer to the maximum time teachers can be required to teach, not their typical teaching load (Box D4.2). Teachers in Finland, Iceland, Japan, Korea, Norway, Poland, the Slovak Republic, Slovenia and Turkey teach for three hours or less per day, on average, compared to six hours or more in Costa Rica and Latvia (Table D4.1a).

Differences in teaching time by level of education

Teaching time tends to decrease as the level of education increases. In most countries, statutory teaching time at the pre-primary level is more than at the upper secondary level (general programmes). The exceptions are Chile and Scotland (United Kingdom), where the time teachers are required to teach is the same at all levels of education, and Colombia, Costa Rica, Lithuania and Mexico, where upper secondary school teachers are required to teach more hours than pre-primary school teachers (Table D4.1a and Figure D4.2).

Teaching time requirements vary the most between the pre-primary and primary levels of education. On average, pre-primary school teachers are required to spend almost 31% more time in the classroom than primary school teachers. In the Czech Republic, Estonia, Germany, Hungary, Iceland and Slovenia, pre-primary school teachers are required to teach at least twice the number of hours per year as primary school teachers (Table D4.1a).

In Austria, France, Korea, Portugal and Turkey, primary school teachers have at least 25% more annual teaching time than lower secondary school teachers, while there is no difference in Chile, the Czech Republic, Hungary, Iceland, Latvia, Scotland (United Kingdom) and Slovenia. The teaching load for primary school teachers is slightly lighter than for lower secondary school teachers in Costa Rica, Estonia and Lithuania, and much lighter in Mexico (Table D4.1a).

Teaching time at lower and upper secondary levels is similar across most countries. However, in Iceland, Norway and Switzerland, annual required teaching time at the lower secondary level is at least 20% more than at the upper secondary level (Table D4.1a).

Differences in teaching time by type of programmes

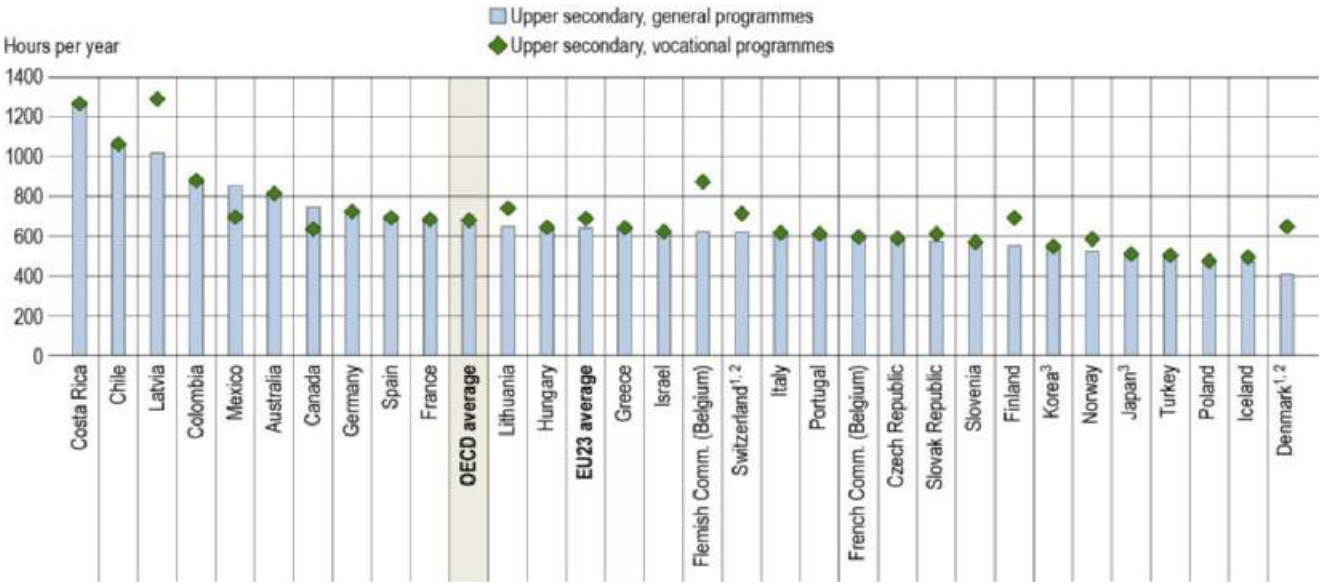
In most countries, statutory teaching time does not vary much between general and vocational programmes. Focusing on upper secondary level, for which most countries have both general and vocational programmes, teaching time is similar in both general and vocational programmes in nearly two-thirds of the countries with available information. However, teaching time is at least 15% higher in vocational than in general programmes in Finland, Latvia and Switzerland, and at least 40% higher in the Flemish Community of Belgium (for practical courses in vocational programmes) and Denmark. Canada and Mexico are the only countries where teaching time is significantly lower (at least 15% lower) in vocational programmes than in general programmes (Figure D4.3).

Actual teaching time

Statutory teaching time, as reported by most of the countries in this indicator, refers to the time as defined in regulations. However, individual teachers' teaching time may differ from the regulations, because of overtime, for example. Actual teaching time is the annual average number of hours that full-time teachers teach a group or a class of students, including overtime, and it thus provides a full picture of teachers' actual teaching load. However, actual teaching time does not take into account that part of the teaching time in the classroom is spent on other activities than teaching, such as keeping order and administrative tasks. On average across the OECD countries participating in the Teaching and Learning International Survey (TALIS), lower secondary teachers self-reported that they spent 78% of classroom time on teaching and learning in 2018 (OECD, 2019[1]).

Figure D4.3. Number of teaching hours per year in general and vocational programmes at upper secondary level (2018)

Net statutory contact time in public institutions



1. Actual teaching time.
2. Reference year differs from 2018. Refer to the source table for details.
3. Average planned teaching time in each school at the beginning of the school year or semester.

Countries and economies are ranked in descending order of the number of teaching hours per year in general lower secondary education in 2018.

Source: OECD (2019), Table D4.1a. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933980184

While only a few countries were able to report both statutory and actual teaching time, these data suggest that actual teaching time can sometimes differ from the statutory requirements. In Poland, for example, lower secondary teachers actually teach up to 15% more than the statutory teaching time. In Slovenia, lower secondary teachers teach around 6% more hours than the statutory benchmark time, and in Latvia and Lithuania, actual teaching time is up to 5% more than statutory requirements. By contrast, in Portugal, actual teaching time is about 1% less than statutory teaching time at the lower secondary level (Figure D4.5, available on line).

Differences between statutory and actual teaching time can be the result of overtime due to teacher absenteeism or shortages, or may be explained by the nature of the data, as figures on statutory teaching time refer to official requirements and agreements, whereas actual teaching time is based on administrative registers, statistical databases, representative sample surveys or other representative sources.

Trends in teaching time

While there has been little change in average teaching hours over the last 18 years, some countries with available data (and no break in the time series) reported an increase or decrease of 10% or more in teaching time in one or more educational levels between 2000 and 2018 (Table D4.2 and Figure D4.1).

At the primary level, teaching time increased by at least 15% (more than 100 hours) between 2000 and 2018 in Israel and Japan (Table D4.2). In Israel, this increase in teaching (and working) time is part of the "New Horizon" reform that has been gradually implemented since 2008. One of the key measures of this reform was to lengthen teachers' working week to accommodate small-group teaching in exchange for more generous compensation.

Teachers' working time was increased from 30 to 36 hours per week and now includes 5 hours of small-group teaching in primary schools. To compensate, salaries have been raised substantially (see Indicator D3).

Teaching time for lower secondary school teachers also increased in Israel, by more than 20% (120 hours) during this period. The increase at the lower secondary level was also significant in Japan, albeit to a lesser extent (more than 9% or 53 hours). At the upper secondary level, the largest increase in teaching time also occurred in Israel, where teachers had to teach nearly 19% more hours (99 additional hours) in 2018 than they did in 2000. A large increase also occurred in Latvia in recent years, as teaching time increased by 42% between 2016 and 2018 as a consequence of a recent change in regulations (Table D4.2).

In contrast, net teaching time dropped between 2000 and 2018 in some countries and economies. At the pre-primary level, among the few countries and economies with available data for 2000 and 2018, teaching time decreased by 10% or more (corresponding to 95 hours or more) in Portugal and Scotland (United Kingdom). At other levels of education, teaching time decreased by 10% or more in Mexico at lower secondary level (by 162 hours), in the Netherlands at both lower and upper secondary levels (by 117 hours), in Scotland (United Kingdom) at primary level (by 95 hours) and in Turkey at upper secondary levels (by 117 hours). The decrease exceeded 22% in Korea at the primary level (190 hours). In Scotland (United Kingdom), the reduction in teaching time for primary teachers was part of the teachers' agreement, "A Teaching Profession for the 21st Century", which introduced a 35-hour working week for all teachers and a phased reduction of maximum teaching time to 22.5 hours per week for primary, secondary and special school teachers in 2001. However, even with this decrease in net contact time, the maximum time teachers at these levels in Scotland (United Kingdom) can be required to teach is still longer than the OECD average (Table D4.2).

Box D4.2. Comparability of statutory teaching time data (2017)

Data on teaching time in this indicator refer to net contact time as stated in the regulations of each country. The international data collection exercise gathering this information ensures that similar definitions and methodologies are used when compiling data in all countries. For example, teaching time is converted into hours (of 60 minutes) to avoid differences resulting from the varying length of teaching periods between countries. The impact on the comparability of data of differences in the way teaching time is reported in regulations is also minimised as much as possible.

Statutory teaching time in this international comparison excludes preparation time and periods of time formally allowed for breaks between lessons or groups of lessons. However, at the pre-primary and primary levels, short breaks (of ten minutes or less) are included in the teaching time if the classroom teacher is responsible for the class during these breaks (see the *Definitions* section).

Other activities for teachers, such as professional development days, student examination days and conference attendance, are also excluded from the teaching time reported in this indicator. However, days devoted to these activities are not always specified in the regulations, and it may be difficult to estimate and exclude them from teaching time. At all levels of education, at least two-fifths of countries and economies can exclude all or most of these activities from statutory teaching time. However, excluding examination days may be more challenging for countries. At the lower secondary level, about 40% of countries do not exclude them, and in 10% of countries, the information on whether they are excluded or included is not available. This may result in teaching time being overestimated by a few days in these countries.

Moreover, official documents regulate teaching time as a minimum, typical or maximum time, which may explain some of the differences reported between countries. While most data refer to typical teaching time, about one-quarter of countries report maximum or minimum values for teaching time.

More detailed information on the reporting practices on teaching time for all participating countries and economies is available in Annex 3.

Teachers' working time

In the majority of countries, teachers' working time is partly determined by the statutory teaching time specified in working regulations. In addition, in most countries, teachers are formally required to work a specific number of hours per year, as stipulated in collective agreements or other contractual arrangements. This may be specified either as the number of hours teachers must be available at school for teaching and non-teaching activities, or as the number of total working hours. Both correspond to official working hours as specified in contractual agreements, and countries differ in how they allocate time for each activity. In Israel, for example, recent reforms take into account working hours at school beyond teaching time. Regulations now specify the working time required at school, including teaching and non-teaching time. Following the reform, non-teaching hours at school have been extended, to allow more time for non-teaching tasks, such as meetings with students or parents, preparation of lesson plans and checking of students' work.

More than half of OECD countries and economies specify the length of time teachers are required to be available at school, for both teaching and non-teaching activities, for at least one level of education. In over half of these countries, the difference between the time upper secondary school teachers and pre-primary school teachers are required to be available at school is less than 5%. However, in Hungary, Iceland, Latvia, Portugal, Sweden and Turkey pre-primary teachers are required to be available at school at least 20% more hours than upper secondary school teachers (although statutory total working time is the same for both levels in Hungary, Iceland, Latvia and Turkey) (Table D4.1b).

In some other countries, teachers' total annual statutory working time (at school and elsewhere) is specified, but the allocation of time spent at school and time spent elsewhere is not. This is the case in Austria (in primary and lower secondary education), the Czech Republic, Denmark, England (United Kingdom), Estonia (in primary and secondary education), France (in lower and upper secondary education), the French Community of Belgium (in pre-primary and primary education), Germany, Japan, Korea, Lithuania (in primary and secondary education), the Netherlands, Poland, the Slovak Republic and Switzerland (Table D4.1b). Of these, teachers in France, Germany (in some *Länder*), Japan and Korea are subject to the same total statutory working time applied to civil servants.

In addition, workload and teaching load requirements may evolve throughout a teacher's career. In a number of countries, some new teachers have a reduced teaching load as part of their induction programmes. Some countries also encourage older teachers to stay in the teaching profession by diversifying their duties and reducing their teaching hours. For example, in Portugal, teachers may have a reduced teaching workload, due to their age, number of years in the profession or for doing extracurricular activities at school. Iceland reduces the working time of upper secondary teachers according to their age: 30-37 year-old teachers benefit from a 24-hour extra holiday a year and teachers aged 38 and over have a 48-hour extra holiday per year. In addition, upper secondary teachers aged 55 or over receive a reduction of teaching time (from 58 hours for 55-59 year-olds to 290 hours for those aged 60 and over).

Non-teaching time

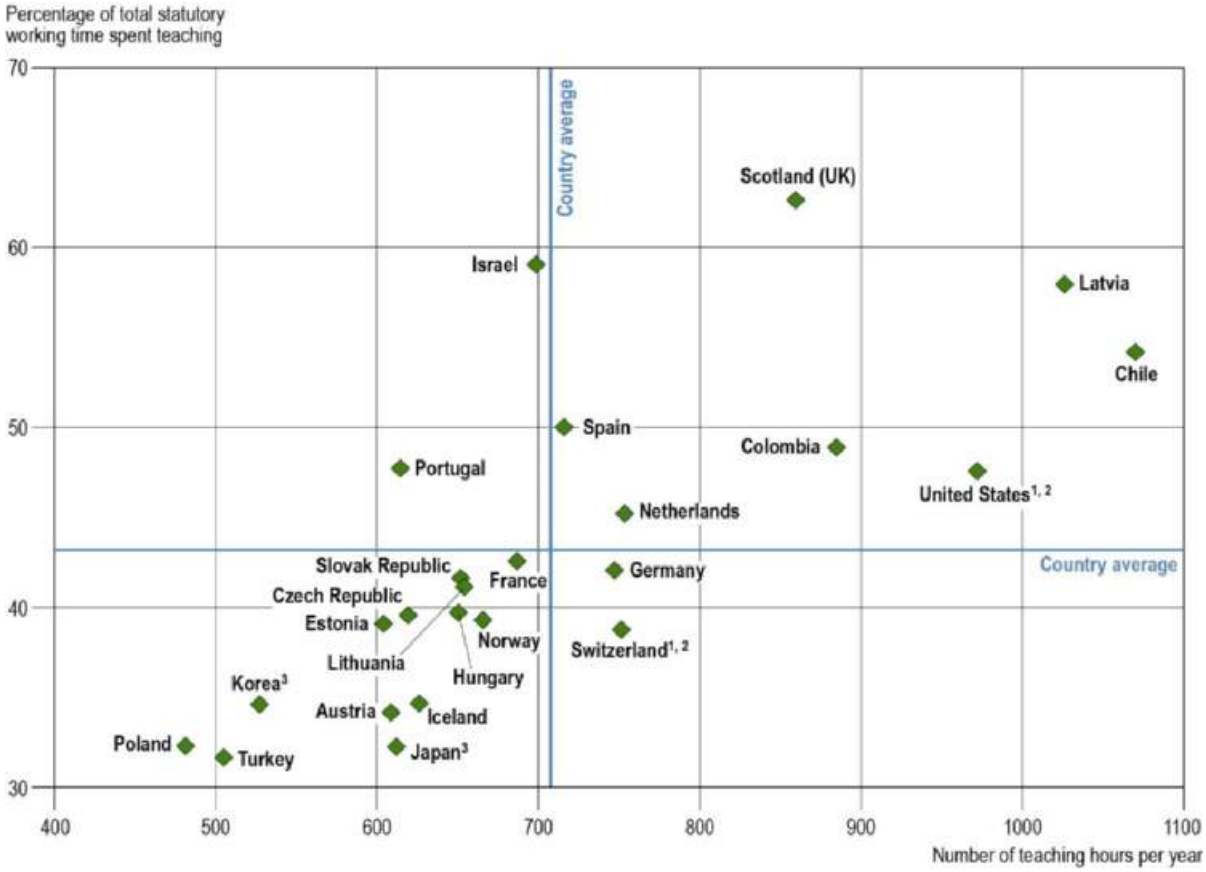
Although teaching time is a substantial component of teachers' workloads, other activities such as assessing students, preparing lessons, correcting students' work, in-service training and staff meetings should also be taken into account when analysing the demands placed on them in different countries. The amount of time available for these non-teaching activities varies across countries; a larger proportion of statutory working time spent teaching may indicate that a lower proportion of working time is devoted to these activities.

Even if teaching is a core activity of teachers, in a large number of countries, they spend most of their working time on activities other than teaching. In the 24 countries and economies with data for both teaching and total working time for lower secondary teachers, 43% of teachers' working time is spent on teaching on average, with the proportion ranging from 35% or less in Austria, Iceland, Japan, Korea, Poland and Turkey to 63% in Scotland (United Kingdom). While the proportion of working time spent teaching increases with the annual number of

teaching hours, there are significant variations between countries. For example, Japan and Portugal have a similar number of teaching hours (610 hours in Japan and 612 hours in Portugal), but 32% of working time is spent on teaching in Japan, compared to 48% in Portugal. Moreover, in some countries, teachers devote similar proportions of their working time to teaching, even if the number of teaching hours differs considerably. For example, in Spain and the United States, lower secondary teachers spend about half of their working time teaching, but teachers teach 713 hours in Spain, compared to 966 hours in the United States. Only teachers in Chile, Israel, Latvia, Scotland (United Kingdom) and Spain spend at least 50% of their statutory working time teaching (Figure D4.4).

Figure D4.4. Percentage of lower secondary teachers' working time spent teaching (2018)

Net teaching time (typical annual number of hours) as a percentage of total statutory working time in general programmes in public institutions



1. Actual teaching time.
2. Reference year differs from 2018. Refer to the source table for details.
3. Average planned teaching time in each school at the beginning of the school year or semester.

Source: OECD (2019), Tables D4.1a and D4.1b. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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In some countries, such as Austria (upper secondary level), Costa Rica, the Flemish and French communities of Belgium (secondary levels), and Italy, there are no formal requirements for time spent on non-teaching activities. However, this does not mean that teachers are given total freedom to carry out other tasks. In the Flemish Community of Belgium, although there are no regulations regarding the time devoted to preparing lessons, correcting tests, marking students' papers and other non-teaching tasks, additional non-teaching hours

at school are set at the school level. In Italy, there is a requirement of up to 80 hours of scheduled non-teaching collegial work at school per year. Of these 80 hours, up to 40 hours of compulsory working time per year are dedicated to meetings of the teachers' assembly, staff planning meetings and meetings with parents, with the remaining compulsory 40 hours dedicated to class councils (Table D4.1b).

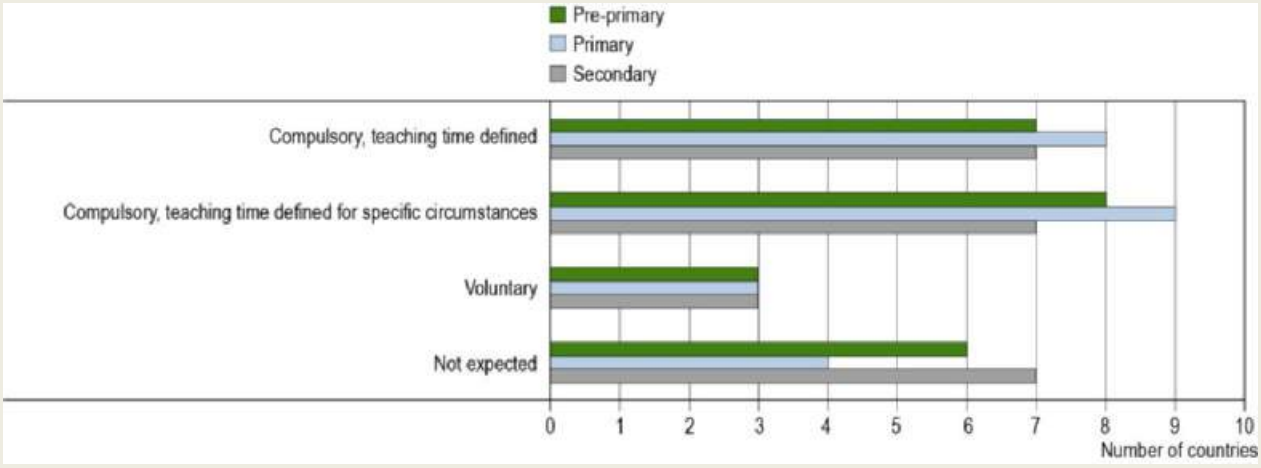
Box D4.3. Working and teaching time of school heads

School heads are valuable human resources in schools who not only perform managerial duties, but may also be involved in teaching activities. On average across the OECD countries participating in TALIS study, principals self-reported spending 16% of their working time to teaching and other teaching-related activities in 2018 (OECD, 2019[1]). These school heads may be former teachers who decided to take other responsibilities in the school where they were teaching. A recent OECD survey gathered information on the way the working time of school heads is defined. This information could shed some light on the differences in working time of teachers and school heads.

Among the 27 countries participating in this survey, 21 reported that the same type of official document defines the working time of both school heads and teachers, for at least one level of education. Although it is not necessarily the same official document that is used as a reference for both teachers and school heads, this may suggest that these two jobs are closely related. In four countries and economies – England (United Kingdom), Israel, Slovenia and Spain – the definition of the working time of school heads explicitly states that pedagogical activities may be designated as a part of their tasks. In Poland, school heads are teachers entrusted with the position of school leader with teaching duty reduced or released. The working time of teachers and school heads are even similar in a few countries that reported comparable data for both teachers and school heads.

School heads may have some teaching duties in most of the 26 countries with available information. Teaching is compulsory for school heads in about one-third of the countries, while it is also required from school heads, but in specific circumstances related to the schools, in another third. In addition, in a few countries school heads are able to take on some teaching duties on a voluntary basis (Figure D4.a).

Figure D4.a. Teaching requirement of school heads by levels of education (2018)



Note: Secondary level of education includes both general and vocational programmes in lower and upper secondary education.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933980222

In general, school heads' teaching duties apply across different levels of education. However, in four countries, these duties vary between levels of education. More countries include teaching duties for school heads at the primary level than at the pre-primary or secondary levels of education.

In nearly all countries with information on the teaching time of school heads (16 out of 17 countries), the time that school heads have to spend on teaching duties varies according to characteristics of the schools or between subnational entities in the country. In 10 of these countries, the size and/or complexity of the school affects the teaching duties of school heads. In general, the bigger and more complex the school (based on the number of students enrolled, or the number of full-time teachers or classes), the less teaching school heads are required to do. This implies that heads of smaller schools are expected to act as supplementary teaching staff, providing support to full-time classroom teachers.

Non-teaching tasks and responsibilities of teachers

Non-teaching tasks are a part of teachers' workload and working conditions. The non-teaching activities required by legislation, regulations or agreements between stakeholders (e.g. teachers' unions, local authorities and school boards) do not necessarily reflect teachers' actual participation in non-teaching activities, but they provide an insight into the breadth and complexity of teachers' roles (for information on the workload of school heads, see Box D4.3).

Individual teachers often do not have the authority to choose whether to perform certain tasks, which are often related to teaching. According to regulations in more than 31 out of 39 countries and economies with available data, individual planning or preparing lessons, marking/correcting student work, and communicating and co-operating with parents are mandatory non-teaching tasks for lower secondary teachers (general programmes) during their statutory working time at school or statutory total working time. General administrative work and teamwork, and dialogue with colleagues are also required in at least 26 countries, and can be decided at the school level in another one-fifth of countries with available data. In 21 countries, participation in professional development activities is mandatory for teachers at all levels. For such mandatory tasks, incentives such as reduction in teaching time and financial compensation are rare (Table D4.3a and D4.3b).

Responsibilities such as being class/form teacher or participating in school or other management in addition to teaching duties are largely distributed among teachers at the school level. Teachers' participation in school or other management activities can result in specific compensation for teachers. In some countries, teaching time might be reduced to balance the workload between teaching and managerial tasks, in addition to financial compensation. Financial compensation and/or reductions in teaching time are often available when the tasks are performed voluntarily by individual teachers (Table D4.3b).

Of the various tasks teachers might perform, full-time classroom teachers are either required or asked to perform student counselling in more than two-thirds of countries and economies with available information. However, in Israel, only teachers with master's degree or higher can perform this duty (Table D4.3b).

Teachers do not only perform the tasks that are required by regulations or school heads; they often perform tasks voluntarily, such as teaching more classes or hours than their full-time contract requires, engaging in extracurricular activities, training student teachers, offering guidance counselling and participating in mentoring/support programmes for new teachers. In almost one-half of countries, individual teachers decide whether or not to perform these tasks. For these voluntary tasks, up to two-thirds of these countries offer financial compensation (Table D4.3b).

In general, requirements to perform certain tasks and responsibilities do not vary much across levels of education. However, there can be some differences according to the changing needs of students at different levels of education. For example, lower secondary teachers are required to supervise students during breaks in

16 countries, but not as many countries as for teachers at pre-primary (22 countries) and primary (20 countries) levels (Table D4.3a).

Definitions

Actual teaching time is the annual average number of hours that full-time teachers teach a group or class of students. It includes all extra hours, such as overtime. Data on these hours can be sourced from administrative registers, statistical databases, representative sample surveys or other representative sources.

The **number of teaching days** is the number of teaching weeks multiplied by the number of days per week a teacher teaches, minus the number of days on which the school is closed for holidays.

The **number of teaching weeks** refers to the number of weeks of instruction excluding holiday weeks.

Statutory teaching time is defined as the scheduled number of 60-minute hours per year that a full-time teacher teaches a group or class of students, as set by policy, teachers' employment contracts or other official documents. Teaching time can be defined on a weekly or annual basis. **Annual teaching time** is normally calculated as the number of teaching days per year multiplied by the number of hours a teacher teaches per day (excluding preparation time). It is a net contact time for instruction, as it excludes periods of time formally allowed for breaks between lessons or groups of lessons and the days that the school is closed for holidays. At pre-primary and primary levels, short breaks between lessons are included if the classroom teacher is responsible for the class during these breaks.

Total statutory working time refers to the number of hours that a full-time teacher is expected to work as set by policy. It can be defined on a weekly or annual basis. It does not include paid overtime. According to a country's formal policy, working time can refer to:

- the time directly associated with teaching and other curricular activities for students, such as assignments and tests
- the time directly associated with teaching and other activities related to teaching, such as preparing lessons, counselling students, correcting assignments and tests, professional development, meetings with parents, staff meetings, and general school tasks.

Working time required at school refers to the time teachers are required to spend working at school, including teaching and non-teaching time.

Methodology

In interpreting differences in teaching hours among countries, net contact time, as used here, does not necessarily correspond to the teaching load. Although contact time is a substantial component of teachers' workloads, preparing for classes and necessary follow-up, including correcting students' work, also need to be included when making comparisons. Other relevant elements, such as the number of subjects taught, the number of students taught and the number of years a teacher teaches the same students, should also be taken into account.

For more information please see the OECD Handbook for Internationally Comparable Education Statistics 2018 (OECD, 2018[2]) and Annex 3 for country specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data are from the 2018 OECD-INES Survey on Teachers and the Curriculum and refer to the school year 2017/18 (statutory information) or school year 2016/17 (actual data).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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OECD (2018), *OECD Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264304444-en. [2]

Indicator D4 Tables

Table D4.1a Organisation of teachers' teaching time (2018)

Table D4.1b Organisation of teachers' working time (2018)

Table D4.2 Number of teaching hours per year (2000, 2005 to 2018)

Table D4.3a Tasks of teachers, by level of education (2018)

Table D4.3b Other responsibilities of teachers, by level of education (2018)

WEB Figure D4.5 Actual and statutory teaching time in general lower secondary education (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981248

Table D4.1a. Organisation of teachers' teaching time (2018)

Number of statutory teaching weeks, teaching days and net teaching hours in public institutions over the school year

		Number of weeks of teaching					Number of days of teaching					Net teaching time, in hours				
		Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Upper secondary, vocational programmes	Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Upper secondary, vocational programmes	Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Upper secondary, vocational programmes
		(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(11)	(12)	(13)	(14)	(15)	(17)	(18)
OECD	**Countries**															
	Australia[1]	40	41	41	41	40	195	196	196	196	198	886	870	811	811	816
	Austria[1]	m	38	38	38	m	m	180	180	180	m	m	779	607	589	m
	Canada[1]	m	37	37	37	40	m	183	183	183	200	m	797	744	746	635
	Chile[2]	38	38	38	38	38	178	178	178	178	178	1 063	1 063	1 063	1 063	1 063
	Colombia[1]	40	40	40	40	40	200	200	200	200	200	800	1 000	880	880	880
	Czech Republic[1]	45	39	39	39	39	215	187	187	187	187	1 333	617	617	589	589
	Denmark[3, 4]	a	a	a	a	a	a	a	a	a	a	a	a	a	405	648
	Estonia[1]	46	35	35	35	40	220	172	172	172	197	1 320	585	602	568	a
	Finland[4]	m	38	38	38	38	m	188	188	188	188	m	677	592	550	692
	France[1]	36	36	36	36	36	162	162	a	a	a	900	900	684	684	684
	Germany[1]	46	40	40	40	40	225	193	193	193	193	1 755	800	744	717	724
	Greece[2]	36	36	36	38	38	177	177	178	186	186	827	664	614	642	642
	Hungary[5]	43	38	38	38	38	204	180	180	179	179	1 306	648	648	644	644
	Iceland[1]	46	37	37	36	36	225	180	180	175	175	1 620	624	624	472	494
	Ireland[1]	m	37	33	33	m	m	181	165	165	m	m	905	726	726	m
	Israel[1]	38	38	36	36	36	182	182	174	172	172	1 029	843	696	623	623
	Italy[5]	42	39	39	39	39	187	172	172	172	172	933	755	617	617	617
	Japan[6]	m	40	40	39	39	m	201	201	196	196	m	739	610	511	511
	Korea[6]	36	38	38	38	38	180	190	190	190	190	789	675	526	547	549
	Latvia[1]	39	35	35	35	44	190	170	170	170	215	1 520	1 020	1 020	1 020	1 290
	Lithuania[1]	a	34	36	36	a	a	170	181	180	a	640	612	652	648	740
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico[1]	40	40	40	36	36	195	195	195	174	174	519	780	1 021	853	696
	Netherlands[2]	40	40	m	m	m	200	200	m	m	m	930	930	750	750	m
	New Zealand[1]	m	38	38	38	m	m	192	191	190	m	m	922	840	760	m
	Norway[2]	a	38	38	38	38	225	190	190	190	190	a	741	663	523	595
	Poland[2]	45	37	37	37	37	217	178	178	176	176	1 085	561	481	475	475
	Portugal[2]	38	38	37	37	37	172	172	167	167	167	860	774	612	612	612
	Slovak Republic[1]	44	39	39	39	39	208	191	191	191	191	1 144	783	649	573	611
	Slovenia[1]	46	38	38	38	38	219	190	190	190	190	1 314	627	627	570	570
	Spain[1]	37	37	37	36	36	176	176	176	171	171	880	880	713	693	693
	Sweden	47	a	a	a	a	224	a	a	a	a	m	a	a	a	a
	Switzerland[3, 4]	39	38	39	38	38	185	183	187	183	183	756	785	748	621	714
	Turkey[1]	38	38	38	38	38	180	180	180	180	180	1 080	720	504	504	504
	United States[3, 4]	36	36	36	36	a	180	180	180	180	a	1 011	1 004	966	966	a
	Economies															
	Flemish Comm. (Belgium)[1]	37	37	37	37	37	159	159	160	160	160	734	748	667	622	874
	French Comm. (Belgium)[1]	36	36	36	36	36	179	179	179	179	179	775	716	657	596	596
	England (UK)	38	38	38	38	a	190	190	190	190	a	a	a	a	a	a
	Scotland (UK)[2]	38	38	38	38	a	190	190	190	190	a	855	855	855	855	a
	OECD average	40	38	38	37	38	195	183	183	182	185	1 024	783	709	667	682
	EU23 average	41	37	37	37	38	195	180	179	179	183	1 062	754	673	643	688
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	42	42	42	42	42	200	200	200	200	200	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica[1]	41	41	41	41	41	198	198	198	198	198	812	1 188	1 267	1 267	1 267
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation[3]	m	34	35	35	m	m	170	210	210	m	m	561	483	483	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data on vocational programmes at lower secondary level (i.e. Columns 4, 10 and 16) are available for consultation on line. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Typical teaching time (teaching time required from most teachers when no specific circumstances apply to teachers).
2. Maximum teaching time.
3. Actual teaching time.
4. Year of reference 2017 for Denmark and Switzerland, 2016 for the United States.
5. Minimum teaching time.
6. Average planned teaching time in each school at the beginning of the school year or semester.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980051

Table D4.1b. Organisation of teachers' working time (2018)

Teachers' statutory working time at school and total working time in public institutions over the school year

		Working time required at school, in hours					Total statutory working time, in hours				
		Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Upper secondary, vocational programmes	Pre-primary	Primary	Lower secondary, general programmes	Upper secondary, general programmes	Upper secondary, vocational programmes
		(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(11)	(12)
OECD	**Countries**										
	Australia	m	m	m	m	m	m	m	m	m	m
	Austria	m	a	a	a	a	a	1 776	1 776	a	a
	Canada	m	1 228	1 233	1 236	1 280	m	m	m	m	1 280
	Chile	1 830	1 830	1 830	1 830	1 830	1 962	1 962	1 962	1 962	1 962
	Colombia	1 350	1 350	1 350	1 350	1 350	1 800	1 800	1 800	1 800	1 800
	Czech Republic	a	a	a	a	a	1 800	1 560	1 560	1 560	1 560
	Denmark	a	a	a	a	a	1 680	1 680	1 680	1 680	1 680
	Estonia	1 610	a	a	a	a	1 610	1 540	1 540	1 540	1 540
	Finland	m	815	730	669	797	a	a	a	a	a
	France	954	954	a	a	a	1 607	1 607	1 607	1 607	1 607
	Germany	a	a	a	a	a	1 769	1 769	1 769	1 769	1 769
	Greece	1 134	1 134	1 170	1 170	1 170	a	a	a	a	a
	Hungary	1 476	1 152	1 152	1 146	1 146	1 632	1 632	1 632	1 632	1 632
	Iceland	1 760	1 610	1 610	1 440	1 440	1 800	1 800	1 800	1 800	1 800
	Ireland	m	1 073	811	811	m	a	a	a	a	a
	Israel	1 066	1 235	1 178	1 195	1 195	1 066	1 235	1 178	1 195	1 195
	Italy	a	a	a	a	a	a	a	a	a	a
	Japan	a	a	a	a	a	1 891	1 891	1 891	1 891	1 891
	Korea	a	a	a	a	a	1 520	1 520	1 520	1 520	1 520
	Latvia	1 560	1 050	1 050	1 050	1 320	1 760	1 760	1 760	1 760	1 760
	Lithuania	1 452	a	a	a	a	1 584	1 584	1 584	1 584	1 584
	Luxembourg	m	m	m	m	m	m	m	m	m	m
	Mexico	772	800	1 167	a	a	a	a	a	a	a
	Netherlands	a	a	a	a	a	1 659	1 659	1 659	1 659	1 659
	New Zealand	m	1 536	1 243	950	m	a	1 616	a	a	a
	Norway	a	1 300	1 225	1 150	1 150	a	1 688	1 688	1 688	1 688
	Poland	a	a	a	a	a	1 808	1 488	1 488	1 472	1 472
	Portugal	1 021	935	810	810	810	1 308	1 308	1 283	1 283	1 283
	Slovak Republic	m	m	m	m	m	1 560	1 560	1 560	1 560	1 560
	Slovenia	a	a	a	a	a	m	m	m	m	m
	Spain	1 140	1 140	1 140	1 140	1 140	1 425	1 425	1 425	1 425	1 425
	Sweden	1 792	1 360	1 360	1 360	1 360	a	1 767	1 767	1 767	1 767
	Switzerland	a	a	a	a	a	1 930	1 930	1 930	1 930	1 930
	Turkey	1 160	980	836	836	836	1 592	1 592	1 592	1 592	1 592
	United States[1]	1 441	1 443	1 449	1 446	a	1 980	2 016	2 032	2 047	a
	Economies										
	Flemish Comm. (Belgium)	916	916	a	a	a	a	a	a	a	a
	French Comm. (Belgium)	a	a	a	a	a	962	962	a	a	a
	England (UK)	a	a	a	a	a	1 265	1 265	1 265	1 265	a
	Scotland (UK)	1 045	1 045	1 045	1 045	a	1 365	1 365	1 365	1 365	a
	OECD average	m	m	m	m	m	1 613	1 612	1 634	1 629	1 623
	EU23 average	m	m	m	m	m	1 550	1 539	1 572	1 558	1 593
Partners	Argentina	m	m	m	m	m	m	m	m	m	m
	Brazil	a	a	a	a	a	a	a	a	a	a
	China	m	m	m	m	m	m	m	m	m	m
	Costa Rica	a	a	a	a	a	a	a	a	a	a
	India	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m
	Russian Federation	a	a	a	a	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data on vocational programmes at lower secondary level (i.e. Columns 4 and 10) are available for consultation on line. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Year of reference 2016.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980070

Table D4.2. Number of teaching hours per year (2000, 2005 to 2018)

Net statutory contact time in public institutions, by level of education

		Primary					Lower secondary, general programmes					Upper secondary, general programmes				
		2000 (16)	2005 (17)	2010 (22)	2015 (27)	2018 (30)	2000 (31)	2005 (32)	2010 (37)	2015 (42)	2018 (45)	2000 (46)	2005 (47)	2010 (52)	2015 (57)	2018 (60)
OECD	**Countries**															
	Australia	882	888	868	866	870	811	810	819	806	811	803	810	803	804	811
	Austria[1]	m	774	779	779	779	m	607	607	607	607	m	589	589	589	589
	Canada	m	m	799	797	797	m	m	740	742	744	m	m	744	743	746
	Chile	m	1 128	1 105	1 157	1 063	m	1 128	1 105	1 157	1 063	m	1 128	1 105	1 157	1 063
	Colombia	m	1 000	1 000	1 000	1 000	m	1 200	1 200	1 200	880[b]	m	1 200	1 200	1 200	880[b]
	Czech Republic[1]	m	813	862	823	617	650	647	647	617	617	621	617	617	589	589
	Denmark[2]	640	640	650	784[b]	a	640	640	650	784[b]	a	m	m	377	386	a
	Estonia	630	630	630	619	585	630	630	630	619	602	578	578	578	568	568
	Finland	656	677	680	677	677	570	592	595	592	592	527	550	553	550	550
	France	924	924	924	900	900	648	648	648	648	684	648	648	648	648	684
	Germany	783	808	805	799	800	732	758	756	750	744	690	714	713	714	717
	Greece	609	604	589	630[b]	664	426	434	415	592[b]	614	429	430	415	600[b]	642
	Hungary	583	583	604	652	648	555	555	604	652	648	555	555	604	648	644
	Iceland	629	671	624	m	624	629	671	624	m	624	464	560	544	m	472
	Ireland	915	915	915	915	905	735	735	735	735	726	735	735	735	735	726
	Israel	731	731	820	864	843	579	579	598	704	696	524	524	521	587	623
	Italy	744	739	770	752	755	608	605	630	616	617	608	605	630	616	617
	Japan[3]	635	578	707	742	739	557	505	602	610	610	478	429	500	511	511
	Korea[3]	865	883	807	658	675	570	621	627	548	526	530	605	616	551	547
	Latvia	882	882	882	685[b]	1 020	882	882	882	685[b]	1 020	882	882	882	685[b]	1 020
	Lithuania	m	m	m	565	612	m	m	m	610	652	m	m	m	610	648
	Luxembourg	m	774	739	810	m	m	642	634	739	m	m	642	634	739	m
	Mexico	800	800	800	800	780	1 182	1 047	1 047	1 047	1 021	m	848	843	848	853
	Netherlands	930	930	930	930	930	867	750	750	750	750	867	750	750	750	750
	New Zealand	m	m	m	922	922	m	m	m	840	840	m	m	m	760	760
	Norway	713	741	741	741	741	633	656	654	663	663	505	524	523	523	523
	Poland	m	m	586	573	561	m	m	497	486	481	m	m	494	481	475
	Portugal	779	765	779	743	774	634	623	634	605	612	577	567	634	605	612
	Slovak Republic	m	m	841	832	783	m	m	652	645	649	m	m	624	617	573
	Slovenia	m	627	627	627	627	m	627	627	627	627	m	570	570	570	570
	Spain	880	880	880	880	880	713	713	713	713	713	693	693	693	693	693
	Sweden	m	m	m	a	a	m	m	m	a	a	m	m	m	a	a
	Switzerland[2]	m	m	m	810	m	m	m	m	765	m	m	m	m	656	m
	Turkey	720	720	720	720	720	504	504	504	504	504	567	567	567	504	504
	United States[2]	m	m	m	1 004	m	m	m	m	966	m	m	m	m	966	m
	Economies															
	Flemish Comm. (Belgium)	754	748	748	744	748	m	682[b]	666	663	667	m	637[b]	622	618	622
	French Comm. (Belgium)	722	722	732	728	716	662	662	671	668	657	603	603	610	606	596
	England (UK)[2]	m	m	684	m	a	m	m	703	m	a	m	m	703	m	a
	Scotland (UK)	950	893	855	855	855	893	893	855	855	855	893	893	855	855	855
	OECD average	765	782	779	788	776	680	702	698	717	700	626	671	662	674	668
	Average for OECD countries with 2000, 2005, 2010, 2015 and 2018 data	771	769	775	769	783	682	673	681	685	695	634	632	640	635	656
	Average for EU23 countries with 2000, 2005, 2010, 2015 and 2018 data	774	771	773	768	790	678	673	676	680	697	660	655	661	657	684
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	1 188	1 188	m	m	m	1 267	1 267	m	m	m	1 267	1 267
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation[3]	m	615	615	561	561	m	507	507	483	483	m	507	507	483	483
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data on years 2000 to 2018 for pre-primary education (i.e. Columns 1-15) are available for consultation on line. Data on years 2006, 2007, 2008, 2009, 2011, 2012, 2013, 2014, 2016 and 2017 for primary education, lower secondary education and upper secondary education (i.e. Columns 18-21; 23-26; 28-29; 33-36; 38-41; 43-44; 48-51; 53-56; 58-59) are available at http://stats.oecd.org/, Education at a Glance Database or via *StatLink* below).

1. Figures for the pre-primary level refer to primary teachers (in primary schools only) teaching pre-primary classes.
2. Actual teaching time (in Denmark except for pre-primary level).
3. Average planned teaching time in each school at the beginning of the school year or semester.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980089

Table D4.3a. Tasks of teachers, by level of education (2018)

Teachers' tasks in public institutions as defined explicitly in regulations and/or steering documents

		Lower secondary, general programmes												
		Teaching	Individual planning or preparation of lessons either at school or elsewhere		Marking/correcting of student work		General administrative work (including communication, paperwork and other clerical duties undertaken as part of the job)		Communication and co-operation with parents or guardians		Supervision of students during breaks		Team work and dialogue with colleagues at school or elsewhere	
		Work requirement	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form
		(1)	(2)	(3)	(6)	(7)	(10)	(11)	(14)	(15)	(18)	(19)	(22)	(23)
OECD	**Countries**													
	Australia	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Austria	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	Mand.	Mand.	T	Mand.	T	School req.	T	School req.	T	School req.	T	School req.	T
	Colombia	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Czech Republic	Mand.	Voluntary	m	Voluntary	m	School req.	m	Voluntary	m	School req.	m	School req.	m
	Denmark	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	School req.	None	Mand.	None
	Estonia	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	School req.	None	Mand.	None
	Finland	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	School req.	None	Mand.	None
	France	Mand.	Mand.	F	Mand.	F	Mand.	F	Mand.	F	Not req.	None	Mand.	F
	Germany	Mand.	Mand.	None	Mand.	None	School req.	None	Mand.	None	School req.	None	Voluntary	None
	Greece	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Hungary	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Iceland	Mand.	Mand.	None	Mand.	None	School req.	None	School req.	T	Voluntary	None	School req.	None
	Ireland	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Israel	Mand.	Mand.	F	Mand.	None	Mand.	F	Mand.	None	Mand.	None	Mand.	F
	Italy	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Japan	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	School req.	None	Mand.	None
	Korea	Mand.	Mand.	None	Mand.	None	Mand.	T	Mand.	None	Mand.	None	Mand.	None
	Latvia	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	School req.	None
	Lithuania	Mand.	Mand.	F	Mand.	F	Mand.	F	Mand.	None	School req.	None	School req.	None
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	Mand.	Mand.	None	Mand.	None	School req.	T/F	School req.	None	Not req.	None	Mand.	None
	Netherlands	School req.	School req.	m	School req.	m	School req.	m	School req.	m	School req.	m	School req.	m
	New Zealand[1]	Mand.	Mand.	m	Mand.	m	Mand.	m	Mand.	m	School req.	m	Mand.	m
	Norway	Mand.	Mand.	None	Mand.	None	Mand.	None	School req.	T/F	Mand.	None	Mand.	None
	Poland	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Portugal	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Voluntary	None	Mand.	None
	Slovak Republic	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Slovenia	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	School req.	None	Mand.	None
	Spain	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Sweden	Mand.	Mand.	m	Mand.	m	Mand.	m	Mand.	m	School req.	m	Mand.	m
	Switzerland	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Mand.	None
	Turkey	Mand.	Mand.	F	Mand.	T	Not req.	None	Mand.	None	Voluntary	None	Mand.	None
	United States	Mand.	School req.	T/F	School req.	T/F	School req.	T/F	School req.	T/F	School req.	T/F	School req.	T/F
	Economies													
	Flemish Comm. (Belgium)	Mand.	Mand.	None	School req.	None	School req.	None	School req.	None	School req.	None	School req.	None
	French Comm. (Belgium)	Mand.	Mand.	None	Mand.	None	Mand.	None	Mand.	None	Voluntary	None	Voluntary	None
	England (UK)	Mand.	Mand.	T	Mand.	T	Voluntary	None	Mand.	T	School req.	None	Mand.	T
	Scotland (UK)	Mand.	Mand.	None	Mand.	None	Voluntary	None	Mand.	None	Voluntary	None	Mand./ School req.	None
Partners	**Argentina**	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	Mand.	Mand.	m	m	m	m	m	Mand.	m	m	m	m	m
	China	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	Mand.	Mand.	T	Mand.	T	Voluntary	T/F	Mand.	T	Mand.	None	Mand.	T
	India	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m

Are tasks/responsibilities required of teachers?
Mand. = Yes, mandatory
School Req. = Yes, at the discretion of individual schools
Voluntary = No, voluntary at the discretion of individual teachers
Not req. = No, not required
a: not applicable
m: missing

What type of compensation exists for performing this task/responsibility?
T = Teaching time reduced
F = Specific financial compensation provided
None = None
a: not applicable
m: missing

Note: Pre-primary, primary, lower secondary (vocational programmes) and upper secondary levels (added in separate rows) and data on reduced teaching time and financial compensation (i.e. Columns 4, 5, 8, 9, 12, 13, 16, 17, 20, 21, 24 and 25) are available for consultation on line (see *StatLink* below). See *Definitions* and *Methodology* sections for more information.

1. Criteria for the first two years of lower secondary education (general programmes) follow those for primary education and those for the last two years of lower secondary education (general programmes) follow those of upper secondary education (general programmes).

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980108

Table D4.3b. Other responsibilities of teachers, by level of education (2018)

Teachers' responsibilities in public institutions as defined explicitly in regulations and/or steering documents

		Lower secondary, general programmes							
		Participation in school or other management in addition to teaching duties (e.g. serving as head of department or co-ordinator of teachers)		Teaching more classes or hours than required by full-time contract (e.g. overtime compensation)		Student counselling (including student supervision, virtual counselling, career guidance, and delinquency prevention)		Engaging in extracurricular activities (e.g. homework clubs, sports and drama clubs, summer school)	
		Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form
		(1)	(2)	(5)	(6)	(9)	(10)	(13)	(14)
OECD	**Countries**								
	Australia	m	m	Not req.	None	Voluntary	F	Voluntary	None
	Austria	School req.	T/F	Mand.	F	School req.	F	Voluntary	None
	Canada	m	m	m	m	m	m	m	m
	Chile	Voluntary	T/F	School req.	T/F	School req.	T/F	Voluntary	T/F
	Colombia	Mand.	F	Mand.	F	Mand.	None	Not req.	None
	Czech Republic	Voluntary	F	School req.	F	Voluntary	T	Voluntary	F
	Denmark	School req.	F	School req.	F	School req.	None	School req.	None
	Estonia	School req.	T/F	Voluntary	F	Mand.	None	School req.	T/F
	Finland	Voluntary	T	Voluntary	F	Mand.	None	Voluntary	F
	France	Voluntary	T/F	Mand./Voluntary	F	Mand./Voluntary	F	Voluntary	None
	Germany	Voluntary	T	Voluntary	T	Voluntary	T	Voluntary	T
	Greece	Not req.	None	Voluntary	F	Mand.	None	Voluntary	None
	Hungary	Voluntary	T/F	Voluntary	T/F	Mand.	T	Mand.	None
	Iceland	Not req.	F	Not req.	F	Not req.	None	Not req.	F
	Ireland	School req.	F	Voluntary	None	Not req.	None	Voluntary	None
	Israel	Voluntary	F	Voluntary	F	School req.	F	Not req.	T
	Italy	School req.	F	Voluntary	F	Voluntary	F	Voluntary	F
	Japan	Mand./School req.	F	Mand./School req.	m	Mand.	None	Mand./School req.	F
	Korea	School req.	T/F	School req.	F	Mand.	T	School req.	F
	Latvia	Mand.	T	School req.	F	Mand.	None	School req.	None
	Lithuania	School req.	F	School req.	F	School req.	F	Voluntary	F
	Luxembourg	m	m	m	m	m	m	m	m
	Mexico	School req.	T/F	Not req.	None	Not req.	None	Not req.	None
	Netherlands	School req.	m	Voluntary	F	School req.	m	School req.	m
	New Zealand[1]	School req.	m	Not req.	m	Mand./School req.	m	Voluntary	m
	Norway	School req.	T/F	School req.	F	School req.	T/F	Not req.	None
	Poland	School req.	T	Voluntary	F	Not req.	None	Voluntary	None
	Portugal	Mand.	T	Mand.	F	Mand.	None	Mand.	None
	Slovak Republic	Voluntary	T/F	School req.	F	Voluntary	T/F	Voluntary	T/F
	Slovenia	School req.	F	Mand.	F	Mand.	None	Mand.	F
	Spain	Mand.	T/F	Not req.	F	Mand.	F	Voluntary	None
	Sweden	Voluntary	m	Voluntary	m	School req.	m	Voluntary	m
	Switzerland	Voluntary	T/F	Not req.	None	Mand.	None	Not req.	T/F
	Turkey	Mand.	None	Voluntary	F	Not req.	None	School req.	None
	United States	School req.	T/F	School req.	T/F	School req.	T/F	School req.	T/F
	Economies								
	Flemish Comm. (Belgium)	Voluntary	None	Voluntary	F	Not req.	None	Voluntary	None
	French Comm. (Belgium)	Voluntary	None	Voluntary	F	Voluntary	None	Voluntary	None
	England (UK)	School req.	T/F	School req.	T/F	School req.	T/F	School req.	T/F
	Scotland (UK)	a	a	Voluntary	None	Mand.	None	Voluntary	None
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	m	m
	China	m	m	m	m	m	m	m	m
	Costa Rica	School req.	F	Voluntary	None	Mand.	T/F	Voluntary	T
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m

Are tasks/responsibilities required of teachers?
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Voluntary = No, voluntary at the discretion of individual teachers
Not req. = No, not required
a: not applicable
m: missing

What type of compensation exists for performing this task/responsibility?
T = Teaching time reduced
F = Specific financial compensation provided
None = None
a: not applicable
m: missing

		Lower secondary, general programmes							
		Special tasks (e.g. training student teachers, guidance counselling)		Class teacher/form teacher		Participation in mentoring programmes and/or supporting new teachers in induction programmes		Participation in professional development activities	
		Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form	Work requirement	Existence of compensation of any form
		(17)	(18)	(21)	(22)	(25)	(26)	(29)	(30)
OECD	**Countries**								
	Australia	School req.	F	School req.	F	Voluntary	None	m	m
	Austria	Voluntary	F	School req.	F	Voluntary	F	Mand.	None
	Canada	m	m	m	m	m	m	m	m
	Chile	Voluntary	T/F	School req.	T	Voluntary	T/F	Mand.	T
	Colombia	Not req.	None	Not req.	None	Not req.	None	School req.	None
	Czech Republic	Voluntary	F	School req.	m	School req.	F	Mand.	m
	Denmark	School req.	F	School req.	None	School req.	None	School req.	None
	Estonia	School req.	T/F	School req.	F	Voluntary	T/F	Mand.	None
	Finland	Voluntary	F	Voluntary	F	Voluntary	None	Mand.	None
	France	Voluntary	T/F	Voluntary	F	Voluntary	F	Mand./Voluntary	F
	Germany	Voluntary	None	Voluntary	T	Voluntary	None	School req.	None
	Greece	Voluntary	None	Mand.	None	Mand.	None	Mand.	None
	Hungary	Not req.	None	Voluntary	T/F	Voluntary	None	Mand.	T
	Iceland	Voluntary	T	School req.	F	Not req.	None	Mand.	T
	Ireland	Voluntary	None	School req.	None	Voluntary	None	Mand.	T
	Israel	Voluntary	F	School req.	F	Voluntary	F	Voluntary	F
	Italy	Voluntary	F	Not req.	None	Voluntary	F	Mand.	None
	Japan	School req.	F	Mand./School req.	None	School req.	None	Mand.	None
	Korea	School req.	T/F	School req.	F	School req.	T	Mand.	None
	Latvia	School req.	F	School req.	None	School req.	F	Mand.	F
	Lithuania	Voluntary	F	School req.	F	Voluntary	F	Mand.	None
	Luxembourg	m	m	m	m	m	m	m	m
	Mexico	School req.	F	Not req.	None	School req.	F	Mand.	None
	Netherlands	School req.	m	School req.	m	School req.	m	School req.	m
	New Zealand[1]	School req.	m	School req.	m	School req.	m	School req.	m
	Norway	Voluntary	T/F	School req.	T/F	Voluntary	T/F	Voluntary	T/F
	Poland	Voluntary	None	School req.	F	Voluntary	F	Mand.	None
	Portugal	School req.	T	Mand.	None	School req.	T	Voluntary	None
	Slovak Republic	Voluntary	F	Mand.	F	Voluntary	F	Voluntary	F
	Slovenia	Mand.	None	Mand.	T/F	Mand.	F	Mand.	None
	Spain	Voluntary	None	Mand.	F	School req.	None	Voluntary	None
	Sweden	Voluntary	m	School req.	m	School req.	m	School req.	m
	Switzerland	Voluntary	T/F	Voluntary	T/F	Voluntary	T/F	Mand.	None
	Turkey	School req.	F	School req.	None	School req.	None	Voluntary	None
	United States	School req.	T/F	School req.	T/F	School req.	T/F	School req.	T/F
	Economies								
	Flemish Comm. (Belgium)	Voluntary	None	Voluntary	None	Voluntary	None	Mand.	None
	French Comm. (Belgium)	Voluntary	F	Voluntary	None	School req.	None	Mand.	None
	England (UK)	School req.	T/F	School req.	None	School req.	T/F	Mand.	T/F
	Scotland (UK)	School req.	None	School req.	None	Mand.	None	Mand.	None
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	m	m	m	m	m	m	Mand.	m
	China	m	m	m	m	m	m	m	m
	Costa Rica	Mand.	T/F	Mand.	F	Mand.	F	School req.	T/F
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m

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Voluntary = No, voluntary at the discretion of individual teachers
Not req. = No, not required
a: not applicable
m: missing

What type of compensation exists for performing this task/responsibility?
T = Teaching time reduced
F = Specific financial compensation provided
None = None
a: not applicable
m: missing

Note: Pre-primary, primary, lower secondary (vocational programmes) and upper secondary levels (added in separate rows) and data on reduced teaching time and financial compensation (i.e. Columns 3, 4, 7, 8, 11, 12, 15, 16, 19, 20, 23, 24, 27, 28, 31 and 32) are available for consultation on line (see *StatLink* below). See *Definitions* and *Methodology* sections for more information.
1. Criteria for the first two years of lower secondary education (general programmes) follow those for primary education and those for the last two years of lower secondary education (general programmes) follow those of upper secondary education (general programmes).
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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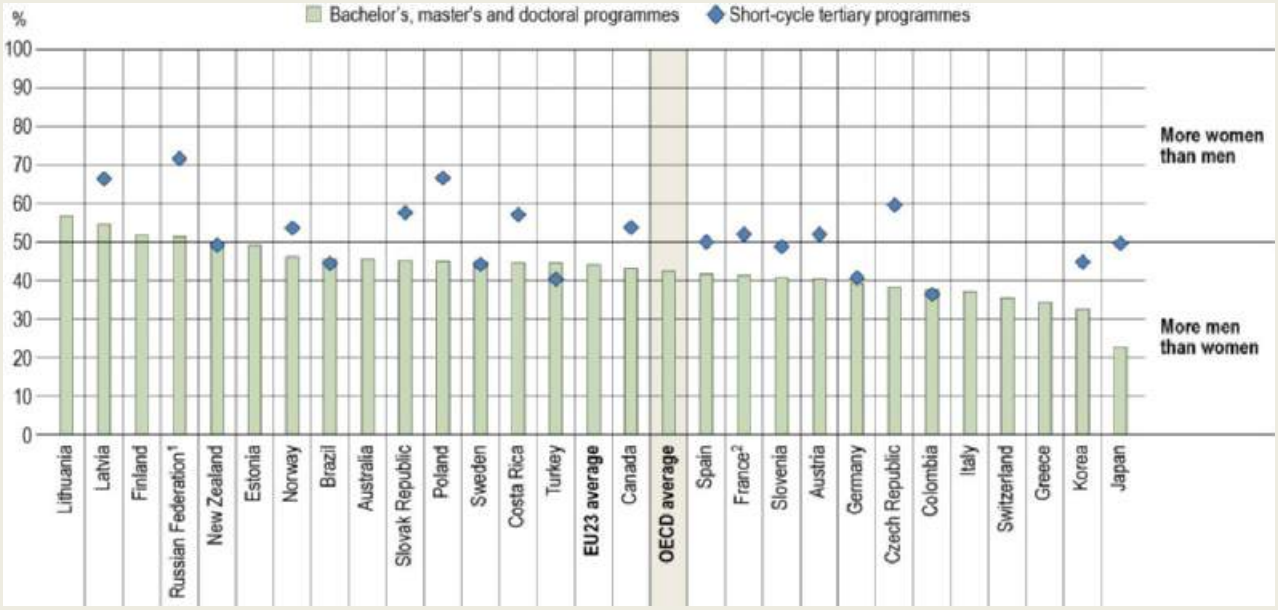
Indicator D5. Who are the teachers?

Highlights

- On average across OECD countries, women form less than half the teaching workforce at tertiary level, but the majority of teachers at primary and secondary levels. Within tertiary education, in most countries with available data, the share of female teachers is higher in short-cycle tertiary programmes than in bachelor's, master's and doctoral programmes.
- In most OECD countries, the share of primary and secondary teachers within the wider population of 50-59 year-olds is larger than the share of primary and secondary teachers among 25-34 year-olds, which may raise concerns about future teacher shortages.
- On average across OECD countries less than 15% of teachers are aged less than 30 years old, at all levels from primary to upper secondary.

Figure D5.1. Gender distribution of teachers in tertiary education (2017)

Percentage of women among teaching staff in public and private institutions



1. Tertiary includes programmes outside tertiary level.
2. Public institutions only.

Countries are ranked in descending order of the share of female teachers in bachelor's, master's and doctoral programmes.

Source: OECD/UIS/Eurostat (2019), Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

The demand for teachers depends on a range of factors, including average class size, required instruction time for students, the use of teaching assistants and other non-classroom staff in schools, enrolment rates at different levels of education, and the starting and ending age of compulsory education. With large proportions of teachers in several OECD countries set to reach retirement age in the next decade and projected increases in the size of the school-age population in some countries, governments will be under pressure to recruit and train new teachers. Given compelling evidence that the calibre of teachers is the most significant in-school determinant of student achievement, concerted efforts must be made to attract top talent to the teaching profession and provide high-quality training (OECD, 2015[1])

Teacher retention policies need to promote work environments that encourage effective teachers to continue teaching. In addition, as teaching at the pre-primary, primary and lower secondary levels remains largely dominated by women, the gender imbalance in the teaching profession and its possible effect on students' learning warrant detailed study (OECD, 2017[2]).

Other findings

- On average across OECD countries 70% of teachers are women, in all levels of education combined. The highest proportions of female teachers are concentrated in the earlier years of schooling, and the share shrinks at each successive level of education.
- On average across OECD countries, the share of teachers over 50 years old at primary and secondary levels combined has increased by 3 percentage points over the decade. However, the teaching workforce has got younger in one-third of OECD countries.

Analysis

Gender profile of teachers

On average across OECD countries 70% of teachers are women in all levels of education combined. The greatest concentration of female teachers occurs in the earlier years of schooling, and the share shrinks at each successive level of education. While women represent 97% of the teaching staff at pre-primary level and 83% at primary level, they make up 60% at upper secondary and only 44% at tertiary level on average across OECD countries (Table D5.2).

Women make up over 85% of pre-primary teachers in all countries with available data, and over 60% of primary teachers in all OECD and partner countries except India (51%). In lower and upper secondary education, although female teachers continue to dominate, the proportion of male teachers is larger than at earlier levels. The share of female teachers ranges from 43% in Japan to 88% in Slovenia in lower secondary education. At the upper secondary level, it ranges from 31% in Japan (including part of post-secondary non-tertiary) to 80% in Latvia.

Why do so few men decide to teach at pre-primary, primary and secondary levels? One explanation may be cultural: social perceptions of links between gender and vocations may influence men and women's career choices. This gender bias often arises very early, at home, when parents might base their aspirations for their children's professions on gender stereotypes (Croft et al., 2014[3]; Kane and Mertz, 2012[4]; OECD, 2015[1]). Even within the teaching profession, there are gender imbalances in the different fields of study. At the lower secondary level, women make up a smaller share of teachers in science, mathematics and technology than in the overall teaching population (OECD, 2014[5]; OECD, 2017[2]). This may result from the social perception of science and technology as being a masculine domain, which may discourage women from pursuing tertiary studies in that field (Indicator B4 and (OECD, 2014[5])).

From an economic point of view, the choice of future jobs is also influenced by young people's expectations for future earning potential. On average across OECD countries, male teachers earn less than their male tertiary-educated counterparts in other professions, while female teachers in primary and lower secondary education earn virtually the same as women with tertiary degrees in other fields (see Indicator D3 and (OECD, 2017[2])). These differences in relative salaries are likely to make the teaching profession more appealing to women than to men, compared to other professions.

The potential impact of this gender imbalance in the teaching profession on student achievement, student motivation and teacher retention is worthy of study, especially in countries where few men are attracted to the profession (Drudy, 2008[6]; OECD, 2005[7]; OECD, 2009[8]). While there is little evidence that a teacher's gender has an effect on student performance (Antecol, Eren and Ozbeklik, 2012[9]; Holmlund and Sund, 2008[10]), aiming for a better balance between genders could nevertheless have positive effects on all students. In particular, male and female teachers can contribute to students developing positive gender identities and challenge stereotyped views (Hutchings et al., 2008[11]). There is also some evidence that female teachers' attitudes towards some school subjects, such as mathematics, can influence their female students' achievement (Beilock et al., 2010[12]; OECD, 2014[13]).

Gender profile of academic staff

At the tertiary level, the gender profile of teachers is reversed, with men making up the majority of academic staff across OECD countries. On average across OECD countries, women represent 44% of tertiary academic staff, ranging from 28% in Japan to 59% in the Russian Federation.

The gender profile of academic staff varies across programmes within tertiary education. Women are more strongly represented in short-cycle tertiary programmes than in bachelor's, master's and doctoral programmes. Specifically, women make up less than 50% of the teaching workforce at the bachelor's, master's and doctoral

levels in over four-fifths of countries with available data and over 50% of the teaching workforce in short-cycle tertiary programmes in about two-thirds of them (Figure D5.1).

The most prevalent fields at short-cycle tertiary level are also those that are typically dominated by women. For example, in Latvia, where women make up over 60% of academic staff in short-cycle tertiary education, almost 60% of short-cycle tertiary programmes concern health and welfare, and services, which are fields where female students tend to be over-represented (see Indicator B4 and Education at a Glance Database). Short-cycle tertiary accounts for at most 20% of total tertiary enrolment in OECD countries, however, except in Australia, Canada, Chile, Korea, New Zealand, Turkey and the United States (see Indicator B1 and Education at a Glance Database). Although women may be over-represented in short-cycle tertiary education, they are still under-represented among overall tertiary academic staff (Box D5.1).

Women represent less than 50% of academic staff at bachelor's, master's and doctoral level in all OECD countries with available data except Finland (52%), Latvia (55%), Lithuania (57%) and New Zealand (50%). They represent less than 40% in one-third of countries with available data and only make up 23% of the academic staff in bachelor's, master's and doctoral programmes in Japan. Nonetheless, the representation of women in tertiary education has been growing since 2005 in most OECD countries with available data (see Education at a Glance Database).

Box D5.1. Representation of women in academia

Despite recent improvements, the gender imbalance in academia is still a challenge in most OECD countries, starting among doctoral students and continuing throughout academic careers (Winslow and Davis, 2016[14]). Specifically, women remain under-represented in the academic rank. Across European countries, women account for only one-third of researchers and one-quarter of top academic rank (European Commission, 2019[15]), compared to nearly half at doctoral level (see Indicator B7). Female researchers are more likely than men to work under contract arrangements that are considered "precarious employment" and considerable pay gaps remain in scientific research and development occupations (European Commission, 2019[15]). Women are similarly disadvantaged in other countries such as Australia (Winchester and Browning, 2015[16]) and the United States (Curtis, 2011[17]). The gender imbalance is even more striking in certain fields, including the science, technology, engineering and mathematics (STEM) fields.

Women's career and progress in academia are more likely to be constrained by family obligations and the lack of formal policies or programmes to reduce the gender gap (Winslow and Davis, 2016[14]). Recent policy efforts across OECD countries have aimed to bring about structural change to increase women's representation in academia. For example, the European Union has heavily invested in the Institutional Transformation for Effecting Gender Equality in Research (INTEGER) Project, in order to improve the career paths of female researchers in European higher education and research institutions (European Commission, 2016[18]). In the United States, the National Science Foundation has funded research and interventions aiming at increasing the representation of women in academic science and engineering, including the ADVANCE Institutional Transformation grant programme (Winslow and Davis, 2016[14]). In Australia, the Universities Australia Strategy for Women (2011-14) aimed at encouraging universities to include equity targets in their strategic planning and promote women in academia (Winchester and Browning, 2015[16]). Most recently, Australian universities have implemented gender quotas, with some opening academic positions in the faculty of engineering, computer and mathematical sciences to women only (Pyke and White[19]). Nonetheless, the continuing gender imbalance among academic staff in terms of participation, working conditions and pay warrants further investments and research to close the gap in the future.

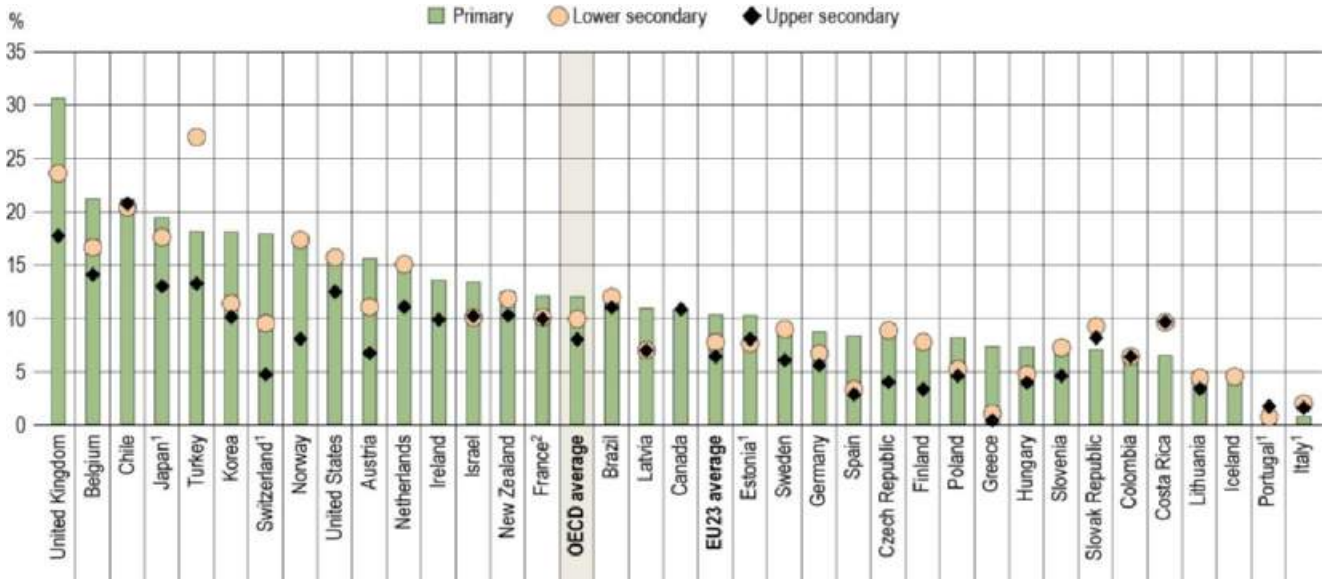
Teachers' age distribution

Teachers' age distribution varies considerably across countries and levels of education, and can be affected by a variety of factors, such as the size and age distribution of the population, the duration of tertiary education, and teachers' salaries and working conditions. Declining birth rates, for example, may drive down the demand for new teachers, and longer tertiary education can delay the entrance of teachers to the labour market. Competitive salaries, good working conditions and career development opportunities may attract young people to teaching in some countries and, in others, help to retain effective teachers.

A large share of teachers are aged 50 and over. This share increases with the education level, from 33% in primary education to 37% in lower secondary and 40% in upper secondary education. This pattern is quite striking at the upper secondary level, where older teachers account for more than 30% of all teachers in more than two-thirds of countries with available data. There is, however, a high level of cross-country variation, with figures ranging from 15% in Turkey to 63% in Italy for upper secondary education. On average across OECD countries, more than half of primary, lower secondary and upper secondary teachers are aged between 30 and 49.

At tertiary level, most academic staff are over the age of 40 in all countries with available data. In fact, at least 35% of academic staff are over 50 in all countries, except in Brazil (32%), Colombia (32%), Costa Rica (33%), Germany (26%), Luxembourg (16%), the Netherlands (33%) and Turkey (19%). As for the share of tertiary academic staff below the age of 30, it varies from less than 1% in Greece, Italy and Slovenia to 24% in Germany (Education at a Glance Database).

Figure D5.2. Share of teachers less than 30 years old, by level of education (2017)



1. Upper secondary includes programmes outside upper secondary level.
2. Public and government-dependent private institutions only.

Countries are ranked in descending order of the share of teachers who are less than 30 years old in primary education.

Source: OECD/UIS/Eurostat (2019), Table D5.3. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933980317

In contrast, young teachers – under the age of 30 – make up only a small proportion of the teaching population, at all levels of education: 13% in primary education, 11% in lower secondary and 8% in upper secondary on average across OECD countries. This pattern is particularly striking at the upper secondary level: young teachers make up less than 10% of the upper secondary teaching population in nearly two-third of countries with available data and account for less than 5% in about one-third of them. Overall, teachers aged under 30 form less than

25% of the teaching workforce at all levels of education and in all countries. The only exceptions are the United Kingdom (where they make up over 30% of the teaching workforce at primary level) and Turkey (where they make up 27% of the teaching force at the lower secondary level) (Table D5.1 and Figure D5.2).

The ageing of the teaching population has a number of implications for countries' education systems. New teachers will be needed to replace the staff who will reach retirement over the next decade, particularly in countries where the school-age population is increasing (see Indicator B1). Governments may have to invest further in the teaching profession to increase its attractiveness. In addition to these recruitment and training needs, an ageing teaching workforce may also affect budgetary decisions. In most school systems, teachers' salaries increase with years of teaching experience. Thus, the ageing of teachers increases school costs, which can in turn limit the resources available for other initiatives (see Indicator D3).

Trends in teachers' ages between 2005 and 2017

Trend data show that on average across OECD countries with available data, the share of teachers aged 50 and older has increased by 5 percentage points over the past decade, for primary to upper secondary education combined. Greece, Hungary, Lithuania, Poland, Portugal and Slovenia saw an increase of at least 13 percentage points over this period (Education at a Glance Database), although in Poland the share of teachers aged 50 and older remains lower than the OECD average. In contrast, in Estonia, Italy, Latvia and Lithuania the share of older teachers is more than 10 percentage points higher than on average in other OECD countries and the teaching population is still ageing.

Around one-third of countries with available data – namely Chile, France, Germany, Ireland, Luxembourg, the United Kingdom and the United States – exhibit the opposite trend, and their teaching workforce has grown younger. This may be explained, in part, by efforts to implement teacher recruitment policies. For instance, the United Kingdom, which has seen the largest reduction in the share of older teachers, launched an ambitious recruitment campaign in the early 2000s, aiming at improving the status of the teaching profession. The campaign used slogans as "Use your head: teach" or "Turn your talent to teaching", in order to appeal to youth who were considering teaching as an option but were put off by several barriers, including the financial burden of the training. In addition, the United Kingdom also provided financial support for teacher trainees (OECD, 2011[20]). Similarly, Chile implemented the National Teachers Policy in 2017, which sets a new salary scale and professional development system for teachers in publicly funded schools. It also introduced the "Teacher Vocation" scholarship, which covers tuition fees for students in universities

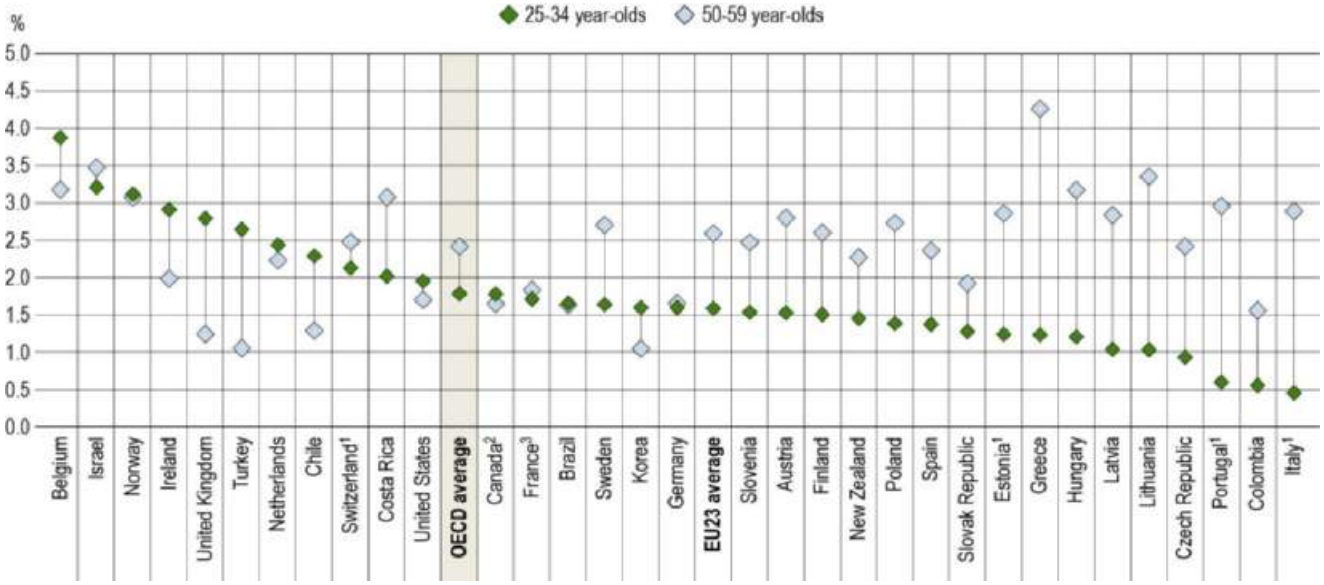
Share of teachers in the population

Examining the share of teachers in the wider population by age group can provide another way to analyse the evolution of the age distribution of the teaching workforce. In most OECD countries, primary and secondary teachers make up a larger share of the wider population aged 50-59 years old than they do among the population aged 25-34. The largest differences are in Greece, Italy, Lithuania and Portugal. Younger teachers make up a larger share of the population than older teachers in less than one-quarter of countries (Figure D5.3).

Breaking down the share of primary and secondary teachers in the population by age group also highlights rising concerns regarding possible future shortages. In Italy and Portugal, teachers represent only 0.6% or less of the population aged 25-34, while they make up close to 3% of the population among 50-59 year-olds. The proportions are similar across the two age groups in Brazil, Canada, France, Germany, Israel, the Netherlands, Norway, Switzerland and the United States (Figure D5.3).

In most OECD countries, new teachers will be needed to replace the staff who will reach retirement over the next decade. Governments may have to develop teacher-training programmes and increase incentives for students to join the teaching profession (see Indicator D6 in OECD (2014[21])). In parallel, fiscal constraints (particularly driven by pension obligations and healthcare costs for retirees) may put pressure on governments to reduce academic offerings, increase class sizes or integrate more self-paced online learning (Peterson, 2011[22]).

Figure D5.3. Share of primary and secondary teachers in the population, by age groups (2017)



1. Upper secondary includes programmes outside upper secondary level.
2. Primary includes pre-primary education.
3. Public and government-dependent private institutions only.

Countries are ranked in descending order of the share of teachers among 25-34 year-olds.

Source: OECD/UIS/Eurostat (2019), Education at a Glance Database, http://stats.oecd.org. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Definitions

There are two categories of instructional personnel:

- **Teachers' aides and teaching/research assistants** include non-professional personnel or students who support teachers in providing instruction to students.
- **Teaching staff** refers to professional personnel directly involved in teaching to students. The classification includes classroom teachers, special-education teachers and other teachers who work with a whole class of students in a classroom, in small groups in a resource room, or in one-to-one teaching situations inside or outside a regular class. At the tertiary level, academic staff include personnel whose primary assignment is instruction or research. Teaching staff also include departmental chairs whose duties include some teaching, but exclude non-professional personnel who support teachers in providing instruction to students, such as teachers' aides and other paraprofessional personnel.

Methodology

The share of teachers in the population corresponds to the proportion of teachers in a given age group (e.g.: 25-34 year-olds, 50-59 year-olds) among the total population of the same age group.

For more information, please see the OECD *Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications* (OECD, 2018[23]) and Annex 3 for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data refer to the academic year 2016/17 and are based on the UNESCO-UIS/OECD/EUROSTAT data collection on education statistics administered by the OECD in 2018 (for details, see Annex 3 at https://doi.org/10.1787/f8d7880d-en).

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

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Indicator D5 Tables

Table D5.1 Age distribution of teachers (2017)

Table D5.2 Gender distribution of teachers (2017)

Table D5.3 Gender distribution of teachers by age group (2017) and percentage of female teachers for all ages (2005 and 2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at http://dx.doi.org/10.1787/eag-data-en. More breakdowns can also be found at http://stats.oecd.org/, Education at a Glance Database.

StatLink: https://doi.org/10.1787/888933981267

Table D5.1. Age distribution of teachers (2017)

Percentage of teachers in public and private institutions, by level of education and age group, based on head counts

		Primary			Lower secondary			Upper secondary			Total primary to upper secondary		
		< 30 years	30-49 years	>= 50 years	< 30 years	30-49 years	>= 50 years	< 30 years	30-49 years	>= 50 years	< 30 years	30-49 years	>= 50 years
	Countries	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Australia	m	m	m	m	m	m	m	m	m	m	m	m
	Austria	16	46	38	11	40	48	7	47	46	11	44	45
	Belgium	21	55	24	17	55	28	14	55	31	17	55	28
	Canada[1]	11 d	63 d	26 d	x(1)	x(2)	x(3)	11	63	26	11	63	26
	Chile	21	55	24	20	53	26	21	52	28	21	54	26
	Colombia	7	53	40	6	55	39	6	55	39	7	54	39
	Czech Republic	8	50	42	9	55	37	4	44	52	7	49	44
	Denmark	x(4)	x(5)	x(6)	1 d	51 d	48 d	m	m	m	m	m	m
	Estonia[2]	10	46	44	8	39	54	8 d	41 d	51 d	9 d	42 d	49 d
	Finland	8	60	32	8	60	32	3	49	48	7	57	37
	France[3]	12	66	22	10	59	31	10	59	31	11	61	28
	Germany	9	54	38	7	47	46	6	54	40	7	51	42
	Greece	7	50	43	1	48	51	0	45	55	4	48	48
	Hungary	7	52	41	5	52	44	4	58	38	5	54	41
	Iceland	5	56	39	4	56	39	m	m	m	m	m	m
	Ireland[4]	14	66	20	x(7)	x(8)	x(9)	10 d	63 d	27 d	12	65	23
	Israel[4]	13	65	22	10	62	28	10	56	33	12	62	26
	Italy[2]	1	43	56	2	44	54	2 d	35 d	63 d	1 d	40 d	59 d
	Japan[2]	19	51	29	18	51	31	13 d	48 d	39 d	17 d	50 d	32 d
	Korea	18	67	15	11	60	29	10	59	31	14	63	24
	Latvia	11	50	39	7	43	50	7	42	51	9	46	46
	Lithuania	5	49	46	4	45	50	3	42	55	4	45	50
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	15	50	35	15	46	39	w	42	47	14	47	39
	New Zealand	12	49	38	12	47	41	10	46	44	12	48	40
	Norway	17	54	29	17	54	29	8	50	42	15	53	32
	Poland	8	58	34	5	65	30	5	62	34	6	61	33
	Portugal[2]	1	59	40	1	56	44	2 d	60 d	39 d	1 d	58 d	41 d
	Slovak Republic	7	63	30	9	53	38	8	49	42	8	55	37
	Slovenia	7	58	34	7	58	34	5	53	43	7	57	36
	Spain	8	58	34	3	59	38	3	59	38	5	59	36
	Sweden	9	55	36	9	55	37	6	50	44	8	53	38
	Switzerland[2]	18	49	33	9	55	35	5 d	53 d	43 d	12 d	52 d	36 d
	Turkey	18	66	16	27	67	6	13	72	15	20	68	12
	United Kingdom	31	54	15	24	59	17	18	56	27	25	56	19
	United States	16	55	29	16	55	29	12	54	34	15	55	30
	OECD average	13	55	33	11	53	37	8	52	40	10	54	36
	EU23 average	10	54	35	8	52	40	6	51	43	9	53	39
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	11	67	21	12	65	23	11	65	24	11	66	23
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	6	64	29	10	68	22	10	68	22	8	66	26
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	m	m	m

1. Primary includes pre-primary education.
2. Upper secondary includes programmes outside upper secondary level - see Annex 3 for further details.
3. Public and government-dependent private institutions only.
4. For Ireland, public institutions only. For Israel, private institutions are included for all levels except for pre-primary and upper secondary levels.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D5.2. Gender distribution of teachers (2017)

Percentage of female teachers in public and private institutions by level of education, based on head counts

		Pre-primary	Primary	Lower secondary	Upper secondary			Post-secondary non-tertiary	Tertiary			All levels of education
					General programmes	Vocational programmes	All programmes		Short-cycle tertiary	Bachelor's, master's and doctoral or equivalent	All tertiary	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD	**Countries**											
	Australia	m	m	m	m	m	m	m	m	46	m	m
	Austria	99	92	72	64	50	55	69	52	40	42	67
	Belgium	97	82	64	63	63	63	43	x(10)	x(10)	49	70
	Canada	x(2)	75 d	x(2)	x(6)	x(6)	75	m	54	43	49	m
	Chile	99	81	68	58	51	56	a	m	m	m	m
	Colombia	97	77	53	x(6)	x(6)	46	66	36	38	37	60
	Czech Republic	99	94	78	60	60	60	38	60	38	38	76
	Denmark[1]	88	x(3)	69 d	54	m	m	a	m	m	m	m
	Estonia[1,2]	99	90	83	77	61 d	69 d	x(5)	a	49	49	83
	Finland	97	80	75	70	55	60	55	a	52	52	74
	France[3]	89	84	60	60	59	60	40	52	41	44	68
	Germany	96	87	67	57	49	55	59	41	39	39	67
	Greece	99	71	67	56	50	54	55	a	34	34	65
	Hungary	100	97	77	65	55	63	60	x(10)	x(10)	40	75
	Iceland	95	83	83	m	m	m	m	m	m	m	m
	Ireland[4]	99	86	x(4, 6)	70 d	a	70 d	m	x(10)	x(10)	45	m
	Israel[4]	99	85	79	x(6)	x(6)	70	m	m	m	m	m
	Italy[2]	99	96	77	71	62 d	66 d	x(5)	a	37	37	78
	Japan[2]	97	64	43	x(6)	x(6)	31 d	x(6, 8, 9)	50 d	23 d	28 d	48
	Korea	99	78	70	53	46	52	a	45	33	35	62
	Latvia	100	92	85	83	73	80	66	66	55	56	84
	Lithuania	99	97	83	82	71	79	66	a	57	57	82
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m
	Mexico	96	68	53	50	47	48	a	m	m	m	m
	Netherlands	88	87	53	53	53	53	a	x(10)	x(10)	46	66
	New Zealand	97	84	67	61	59	61	54	49	50	50	72
	Norway	92	75	75	54	54	54	54	54	46	46	66
	Poland	98	85	73	70	63	66	69	67	45	45	75
	Portugal[2]	99	81	72	x(6)	x(6)	69 d	x(6, 10)	x(10)	x(10)	44 d	71
	Slovak Republic	99	90	77	73	71	72	68	58	45	46	77
	Slovenia	97	88	88	67	67	67	a	49	41	43	78
	Spain	93	77	60	58	51	55	a	50	42	43	65
	Sweden	95	76	76	x(6)	x(6)	54	44	44	45	45	75
	Switzerland[2]	97	83	55	47	44 d	45 d	x(5)	a	36	36	61
	Turkey	94	61	57	49	49	49	a	40	45	44	56
	United Kingdom	96	85	62	61	58	60	a	x(10)	x(10)	45	68
	United States	94	87	67	58	a	58	x(10)	x(10)	x(10)	50 d	70
	OECD average	97	83	69	62	57	60	m	m	42	44	70
	EU23 average	97	87	72	66	m	63	m	m	m	45	73
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m
	Brazil	95	89	68	60	50	59	47	44	46	46	71
	China	97	66	55	x(6)	x(6)	52	m	m	m	m	m
	Costa Rica	94	79	57	56	59	57	a	57	45	45	69
	India	m	51	46	x(6)	x(6)	42	m	x(10)	x(10)	41	m
	Indonesia	96	66	55	x(6)	x(6)	54	a	x(10)	x(10)	43	63
	Russian Federation[5]	99	96	81 d	x(3)	x(8)	x(3.8)	x(8)	72 d	52	59 d	82
	Saudi Arabia	100	m	m	m	m	m	a	x(10)	x(10)	41	m
	South Africa[5]	m	m	x(6)	x(6)	x(6)	58 d	47	m	m	m	m
	G20 average	96	77	61	m	m	55	m	m	m	43	m

Note: The data in "All levels of education" do not include early childhood educational development (ISCED 01).

1. Pre-primary includes early childhood education.
2. Upper secondary includes programmes outside upper secondary level - see Annex 3 for further details.
3. Public and government-dependent private institutions only for all levels except for tertiary. For tertiary education, public institutions only.
4. For Ireland, public institutions only for all levels except pre-primary, where data include independent private institutions only. For Israel, private institutions are included for all levels except for pre-primary and upper secondary levels.
5. Year of reference 2016 instead of 2017

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D5.3. Gender distribution of teachers by age group (2017) and percentage of female teachers for all ages (2005 and 2017)

Percentage of female teachers, by age group and level of education

		Primary		Lower secondary		Upper secondary		All tertiary		Total primary to upper secondary		All tertiary	
		2017		2017		2017		2017		2005	2017	2005	2017
		< 30 years	>= 50 years	< 30 years	>= 50 years	< 30 years	>= 50 years	< 30 years	>= 50 years	All ages			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Countries												
	Australia	m	m	m	m	m	m	m	m	m	m	m	m
	Austria	94	91	76	73	72	53	53	37	m	74	m	42
	Belgium	85	79	71	59	68	58	67	44	65 d	70	41	49
	Canada[1]	83 d	70 d	x(1)	x(2)	83	70	60	44	73	75	48	49
	Chile	80	81	70	65	60	49	m	m	70	71	m	m
	Colombia	72	77	55	53	48	47	46	29	m	64	m	37
	Czech Republic	92	95	73	82	52	58	m	m	71 d	76	40	38
	Denmark	x(3)	x(4)	69 d	69 d	m	m	m	m	m	m	m	m
	Estonia[2]	84	92	75	85	60 d	72 d	50	46	m	83 d	48	49
	Finland	81	76	77	73	68	56	45	52	69	72	47	52
	France[3]	89	77	64	57	63	56	56	38	65	68	38	44
	Germany[4]	92	85	79	67	72	50	45	30	65	70	32	39
	Greece	88	60	78	62	75	48	47	32	59	66	36	34
	Hungary	92	97	71	76	61	59	44	35	79	78	39	40
	Iceland	73	84	73	84	m	m	m	m	m	m	m	m
	Ireland[5]	81	86	x(5)	x(6)	66 d	69 d	m	m	72	79	39	45
	Israel[5]	91	83	86	76	83	65	m	m	79	80	m	m
	Italy[2]	92	96	64	77	66 d	66 d	51	33	78	79 d	34	37
	Japan[2]	65	68	45	40	38 d	23 d	49 d	25 d	46	49 d	18	28 d
	Korea	73	88	72	58	69	30	67	22	61	67	31	35
	Latvia	84	94	69	85	60	82	58	54	m	87	m	56
	Lithuania	89	97	74	81	67	79	58	53	84 d	85	53	57
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	m	m	m	m	m	m	m	m	56	58	m	m
	Netherlands	88	84	62	45	65	46	51	36	66 d	69	35	46
	New Zealand	87	86	74	66	64	60	50	48	69	72	50	50
	Norway	69	78	69	78	60	48	45	43	m	69	m	46
	Poland	82	87	65	74	62	62	m	m	76	77	41	45
	Portugal[2]	85	79	60	72	56 d	69 d	44	39	74	74 d	42 d	44
	Slovak Republic	86	93	77	79	78	72	58	42	77	79	42	46
	Slovenia	88	88	88	88	70	62	63	38	78	83	33	43
	Spain	80	76	66	58	61	52	50	37	62	66	39	43
	Sweden	70	77	70	77	53	51	47	43	m	70	m	45
	Switzerland[2]	89	79	68	49	58 d	41 d	56	30	62	65 d	32	36
	Turkey	73	39	65	35	64	32	53	31	m	55	38	44
	United Kingdom	83	89	65	58	63	55	50	41	68	72	40	45
	United States[6]	88	88	69	68	62	56	m	m	74	75	44 d	50 d
	OECD average	83	82	70	68	64	56	52	39	69	72	39	44
	Average for countries with available data for both reference years	–	–	–	–	–	–	–	–	68	72	39	44
	EU23 average	86	86	71	71	65	61	m	m	m	75	m	45
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	82	92	61	71	55	60	50	42	m	73	m	46
	China	m	m	m	m	m	m	m	m	m	60	m	m
	Costa Rica	67	81	56	58	56	58	46	40	m	69	m	45
	India	m	m	m	m	m	m	m	m	m	48	m	41
	Indonesia	m	m	m	m	m	m	m	m	m	61	m	43
	Russian Federation[6]	m	m	m	m	x(3, 7)	x(4, 8)	64 d	54 d	86	85	51 d	59 d
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	41
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m
	G20 average	m	m	m	m	m	m	m	m	m	66	m	43

1. Primary includes pre-primary education.
2. Upper secondary includes programmes outside upper secondary level - see Annex 3 for further details.
3. Public and government-dependent private institutions only for all levels except for tertiary. For tertiary education, public institutions only.
4. Year of reference 2006 instead of 2005.
5. For Ireland, public institutions only. For Israel, private institutions are included for all levels except for pre-primary and upper secondary levels.
6. Tertiary includes programmes outside tertiary level - see Annex 3 for further details.

Source: OECD/UIS/Eurostat (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

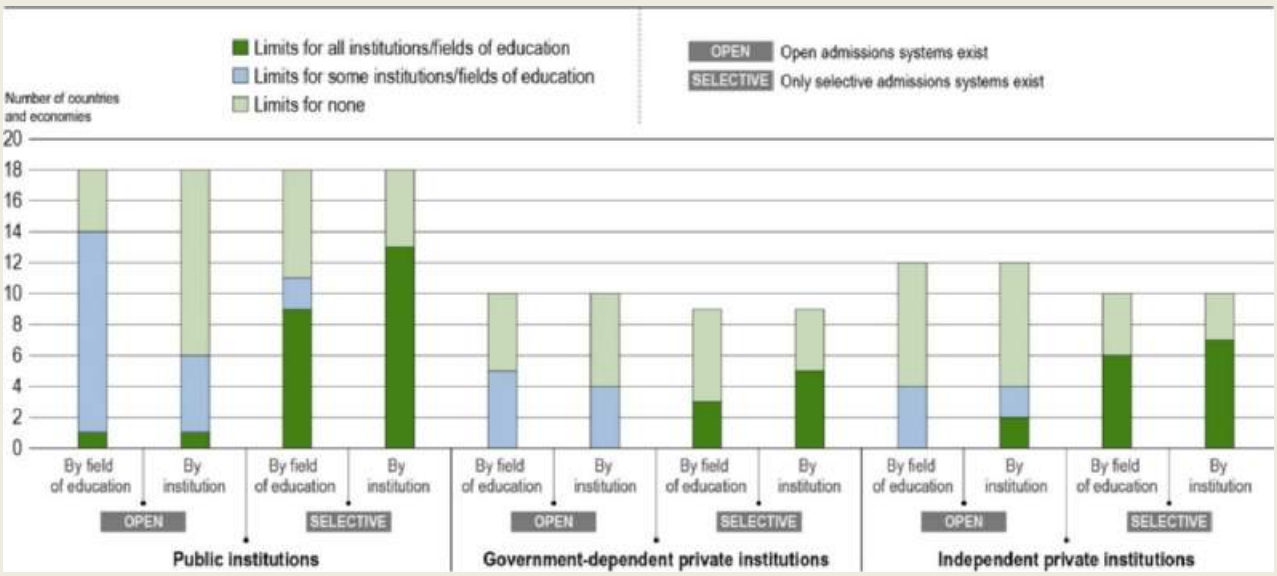
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Indicator D6. What are the admission systems for tertiary education?

Highlights

- More than half of countries and economies with available data have open admissions systems (meaning all applicants with the minimum qualification level required are admitted) to at least some public and/or private institutions. Access to certain fields of education and/or institutions can still be subject to some selection criteria in these countries.
- National/central examinations, taken towards the end of upper secondary education, and entrance examinations administered by tertiary institutions, are the most widely used examinations/tests for entry into first-degree tertiary programmes.
- Factors other than the results of national/central examinations are also taken into account by selective institutions in most countries, although used to differing extents. The criteria most used for admission to public tertiary institutions are grade point averages, candidate interviews and work experience.

Figure D6.1. Use of limits on number of students entering fields of education and institutions within countries with open and selective systems (2017)



How to read this figure: First-degree tertiary programmes within countries with open admissions systems can still be subject to limitations on the number of places available, either by field of education or institution. These limits may affect all fields of education or types of institutions, only some, or none at all. Similarly, for countries with selective systems, limits may be set with reference to field of study and/or institutions. As such, a country with a selective system may still report no limits (none) for one of these dimensions.
Note: Of the 38 countries that participated in the survey, this figure does not include those for which the information is missing or not applicable.
Source: OECD (2017), Tables D6.1a, D6.1b and D6.1c. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Context

Increasing numbers of students are enrolling in tertiary education across OECD countries. This expansion in enrolment reflects a variety of factors. First, more students are achieving the minimum educational attainment required to enter tertiary institutions, which in turn increases the potential demand for tertiary education (see Indicator B3). At the same time, the positive relationship between educational attainment levels and opportunities in the labour market may further increase demand, especially in countries with high unemployment rates or when there is an economic crisis: the strong personal financial incentives to invest in education could encourage individuals with a secondary qualification to continue their studies (see Indicators A4 and A5).

Tertiary enrolment is also affected by the number of places available within tertiary institutions. Given the rising demand for tertiary education, educational institutions and policy makers face new challenges in ensuring there are enough student places. In the meantime, increased demand could result in increased competition between students wishing to enter tertiary education. Decisions about the number of places available in the different fields of tertiary education are more strongly linked to the needs of the labour market in some countries than in others. This matching of skills of tertiary-educated people to meet labour-market demand may have an impact on enrolment and the selectivity of admissions to different fields of tertiary education.

Admission systems to tertiary education may be designed to combine different objectives. On the one hand, admission criteria may be used to ensure that applicants have the skills to successfully complete the educational programme they apply to (see Indicator B5). On the other hand, fewer admission criteria may help to provide a larger access to tertiary studies and meet equity concerns.

Analysis of the national criteria and admission systems for students to apply and enter first-degree tertiary programmes highlights differences across countries between open and selective admission systems and the proportions of applicants who successfully meet admission criteria and processes. However, this does not cover the selectivity that may occur during studies (for example students dropping out of a programme as they fail in intermediate tests or do not progress at the desired pace).

Other findings

- In about half of countries and economies with available information, the government sets minimum academic performance requirements for entry into tertiary education (for first degrees) by field of education and/or by tertiary institution, on top of the usual qualification requirements. These performance requirements are most often based on secondary school certificates or report cards, including students' grades or the results of upper secondary national/central examinations.
- In more than two-thirds of the countries and economies with available data, national/central examinations, other standardised tests at upper secondary level and/or entrance examinations to tertiary institutions are compulsory requirements to enter at least some fields of study in public tertiary institutions.
- Students are required to apply directly to public tertiary institutions in nearly half the countries and economies, while a similar number of countries use a centralised system or a combination of both approaches for admission to public institutions. Applications to private tertiary institutions are less frequently processed through a centralised application system.
- Application and admission systems to first-degree tertiary programmes (in public and private institutions) are similar for national and non-national or international students in about half the countries and economies with available data.

Analysis

Organisation of the system: Open versus selective admissions

Admission systems to first-degree tertiary programmes reflect the way tertiary education is structured and organised within countries. Public institutions are a common feature of tertiary education systems in nearly all the countries and economies with available data and most tertiary students are enrolled in public institutions on average across OECD countries (see Figure B1.3). Private tertiary institutions are almost as widespread, with only Denmark and Greece not having any government-dependent or independent private institutions for first-degree tertiary programmes. In around half the countries and economies with available data, government-dependent private institutions are also part of the tertiary education landscape (Table D6.1a, and Tables D6.1b and D6.1c available on line).

The use of open admissions, or unselective enrolment – the admission of all applicants with the required attainment level into first-degree tertiary programmes –, is fairly common among both public and private tertiary institutions. Half of the countries and economies with available information on public institutions have at least some institutions with open admission systems. The prevalence of open admissions systems in private tertiary institutions is similar: nearly half of all countries and economies with government-dependent private institutions and nearly half of those with independent private institutions report the use of open admission systems in at least some of these tertiary institutions. However, open admission systems may still include some limits on the number of places available in first-degree tertiary programmes (Figure D6.1). Enrolment can be limited for specific fields of education and/or for specific tertiary institutions, with entry decided on the basis of some selection criteria (Table D6.1a, and Tables D6.1b and D6.1c, available on line).

Limitations on the number of places in specific fields of study

For public tertiary institutions, half of countries and economies with available data (18 out of 36 countries and economies) have an open admission system, and most of these countries have some limitations in the admission system for at least some fields of study. For example, in Germany, enrolment into some fields of study is limited, using quotas if the total number of applicants exceeds the number of places available across all higher education institutions. For these fields a selection procedure applies, which takes into account the grade obtained in the *Abitur* (the upper secondary school-leaving examination in Germany, also used as the higher education entrance qualification). In New Zealand, there is a fixed number of places for certain subjects, such as dentistry, aviation, veterinary science and medical degrees. Limits on the number of students entering into health/medical programmes are a feature of admission to public tertiary institutions in several other countries (Table D6.1a). Similar use of numerical limits can be observed among government-dependent private and independent private institutions (Tables D6.1b and D6.1c, available on line).

Half of the countries with available information operate selective admission systems for first-degree tertiary programmes in public institutions. Compared with countries with an open system, a smaller proportion of these countries have limitations on the number of places by field of study. However, when limitations are set, they are usually for all fields rather than for some of them. Among government-dependent private and independent private institutions, numerical limitations are also set for all fields of study in selective systems, and for some fields only in open systems (Figure D6.1). These limitations on the number of places may affect the selectiveness of the different fields (Box D6.1).

Limitations on the number of places in specific institutions

Countries with selective systems are more likely to have limits on enrolment into particular tertiary institutions than on fields of studies. These limitations are then set for all institutions within public, government-dependent and independent private institutions.

In public institutions, among the 18 countries with selective systems, 13 countries set limits on enrolment in first-degree tertiary programmes for all institutions. For example, in Turkey these limits on enrolment are decided by central authorities for all public institutions. However, countries with open admission systems may also have limits on enrolment in tertiary institutions. For example in the United States, limits on enrolment are set by the institutions themselves. In general, tertiary institutions within the United States encompass a broad range of selectivity since admission decisions are made at the institution level. While many institutions are open admission, others are moderately or highly selective (Figure D6.1).

There are similar patterns in admission systems for government-dependent private and independent private institutions. However, the central level is less often the only responsible authority to set enrolment limits in these types of institutions. The central level is the only responsible authority to set these limits on enrolment in Israel (for all government-dependent private institutions) and in Turkey (for all independent private institutions) (Tables D6.1b and D6.1c, available on line).

Box D6.1. Attractiveness and selectivity of different fields of study

In 2017, to complement the data collection on admission systems to first-degree tertiary programmes, the OECD carried out a survey on the number of applicants and applications to first-degree tertiary programmes. Among the 30 countries and economies that responded to the survey, about half provided some breakdown of the data on applications and/or applicants by field of studies.

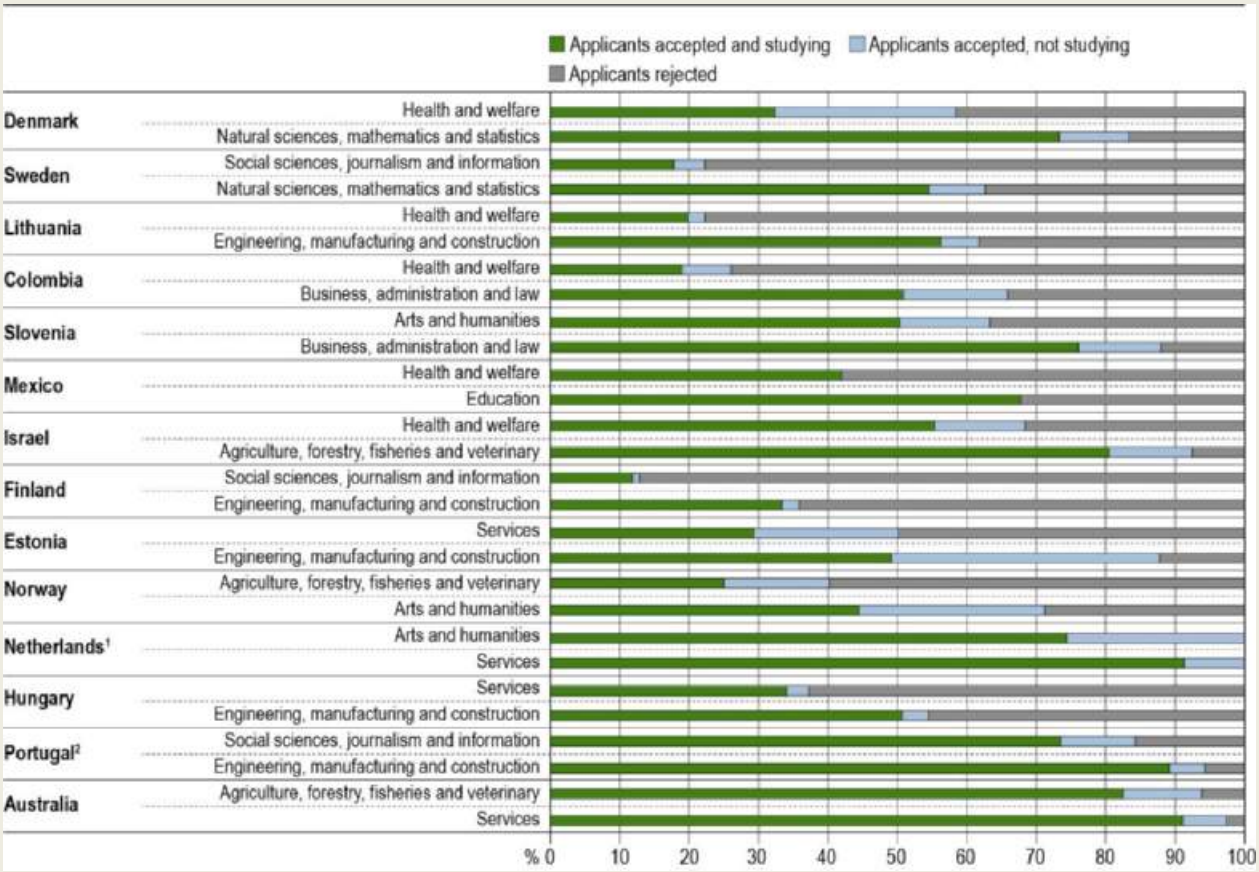
Only 11 countries provided the necessary data to compute the number of applications per applicant in the different fields of study. These ratios vary widely across countries and across fields in these countries. However, their interpretation is difficult as their values are related to the characteristics of the admission system. For example, in countries with central admission systems, students make only one application with different preferences (that are not necessarily counted as several applications), whereas in countries without central admission systems, similar preferences would result in multiple applications. Moreover, the amount of fees and their differentiation between fields may also have an impact on applications.

Another way to estimate the attractiveness and selectivity of a field is to look at the results of applicants' applications, although this does not allow selectivity to be distinguished from attractiveness. As an applicant can make several applications, the best result of these applications is taken into account for the analysis. Either the applicant is accepted and studying; or the applicant is accepted but not studying; or the applicant is rejected when all applications have failed. Only 14 out of 30 countries that submitted the questionnaire provided a breakdown of the number of applicants in each field of education by the best results of their applications, so that applicants are counted only once (Figure D6.a). The fact that this breakdown of the data is not available in some countries may result from the existence of open admission systems allowing students to enter the field of their choice without a specific application process. This is the case in the French and Flemish communities of Belgium.

Among countries with available data, the distribution of applicants by the best result of their applications varies widely between countries, and also between the different fields of education within countries. For example, in Australia, the proportions of applicants accepted and studying varies by less than 10 percentage points across fields of education, from 83% (agriculture, forestry, fisheries and veterinary) to 91% (information and communication technologies), whereas in Denmark, it varies by 40 percentage points, from 32% (health and welfare) to 73% (natural sciences, mathematics and statistics). Among these 14 countries, the fields with the lowest or highest proportions of applicants accepted and studying also vary between countries. Health and welfare is the broad fields with the lowest proportion of applicants accepted and studying in five countries, whereas engineering, manufacturing and construction is the fields with the highest proportions in five countries. Low proportions of applicants accepted and studying may result from fields being highly attractive and/or highly selective (Figure D6.a).

Figure D6.a. Applicants to first-degree tertiary education by applicant status, by fields of study (2016)

Fields of studies with the minimum and maximum proportions of applicants accepted and studying.



1. Applicants accepted, not studying also includes applicants rejected.
2. Year of reference 2017.

Countries are ranked in decreasing order of the difference in the proportion of applicants accepted and studying between the two fields of studies selected.

Source: 2017 OECD-INES NESLI survey on applicants and applications to tertiary education.

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The proportions of rejected applicants and applicants who have been accepted but are not studying (deferred), also vary widely between countries and fields of education. However, the proportion of applicants accepted but not studying is usually much smaller in all countries and in all fields.

These differences in the proportions of applicants accepted and studying, accepted and not studying, and rejected according to fields of education provide some insight into the selectivity of these different fields and/or their attractiveness. However, these figures should be interpreted with caution, because these results come in the context of more general patterns in countries' application systems. For example, these comparisons can be affected by international students: large proportions of international students applying to tertiary education can bias the comparison, especially if these students do not apply to similar fields as other students.

Qualification and performance requirements to enter first-degree tertiary programmes

In all countries, access to first-degree tertiary programmes (in public or private institutions) requires a minimum qualification level, which is usually an upper secondary qualification. Governments may also require some minimum academic performance from upper secondary graduates to access first-degree tertiary programmes (Table D6.3).

In half of the countries and economies with available information (19 out of 38), the government also sets minimum academic performance requirements for students to enter at least some first-degree tertiary programmes or institutions. These minimum requirements are more often set for specific fields of study rather than specific tertiary institutions. In 14 countries, minimum performance criteria are defined for some or all fields of studies, whereas only 8 have minimum performance criteria for some or all tertiary institutions. In Colombia, Greece and Portugal, these performance requirements relate to both fields of studies and tertiary institutions (Table D6.3).

Countries may use a range of different tools to assess students' minimum performance, but the most frequently used are secondary school certificates or report cards (including students' grades) and the results of upper secondary national/central examinations (Table D6.3).

Examinations and tests used by public tertiary institutions to determine access to first-degree programmes

On top of entrance examinations administered to applicants to tertiary institutions, several types of examinations or tests administered to upper secondary students can also be used in the admission system (national/central examinations, non-national/central standardised examinations and non-national/central non-standardised examinations). There is wide variation among countries in the combination of different types of examinations available and on the way these are used as criteria for access to tertiary education. Among all countries with available information, only Latvia has all these types of examinations/tests (although they are not all used to determine access to tertiary education). In contrast, in countries such as Brazil, Colombia, Denmark, Hungary, Italy, Portugal and Spain, only national/central examinations exist (and are used in some of these countries to determine access to tertiary education).

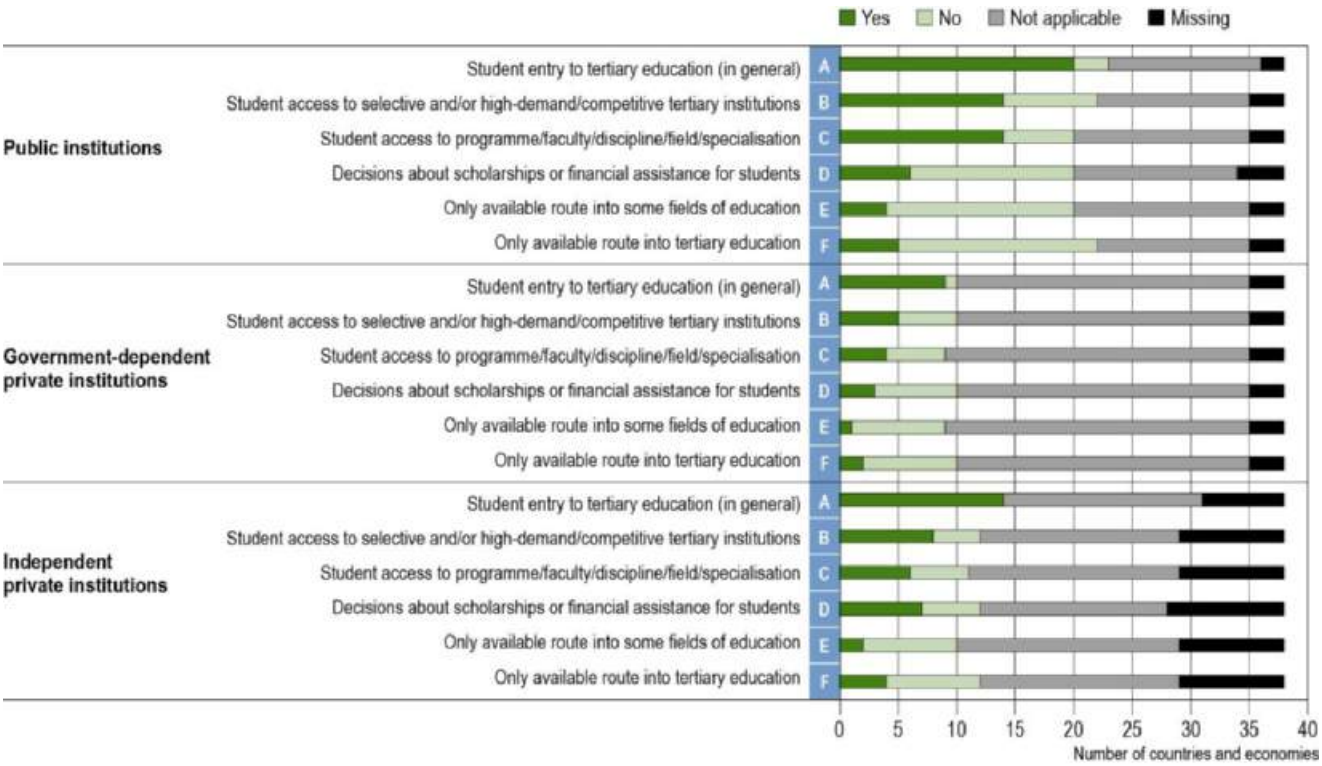
The completion of national/central examinations towards the end of upper secondary education and/or entrance examinations to tertiary education (not administered by upper secondary schools) can be compulsory requirements to access first-degree programmes. In more than half of countries, the completion of national/central examinations (standardised tests that have a formal consequence for students) is compulsory to enter most or all public tertiary institutions. Entrance examinations are compulsory to enter public tertiary institutions for at least some fields of study in one-third of countries. In some countries, such as Estonia, Latvia, Lithuania, Luxembourg, Norway, the Russian Federation, Slovenia and Switzerland, students must take both types of tests to enter some fields of study. Other examinations (non-national/central examinations either standardised or non-standardised) are compulsory in very few countries (Table D6.2a).

These examinations and tests can be used in the admission process even when they are not compulsory. National/central examinations at the end of upper secondary level are used for entry into fields of study in public institutions in most countries with available data (23 countries). Entrance examinations to public institutions are also administered and used for admission in at least some fields of study in about half of the countries with available data (17 countries) (Table D6.5a).

For public institutions, these two types of tests are of particular relevance for students wishing to access tertiary institutions or specific fields or specialisations that are selective and/or in high demand. Public institutions in six countries also use these results for making decisions about scholarships and other financial assistance (Figure D6.2).

Figure D6.2. Purposes and uses of national/central examinations as admission criteria to tertiary institutions (2017)

National/central examinations refer to examinations for students at the end of upper secondary level



Source: OECD (2017), Tables D6.5a, D6.5b and D6.5c. See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

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Additional factors used for admission to first-degree tertiary programmes

Admission criteria for first-degree tertiary programmes extend beyond the results of examinations and tests of students. For entry into public tertiary institutions, grade point averages from secondary school are used in one-third of countries (with either open or selective admission systems) with a further one-quarter of countries reporting that institutions have autonomy over their use. However, this factor was considered to be of moderate or high importance in determining the success of a student's application in over half of these countries. More than two-thirds of countries indicate that candidate interviews are used, either across all public tertiary institutions (one-quarter of countries) or at the discretion of public tertiary institutions (more than one-third of countries) (Table D6.2a).

In a significant number of countries, public institutions also use other factors to determine access to first-degree programmes (e.g. past work experience, family income, recommendations). Most often, they are used in combination. An exception is Hungary, which uses only one criterion (grade point average from secondary schools) in addition to the successful completion of national examinations (Table D6.2a).

Grade point averages from secondary school, interviews and past work experience are also the most frequently used criteria in the admission process to first-degree programmes in private tertiary institutions (government-dependent and independent private institutions). However, in contrast to admission systems to public tertiary institutions, the use of these criteria is largely at the discretion of institutions (Tables D6.2b and D6.2c available on line).

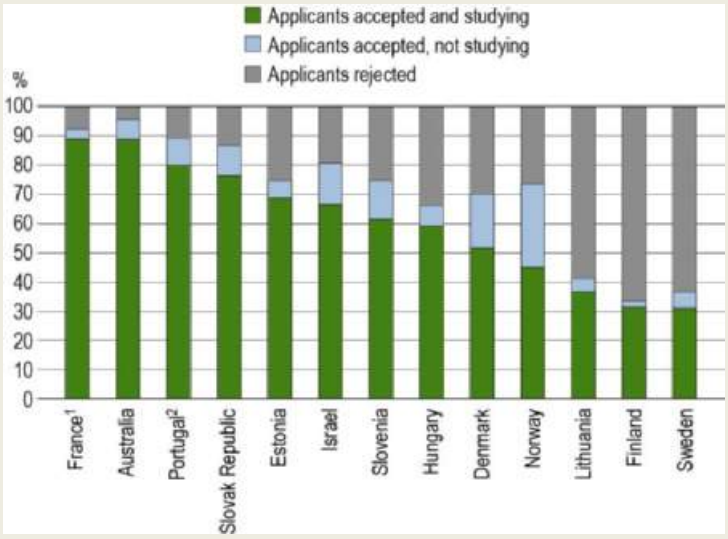
More generally, the number of factors used in the admission systems combined with the difficulty to meet these criteria may increase the selectivity of these admission systems. Another proxy for the degree of selectivity may relate to the proportion of applicants who are not successful in the applications. The most selective systems may be those with the highest proportions of applicants whose applications were rejected (Box D6.2).

Box D6.2. Variation in the proportion of applicants rejected

Among the 19 countries with data on the number of applicants, only 13 can report the distribution of applicants by result of their applications, based on the best result of their applications (Figure D6.b). In this figure, the proportion of rejected applicants reflects the share of applicants who did not receive a positive answer to any of the applications that they may have made.

The proportion of rejected applicants varies from less than 5% in Australia to more than 60% in Finland and Sweden. In both these countries, admissions are restricted for all programmes and fields of study, and the number of admissions results from a negotiation between tertiary institutions and the central government. In Australia, France, Portugal and the Slovak Republic, less than 15% of applicants are rejected, but these countries' admission systems differ widely. France has an open admission system with selection limited to some fields or institutions (among public institutions that enrolled most of the students). In Australia, Portugal and the Slovak Republic, there are different limitations in the number of places offered to students. In Australia, there are no limitations in the number of available positions in different institutions or fields of study (with the exception of medicine); in the Slovak Republic, there are limitations only on some public institutions; and in Portugal, there are limitations on all fields and all institutions.

Figure D6.b. Applicants to first-degree tertiary education by applicant status (2016)



1. Including applicants to short-cycle tertiary programmes.
2. Year of reference 2017.

Countries are ranked in descending order of the proportion of applicants accepted and studying.

Source: 2017 OECD-INES NESLI survey on applicants and applications to tertiary education.

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These differences between countries show that limitations exist, but do not necessarily show the degree of selectivity of the whole system. More details on the total number of positions available would be necessary to

assess how selective the tertiary education system is. Moreover, when the main selection of students to academic tracks is done at secondary level, there might not need to be strong selection as such to enter tertiary education, but the admission process could still be selective.

Not all applicants who were successful in the admission process enrol in these programmes. In the 13 countries with available data, the proportion of applicants accepted but not studying exceeds 10% in Denmark, Israel, the Slovak Republic and Slovenia and 25% in Norway. The possibility to defer enrolment may explain the differences between the number of successful applicants and new entrants.

Student application and admission processes to tertiary institutions

Application and admission processes to first-degree tertiary programmes in public institutions vary significantly between countries. Students are required to apply directly to public tertiary institutions in close to half of the countries with available information, while in around one-quarter of countries students apply through a centralised system. The remaining countries combine a centralised application system with direct applications to public tertiary institutions.

When a centralised system is used (either as the only application system or in combination with direct applications), the number of preferences that students can specify may be limited, as can the number of offers they receive following their applications. The number of preferences an applicant can specify when applying to public institutions cannot exceed 2 in Brazil and 3 in Canada, the Netherlands, Slovenia and the Russian Federation, but applicants can specify 20 or more preferences in France and Turkey. In Italy and New Zealand, there is no maximum number of applications. In Greece, the number of preferences is not restricted, except in the two scientific domains that a candidate is eligible to choose (among the five scientific domains possible). Regardless of the maximum number of applications, applicants receive just one offer in most countries with a centralised system. Nevertheless, there is no limit on the number of offers made in Australia, Canada, Italy and Korea, which use combined centralised and direct application systems to tertiary institutions (Table D6.1a).

Applications to private tertiary institutions are less likely to be processed through a centralised application system. However, a central system is the only (or main) way to apply to private institutions in a few countries (Chile, Finland and Sweden for government-dependent private institutions, and Hungary and Turkey for independent private institutions). Applications are made directly to private institutions in nearly half of the countries with government-dependent private institutions, and in most countries with independent private institutions. However, one-third of countries with these types of tertiary institutions combine a centralised application system with a direct application process (Tables D6.1b and D6.1c, available on line).

Application and admission process for non-national or international students

The international mobility of tertiary students has increased a lot in recent years (see Indicator B6) and admission systems to tertiary education can play a role to promote (or not) this pattern. As noted in *Education at a Glance 2017* (OECD, 2017[1]), around half of countries and economies have similar systems for non-national or international students as for national students (either citizens or permanent residents in the country). In one-quarter of countries, international applicants from some countries undergo a similar process as for national applicants. This is usually the case for applicants from European Union (EU) countries applying to tertiary institutions in another EU country but is also the case, for example, in Norway for national students and international students from the other Nordic countries. In one-quarter of countries, the application and admission process for non-national or international students is different to that for national students.

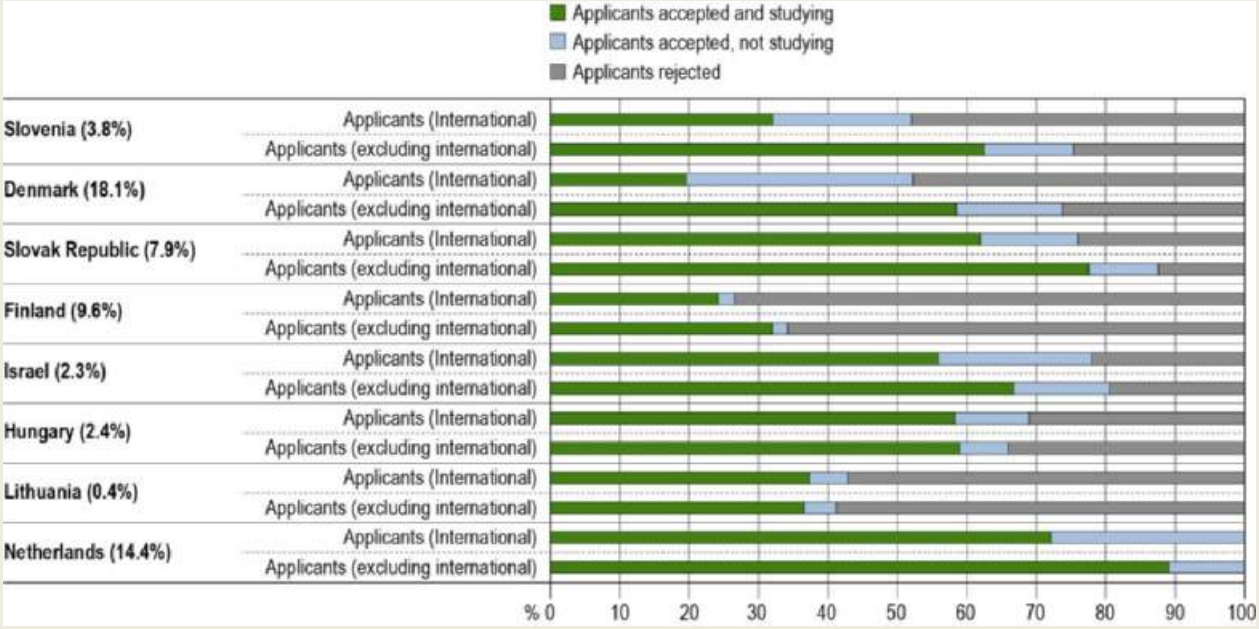
Even where application systems are similar for non-national or international and national students, additional or specific admission criteria are used for international students (Table D6.9 in OECD (2017[1])). These differences, combined with differences in tuition fees and other factors, may have an impact on the applications or on the results of the applications of international students (Box D6.3).

Box D6.3. Applicants and applications to tertiary education, by international status of applicants

In the 2017 survey on the number of applicants and applications to first-degree tertiary programmes, about one-third of the 30 countries and economies that responded to the survey provided some breakdown of the data distinguishing international students from others.

Nine countries provided data to distinguish international applicants from others in the distribution of applicants by the outcomes of their applications (accepted and studying, accepted and not studying, and rejected). In these countries, the number of applications per applicant is usually similar for international students and others (Figure D6.c). The proportions of rejected applicants are also mostly similar between international applicants and others in Finland, Hungary and Israel (a difference of less than 10 percentage points). However, the difference between these proportions exceeds 20 percentage points in Denmark (where international applicants represent 18% of all applicants) and Slovenia (where international applicants account for less than 6% of applicants).

Figure D6.c. Applicants to first-degree tertiary education, by applicant status and international status of applicants (2016)



Note: The figure in parentheses refers to the proportion of international applicants among all applicants.
Countries are ranked in descending order of the difference in the proportion of applicants rejected between international applicants and others.
Source: 2017 OECD-INES NESLI survey on applicants and applications to tertiary education.

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While in some countries, there are specific admissions processes for non-national/international students to tertiary education, in these countries, there was no differentiation as such. However, additional or specific admission criteria are used for international applicants in all these countries, except Denmark (the information was missing for the Slovak Republic). The seven countries with available information request the successful completion of home country school system and an accredited home country school certificate. Most of these countries also required an international qualification and language proficiency as part of their criteria. None of them requested proof of sufficient funds [Table D6.9 (OECD, 2017[1])].

Definitions

A **standardised examination or test** refers to a test that is administered and scored under uniform conditions across different schools so that student scores are directly comparable between schools. In some cases, it also refers to multiple choice or fixed answer questions as this makes it easy and possible to score the test uniformly. However, with rubrics and calibration of test examiners (persons who manually score open-ended responses), one can also find standardised tests that go beyond multiple choice and fixed answers.

National/central examinations are standardised tests that have a formal consequence for students, such as their eligibility to progress to a higher level of education or to complete an officially recognised degree. They assess a major portion of what students are expected to know or be able to do in a given subject. Examinations differ from **assessments** in terms of their purpose. National assessments are mandatory but, unlike examinations, they do not have an effect on students' progression or certification.

Other (non-national/central) standardised examinations are standardised tests that are administered and scored under uniform conditions across different schools at the state/territorial/provincial/regional or local level so that student scores are directly comparable.

Entrance examinations are examinations not administered by upper secondary schools that are typically used to determine, or help to determine, access to tertiary programmes. These examinations can be devised and/or graded at the school level (i.e. by individual tertiary institutions or a consortium of tertiary institutions), or by private companies.

First-degree tertiary programmes refer to first-degree bachelor's programmes/applied higher education programmes and first-degree master's programmes as defined in ISCED 2011.

Open admission: An open or unselective admission system (as opposed to selective systems) to tertiary programmes refers to a system in which all applicants with the required minimum attainment level can enrol in the programme, without the need to meet other criteria.

Public tertiary institution: An institution is classified as public if it is: 1) controlled and managed directly by a public education authority or agency of the country where it is located; or 2) controlled and managed by a government agency directly or by a governing body (council, committee etc.), most of whose members are either appointed by a public authority of the country where it is located or elected by public franchise.

A **government-dependent private tertiary institution** is one that either receives at least 50% of its core funding from government agencies or one whose teaching personnel are paid by a government agency – either directly or through government

An **independent private tertiary institution** is one that receives less than 50% of its core funding from government agencies and whose teaching personnel are not paid by a government agency.

Methodology

This indicator is based on a survey on national criteria and admission systems for students to apply and enter first-degree tertiary programmes focusing on formal requirements, rather than actual practice. As practices can vary considerably within individual schools and tertiary institutions, this indicator cannot capture the diverse array of practices that exist.

Please see Annex 3 for more information and for country-specific notes (https://doi.org/10.1787/f8d7880d-en).

Source

Data are from two surveys: the 2016 OECD-INES NESLI survey on national criteria and admission systems for students to apply and enter first-degree tertiary programmes, which refers to the school year 2016/17, and the 2017 OECD-INES NESLI survey on applicants and applications to tertiary education, which refers to the school year 2015/16.

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

References

OECD (2017), *Education at a Glance 2017: OECD Indicators*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eag-2017-en. [1]

Indicator D6 Tables

Table D6.1a Organisation of admission system and application process to first-degree tertiary programmes in public institutions (2017)

WEB Table D6.1b Organisation of admission system and application process to first-degree tertiary programmes in government-dependent private institutions (2017)

WEB Table D6.1c Organisation of admission system and application process to first-degree tertiary programmes in independent private institutions (2017)

Table D6.2a Examinations and additional criteria used for admission to first-degree tertiary programmes in public institutions (2017)

WEB Table D6.2b Examinations and additional criteria used in admission system to first-degree tertiary programmes in government-dependent private institutions (2017)

WEB Table D6.2c Examinations and additional criteria used in admission system to first-degree tertiary programmes in independent private institutions (2017)

Table D6.3 Minimum qualification and academic performance requirements for entry into tertiary education (government perspective) (2017)

WEB Table D6.4 Authorities responsible for examination systems for entry/admission into first-degree tertiary programmes (2017)

WEB Table D6.5a Purposes and uses of examinations/tests in criteria to determine entry/admission into first-degree tertiary programmes at public institutions (2017)

WEB Table D6.5b Purposes and uses of examinations/tests in criteria to determine entry/admission into first-degree tertiary programmes at government-dependent private institutions (2017)

WEB Table D6.5c Purposes and uses of examinations/tests in criteria to determine entry/admission into first-degree tertiary programmes at independent private institutions (2017)

Cut-off date for the data: 19 July 2019. Any updates on data can be found on line at https://doi.org/10.1787/f8d7880d-en.

StatLink: https://doi.org/10.1787/888933981286

Table D6.1a. Organisation of the admission system and application process to first-degree tertiary programmes in public institutions (2017)

		Organisation of the admission system						Application process		
			Fixed limited number of student positions (selective institutions)						In the case of centralised systems	
		Existence of open admissions	By field of study	By tertiary institutions	Authority responsible for setting the number of student positions	Model used to distribute student places	Model used to fund degree programmes	Type of admission/ application system	Maximum number of preferences an applicant can specify	Maximum number of offers an applicant can receive
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD	**Countries**									
	Australia	No	No	No	Central, universities	Mixed model	Mixed	Centralised and direct to institutions	m	No limit
	Austria	Yes	Some	No	Central, universities	Central allocation	Central allocation	Direct to institutions	a	a
	Canada	Yes	Some	Some	Universities	Market (demand)	Mixed	Centralised and direct to institutions	3	No limit
	Chile	No	No	All	Universities	Market (demand)	Mixed	Centralised	10	1
	Colombia	Yes	No	All	Universities	Market (demand)	Mixed	Direct to institutions	a	a
	Czech Republic	No	No	All	Universities	Mixed model	Central allocation	Direct to institutions	a	a
	Denmark	Yes	Some	No	State, universities	Central allocation	Central allocation	Centralised	8	1
	Estonia	No	All	All	Universities	Mixed model	Mixed	Centralised	2 per institution	a
	Finland	No	All	All	Central, universities	Other	Central allocation	Centralised	6	1
	France	Yes	Some	Some	Central, regional, universities, other	Central allocation	Mixed	Centralised and direct to institutions	24	1
	Germany	Yes	Some	No	State, universities	Mixed model	Central allocation	Centralised and direct to institutions	6	1
	Greece[1]	No	No	All	Central, universities, other	Central allocation	Central allocation	Centralised	No limit	1
	Hungary	No	All	All	a	Mixed model	Mixed	Centralised	6	1
	Iceland	Yes	Some	No	Universities	Market (demand)	Central allocation	Direct to institutions	a	a
	Israel	No	All	No	Central	Central allocation	Mixed	Direct to institutions	a	a
	Italy	Yes	Some	No	Central, universities	Central allocation	Mixed	Centralised and direct to institutions	No limit	No limit
	Japan[2]	No	All	All	Universities	Other	Mixed	Direct to institutions	a	a
	Korea	No	All	All	Central, regional, universities	Mixed model	Mixed	Centralised and direct to institutions	9	No limit
	Latvia	a	a	a	Universities	Mixed model	Mixed	Centralised and direct to institutions	10	a
	Lithuania	No	All	All	Central	Mixed model	Mixed	Centralised and direct to institutions	9	1
	Luxembourg	Yes	Some	No	Universities	Market (demand)	Mixed	Direct to institutions	m	m
	Mexico	m	m	m	m	m	m	m	m	m
	Netherlands	Yes	Some	No	Universities	Other	Central allocation	Centralised	3	3
	New Zealand	Yes	Some	No	Central, universities, other	Mixed model	Mixed	Direct to institutions	No limit	No limit
	Norway	Yes	Some	Some	Central, universities	Mixed model	Central allocation	Centralised and direct to institutions	10	1
	Poland	No	Some	No	Central	Market (demand)	Central allocation	Direct to institutions	a	a
	Portugal	No	All	All	Central, universities	Central allocation	Mixed	Centralised and direct to institutions	6	1
	Slovak Republic	Yes	No	Some	Universities	Mixed model	Mixed	Direct to institutions	m	No limit
	Slovenia	No	All	No	Central	Central allocation	Central allocation	Centralised	3	1
	Spain	No	Some	No	Universities	Market (demand)	Other	Direct to institutions	a	a
	Sweden	No	No	All	Central, universities	Mixed model	Central allocation	Centralised	12	1
	Switzerland	Yes	Some	No	Central, state	Other	Mixed	Direct to institutions	a	a
	Turkey	No	No	All	Central	Central allocation	Mixed	Centralised	24	1
	United Kingdom	a	a	a	a	a	a	a	a	a
	United States	Yes	Some	Some	Universities	Market (demand)	Mixed	Direct to institutions	a	a
	Economies									
	Flemish Comm. (Belgium)	Yes	No	No	a	m	Mixed	Direct to institutions	a	a
	French Comm. (Belgium)	Yes	No	No	a	a	Mixed	Direct to institutions	a	a
Partners	Brazil	No	No	All	Universities	Central allocation	Central allocation	Centralised and direct to institutions	2	a
	Russian Federation	Yes	All	No	Central	Mixed model	Mixed	Direct to institutions	3	3

Note: See *Definitions and Methodology* sections for more information.
1. There is no maximum number of preferences an applicant can specify in a few fields. Certain constraints may apply in others.
2. For national universities, the fixed number of students is decided by each national university and is submitted as a part of its mid-term plan to be approved by the Minister of Education, Culture, Sports, Science and Technology.
Source: OECD (2017). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980355

Table D6.2a. . Examinations and additional criteria used for admission to first-degree tertiary programmes in public institutions (2017)

		Use of examinations/tests to determine entry/admission				Use of additional criteria or special circumstances in admission systems		
		Are examinations/tests compulsory to gain access to public tertiary institutions?				Are additional criteria used, how important are they and what autonomy do institutions have over these criteria?		
		National/ central examinations[1]	Non-national/ central standardised examinations[1]	Non-national/ central non-standardised examinations[1]	First-degree tertiary programme entrance examinations[1]	Grade point average from secondary schools	Interviews	Ethnicity of applicant
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD	**Countries**							
	Australia	a	No	No	Yes, some	No	Yes	Yes
	Austria	a	a	a	a	No	No	No
	Canada	a	Yes, some	Yes, some	a	Yes – High level of importance	Institutional autonomy	Institutional autonomy
	Chile	m	m	m	Yes, all	Yes – Moderate level of importance	No	No
	Colombia	Yes, all	a	a	a	No	Yes – Low level of importance	No
	Czech Republic	Yes, most	No	a	a	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	No
	Denmark	Yes, most	a	a	a	Yes – High level of importance	Yes – Moderate level of importance	No
	Estonia	Yes, most	a	a	Yes, most	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	No
	Finland	No	No	a	m	Institutional autonomy	Institutional autonomy	No
	France	Yes, most	a	a	No	Yes – High level of importance	Yes – High level of importance	a
	Germany	a	Yes, all	Yes, all	a	Yes – Moderate level of importance	Institutional autonomy – Used, but to an unknown extent	No
	Greece	Yes, all	a	m	a	No	No	No
	Hungary	Yes, all	No	a	a	Yes – High level of importance	No	No
	Iceland	a	a	a	No	No	No	No
	Israel	Yes, all	No	No	No	No	Yes – High level of importance	Institutional autonomy – Low level of importance
	Italy	Yes, all	a	a	a	Yes – Moderate level of importance	Yes – High level of importance	Yes – Moderate level of importance
	Japan[2]	a	a	a	No	Yes – Used, but to an unknown extent	Yes – Used, but to an unknown extent	m
	Korea	a	a	a	Yes, most	Yes – High level of importance	Institutional autonomy – Used, but to an unknown extent	Yes – Used, but to an unknown extent
	Latvia	Yes, all	No	No	Yes, some	Yes – Moderate level of importance	Institutional autonomy – Moderate level of importance	No
	Lithuania	Yes, all	Yes, some	a	Yes, some	No	No	No
	Luxembourg	Yes, some	a	a	Yes, some	Institutional autonomy	Institutional autonomy	No
	Mexico	m	m	m	m	m	m	m
	Netherlands	Yes, all	a	Yes, all	No	Institutional autonomy	Institutional autonomy	No
	New Zealand	No	No	No	a	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent
	Norway	Yes, most	No	No	Yes, some	No	Yes – Low level of importance	Yes – Low level of importance
	Poland	Yes, all	a	a	m	Yes	Yes – Used, but to an unknown extent	No
	Portugal	Yes, all	a	a	a	Yes – High level of importance	Yes – Moderate level of importance	No
	Slovak Republic	m	m	m	a	Institutional autonomy – Moderate level of importance	Institutional autonomy – Low level of importance	No
	Slovenia	Yes, all	a	a	Yes, some	a	a	a
	Spain	Yes, all	a	a	a	Institutional autonomy – High level of importance	Institutional autonomy – Low level of importance	No
	Sweden	a	a	a	No	Yes – High level of importance	Institutional autonomy – Low level of importance	No
	Switzerland	Yes, all	a	a	Yes, all	No	Institutional autonomy	No
	Turkey	Yes, all	a	No	a	Yes – Moderate level of importance	No	No
	United Kingdom	a	a	a	a	a	a	a
	United States	No	No	a	No	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent
	Economies							
	Flemish Comm. (Belgium)	a	a	a	Yes, some	a	a	a
	French Comm. (Belgium)	a	a	a	Yes, some	a	a	a
Partners	Brazil	m	m	m	No	Institutional autonomy	Institutional autonomy	Yes – Used, but to an unknown extent
	Russian Federation	Yes, all	Yes, all	a	Yes, some	No	Yes – High level of importance	No

		Use of additional criteria or special circumstances in admission systems				
		Are additional criteria used, how important are they and what autonomy do institutions have over these criteria?				
		Family income of applicant	Past work experience	Past service or volunteer work	Recommendations	Applicant letter or written rationale to justify admission
		(8)	(9)	(10)	(11)	(12)
OECD	**Countries**					
	Australia	No	Yes	No	Yes	Yes
	Austria	No	No	No	No	Institutional autonomy – High level of importance
	Canada	Institutional autonomy	Institutional autonomy	Institutional autonomy	Institutional autonomy – Not applicable	Institutional autonomy
	Chile	Yes – Low level of importance	No	No	No	No
	Colombia	No	No	No	No	No
	Czech Republic	No	Institutional autonomy – Used, but to an unknown extent	No	No	m
	Denmark	No	Yes – Low level of importance	Yes – Low level of importance	Yes – Moderate level of importance	Yes – Moderate level of importance
	Estonia	No	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent
	Finland	No	Institutional autonomy	m	m	m
	France	a	a	a	a	Yes – Low level of importance
	Germany	No	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	No	Institutional autonomy – Used, but to an unknown extent
	Greece	No	No	No	No	No
	Hungary	No	No	No	No	No
	Iceland	No	No	No	No	No
	Israel	Institutional autonomy – Moderate level of importance	Institutional autonomy – Low level of importance	Institutional autonomy – Low level of importance	No	No
	Italy	Yes – High level of importance	No	No	a	a
	Japan[2]	m	Yes – Used, but to an unknown extent	m	Yes – Used, but to an unknown extent	Yes – Used, but to an unknown extent
	Korea	Yes – Used, but to an unknown extent	Yes – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Yes – Used, but to an unknown extent
	Latvia	No	Institutional autonomy – Moderate level of importance	No	Institutional autonomy – Used, but to an unknown extent	a
	Lithuania	No	Yes – Moderate level of importance	Yes – Moderate level of importance	No	No
	Luxembourg	No	Institutional autonomy – Used, but to an unknown extent	No	No	Institutional autonomy – High level of importance
	Mexico	m	m	m	m	m
	Netherlands	No	Institutional autonomy	Institutional autonomy	Institutional autonomy – Missing	Institutional autonomy
	New Zealand	Institutional autonomy	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Not applicable	Institutional autonomy
	Norway	No	Yes – Low level of importance	No	No	No
	Poland	No	No	No	No	No
	Portugal	No	No	No	No	No
	Slovak Republic	a	No	Institutional autonomy – Low level of importance	No	Institutional autonomy – Low level of importance
	Slovenia	a	a	a	a	a
	Spain	No	Institutional autonomy – Low level of importance	Institutional autonomy – No importance	No	No
	Sweden	No	Institutional autonomy – Low level of importance	Institutional autonomy – Low level of importance	No	Institutional autonomy – Used, but to an unknown extent
	Switzerland	No	Yes – Moderate level of importance	No	No	No
	Turkey	No	No	No	No	No
	United Kingdom	a	a	a	a	a
	United States	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent	Institutional autonomy – Used, but to an unknown extent
	Economies					
	Flemish Comm. (Belgium)	a	a	a	a	a
	French Comm. (Belgium)	a	a	a	a	a
Partners	Brazil	Yes – Used, but to an unknown extent	a	m	m	m
	Russian Federation	m	Institutional autonomy – Used, but to an unknown extent	Yes – Low level of importance	No	a

Note: See *Definitions and Methodology* sections for more information.
1. Except for first-degree tertiary programme entrance examinations administered by tertiary institutions, these examinations/tests are administered by upper secondary institutions (for students at the end of this level).
2. For national universities, the fixed number of students is decided by each national university and is submitted as a part of its mid-term plan to be approved by the Minister of Education, Culture, Sports, Science and Technology.
Source: OECD (2017). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table D6.3. Minimum qualification and academic performance requirements for entry into tertiary education (government perspective) (2017)

		Typical minimum ISCED qualification required for entry into first-degree tertiary programmes (type of upper secondary programme)	Minimum academic performance requirement used to determine entry into tertiary education (set by government)		Tools used to assess the minimum academic performance requirements						Course prerequisites to enter a specific field of education
			By field of education	By tertiary institutions	Secondary school certificate/ report card which includes students' grades	Upper secondary national/ central examination	Other (non-central) standardised examinations administered to multiple students in multiple secondary schools	Other (non-national) non-standardised examinations administered to students in secondary schools	First-degree tertiary programme entrance examinations (not administered by upper secondary schools)	Other	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD	**Countries**										
	Australia	General	No	No	a	a	a	a	a	a	Some fields
	Austria[1]	a	No	No	a	a	a	a	a	a	No
	Canada	All	No	No	a	a	a	a	a	a	Some fields
	Chile	All	No	Yes (for some)	Yes	No	No	No	Yes	Yes	No
	Colombia	All	Yes (for all)	Yes (for some)	No	Yes	No	No	No	No	a
	Czech Republic[2]	General or vocational	No	No	a	a	a	a	a	a	No
	Denmark	General	No	No	a	a	a	a	a	a	Most fields
	Estonia	All	No	No	a	a	a	a	a	a	a
	Finland	All	No	No	a	a	a	a	a	a	a
	France	All	No	Yes (for some)	Yes	No	No	No	Yes	No	Some fields
	Germany	All	No	No	a	a	a	a	a	a	No
	Greece	All	Yes (for all)	Yes (for all)	No	Yes	a	a	a	No	All fields
	Hungary	All	Yes (for all)	No	Yes	Yes	No	No	No	No	All fields
	Iceland	All	No	No	a	a	a	a	a	a	m
	Israel	Vocational	No	Yes (for most)	a	Yes	a	a	Yes	Yes	Some fields
	Italy	All	No	No	a	a	a	a	a	a	No
	Japan	All	No	No	a	a	a	a	a	a	No
	Korea	All	No	No	a	a	a	a	a	a	Some fields
	Latvia	All	Yes (for all)	No	No	Yes	No	No	No	Yes	Some fields
	Lithuania[3]	All	Yes (for all)	No	Yes	Yes	Yes	No	Yes	No	Some fields
	Luxembourg	All	No	No	a	a	a	a	a	a	m
	Mexico	m	m	m	m	m	m	m	m	m	m
	Netherlands	All	Yes (for all)	No	Yes	Yes	No	No	Yes	No	Some fields
	New Zealand	General	Yes (for most)	No	Yes	Yes	No	No	No	No	Some fields
	Norway	General	Yes (for some)	No	a	Yes	No	No	Yes	No	Some fields
	Poland	General or vocational	Yes (for all)	No	Yes	Yes	No	No	No	No	No
	Portugal	All	Yes (for all)	Yes (for all)	Yes	Yes	No	No	No	No	Some fields
	Slovak Republic	All	Yes (for all)	No	Yes	m	m	m	m	No	No
	Slovenia	General or vocational	Yes (for all)	No	Yes	Yes	No	No	No	Yes	Some fields
	Spain	General	No	Yes (for all)	m	Yes	m	m	m	No	All fields
	Sweden	General	No	No	a	a	a	a	a	a	All fields
	Switzerland	All	No	No	a	a	a	a	a	a	Some fields
	Turkey	All	Yes (for all)	No	Yes	Yes	No	Yes	No	m	No
	United Kingdom[4]	General	No	Yes (for all)	No	Yes	No	No	No	No	Some fields
	United States	All	No	No	a	a	a	a	a	a	No
	Economies										
	Flemish Comm. (Belgium)	All	No	No	a	a	a	a	a	a	a
	French Comm. (Belgium)	All	No	No	a	a	a	a	a	a	No
Partners	Brazil	All	No	No	a	a	a	a	a	a	No
	Russian Federation	All	Yes (for all)	No	No	Yes	a	No	No	Yes	No

Note: Typical minimum qualification for entry into first-degree tertiary programmes refers to the ISCED level required, but not all qualifications at this level allow entry into these first-degree tertiary programmes. See *Definitions and Methodology* sections for more information.
1. Minimum qualification requirement is the Upper Secondary School Leaving Certificate (called MATURA); additional entry routes exist.
2. Some vocational programmes at upper secondary level allow access to tertiary education, whereas others do not.
3. In Lithuania, it is possible to enter tertiary programmes with a qualification level from upper secondary (all programmes) or post-secondary non-tertiary (vocational programmes).
4. Information relates to the four separate systems across the United Kingdom. In each case, "yes" indicates the policy is in place in at least one of the four countries.
Source: OECD (2017). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980393

Annex 1. Characteristics of education systems

All tables in Annex 1 are available on line at:

StatLink: https://doi.org/10.1787/888933981305

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

Table X1.1a. Typical graduation ages, by level of education (2017)

The typical age refers to the age of the students at the beginning of the school year; students will generally be one year older than the age indicated when they graduate at the end of the school year. The typical age is used for the gross graduation rate calculation.

		Upper secondary		Post secondary non-tertiary		Tertiary								
						Short-cycle tertiary (ISCED 5)		Bachelor's or equivalent (ISCED 6)			Master's or equivalent (ISCED 7)			
		General programmes	Vocational programmes	General programmes	Vocational programmes	General programmes	Vocational programmes	First degree (3-4 years)	Long first degree (more than 4 years)	Second or further degree, (following a bachelor's or equivalent programme)	Long first degree (at least 5 years)	Second or further degree, (following a bachelor's or equivalent programme)	Second or further degree, (following a master's or equivalent programme)	Doctoral or equivalent (ISCED 8)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
OECD	Countries													
	Australia	17-18	18-32	a	18-37	19-24	18-30	20-23	22-25	22-34	a	22-30	29-44	26-35
	Austria	17-18	16-18	a	19-32	a	18-19	21-24	a	a	23-27	24-28	a	28-33
	Belgium	18-18	18-19	a	20-22	a	21-25	21-23	a	22-24	a	22-24	23-32	27-31
	Canada	17-18	19-33	m	m	a	20-24	22-24	23-24	22-29	22-24	24-29	26-29	29-34
	Chile	17-17	17-17	a	a	a	21-26	22-27	22-28	23-26	24-26	26-35	m	29-35
	Colombia	16-17	16-17	18-20	a	a	19-24	a	22-27	22-27	a	26-36	26-39	29-41
	Czech Republic	m	m	m	m	m	m	m	m	m	m	m	m	m
	Denmark	18-19	19-25	a	23-35	a	20-25	22-25	a	32-44	30-31	25-28	a	28-32
	Estonia	18-19	18-20	a	20-28	a	a	21-25	a	a	24-26	23-28	a	29-34
	Finland	19-19	19-25	a	32-46	a	a	23-26	a	a	26-28	25-30	30-41	29-37
	France	17-18	16-19	m	m	m	m	m	m	m	m	m	m	26-30
	Germany	18-19	19-21	20-23	21-24	a	21-25	22-25	a	24-30	24-27	24-27	24-27	28-32
	Greece	17-17	17-17	a	20-22	a	a	m	m	m	a	m	m	m
	Hungary	17-19	17-19	a	19-21	a	20-22	21-24	a	27-41	23-26	23-26	a	27-32
	Iceland	m	m	m	m	m	m	m	m	m	m	m	m	m
	Ireland	18-19	18-24	a	20-26	20-35	20-35	21-23	23-25	23-33	22-30	22-30	30-22	27-32
	Israel	17-17	17-17	m	m	m	m	24-28	27-29	24-32	m	27-34	m	31-37
	Italy	18-19	18-19	a	20-20	a	20-22	22-25	m	m	m	24-27	m	27-35
	Japan	17-17	17-17	18-18	18-18	19-19	19-19	21-21	m	m	23-23	23-23	m	26-26
	Korea	18-18	18-18	a	a	a	20-22	23-25	x(7)	a	a	25-31	a	29-38
	Latvia	18-18	20-21	a	20-24	a	21-25	22-24	23-25	24-33	25-29	24-27	a	28-36
	Lithuania	18-18	19-24	a	19-25	a	a	21-22	a	23-29	23-24	24-25	27-29	28-31
	Luxembourg	17-19	17-20	a	23-29	a	21-23	22-24	a	a	a	24-27	25-30	28-32
	Mexico	17-18	17-18	a	a	a	20-24	20-24	m	a	a	23-26	a	24-28
	Netherlands	16-18	18-21	a	a	a	21-27	21-23	a	a	a	23-26	24-27	28-31
	New Zealand	17-18	16-30	17-26	17-26	18-24	18-25	20-23	22-24	21-28	a	23-30	a	27-35
	Norway	18-18	18-22	a	19-30	22-28	21-27	21-24	a	27-30	24-26	24-28	25-29	28-35
	Poland	19-19	19-20	a	21-25	a	22-37	22-24	a	25-35	24-25	24-25	a	29-32
	Portugal	17-17	17-18	a	19-23	a	20-22	21-23	a	33-39	23-24	23-26	a	26-36
	Slovak Republic	18-19	18-19	a	19-24	a	20-22	21-22	a	a	23-24	23-24	24-28	26-29
	Slovenia	18-18	17-19	a	a	a	21-25	21-24	a	a	24-25	24-26	a	27-32
	Spain	17-17	17-21	a	25-45	a	20-23	21-23	a	a	22-25	22-26	28-32	28-38
	Sweden	18-19	18-19	a	19-31	21-28	22-30	22-26	a	a	24-28	24-30	a	28-34
	Switzerland	18-22	18-24	21-23	a	a	23-36	23-28	a	30-39	24-29	25-32	26-33	28-34
	Turkey	17-17	17-17	a	22-20	23-24	19-21	21-23	a	a	23-25	25-30	a	30-35
	United Kingdom	15-17	16-19	a	a	19-25	18-30	20-22	22-24	21-28	a	23-28	24-34	25-32
	United States	17-17	17-17	19-22	19-22	20-21	20-21	21-23	a	a	a	24-31	24-31	26-32
Partners	Argentina[1]	18-20	18-20	m	m	22-24	22-24	22-24	22-24	m	a	24-26	m	27-29
	Brazil	16-17	16-18	a	18-26	19-27	19-32	20-27	a	m	a	25-31	a	29-37
	China	18-20	18-20	m	m	20-22	20-22	22-24	22-24	m	a	24-26	m	27-29
	Costa Rica	16-17	17-18	a	a	18-20	m	18-21	22-23	a	24-26	a	a	27
	India	16-18	16-18	m	m	21-23	21-23	21-23	21-23	m	23-25	23-25	m	28-30
	Indonesia	19-21	19-21	m	m	20-22	20-22	23-25	23-25	m	a	25-27	m	28-30
	Russian Federation	17-18	17-18	a	18-22	a	19-20	21-23	a	a	22-25	22-25	a	25-27
	Saudi Arabia	18-20	18-20	m	m	20-22	20-22	22-24	22-24	m	24-26	24-26	m	28-30
	South Africa[1]	19-21	19-21	m	m	21-23	21-23	22-24	22-24	m	a	24-26	m	27-29

1. Year of reference 2016.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980507

Table X1.1b. Typical age of entry, by level of education (2017)

The typical age refers to the age of the students at the beginning of the school year.

	Countries	Short-cycle tertiary (ISCED 5)	Bachelor's or equivalent (ISCED 6)	Master's or equivalent (ISCED 7)	Doctoral or equivalent (ISCED 8)
		(1)	(2)	(3)	(4)
OECD	Australia	m	18-20	21-25	22-30
	Austria	17-18	19-21	19-25	25-29
	Belgium	18-20	18-20	21-23	23-27
	Canada	m	m	m	m
	Chile	18-21	18-19	18-30	24-31
	Colombia	17-21	17-21	23-33	25-36
	Czech Republic	19-21	19-20	22-24	24-28
	Denmark	19-26	20-22	23-25	25-29
	Estonia	a	19-22	22-26	24-28
	Finland	a	19-21	22-30	26-32
	France	18-20	18-20	20-23	23-26
	Germany	22-26	18-21	19-24	25-28
	Greece	a	17-18	21-28	23-30
	Hungary	19-21	19-20	19-23	24-27
	Iceland	20-31	20-22	23-31	25-33
	Ireland	18-30	18-19	21-27	22-27
	Israel	18-24	21-26	25-34	26-34
	Italy	19-21	19-19	19-24	24-28
	Japan	18-18	18-18	22-23	24-28
	Korea	18-18	18-18	22-27	23-32
	Latvia	19-23	19-22	22-25	24-30
	Lithuania	a	19-19	23-25	25-28
	Luxembourg	19-22	19-21	22-27	25-28
	Mexico	18-19	18-19	21-34	25-39
	Netherlands	20-24	18-20	22-24	23-27
	New Zealand	17-25	18-20	21-28	22-31
	Norway	20-24	19-20	21-26	25-31
	Poland	19-31	19-20	19-23	24-26
	Portugal	18-20	18-19	18-23	23-33
	Slovak Republic	19-20	19-20	22-23	24-26
	Slovenia	19-21	19-19	22-24	24-28
	Spain	18-20	18-18	18-24	23-30
	Sweden	19-27	19-21	19-24	24-30
	Switzerland	22-26	18-25	22-26	24-30
	Turkey	18-21	18-20	23-27	25-29
	United Kingdom	17-29	18-21	21-30	21-30
	United States	18-22	18-19	22-28	22-27
Partners	Argentina[1]	m	m	22-24	24-26
	Brazil	m	m	m	m
	China	18-20	18-20	22-24	24-26
	Costa Rica	17-18	17-18	m	m
	India	18-20	18-20	21-23	23-25
	Indonesia	19-21	19-21	23-25	25-27
	Russian Federation	17-18	17-20	21-24	17-20
	Saudi Arabia	18-20	18-20	22-24	25-27
	South Africa[1]	m	m	m	m

1. Year of reference 2016.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980526

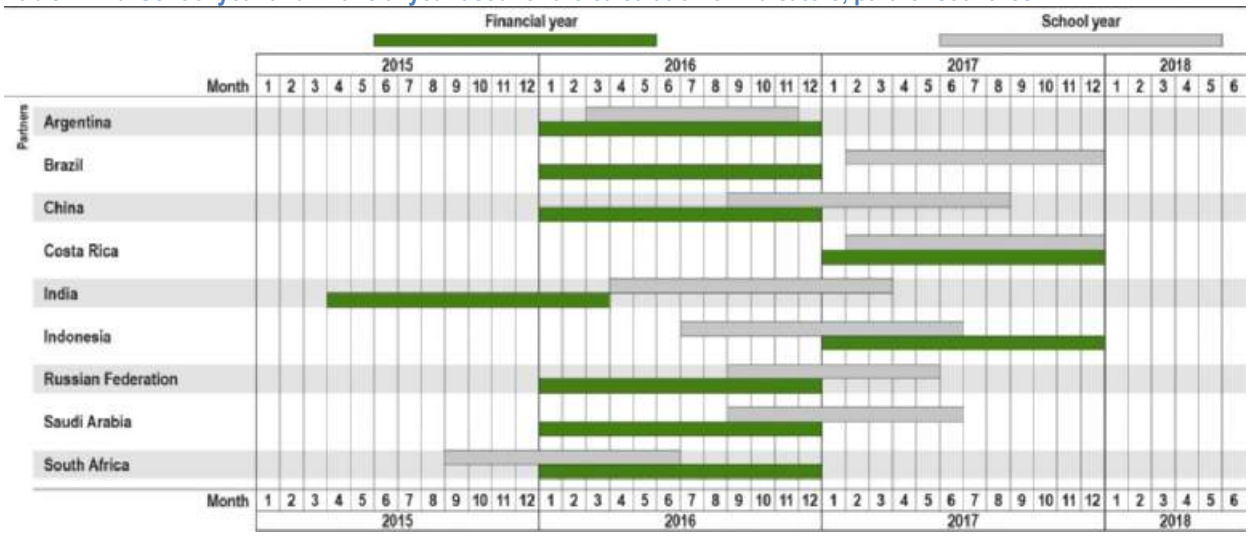
Table X1.2a. School year and financial year used for the calculation of indicators, OECD countries



Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933980545

Table X1.2b. School year and financial year used for the calculation of indicators, partner countries



Source: OECD (2018). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

StatLink https://doi.org/10.1787/888933980564

Table X1.3. Starting and ending age for students in compulsory education and by level of education (2017)

The age refers to the age of the students at the beginning of the school year

		Compulsory education		Primary education		Lower secondary education		Upper secondary education	
		Starting age	Ending age	Starting age	Ending age	Starting age	Ending age	Starting age	Ending age
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Countries								
	Australia	6	17	5	11	12	15	16	17
	Austria	6	15	6	9	10	13	14	17
	Belgium	6	18	6	11	12	13	14	17
	Canada	6	16-18	6	11	12	14	15	17
	Chile	6	18	6	11	12	13	14	17
	Colombia	5	15	m	m	m	m	m	m
	Czech Republic	6	15	6	10	11	14	15	18
	Denmark	6	16	6	12	13	15	16	18
	Estonia	7	16	7	12	13	15	16	18
	Finland	7	16	7	12	13	15	16	18
	France	6	16	6	10	11	14	15	17
	Germany	6	18	6	9	10	15	16	18
	Greece	5	14-15	6	11	12	14	15	17
	Hungary	3	16	7	10	11	14	15	18
	Iceland	6	16	6	12	13	15	16	19
	Ireland	6	16	5	12	13	15	16	17
	Israel	3	17	6	11	12	14	15	17
	Italy	6	16	6	10	11	13	14	18
	Japan	6	15	6	11	12	14	15	17
	Korea	6	14	6	11	12	14	15	17
	Latvia	5	16	7	12	13	15	16	18
	Lithuania	7	16	7	10	11	16	17	18
	Luxembourg	4	16	6	11	12	14	15	18
	Mexico	3	17	6	11	12	14	15	17
	Netherlands	5	18	6	11	12	14	15	17
	New Zealand	5	16	5	10	11	14	15	17
	Norway	6	16	6	12	13	15	16	18
	Poland	6	16	7	12	13	15	16	18
	Portugal	6	18	6	11	12	14	15	17
	Slovak Republic	6	16	6	9	10	14	15	18
	Slovenia	6	14	6	11	12	14	15	18
	Spain	6	16	6	11	12	14	15	17
	Sweden	6	16	7	12	13	15	16	18
	Switzerland	4-5	15	7	12	13	15	16	19
	Turkey	5-6	17	6	9	10	13	14	17
	United Kingdom	4-5	16	4-5	10	11	13	14	17
	United States	4-6	17	6	11	12	14	15	17
Partners	Argentina	5	17	m	m	m	m	m	m
	Brazil	4	17	6	10	11	14	15	17
	China	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	m	m	m	m	m
	India	m	m	m	m	m	m	m	m
	Indonesia	7	15	m	m	m	m	m	m
	Russian Federation	7	17	7	10	11	15	16	17
	Saudi Arabia	6	11	m	m	m	m	m	m
	South Africa	7	15	m	m	m	m	m	m

Note: Ending age of compulsory education is the age at which compulsory schooling ends. For example, an ending age of 18 indicates that all students under 18 are legally obliged to participate in education.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

StatLink https://doi.org/10.1787/888933980583

Annex 2. Reference statistics

All tables in Annex 2 are available on line at:

StatLink: https://doi.org/10.1787/888933981324

Note regarding data from Israel

The statistical data for Israel are supplied by and are 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.

Table X2.1. Basic reference statistics in current prices (reference period: calendar year, 2005, 2010, 2011, 2016)

		Gross domestic product (adjusted to financial year, in millions of local currency, current prices)				Total government expenditure (in millions of local currency, current prices)			
		2005	2010	2011	2016	2005	2010	2011	2016
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Countries								
	Australia	959 401	1 358 917	1 458 040	1 713 425	348 130	523 104	557 755	648 215
	Austria	254 075	295 897	310 129	356 238	129 973	156 351	157 846	179 094
	Belgium	311 481	365 101	379 106	424 605	160 811	194 750	206 680	225 423
	Canada	1 357 185	1 595 012	1 693 051	1 999 885	559 532	731 454	751 910	838 733
	Chile	68 831 705	111 508 611	122 006 090	169 469 507	13 864 130	26 009 860	27 805 330	42 810 200
	Colombia	336 940 938	543 187 690	618 117 721	863 782 000	m	m	m	374 673 000
	Czech Republic	3 264 931	3 962 464	4 033 755	4 767 990	1 380 188	1 724 241	1 735 916	1 882 525
	Denmark	1 585 984	1 810 926	1 846 854	2 100 216	812 682	1 026 310	1 042 167	1 106 069
	Estonia	11 262	14 717	16 668	21 683	3 827	5 962	6 238	8 557
	Finland	164 387	187 100	196 869	216 073	81 002	102 446	107 066	120 820
	France	1 765 905	1 995 289	2 058 369	2 228 568	941 123	1 134 956	1 158 670	1 264 297
	Germany	2 300 860	2 580 060	2 703 120	3 159 750	1 062 999	1 219 219	1 208 565	1 386 760
	Greece	199 242	226 031	207 029	176 488	90 778	118 616	111 973	86 313
	Hungary	22 559 880	27 224 599	28 304 938	35 474 186	11 132 603	13 424 928	14 017 434	16 598 403
	Iceland	1 058 882	1 672 719	1 757 695	2 490 936	437 351	799 305	777 342	1 108 713
	Ireland	170 187	167 721	171 140	273 238	56 795	109 160	79 696	75 354
	Israel	639 099	873 922	936 457	1 226 592	284 159	359 197	378 563	473 332
	Italy	1 489 726	1 604 515	1 637 463	1 689 824	702 315	800 494	808 562	828 676
	Japan	521 757 250	492 214 225	498 117 550	532 486 450	186 153 000	198 817 500	199 698 900	210 431 700
	Korea	919 797 300	1 265 308 000	1 332 681 000	1 641 786 000	271 192 000	392 264 100	431 075 500	529 717 400
	Latvia	13 597	17 938	20 303	25 038	4 647	8 148	8 219	9 259
	Lithuania	21 002	28 028	31 275	38 849	7 157	11 855	13 284	13 253
	Luxembourg	30 031	40 178	43 165	53 303	13 087	17 729	18 287	22 354
	Mexico	9 562 648	13 366 377	14 665 576	20 116 689	2 025 090	3 400 765	4 222 624	5 210 880
	Netherlands	550 883	639 187	650 359	708 337	232 712	305 938	304 320	308 695
	New Zealand	156 652	196 547	205 886	258 048	61 359	96 359	92 703	105 287
	Norway[1]	1 514 364	2 077 604	2 161 617	2 712 752	836 626	1 165 716	1 223 285	1 583 600
	Poland	990 468	1 445 298	1 566 824	1 861 112	439 719	662 055	687 518	765 040
	Portugal	158 653	179 930	176 167	186 480	74 054	93 237	88 112	83 564
	Slovak Republic	50 415	67 577	70 627	81 226	20 053	28 480	28 828	33 669
	Slovenia	29 227	36 252	36 896	40 357	13 127	17 858	18 448	18 292
	Spain	930 566	1 080 935	1 070 449	1 118 743	356 547	493 202	490 592	472 155
	Sweden	2 910 683	3 523 824	3 661 043	4 385 497	1 522 630	1 788 623	1 839 773	2 183 866
	Switzerland	508 900	608 831	621 256	660 393	171 949	200 808	204 384	226 036
	Turkey	673 703	1 160 014	1 394 477	2 608 526	214 120	422 734	477 070	940 469
	United Kingdom	1 331 829	1 549 776	1 601 736	1 914 260	573 371	755 010	755 199	815 182
	United States	12 625 184	14 720 492	15 267 317	18 463 243	4 818 229	6 471 661	6 535 453	7 147 629
Partners	Argentina	582 538	1 661 721	2 179 024	8 228 160	142 284	554 305	760 502	3 411 230
	Brazil	2 170 585	3 885 847	4 376 382	6 267 205	m	2 285 508	2 670 879	4 173 293
	China	18 731 890	41 303 030	48 930 060	74 358 550	3 427 930	10 251 180	13 128 590	23 809 550
	Costa Rica	9 532 875	19 596 937	21 370 733	31 136 211	3 130 228	7 651 628	8 330 952	10 427 743
	India	35 812 963	75 479 115	87 363 287	152 537 135	9 761 840	21 365 300	24 147 720	41 912 890
	Indonesia	3 035 611 121	6 864 133 100	7 831 726 000	12 401 728 500	526 114 280	1 159 098 280	1 387 241 120	2 086 438 830
	Russian Federation	23 275 971	49 879 129	60 282 540	86 043 649	6 820 660	17 616 660	19 994 650	31 323 680
	Saudi Arabia	1 230 771	1 980 777	2 517 146	2 418 508	346 471	653 886	826 700	935 516
	South Africa	1 639 254	2 748 008	3 023 659	4 359 061	461 829	864 157	933 613	1 423 820

Note: For countries where GDP is not reported for the same reference period as data on educational finance, GDP is estimated as: wt-1 (GDPt - 1) + wt (GDPt), where wt and wt-1 are the weights for the respective portions of the two reference periods for GDP which fall within the educational financial year. Adjustments were made in Chapter C for Australia, Canada, Japan, New Zealand, the United Kingdom and the United States.
1. The GDP Mainland market value is used for Norway.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.
StatLink https://doi.org/10.1787/888933980602

Table X2.2. Basic reference statistics in constant prices (reference period: calendar year, 2005, 2010, 2011, 2016)

		Gross domestic product (adjusted to financial year, in millions of local currency, constant prices)				Total government expenditure (in millions of local currency, constant prices)			
		2005	2010	2011	2016	2005	2010	2011	2016
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Countries								
	Australia	1 188 603	1 358 917	1 431 227	1 620 385	431 299	523 104	547 498	613 017
	Austria	277 307	295 897	304 545	318 621	141 858	156 351	155 004	160 183
	Belgium	340 164	365 101	371 666	390 131	175 619	194 750	202 624	207 121
	Canada	1 502 080	1 595 012	1 640 002	1 847 876	619 268	731 454	728 350	774 982
	Chile	92 687 960	111 508 611	118 322 811	137 242 154	18 669 273	26 009 860	26 965 906	34 669 152
	Colombia	436 603 893	543 187 690	583 180 051	697 449 737	m	m	m	302 524 926
	Czech Republic	3 512 515	3 962 464	4 032 910	4 412 049	1 484 849	1 724 241	1 735 552	1 741 990
	Denmark	1 791 959	1 810 926	1 835 134	1 977 045	918 227	1 026 310	1 035 553	1 041 202
	Estonia	15 018	14 717	15 835	18 268	5 103	5 962	5 926	7 210
	Finland	179 646	187 100	191 910	192 684	88 521	102 446	104 369	107 742
	France	1 915 414	1 995 289	2 039 040	2 124 590	1 020 802	1 134 956	1 147 789	1 205 309
	Germany	2 426 546	2 580 060	2 674 490	2 870 575	1 121 066	1 219 219	1 195 765	1 259 846
	Greece	229 784	226 031	205 389	184 421	104 693	118 616	111 086	90 193
	Hungary	27 533 349	27 224 599	27 675 890	30 677 114	13 586 856	13 424 928	13 705 911	14 353 848
	Iceland	1 582 786	1 672 719	1 704 193	2 049 623	653 739	799 305	753 681	912 285
	Ireland	163 842	167 721	173 962	252 407	54 677	109 160	81 010	69 609
	Israel	706 274	873 922	918 926	1 085 943	314 026	359 197	371 476	419 057
	Italy	1 629 932	1 604 515	1 613 766	1 574 604	768 414	800 494	796 861	772 173
	Japan	495 657 667	492 214 225	506 599 680	525 432 959	176 841 168	198 817 500	203 099 447	207 644 252
	Korea	1 034 337 497	1 265 308 000	1 311 892 696	1 509 754 997	304 962 903	392 264 100	424 351 214	487 117 987
	Latvia	18 380	17 938	19 083	21 768	6 282	8 148	7 725	8 050
	Lithuania	26 436	28 028	29 721	34 530	9 009	11 855	12 624	11 780
	Luxembourg	35 606	40 178	41 198	47 232	15 517	17 729	17 454	19 808
	Mexico	12 417 875	13 366 377	13 855 989	15 906 837	2 629 744	3 400 765	3 989 521	4 120 391
	Netherlands	596 863	639 187	649 102	677 999	252 135	305 938	303 732	295 474
	New Zealand	181 378	196 547	201 705	233 658	71 044	96 359	90 821	95 336
	Norway[1]	1 882 831	2 077 604	2 024 914	2 487 412	1 040 190	1 165 716	1 145 923	1 452 055
	Poland	1 145 116	1 445 298	1 517 813	1 728 973	508 375	662 055	666 012	710 722
	Portugal	174 509	179 930	176 643	175 505	81 455	93 237	88 350	78 646
	Slovak Republic	53 590	67 577	69 482	79 132	21 316	28 480	28 361	32 800
	Slovenia	33 274	36 252	36 488	38 116	14 945	17 858	18 244	17 276
	Spain	1 025 389	1 080 935	1 070 139	1 106 948	392 878	493 202	490 450	467 177
	Sweden	3 257 173	3 523 824	3 618 235	4 019 179	1 703 885	1 788 623	1 818 261	2 001 449
	Switzerland	546 591	608 831	619 137	671 837	184 684	200 808	203 687	229 953
	Turkey	989 036	1 160 014	1 288 932	1 686 911	314 341	422 734	440 962	608 193
	United Kingdom	1 491 645	1 549 776	1 571 572	1 741 278	642 174	755 010	740 977	741 518
	United States	13 880 146	14 720 492	14 954 921	16 751 024	5 297 169	6 471 661	6 401 726	6 484 782
Partners	Argentina	1 308 651	1 661 721	1 761 490	1 750 824	319 636	554 305	614 778	725 857
	Brazil	3 122 228	3 885 847	4 040 287	3 975 948	m	2 285 508	2 465 763	2 647 559
	China	24 169 862	41 303 030	45 242 989	64 365 398	4 423 077	10 251 180	12 139 299	20 609 751
	Costa Rica	15 532 812	19 596 937	20 440 997	24 499 179	5 100 375	7 651 628	7 968 513	8 204 953
	India	50 628 809	75 479 115	80 489 685	112 364 435	13 800 319	21 365 300	22 247 816	30 874 568
	Indonesia	5 181 384 705	6 864 133 100	7 287 635 302	9 434 613 430	898 007 147	1 159 098 280	1 290 865 814	1 587 258 083
	Russian Federation	41 911 235	49 879 129	52 006 063	53 590 944	12 281 415	17 616 660	17 249 489	19 509 465
	Saudi Arabia	1 492 242	1 980 777	2 178 793	2 587 758	420 077	653 886	715 575	1 000 984
	South Africa	2 359 099	2 748 008	2 838 258	3 076 467	664 632	864 157	876 367	1 004 880

Note: For countries where GDP is not reported for the same reference period as data on educational finance, GDP is estimated as: wt-1 (GDPt - 1) + wt (GDPt), where wt and wt-1 are the weights for the respective portions of the two reference periods for GDP which fall within the educational financial year. Adjustments were made in Chapter C for Australia, Canada, Japan, New Zealand, the United Kingdom and the United States.
1. The GDP Mainland market value is used for Norway.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table X2.3. Basic reference statistics in current prices (reference period: calendar year, 2007, 2012, 2016, 2017)

		Purchasing power parity for GDP (PPP) (USD = 1)			Gross domestic product used for indicator B2 (adjusted to financial year, in millions of local currency, current prices)	Gross domestic product per capita (adjusted to financial year, in equivalent USD converted using PPPs)[2]	Gross domestic product per capita (in equivalent USD converted using PPPs)[3]
		2007	2016	2017	2012	2016	2017
		(1)	(2)	(3)	(4)	(5)	(6)
OECD	Countries						
	Australia	1.4	1.5	1.4	1 517 883	48 767	52 000
	Austria	0.9	0.8	0.8	318 653	51 870	54 031
	Belgium	0.9	0.8	0.8	387 500	47 299	49 514
	Canada	1.2	1.2	1.3	1 787 348	44 295	46 930
	Chile	323.9	406.9	402.4	129 947 342	22 927	24 316
	Colombia	1 000.4	1 241.2	1 278.0	665 883 659	14 276	14 607
	Czech Republic	14.3	12.8	12.5	4 059 912	35 272	38 076
	Denmark	8.2	7.2	7.0	1 895 002	50 879	54 510
	Estonia	0.6	0.5	0.5	17 935	30 894	33 492
	Finland	0.9	0.9	0.9	199 793	43 794	46 385
	France	0.9	0.8	0.8	2 088 804	42 082	44 231
	Germany	0.8	0.8	0.8	2 758 260	50 026	52 660
	Greece	0.7	0.6	0.6	191 204	27 254	28 544
	Hungary	134.2	134.6	136.1	28 781 064	26 807	28 770
	Iceland	107.5	141.9	137.7	1 841 729	52 792	56 156
	Ireland	1.0	0.8	0.8	175 216	71 362	77 177
	Israel	3.7	3.8	3.8	992 649	37 879	39 249
	Italy	0.8	0.7	0.7	1 613 265	39 021	40 946
	Japan	120.4	102.6	102.5	492 295 675	40 817	41 910
	Korea	770.2	862.5	866.0	1 377 456 700	37 143	38 839
	Latvia	0.6	0.5	0.5	21 886	25 716	28 248
	Lithuania	0.5	0.4	0.4	33 348	30 087	33 025
	Luxembourg	0.9	0.9	0.9	44 112	106 133	108 674
	Mexico	7.4	8.7	9.0	15 817 755	19 143	19 830
	Netherlands	0.9	0.8	0.8	652 966	51 493	54 581
	New Zealand	1.5	1.5	1.5	214 299	37 411	40 438
	Norway[1]	8.9	10.2	10.1	2 298 445	50 792	52 842
	Poland	1.9	1.8	1.8	1 629 425	27 737	29 932
	Portugal	0.6	0.6	0.6	168 398	30 994	32 525
	Slovak Republic	0.6	0.5	0.5	72 704	30 922	32 394
	Slovenia	0.6	0.6	0.6	36 076	33 198	36 162
	Spain	0.7	0.7	0.6	1 039 815	36 750	39 092
	Sweden	8.9	9.0	8.9	3 688 871	49 443	51 726
	Switzerland	1.5	1.2	1.2	626 414	64 572	66 554
	Turkey	0.9	1.2	1.4	1 569 672	26 509	28 328
	United Kingdom	0.7	0.7	0.7	1 657 014	41 910	44 469
	United States	1.0	1.0	1.0	15 869 795	57 419	60 126
Partners	Argentina	1.3	9.3	11.5	2 637 914	20 139	20 957
	Brazil	1.1	2.0	2.0	4 814 760	15 375	15 649
	China	3.0	3.5	3.5	54 036 740	15 256	16 531
	Costa Rica	269.9	390.0	390.7	23 371 406	16 324	17 079
	India	11.8	17.5	17.7	99 440 131	6 574	7 065
	Indonesia	2 415.7	4 092.2	4 190.5	8 615 704 500	11 606	12 282
	Russian Federation	14.0	24.4	24.3	68 163 883	24 102	m
	Saudi Arabia	1.5	1.4	1.4	2 759 906	54 379	54 219
	South Africa	3.8	5.9	6.1	3 253 852	13 277	13 503

Note: For countries where GDP is not reported for the same reference period as data on educational finance, GDP is estimated as: wt-1 (GDPt - 1) + wt (GDPt), where wt and wt-1 are the weights for the respective portions of the two reference periods for GDP which fall within the educational financial year. Adjustments were made in Chapter C for Australia, Canada, Japan, New Zealand, the United Kingdom and the United States.

1. The GDP Mainland market value is used for Norway.
2. These data are used in Indicator C1 in order to calculate total expenditure on educational institutions per full-time equivalent student relative to GDP per capita.
3. These data are used in Indicator C7 in order to calculate salary costs of teachers per student as a percentage of GDP per capita.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table X2.4a. Pre-primary and primary teachers' statutory salaries at different points in their careers, for teachers with the most prevalent qualifications defined at different points in teachers' careers (2018)

Annual salaries in public institutions for teachers with the most prevalent qualifications, in national currency

		Pre-primary				Primary			
		Starting salary	Salary after 10 years of experience	Salary after 15 years of experience	Salary at top of scale	Starting salary	Salary after 10 years of experience	Salary after 15 years of experience	Salary at top of scale
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	**Countries**								
	Australia	68 801	97 330	97 330	101 066	68 120	97 330	97 054	100 627
	Austria	m	m	m	m	35 863	39 122	43 494	63 963
	Canada[1]	m	m	m	m	53 518	86 516	90 188	90 188
	Chile	10 953 276	13 522 845	15 948 689	20 343 948	10 953 276	13 522 845	15 948 689	20 343 948
	Colombia	27 571 090	50 281 719	50 281 719	57 823 942	27 571 090	50 281 719	50 281 719	57 823 942
	Czech Republic	284 400	295 200	302 400	337 200	303 600	322 800	337 200	398 400
	Denmark	351 876	396 900	396 900	396 900	391 419	431 003	457 080	457 080
	Estonia	a	a	a	a	13 400	a	a	a
	Finland[2]	28 433	30 917	31 126	31 126	32 115	37 427	39 941	42 337
	France	26 140	29 881	31 922	46 149	26 140	29 881	31 922	46 149
	Germany	m	m	m	m	48 698	56 884	59 948	63 867
	Greece	13 104	15 624	17 316	25 648	13 104	15 624	17 316	25 648
	Hungary	2 192 400	2 959 740	3 178 980	4 165 560	2 192 400	2 959 740	3 178 980	4 165 560
	Iceland	5 787 490	6 090 556	6 412 064	6 412 064	5 937 490	6 240 556	6 562 064	6 562 064
	Ireland	m	m	m	m	35 958	54 848	60 533	69 813
	Israel	103 186	131 988	148 414	271 596	90 154	119 203	133 612	227 285
	Italy	23 729	26 058	28 568	34 706	23 729	26 058	28 568	34 706
	Japan	m	m	m	m	3 318 000	4 740 000	5 574 000	6 901 000
	Korea	31 250 880	47 098 680	55 006 680	87 456 600	31 250 880	47 098 680	55 006 680	87 456 600
	Latvia	8 160	a	a	a	8 160	a	a	a
	Lithuania	6 455	6 948	7 107	7 409	10 112	10 240	10 526	10 844
	Luxembourg[3]	72 437	93 685	105 758	127 972	72 437	93 685	105 758	127 972
	Mexico	212 094	268 169	336 437	424 081	212 094	268 169	336 437	424 081
	Netherlands	36 533	46 522	54 984	58 222	36 533	46 522	54 984	58 222
	New Zealand	m	m	m	m	49 588	75 949	75 949	75 949
	Norway	376 200	438 300	438 300	456 500	415 800	511 000	511 000	548 700
	Poland	30 109	40 369	49 302	51 394	30 109	40 369	49 302	51 394
	Portugal	22 290	27 128	28 783	48 129	22 290	27 128	28 783	48 129
	Slovak Republic	7 398	8 142	8 508	9 174	8 280	9 942	11 634	12 546
	Slovenia	18 161	21 597	26 299	30 401	18 161	22 394	27 284	32 745
	Spain	29 188	31 554	33 689	41 467	29 188	31 554	33 689	41 467
	Sweden[1, 4]	360 000	380 256	391 326	423 840	366 000	412 800	426 840	489 600
	Switzerland	74 783	93 390	m	113 660	79 772	99 322	m	121 422
	Turkey	43 633	45 315	47 987	55 397	43 633	45 315	47 987	55 397
	United States	39 506	54 044	65 728	72 886	40 067	55 040	62 404	68 712
	Economies								
	Flemish Comm. (Belgium)	32 304	40 511	45 609	55 805	32 304	40 511	45 609	55 805
	French Comm. (Belgium)	31 361	39 214	44 151	54 023	31 361	39 214	44 151	54 023
	England (UK)	22 917	a	38 633	38 633	22 917	a	38 633	38 633
	Scotland (UK)	27 438	36 480	36 480	36 480	27 438	36 480	36 480	36 480
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	32 737	m	m	m	32 737	m	m	m
	China	m	m	m	m	m	m	m	m
	Costa Rica	9 111 375	10 732 855	11 543 595	13 975 815	9 111 375	10 732 855	11 543 595	13 975 815
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m

Note: The definition of teachers' most prevalent qualifications is based on a broad concept, including the typical ISCED level of attainment and other criteria. The most prevalent qualification is defined for each of the four career stages included in this table. In many cases, the minimum qualification is the same as the most prevalent qualification, see Table X3.D3.2 in Annex 3. Please see Annex 2 and *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Excludes the social security contributions and pension-scheme contributions paid by the employees.
2. Data on pre-primary teachers includes the salary of kindergarten teachers who are the majority.
3. Includes the social security contributions and pension-scheme contributions paid by the employers.
4. Actual base salaries.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table X2.4b. Secondary teachers' statutory salaries at different points in their careers, for teachers with the most prevalent qualifications defined at different points in teachers' careers (2018)

Annual salaries in public institutions for teachers with the most prevalent qualifications, in national currency

		Lower secondary general programmes				Upper secondary general programmes			
		Starting salary	Salary after 10 years of experience	Salary after 15 years of experience	Salary at top of scale	Starting salary	Salary after 10 years of experience	Salary after 15 years of experience	Salary at top of scale
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	**Countries**								
	Australia	68 059	97 508	97 508	100 841	68 059	97 508	97 508	100 841
	Austria	35 506	41 045	45 693	68 289	35 205	44 418	50 077	72 763
	Canada	53 518	86 516	90 188	90 188	53 518	86 516	90 188	90 188
	Chile	10 953 276	13 522 845	15 948 689	20 343 948	11 326 044	14 020 118	16 495 614	21 089 484
	Colombia	27 571 090	50 281 719	50 281 719	57 823 942	27 571 090	50 281 719	50 281 719	57 823 942
	Czech Republic	303 600	324 000	338 400	400 800	303 600	324 000	338 400	399 600
	Denmark	395 360	437 499	466 206	466 206	370 604	481 624	481 624	481 624
	Estonia	13 400	a	a	a	13 400	a	a	a
	Finland	34 684	40 421	43 136	45 724	36 779	44 472	46 564	49 358
	France[1]	27 512	31 253	33 294	47 657	27 512	31 253	33 294	47 657
	Germany	54 055	62 374	65 186	70 997	56 941	65 661	68 577	77 856
	Greece	13 104	15 624	17 316	25 648	13 104	15 624	17 316	25 648
	Hungary	2 436 000	2 959 740	3 178 980	4 165 560	2 436 000	3 288 600	3 532 200	4 628 400
	Iceland	5 937 490	6 240 556	6 562 064	6 562 064	5 782 469	6 509 445	7 159 848	7 492 985
	Ireland	35 958	56 809	61 124	70 404	35 958	56 809	61 124	70 404
	Israel	90 631	127 539	147 714	237 289	95 884	127 680	141 735	232 920
	Italy	25 541	28 250	31 094	38 112	25 541	28 930	31 962	39 839
	Japan	3 318 000	4 740 000	5 574 000	6 901 000	3 318 000	4 740 000	5 572 000	7 083 000
	Korea	31 310 880	47 158 680	55 066 680	87 516 600	30 590 880	46 438 680	54 346 680	86 796 600
	Latvia	8 160	a	a	a	8 160	a	a	a
	Lithuania	10 112	10 240	10 526	10 844	10 112	10 240	10 526	10 844
	Luxembourg[2]	82 095	102 619	113 243	142 701	82 095	102 619	113 243	142 701
	Mexico	270 161	341 750	430 425	541 763	516 470	597 344	637 539	637 539
	Netherlands	37 399	57 315	65 903	76 705	37 399	57 315	65 903	76 705
	New Zealand	50 394	76 975	76 975	76 975	51 200	78 000	78 000	78 000
	Norway	415 800	511 000	511 000	548 700	505 900	559 000	559 000	618 700
	Poland	30 109	40 369	49 302	51 394	30 109	40 369	49 302	51 394
	Portugal	22 290	27 128	28 783	48 129	22 290	27 128	28 783	48 129
	Slovak Republic[3]	8 280	9 942	11 634	12 546	8 280	9 942	11 634	12 546
	Slovenia[3]	18 161	22 394	27 284	32 745	18 161	22 394	27 284	32 745
	Spain	32 546	35 286	37 551	46 109	32 546	35 286	37 551	46 109
	Sweden[3, 4, 5]	377 382	420 000	442 620	504 000	381 822	435 000	444 000	513 780
	Switzerland	89 387	113 053	m	137 090	100 717	129 379	m	154 391
	Turkey	43 633	45 315	47 987	55 397	43 633	45 315	47 987	55 397
	United States[3, 6]	40 602	55 796	64 467	69 586	41 430	55 840	64 426	72 498
	Economies								
	Flemish Comm. (Belgium)	32 304	40 511	45 609	55 805	40 304	51 371	58 583	70 603
	French Comm. (Belgium)	31 361	39 214	44 151	54 023	39 014	49 729	56 712	68 350
	England (UK)	22 917	a	38 633	38 633	22 917	a	38 633	38 633
	Scotland (UK)	27 438	36 480	36 480	36 480	27 438	36 480	36 480	36 480
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	32 737	m	m	m	32 737	m	m	m
	China	m	m	m	m	m	m	m	m
	Costa Rica	9 492 058	11 181 718	12 026 548	14 561 038	9 492 058	11 181 718	12 026 548	14 561 038
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m

Note: The definition of teachers' most prevalent qualifications is based on a broad concept, including the typical ISCED level of attainment and other criteria. The most prevalent qualification is defined for each of the four career stages included in this table. In many cases, the minimum qualification is the same as the most prevalent qualification, see Table X3.D3.2 in Annex 3. Please see Annex 2 and *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Includes the average of fixed bonuses for overtime hours for lower and upper secondary teachers.
2. Includes the social security contributions and pension-scheme contributions paid by the employers.
3. At the upper secondary level includes teachers working in vocational programmes. (In Slovenia and Sweden, includes only those teachers teaching general subjects within vocational programmes).
4. Excludes the social security contributions and pension-scheme contributions paid by the employees.
5. Actual base salaries.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table X2.8. Reference statistics used in calculating teachers' salaries (2000, 2005 to 2018)

		Purchasing power parity for private consumption (PPP)[1]			Private consumption deflators (2005 = 100)																Reference year for statutory salary data	Reference year for actual salary data
		2016	2017	2018	Jan 2017	Jan 2018	Jan 2000	Jan 2005	Jan 2006	Jan 2007	Jan 2008	Jan 2009	Jan 2010	Jan 2011	Jan 2012	Jan 2013	Jan 2014	Jan 2015	Jan 2016	Jan 2017	Jan 2018		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
OECD	**Countries**																						
	Australia	1.56	1.54	1.54	1.55	1.54	88	100	103	106	110	113	116	118	121	124	127	130	131	131	130	2018	2017
	Austria	0.85	0.84	0.84	0.84	0.84	91	100	102	105	107	108	110	112	115	118	121	123	124	126	129	2017/18	2016/17
	Canada	1.34	1.34	1.34	1.34	1.34	91	100	101	103	105	105	106	108	110	111	113	115	116	117	119	2017/18	2016/17
	Chile	463.37	461.25	461.25	462.31	461.25	86	100	104	107	113	118	121	125	129	133	138	146	153	148	140	2018	2017
	Colombia	1 371.39	1 404.99	1 404.99	1 388.19	1 404.99	72	100	104	109	115	120	124	128	133	136	140	147	156	138	115	2017	2017
	Czech Republic	14.13	13.89	13.89	14.01	13.89	90	100	101	104	108	111	112	113	115	117	117	118	118	120	123	2017/18	2016/17
	Denmark	8.32	7.99	7.99	8.16	7.99	92	100	102	104	106	109	111	113	116	118	119	120	120	121	122	2017/18	2016/17
	Estonia	0.60	0.60	0.60	0.60	0.60	82	100	105	112	121	126	128	134	141	145	148	148	149	152	158	2017/18	2016/17
	Finland	0.97	0.95	0.95	0.96	0.95	93	100	101	103	106	108	110	113	116	119	121	122	123	124	125	2017/18	2016/17
	France	0.86	0.85	0.85	0.85	0.85	92	100	102	104	107	107	107	109	111	112	112	112	112	111	110	2017/18	2016
	Germany	0.82	0.80	0.80	0.81	0.80	93	100	101	103	104	105	106	108	110	111	112	113	114	115	117	2017/18	2016/17
	Greece	0.67	0.66	0.66	0.67	0.66	87	100	103	107	111	114	116	120	121	121	118	115	114	114	114	2017/18	2016/17
	Hungary	149.08	150.74	150.74	149.91	150.74	73	100	103	108	115	121	125	130	136	142	144	144	144	146	150	2017/18	2017
	Iceland	159.80	154.88	154.88	157.34	154.88	82	100	104	110	121	139	150	154	161	169	174	177	179	180	182	2017/18	2016/17
	Ireland	0.99	0.98	0.98	0.99	0.98	83	100	102	105	107	105	100	100	101	102	104	105	106	106	107	2017/18	2016/17
	Israel	4.35	4.24	4.24	4.29	4.24	93	100	102	104	107	111	114	118	121	123	124	124	123	119	116	2017/18	2016/17
	Italy	0.80	0.78	0.78	0.79	0.78	87	100	102	105	108	109	110	112	115	117	118	118	118	119	121	2017/18	2016/17
	Japan	109.25	108.57	108.57	108.91	108.57	105	100	100	99	99	98	96	94	94	93	94	95	95	98	101	2017/18	2016/17
	Korea	961.14	962.00	962.00	961.57	962.00	84	100	102	104	107	111	114	117	121	123	124	125	126	128	130	2018	2017
	Latvia	0.57	0.56	0.56	0.57	0.56	77	100	110	122	137	143	139	141	148	150	152	153	152	155	160	2017/18	2016/17
	Lithuania	0.50	0.50	0.50	0.50	0.50	99	100	104	109	118	127	131	134	139	142	142	142	142	145	149	2017/18	2016/17
	Luxembourg	0.98	0.97	0.97	0.98	0.97	90	100	103	105	108	109	110	112	115	117	118	118	118	119	122	2017/18	2016/17
	Mexico	9.68	10.17	10.17	9.93	10.17	80	100	104	109	115	121	127	132	137	142	147	153	159	151	143	2017/18	2017/18
	Netherlands	0.89	0.87	0.87	0.88	0.87	88	100	102	105	107	107	107	109	111	113	115	115	116	113	111	2017/18	2016/17
	New Zealand	1.62	1.61	1.61	1.61	1.61	92	100	102	105	108	111	113	116	118	119	119	120	121	122	124	2018	2017
	Norway	10.86	10.78	10.78	10.82	10.78	91	100	101	103	106	109	111	113	114	116	118	121	125	124	123	2017/18	2016/17
	Poland	1.87	1.87	1.87	1.87	1.87	84	100	102	104	107	111	113	118	122	125	125	124	123	124	127	2017/18	2016/17
	Portugal	0.67	0.67	0.67	0.67	0.67	85	100	104	107	111	111	111	113	115	116	117	118	119	120	122	2017/18	2016/17
	Slovak Republic	0.54	0.54	0.54	0.54	0.54	76	100	104	108	111	114	115	117	122	125	125	125	125	126	128	2017/18	2016/17
	Slovenia	0.67	0.65	0.65	0.66	0.65	76	100	102	106	111	114	116	117	119	121	121	121	120	122	125	2017/18	2016/17
	Spain	0.73	0.72	0.72	0.72	0.72	85	100	104	107	111	112	113	115	118	120	121	121	121	122	124	2017/18	2016/17
	Sweden	9.50	9.35	9.35	9.43	9.35	93	100	101	102	105	108	110	111	113	113	114	115	117	117	117	2017	2017
	Switzerland	1.41	1.37	1.37	1.39	1.37	97	100	101	102	104	105	105	105	105	104	103	103	102	102	103	2017/18	2016/17
	Turkey	1.55	1.68	1.68	1.62	1.68	28	100	109	118	128	138	145	156	169	179	190	205	220	240	270	2017/18	2016/17
	United States	1.00	1.00	1.00	1.00	1.00	90	100	103	105	108	110	111	113	116	117	119	120	121	119	118	2017/18	2016/17
	Economies																						
	Flemish Comm. (Belgium)[2]	0.87	0.86	0.86	0.86	0.86	90	100	103	106	109	111	111	114	117	119	120	120	121	122	123	2017/18	2016/17
	French Comm. (Belgium)[2]	0.87	0.86	0.86	0.86	0.86	90	100	103	106	109	111	111	114	117	119	120	120	121	122	123	2017/18	2017/18
	England (UK)[3]	0.80	0.79	0.79	0.79	0.79	95	100	102	105	108	111	112	115	119	121	124	125	126	126	126	2017/18	2016/17
	Scotland (UK)[3]	0.80	0.79	0.79	0.79	0.79	95	100	102	105	108	111	112	115	119	121	124	125	126	126	126	2017/18	2016/17
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	2.19	2.22	2.22	2.04	2.22	65	100	106	112	118	126	135	144	156	168	179	194	213	227	234	2018	2015
	China	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	373.21	375.91	375.91	374.56	375.91	56	100	115	129	144	154	159	167	173	178	185	189	188	193	200	2018	2018
	India	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	26.02	26.18	26.18	26.10	26.18	48	100	110	120	132	148	160	172	185	196	210	235	264	230	187	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.
1. Data on PPPs and GDP for countries now in the Euro area are shown in euros.
2. Data on PPPs and deflators refer to Belgium.
3. Data on PPPs and deflators refer to the United Kingdom.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table X2.9. Trends in average teachers' actual salaries, in national currency (2000, 2005, 2010 to 2017)

Average annual salary (including bonuses and allowances) of teachers aged 25-64

		Pre-primary				Primary			
		2000	2005	2010	2017	2000	2005	2010	2017
		(1)	(2)	(3)	(10)	(11)	(12)	(13)	(20)
OECD	**Countries**								
	Australia	m	m	77 641	85 516	m	m	78 352	85 561
	Austria[1]	m	m	m	m	m	m	m	48 974
	Canada	m	m	m	m	m	m	m	m
	Chile	m	m	m	15 180 898	m	m	m	14 778 799
	Colombia	m	m	m	m	m	m	m	m
	Czech Republic	m	m	228 603	308 500	m	m	290 682	368 700
	Denmark[2]	m	m	372 336	374 269	m	m	452 337	450 504
	Estonia	m	m	m	10 633	m	m	m	15 231
	Finland[3]	m	m	29 759	33 044	28 723	35 654	40 458	44 269
	France	m	m	31 448	m	m	m	30 876	m
	Germany	m	m	m	m	m	m	m	55 926
	Greece	m	m	m	17 627	m	m	m	17 627
	Hungary	m	m	2 217 300	3 575 364	m	m	2 473 800	3 806 604
	Iceland	m	m	m	5 959 000	m	m	m	6 822 000
	Ireland	m	m	m	m	m	m	m	m
	Israel	m	m	110 959	162 036	m	m	123 151	168 590
	Italy	m	m	25 774	28 147	m	m	25 774	28 147
	Japan	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m
	Latvia	m	m	m	10 000	m	m	m	12 884
	Lithuania	m	m	m	10 620	m	m	m	10 620
	Luxembourg	m	m	88 315	m	m	m	88 315	m
	Mexico	m	m	m	m	m	m	m	m
	Netherlands	m	m	43 374	47 870	m	m	43 374	47 870
	New Zealand	m	m	m	m	m	m	m	71 523
	Norway	m	289 548	368 580	471 101	m	348 877	422 930	528 297
	Poland	m	m	40 626	50 545	m	m	46 862	58 894
	Portugal	m	m	m	32 754	m	m	m	29 941
	Slovak Republic	m	m	m	10 301	m	m	m	13 608
	Slovenia[4]	m	m	m	20 825	m	m	m	24 597
	Spain	m	m	m	m	m	m	m	m
	Sweden[5]	204 516	252 268	296 997	370 135	239 887	288 154	323 621	419 943
	Switzerland	m	m	m	m	m	m	m	m
	Turkey	m	m	m	39 078	m	m	m	39 078
	United States	38 028	40 268	48 103	52 239	38 746	41 059	49 133	53 157
	Economies								
	Flemish Comm. (Belgium)	m	m	41 046	45 952	m	m	41 543	45 771
	French Comm. (Belgium)	m	m	m	44 423	m	m	m	43 849
	England (UK)	22 968	29 418	33 680	32 907	22 968	29 418	33 680	32 907
	Scotland (UK)[6]	m	m	31 884	33 710	m	m	31 884	33 710
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	m	m	m	46 057	m	m	m	46 962
	China	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	13 676 404	m	m	m	14 386 565
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Russian Federation[7]	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m

		Lower secondary				Upper secondary			
		2000	2005	2010	2017	2000	2005	2010	2017
		(21)	(22)	(23)	(30)	(31)	(32)	(33)	(40)
OECD	**Countries**								
	Australia	m	m	78 221	86 928	m	m	78 225	86 928
	Austria[1]	m	m	m	57 200	m	m	m	63 119
	Canada	m	m	m	m	m	m	m	m
	Chile	m	m	m	15 112 928	m	m	m	16 258 651
	Colombia	m	m	m	m	m	m	m	m
	Czech Republic	m	m	289 771	367 100	m	m	313 534	378 800
	Denmark[2]	m	m	457 728	455 123	m	m	m	532 445
	Estonia	m	m	m	15 231	m	m	m	15 231
	Finland[3]	32 919	39 519	44 421	48 948	37 728	44 051	49 808	55 245
	France	m	m	37 198	m	m	m	41 789	m
	Germany	m	m	m	61 748	m	m	m	65 473
	Greece	m	m	m	18 853	m	m	m	18 853
	Hungary	m	m	2 473 800	3 806 604	m	m	2 814 100	4 144 680
	Iceland	m	m	m	6 822 000	m	m	5 172 300	8 848 000
	Ireland	m	m	m	m	m	m	m	m
	Israel	m	m	126 309	182 398	m	m	133 790	180 215
	Italy	m	m	27 170	28 713	m	m	28 986	30 649
	Japan	m	m	m	m	m	m	m	m
	Korea	m	m	m	m	m	m	m	m
	Latvia	m	m	m	13 317	m	m	m	14 225
	Lithuania	m	m	m	10 620	m	m	m	10 620
	Luxembourg	m	m	101 471	m	m	m	101 471	m
	Mexico	m	m	m	m	m	m	m	m
	Netherlands	m	m	52 831	60 297	m	m	52 831	60 297
	New Zealand	m	m	m	72 917	m	m	m	78 158
	Norway	m	348 877	422 930	528 297	m	372 694	449 704	574 835
	Poland	m	m	47 410	61 047	m	m	46 147	59 381
	Portugal	m	m	m	29 403	m	m	m	32 063
	Slovak Republic	m	m	m	13 608	m	m	m	13 883
	Slovenia[4]	m	m	m	25 260	m	m	m	26 598
	Spain	m	m	m	m	m	m	m	m
	Sweden[5]	247 793	290 058	324 639	435 096	265 488	315 592	347 967	445 457
	Switzerland	m	m	m	m	m	m	m	m
	Turkey	m	m	m	39 078	m	m	m	39 078
	United States	39 500	41 873	50 158	54 993	41 124	43 588	52 188	57 022
	Economies								
	Flemish Comm. (Belgium)	m	m	41 277	44 930	m	m	54 381	55 825
	French Comm. (Belgium)	m	m	m	42 609	m	m	m	54 039
	England (UK)	25 347	32 355	36 173	37 189	25 347	32 355	36 173	37 189
	Scotland (UK)[6]	m	m	31 884	33 710	m	m	31 884	33 710
Partners	Argentina	m	m	m	m	m	m	m	m
	Brazil	m	m	m	48 065	m	m	m	48 807
	China	m	m	m	m	m	m	m	m
	Costa Rica	m	m	m	17 408 159	m	m	m	17 408 159
	India	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Russian Federation[7]	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m

Note: Years 2011 to 2016 (i.e. Columns 4 to 9, 14 to 19, 24 to 29 and 34 to 39) are available for consultation on line. Data available at http://stats.oecd.org/, Education at a Glance Database.

1. Before 2015, also includes data on actual salaries of head teachers, deputies and assistants.
2. Also includes data on actual salaries of teachers in early childhood educational development programmes for pre-primary education.
3. Also includes data on the majority, i.e. kindergarten teachers only for pre-primary education.
4. Also includes data on actual salaries of pre-school teacher assistants for pre-primary education for 2011-2015.
5. Average actual teachers' salaries, not including bonuses and allowances.
6. Includes all teachers, irrespective of their age.
7. Average actual teachers' salaries for all teachers, irrespective of the level of education they teach.

Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Table X2.10. Proportion of teachers, by level of qualification (2018)

Teachers who have either minimum or a higher than minimum (and most prevalent) qualification

		Pre-primary			Primary			Lower secondary			Upper secondary		
		Is there a difference between "minimum" and "most prevalent" qualifications?	Percentage of teachers in salary range based on minimum qualification of teachers to enter the teaching profession in 2018	Percentage of teachers in a salary range based on a higher than minimum qualification (and most prevalent) to enter the teaching profession in 2018	Is there a difference between "minimum" and "most prevalent" qualifications?	Percentage of teachers in salary range based on minimum qualification of teachers to enter the teaching profession in 2018	Percentage of teachers in a salary range based on a higher than minimum qualification (and most prevalent) to enter the teaching profession in 2018	Is there a difference between "minimum" and "most prevalent" qualifications?	Percentage of teachers in salary range based on minimum qualification of teachers to enter the teaching profession in 2018	Percentage of teachers in a salary range based on a higher than minimum qualification (and most prevalent) to enter the teaching profession in 2018	Is there a difference between "minimum" and "most prevalent" qualifications?	Percentage of teachers in salary range based on minimum qualification of teachers to enter the teaching profession in 2018	Percentage of teachers in a salary range based on a higher than minimum qualification (and most prevalent) to enter the teaching profession in 2018
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	**Countries**												
	Australia	m	100	m	m	100	m	m	100	m	m	100	m
	Austria	m	m	m	No	100	a	No	100	a	No	100	a
	Canada	a	m	m	Yes	m	m	Yes	m	m	Yes	m	m
	Chile	No	m	a	No	m	m	No	m	m	No	m	m
	Colombia	m	m	m	m	m	m	m	4	35	m	x(8)	x(9)
	Czech Republic	No	92	a	No	100	a	No	100	a	No	100	a
	Denmark	No	100	a	No	100	a	No	100	a	No	100	a
	Estonia	a	a	a	a	a	a	a	a	a	a	a	a
	Finland	No	90	a	No	99	a	No	96	a	No	91	a
	France	No	98	a	No	98	a	No	87	a	No	66	a
	Germany	No	m	m	No	100	a	No	100	a	No	100	a
	Greece	No	100	a	No	100	a	No	100	a	No	100	a
	Hungary	No	m	m	No	m	m	No	m	m	No	m	m
	Iceland	No	m	a	No	m	a	No	m	a	No	m	a
	Ireland	No	m	m	No	20	a	No	18	a	No	18	a
	Israel	No	70	a	No	60	a	No	49	a	No	47	a
	Italy	No	100	a	No	100	a	No	100	a	No	100	a
	Japan	m	m	m	No	m	m	No	m	m	No	m	m
	Korea	Yes	m	m	No	m	a	Yes	m	m	Yes	m	m
	Latvia	No	100	a	No	100	a	No	100	a	No	100	a
	Lithuania	No	m	a	No	m	a	No	m	a	No	m	a
	Luxembourg	No	76	a	No	83	a	No	69	a	No	84	a
	Mexico	No	m	m	No	m	m	No	m	m	No	m	m
	Netherlands	No	100	a	No	100	a	No	100	a	No	100	a
	New Zealand	Yes	m	m	Yes	m	m	Yes	a	m	Yes	m	m
	Norway	No	m	m	Yes	41	45	Yes	41	45	Yes	13	44
	Poland	Yes	m	m	Yes	m	m	Yes	m	m	Yes	m	a
	Portugal	No	100	a	No	100	a	No	100	a	No	100	a
	Slovak Republic	No	m	a	No	m	a	No	m	a	No	m	a
	Slovenia	No	100	a	No	100	a	No	100	a	No	100	a
	Spain	No	100	a	No	100	a	No	100	a	No	100	a
	Sweden	No	100	a	No	100	a	No	100	a	No	100	a
	Switzerland	No	m	m	No	m	m	No	m	m	No	m	m
	Turkey	No	m	a	No	m	a	No	m	a	No	m	a
	United States	No	49	a	Yes	44	46	Yes	40	48	Yes	35	50
	Economies												
	Flemish Comm. (Belgium)	No	100	a	No	100	a	No	96	a	Yes	38	62
	French Comm. (Belgium)	No	99	a	No	96	a	No	86	a	Yes	8	81
	England (UK)	Yes	99	a	Yes	99	a	Yes	98	a	Yes	98	a
	Scotland (UK)	No	100	a	No	100	a	No	100	a	No	100	a
Partners	Argentina	m	m	m	m	m	m	m	m	m	m	m	m
	Brazil	No	m	a	No	m	a	No	m	a	No	m	a
	China	m	m	m	m	m	m	m	m	m	m	m	m
	Costa Rica	Yes	0	94	Yes	0	77	Yes	0	49	Yes	0	49
	India	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m
	Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
	South Africa	m	m	m	m	m	m	m	m	m	m	m	m

Note: See *Definitions* and *Methodology* sections for more information. Data available at http://stats.oecd.org/, Education at a Glance Database.
Source: OECD (2019). See *Source* section for more information and Annex 3 for notes (https://doi.org/10.1787/f8d7880d-en).
Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.

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Annex 3. Sources, methods and technical notes

Annex 3 on sources and methods is available in electronic form only. It can be found at: https://doi.org/10.1787/f8d7880d-en

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Many people have contributed to the development of this publication.

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